Initial Study-Mitigated Negative Declaration for the proposed SFPUC Prescribed Burn Project San Mateo County, California

prepared by:

The California Department of Forestry and Fire Protection
The Lead Agency Pursuant to § 21082.1 of the
California Environmental Quality Act

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STAGE OF CEQA DOCUMENT DEVELOPMENT

☐ **Administrative Draft.** This California Environmental Quality Act (CEQA) document is in preparation by California Department of Forestry and Fire Protection (CAL FIRE) staff.

☒ **Public Document.** This completed CEQA document has been filed by CAL FIRE at the State Clearinghouse on July, 1, 2021, and is being circulated for a 30-day state agency and public review period. The review period ends on July, 30, 2021.

☐ **Final CEQA Document.** This final CEQA document contains the changes made by the Department following consideration of comments received during the public and agency review period. The CEQA administrative record supporting this document is on file, and available for review, at CAL FIRE's Sacramento Headquarters, Environmental Protection Program.

INTRODUCTION

This initial study-mitigated negative declaration (IS-MND) describes the environmental impact analysis conducted for the proposed project. This document was prepared by CAL FIRE staff utilizing information gathered from a number of sources including research, field review of the proposed project area and consultation with environmental planners and other experts on staff at other public agencies. Pursuant to § 21082.1 of CEQA, the lead agency, CAL FIRE, has prepared, reviewed, and analyzed the IS-MND and declares that the statements made in this document reflect CAL FIRE's independent judgment as lead agency pursuant to CEQA. CAL FIRE further finds that the proposed project, which includes revised activities and mitigation measures designed to minimize environmental impacts, will not result in a significant effect on the environment.

REGULATORY GUIDANCE

This IS-MND has been prepared by CAL FIRE to evaluate potential environmental effects that could result following approval and implementation of the proposed project. This document has been prepared in accordance with current CEQA Statutes (Public Resources Code §21000 *et seq*.) and current CEQA Guidelines (California Code of Regulations [CCR] §15000 *et seq*.)

An initial study is prepared by a lead agency to determine if a project may have a significant effect on the environment (14 CCR § 15063(a)), and thus, to determine the appropriate environmental document. In accordance with CEQA Guidelines §15070, a "public agency shall prepare…a proposed negative declaration or mitigated negative declaration…when: (a) The initial study shows that there is no substantial evidence…that the project may have a significant impact upon the environment, or (b) The initial study identifies potentially significant effects but revisions to the project plans or proposal are agreed to by the applicant and such revisions will reduce potentially significant effects to a less-than-significant level." In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that the proposed project will not have a significant effect on the environment and, therefore, does not require the

preparation of an environmental impact report. This IS-MND conforms to these requirements and to the content requirements of CEQA Guidelines § 15071.

PURPOSE OF THE INITIAL STUDY

CAL FIRE has primary authority for carrying out the proposed project and is the lead agency under CEQA. The purpose of this IS-MND is to present to the public and reviewing agencies the environmental consequences of implementing the proposed project and to describe the adjustments made to the project to avoid significant effects or reduce them to a less-than-significant level. This disclosure document is being made available to the public and reviewing agencies for review and comment. The IS-MND is being circulated for public and state agency review and comment for a review period of 30 days as indicated on the ***Notice of Intent to Adopt a Mitigated Negative Declaration*** (NOI). The 30-day public review period for this project begins on July, 1, 2021 and ends on July, 30, 2021.

The requirements for providing an NOI are found in CEQA Guidelines §15072. These guidelines require CAL FIRE to notify the general public by providing the NOI to the county clerk for posting, sending the NOI to those who have requested it, and utilizing at least one of the following three procedures:

- Publication in a newspaper of general circulation in the area affected by the proposed project
- Posting the NOI on and off site in the area where the project is to be located
- direct mailing to the owners and occupants of property contiguous to the project

CAL FIRE has elected to utilize posting the NOI on and off site in the area where the project is located as the notification option. The NOI will be posted at the following locations:

Belmont Fire Station #17
320 Paul Scannell Dr
San Mateo, CA 94402

Pulgas Water Temple
56 Cañada Rd
Redwood City, CA 94062

Crystal Springs Cross Country Course
2600 Hallmark Dr
Belmond, CA 94002

If submitted prior to the close of public comment, views and comments are welcomed from reviewing agencies or any member of the public on how the proposed project may affect the environment. Written comments must be postmarked or submitted on or prior to the date the public review period will close (as indicated on the NOI) for CAL FIRE's consideration. Written comments may also be submitted via email (using the email address that appears below), but comments sent via email must also be received on or prior to the close of the 30-day public comment period. Comments should be addressed to:

Sarah Collamer
VMP Coordinator, Forester I
California Department of Forestry and Fire Protection

CZU Resource Management
6059 Highway 9
Felton, CA 95018
Email: sacramentopubliccomment@fire.ca.gov

After comments are received from the public and reviewing agencies, CAL FIRE will consider those comments and may (1) adopt the mitigated negative declaration and approve the proposed project; (2) undertake additional environmental studies; or (3) abandon the project.

Project Description and Environmental Setting

PROJECT LOCATION

The project is located in San Mateo County, California entirely on San Francisco Public Utilities Commission (SFPUC) property. This area is used as watershed, water storage and distribution for the City of San Francisco and wholesale water delivery to 27 suburban agencies in Alameda, Santa Clara, and San Mateo County. The SFPUC serves over 2.7 million customers. There are 6 burn units within the approximately 23,000 acre property, spanning approximately 775 acres near communities including Woodside, Emerald Hills, Devonshire, Highlands, San Mateo, San Bruno, Belmont, San Carlos, Hillsborough, and Redwood City. The legal location includes: Cañada de Raymondo, Pulgas, T4S R5W Sec. 17, 20, 21 and T4S R5W Sec. 31.

BACKGROUND AND NEED FOR THE PROJECT

The proposed project is situated in the 23,000 acre San Francisco Public Utilities Commission Peninsula Watershed, which protects some of the last remaining wildlands in San Mateo County. The watershed contains four major drinking water reservoirs and is adjacent to densely populated areas to the east. With the current trend of hot, intense and large wildfires, the water supply and high-density population areas may face increased risk. This project can help preserve water quality by reducing the intensity and spread of a wildfire on the watershed. In addition, many of the burn units are located adjacent to major evacuation routes and neighborhoods where CAL FIRE can strategically use treated areas to defend against advancing wildland fire conditions while assisting with safe evacuation as necessary against an advancing wildfire. By returning fire to the landscape, this project may also positively impact organisms that are adapted to fire.

PROJECT OBJECTIVES

1. The primary goal of the project is to create or maintain areas of reduced vegetation with the goal to reduce fuel loading and woody fuel continuity where firefighting tactics can be more successful, thereby increasing the safety of neighborhoods near the SFPUC Watershed. By creating or maintaining areas of reduced vegetation, this project will also protect the water supply for SFPUC customers in San Francisco and the Peninsula by limiting the spread of wildfire.
2. Auxiliary project objectives, which CAL FIRE hopes to accomplish but do not constitute the main purpose of the project, include:
    a. Return fire to the landscape, with the goals of maintaining existing native grasslands by slowing shrub encroachment.
    b. Train CAL FIRE personnel in firing and control techniques.

PROJECT START DATE

Project implementation is expected to begin in ~~spring~~ fall of 2021 and will continue over subsequent years. CAL FIRE anticipates burning each area one time, however reburns may occur as discussed below if project objectives are not met.

PROJECT DESCRIPTION

Overview

This proposed project intends to broadcast burn approximately 775 acres of grass, shrubs and some tree understory. Broadcast burning will be limited to 200 acres per year. Broadcast burning in single day would likely be no more than 40-50 acres. While it is likely that each unit will only be burned once, it is possible that CAL FIRE and SFPUC will agree to conduct additional burns in the same unit if project objectives are not met. A specific area may be burned in two consecutive years. Following that, a minimum five-year period of no burning will occur before another burn may be considered. CAL FIRE will reduce the amount and continuity of woody vegetation within the burn units through manual and mechanical site preparation and broadcast burning. Burn u~~U~~nits were chosen adjacent to roads, trails and existing disk lines to limit the amount of control line that must be constructed. Control lines will be established using wet lines, disk lines, mowing, hand crews ~~or~~ and in a few select instances bulldozers. In areas with heavy fuel loading, control lines may offer more protection if they are augmented with mastication to reduce fire intensity adjacent to sensitive resources or control lines. In burn units adjacent to houses, existing disk lines will be utilized to keep to burn from encroaching immediately up to the houses. There will be at least a 50-foot buffer between the burn unit and houses. The burn plan will be designed to start the burn from the disk lines, burning away from the residences in a slow deliberate controlled manner.

Control Line Construction

The project has been designed to utilize existing trail and road infrastructure, as well as disk lines, as control lines in order to limit soil disturbance wherever possible. In some cases, construction of control lines will be necessary. This will occur through creation of either dozer lines, hand lines, or disk/mow lines. The type of control line to be utilized is dependent on the fuel type adjacent to the area. For example, in grass, a hand line may be adequate, while for shrubland or forest, a dozer line may be necessary for control. Dozer lines are created by utilizing a bulldozer to remove all vegetation along the line, only allowing bare mineral soil to remain. For the proposed project, the width of dozer line will generally be the width of one dozer blade, approximately 12 feet. Although unlikely, dozer lines may need to be constructed wider in order to provide adequate control as determined by the Incident Commander based on site conditions and approved by the SFPUC prior to implementation. Use of dozers or other heavy equipment (including masticators) will conform to the following conditions in order to minimize environmental impacts:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to the slope (parallel to topographic contour lines) where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester.
- No heavy equipment work will occur in Watercourse and Lake Protection Zones (WLPZ), defined as

extending 50 feet from intermittent and perennial aquatic features.

Hand lines work under a similar principle as dozer lines. However, they are constructed by firefighters utilizing hand tools and create less soil disturbance than dozer lines. While the exact width will vary based on site specific conditions, for the proposed project most hand line will be approximately 3 feet wide. Disk lines, mow lines, or wet lines may also be utilized for control lines as deemed appropriate by the Incident Commander. These have the advantage of causing less soil disturbance than dozer or hand lines, however, are much less effective as control line as all vegetation is not removed from the soil surface. Areas of some of the units have naturally occurring asbestos. SFPUC has health and safety protocols for ground disturbance work such as dozer lines which will be followed.

Pretreatment

Brush pretreatment involves killing some or all shrub species in a unit and allowing it to cure for a period of at least 30 days. By allowing the vegetation to dry, it will burn more completely while also allowing burns to occur in a wider range of conditions than would otherwise be possible (e.g., during the wet season). Pretreated vegetation may remain on site until intermixed herbaceous vegetation grows and cures, allowing fire to carry more easily. The primary method of pretreatment for the proposed project will involve crushing stands of shrubs by driving a bulldozer with its blade lifted through stands, a practice commonly referred to as "high-blading". No high-blading will occur in WLPZs. Alternatively, limited amounts of brush may be pretreated by herbicide application and/or by cutting with chainsaws. This will also allow the vegetation to cure and carry fire in a wider range of conditions. The following BMPs will be implemented regarding herbicide application:

- Herbicide use will be used as a last resort for pretreatment where other options will not effectively suffice and will not occur over large areas of the watershed.
- Herbicide will be applied under the recommendations of a licensed PCA.
- Herbicide use will be conducted in a manner consistent with the label.
- No herbicide application will occur within 24 hours of predicted rainfall.
- Only aquatic formulations of herbicide will be used within WLPZs, and no herbicide applications will occur within 10 feet of an aquatic feature.
- All herbicide will be stored in spill proof containers, and herbicide mixing will occur outside of WLPZs.
- Herbicide will be applied by an applicator licensed by the State.
- Use will be restricted to herbicide labels that are on the San Francisco Reduced-Risk Pesticide List.
- Pesticide use within critical habitat will be in compliance with the restrictions put forth for the California Red-Legged Frog (CRLF) stipulated- injunction

Burn piles may be created where fuels need to be reduced, either before or after the burn. This treatment may be used to improve the appearance or dispose of unburnt material.

Trees under 10 inches in diameter may need to be thinned or removed to reduce fire intensity in some areas. Some larger trees (particularly dying Monterey Pine) will need to be removed as they pose a threat to control lines and safety. Trees may be limbed up to prevent fire from climbing into the canopy. Mastication may be used in some areas to augment control lines or to protect sensitive resources.

Prescribed Burning

Prior to the day of the burn, a burn plan will be prepared which includes a fire behavior model output that predicts fire behavior, emissions of particulate matter and greenhouse gasses, and soil heating. During this process, particulate and greenhouse gas emissions and soil heating will be reduced to the greatest extent practicable. A smoke management plan (SMP) will also be prepared and submitted to the Bay Area Air Quality Management District (BAAQMD) at least 30 days prior to the burn. The SMP will be designed to minimize public exposure to air pollutants as much as practicable.

Fire suppression resources present during broadcast burn of each unit will vary based on the and size and complexity of the unit, but generally will include numerous Type 3 fire engines, fire crews, and at least one bulldozer. A helicopter may also be present in order to ignite fuels in the interior of larger burn units, or in areas which are impractical to reach on foot. Ignition would be accomplished primarily with drip torches (utilizing a gasoline/diesel fuel mixture) and fusees (similar to road flares). Areas ignited via helicopter would utilize a delayed aerial ignition device (DAID), which are polystyrene balls, 1.25 inches in diameter, containing potassium permanganate. The balls are fed into a dispenser, where they are injected with a water-glycol solution and then drop through a chute leading out of the helicopter. The chemicals react thermally and ignite in 25-30 seconds.

Prescribed vegetation management burns are carefully planned controlled burns that must meet a predefined set of conditions (prescription) in order to achieve ideal fire behavior. No burning takes place if weather and fuel conditions are not within prescription. Prior to ignition, a test burn would be conducted to ensure that fuel moisture, ambient temperature, smoke dispersal, wind speed and direction and relative humidity are all within the prescription written into the burn plan and that conditions are appropriate for the burn. When optimal conditions are met, trained wildland firefighters manage the burn while monitoring the weather, smoke dispersal, fire behavior and designated fire control lines. Ignition would be conducted slowly and methodically, in order to ensure conditions are safe and project objectives are being successfully met. Fire will never be run directly uphill towards homes, but a backing or flanking fire will be employed to reduce fire intensity and behavior. If fire behavior or smoke dispersal is no longer acceptable at any point, including causing smoke impacts on adjacent transportation arteries including Highway 280, the burn will be terminated. Following completion of the burn, the area would be mopped up and patrolled for as long as necessary to ensure that reignition would not occur.

Integrated Pest Management (IPM)

The SFPUC shall be responsible for post-fire vegetation monitoring and any necessary weed control in order support the ecological integrity of the project area per the standard operating procedures for the Peninsula Watershed. ~~The SFPUC shall be responsible for post-fire monitoring and any necessary weed control.~~

ENVIRONMENTAL SETTING OF THE PROJECT REGION

The Peninsula SFPUC Watershed property is 23,000 acres of oak woodland, coniferous forest, grassland, chaparral and coastal scrub. The majority of the property is fenced and gated to maintain the integrity of the water supply. Recreational activities ~~are restricted to~~ include the Crystal Springs Regional Trail operated by San Mateo County Parks, the Crystal Springs Cross Country Course and the Fifield-Cahill Ridge Trail which operates on a guided basis on Wednesdays, Saturdays and Sundays. The Cross Country Course is operated by license to San Mateo Community College, they hold several meets there a year. CAL FIRE and SFPUC staff will coordinate with San Mateo Community College staff to minimize project disturbances to the

recreational use and to ensure the safety of the users due to potential project related impacts. There are several SFPUC owned residences and buildings within the property, as well as water supply infrastructure, such as pumping stations, and major PG&E gas and electric transmission lines, other water agencies' facilities and various cell phone towers. Burn unit 4 is approximately 300 feet way from Fox Elementary School. CAL FIRE and SFPUC staff will coordinate with School District staff during the planning phases of burns in that unit. The Peninsula Watershed is also considered a Biodiversity hotspot. There are three large reservoirs and a lake within the property. SFPUC currently undertakes fuel reduction activities, such as mowing, disking, and mastication.

DESCRIPTION OF THE LOCAL ENVIRONMENT

The project areas are located between the Santa Cruz Mountains and the San Francisco Bay (Figure 1). Historical analysis, including analysis of historical photos, indicates that many areas of the project east of the San Andreas fault were dominated by coastal prairie or oak savannah, with some areas eventually becoming shrub dominated due to the lack of disturbance such as fire. The introduction of Monterey Pine (*Pinus radiata*), Monterey cypress (*Hesperoocyparis macrocarpa*) and eucalyptus (*Eucalyptus* sp.) have further altered the landscape. The ridge between the Pacific Ocean and Upper Crystal Springs Reservoir has Douglas fir (*Pseudotsuga menziesii),* tan oak (*Lithocarpus densiflorus*) and redwood (*Sequoia sempervirens*), although there is little of this forest type vegetation within the project area. Some of the project area is dominated by coastal scrub including coyote brush **(***Baccharis pilularis*), poison oak (*Toxicodendron diversilobum*), and coast live oak (*Quercus agrifolia*). In many of these areas, the understory includes native grasses. Substantial areas dominated by grassland occur through the project area. Some areas include exotics such as French broom (*Genista monspessulana*), Monterey pine and eucalyptus. A limited amount of dense oak woodland also is found here.

The Mediterranean climate zone dominates much of the area with wet winters, foggy summers and hot dry autumn periods. Fog generally overtops the Santa Cruz mountains near Crystal Springs and settles on the east side of the ridgeline that runs along the west side of San Andreas and Crystal Springs Reservoirs.

Slopes are generally steep (over 20%) with some more moderate benches and ridge tops. While the project area remains undeveloped, it stands in contrast with the rest of the Peninsula. The area to the east side of HWY 280 is densely populated, urban and suburban.

Vegetation Mapping

Descriptions of vegetation types in the project area were derived from prior vegetation classification and aerial photo-interpretation mapping work within the SFPUC Peninsula Watershed and areas within San Francisco and Marin County (Schirokauer et al 2003, Association for Biodiversity Information 2003). Updates to the text were made in cases where localized vegetation types have been found to differ from the more generalized ones presented in those reports, or to update out of date taxonomic nomenclature.

Built-up Urban Disturbance
This category is a catch-all for any area which has seen urban development, including roads and infrastructure which has completely displaced natural communities.

Eucalyptus spp. Alliance
Eucalyptus is the sole or dominant tree in the canopy; few other species present. Trees < 50 m; canopy continuous. Shrubs infrequent. Ground layer sparse.

Coyotebrush Alliance
Characterized by a relatively high cover of coyote brush (*Baccharis pilularis*) in the shrub layer. Associations vary from low diversity, openly-spaced types (verging on grasslands) to tall, dense multi-species associations. This alliance is endemic to California, found primarily in the outer coast ranges from Humboldt to San Diego County, but best represented in central coastal California.

Grassland Communities (Native – Weedy Grassland Superalliance)
During their grassland mapping effort, Schirokauer et al (2003) found that it was generally impossible to map native grasslands, given the challenges in detecting the native grasses via aerial photography. They applied various environmental parameters in order to detect grasslands with a significant native component, but found during their accuracy assessment that the environmental parameters were not reliable (Schirokauer et al 2003). Grasslands in the Peninsula Watershed were mapped as California Annual Grasslands – Weedy (which are described as being dominated in the ground layer by annual grasses and herbs including *Festuca perennis*, *Bromus diandrus*, *B. hordeaceus*, *Avena* sp.). However, it has since been determined that many of these areas have a component of, or are dominated by, native bunchgrass vegetation (primarily needlegrass, *Stipa* sp. and *Danthonia californica*), and would be considered native grassland based on currently accepted definitions (>10% cover native grass species). Some of the native grasslands have been identified as serpentine grasslands (EDAW 2002).

Arroyo Willow Alliance
This association grows on the margins of low - gradient streams and on seasonally saturated draws and basins. Slopes are gentle, and stands are found on all aspects. This vegetation is structurally variable; some stands are forests, others tall shrublands. *Salix lasiolepis* dominates the tree and tall shrub layers. The upper canopy is less than 20 meters in height, and can be intermittent to continuous. *Rubus ursinus* and / or *Rubus armeniacus* may be present in the shrub layer. *Rubus* sp. may dominate the shrub canopy, or contribute only minor coverage. Other shrubs present may include *Toxicodendron diversilobum*, *Baccharis pilularis*, and / or *Lonicera involucrata*. The herbaceous layer is open to intermittent. *Polystichum munitum*, *Scrophularia californica*, *Plantago lanceolata* (exotic), *Stachys ajugoides*, *Urtica dioica* and / or *Erechtites minima* may be present.

Coast Live Oak Alliance
This vegetation grows along valley margins on moderate slopes. Locally, stands can be found on the lower to upper third of a slope on any aspect. Most of the stands are small. However the few large stands tend to occur on upper or mid slopes. Soils are coarse to fine sandy loams. This is a drier forest than the *Umbellularia - Q. agrifolia* / *Toxicodendron* association, with a more open xerophytic understory, usually missing mesophytic species such as *Polystichum munitum*, and *Vaccinium ovatum*.

Quercus agrifolia is the sole or dominant tree forming an intermittent to continuous canopy usually between 10 and 20 meters in height. *Umbellularia californica* maybe present, in low cover. The shrub layer is open to intermittent. *Toxicodendron diversilobum* is an important species. *Corylus cornuta* is present in some stands. Other shrub associates may include *Rubus ursinus*, *Rhamnus californica* ssp. *californica*, *Lonicera hispidula*, *Heracleum maximum*, and / or *Holcus lanatus*. The herbaceous layer is open but diverse. *Pteridium aquilinum*, *Clinopodium douglasiana*, *Heteromeles arbutifolia*, *Stachys ajugoides* and / or *Erechtites minima* are often present.

Monterey Cypress Grove
Hesperocyparis macrocarpa strongly dominates the tree canopy with some emergent *Arbutus menziesii* and

Quercus agrifolia; Trees <20m, canopy intermittent; Shrubs infrequent; ground layer intermittent. No native stands locally.

Chamise Alliance
This highly variable shrubland forms an intermittent to continuous canopy between 1 - 2 meters in height dominated by *Adenostoma fasciculatum*. Other shrubs present may include *Arctostaphylos crustacea*, *Baccharis pilularis*, and / or *Diplacus aurantiacus*. Tall shrubs to 5 meters may contribute up to 23% cover. These may include *Umbellularia californica*, *Quercus wislizeni*, *Quercus chrysolepis* and / *or Quercus parvula*. Emergent trees like *Quercus wislizeni* or *Pseudotsuga menziesii* are sometimes present. The herbaceous layer is sparse.

Stands of the *Adenostoma fasciculatum - Mimulus aurantiacus* shrubland association are dominated by *Adenostoma fasciculatum*. *Mimulus aurantiacus* covers 1 to 20% of the stand. Also common in this association are the small non - native grasses *Aira caryophyllea* and *Gastridium ventricosum*. Other shrubs and understory herbs vary but may include *Melica californica*, *Hypericum concinnum*, *Nassella pulchra, Nassella lepida*, *Avena barbata*, *Zigadenus fremontii*, *Chlorogalum pomeridianum*, *Pleuropogon californicus*, *Bromus madritensis rubens*, *Cynosurus chinatus*, and *Baccharis pilularis*. *Umbellularia californica* may also be present. This association is found on the upper 1 / 3 of rocky, 16 - 30 degree angle, south facing slopes. Soil textures range from medium loam to moderately coarse sandy loam of sandstone origin.

Coffeeberry Alliance
This vegetation is heavily dominated by *Rhamnus californica* ssp. *californica* and *Baccharis pilularis*, which combine for 50% - 90% cover. *Toxicodendron diversilobum* may be present (usually less than 10%). The canopy is densest between 2 - 5 meters. *Scrophularia californica* is diagnostic in the herbaceous and short shrub layers, ranging from a few percent to 35% cover.

This association grows on moderate north and east facing slopes, from the lower to upper third of the slope. Stands prefer soils which retain moisture much of the year such as moderate sandy loams. This association is likely the result of a transition from late seral associations of *Baccharis pilularis* alliance such as *Baccharis* / *Polystichum* or *Baccharis* / *Rhamnus - Rubus parviflorus* stands into coffeeberry alliance stands if undisturbed for several years.

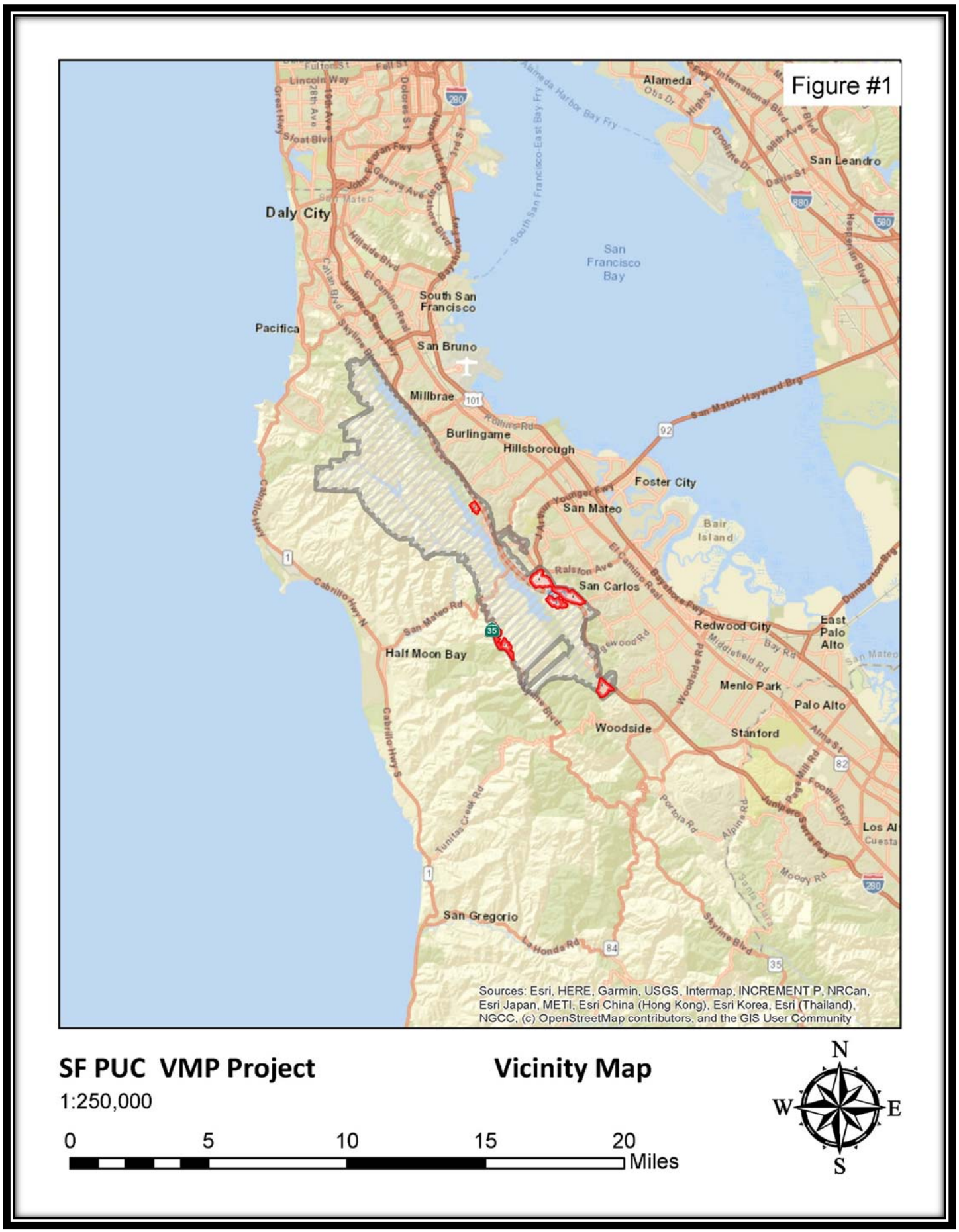
Poison Oak Alliance
Vegetation within this association includes stands dominated by *Toxicodendron diversilobum* with significant amounts of *Baccharis pilularis* and *Rubus parviflorus* or *Rubus ursinus* in the shrub layer. The shrub canopy is fairly continuous and between 1 - 2 meters in height. Emergent, shrubby individuals of *Pseudotsuga menziesii* are often present. *Marah fabacea* is usually present at about 1% cover. Species present in the herbaceous layer may include *Scrophularia californica*, *Sanicula crassicaulis*, *Pteridium aquilinum*, *Phacelia californica*, and / or *Maianthemum stellatum*.

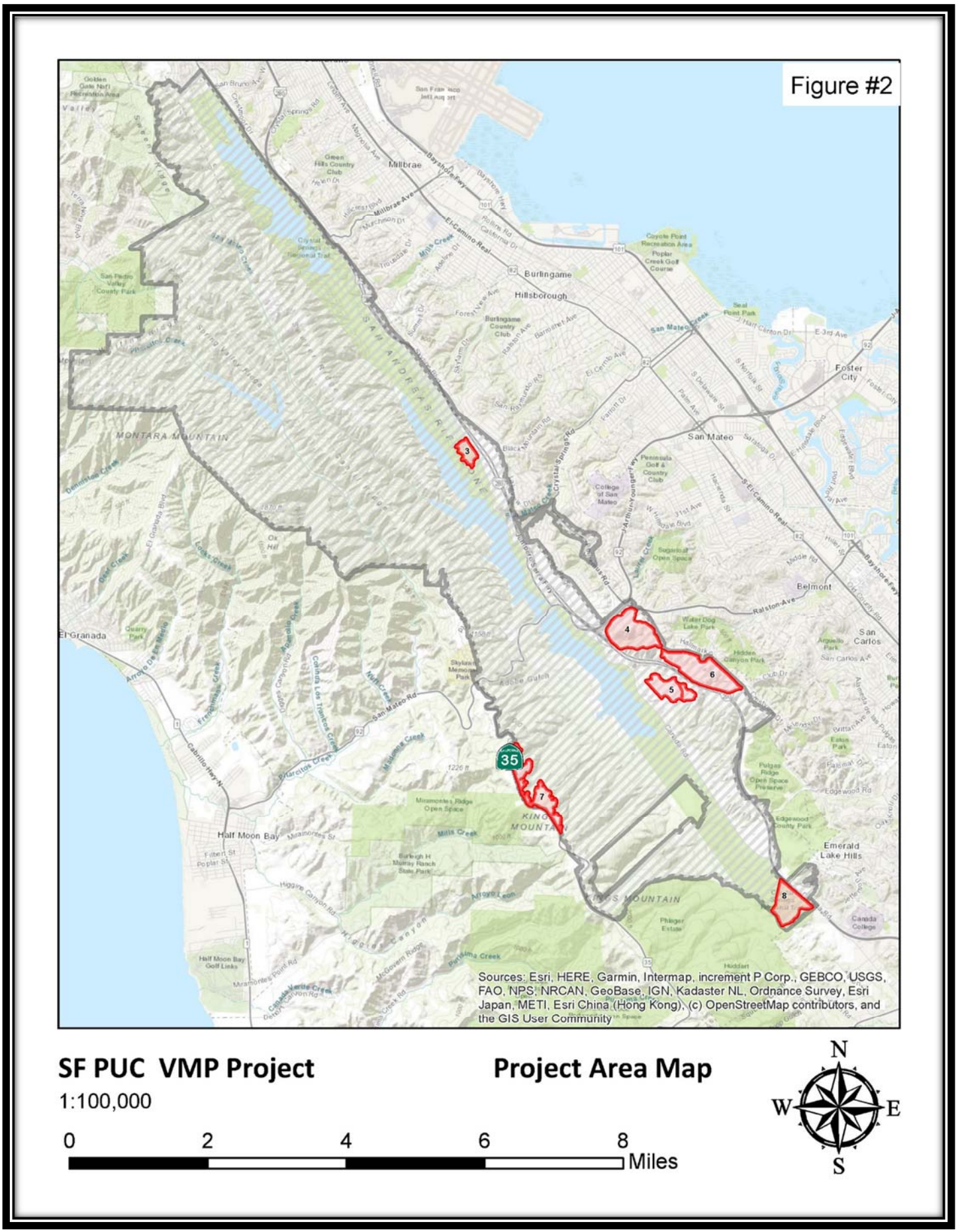
This association is found on the upper third of moderate slopes. Aspects are north to east and soil textures can vary from medium silty loams to moderately coarse sandy loams. Slopes are often concave. This association is a mesic expression of the “North Coastal Scrub” where *Toxicodendron* is strongly dominant. It is clearly related to other *Baccharis pilularis* associations and with further investigation may be considered a phase of that alliance.

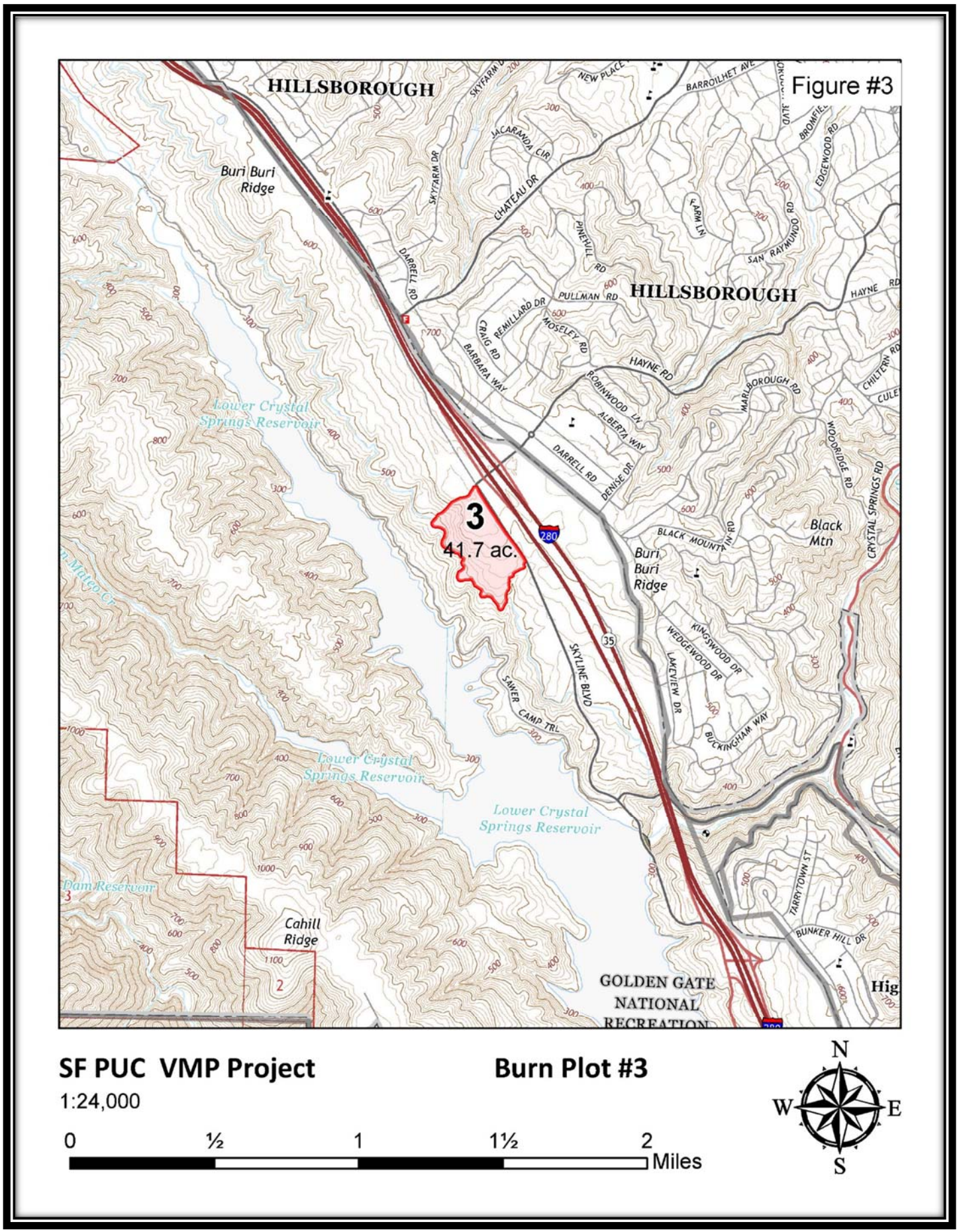
CURRENT LAND USE AND PREVIOUS IMPACTS

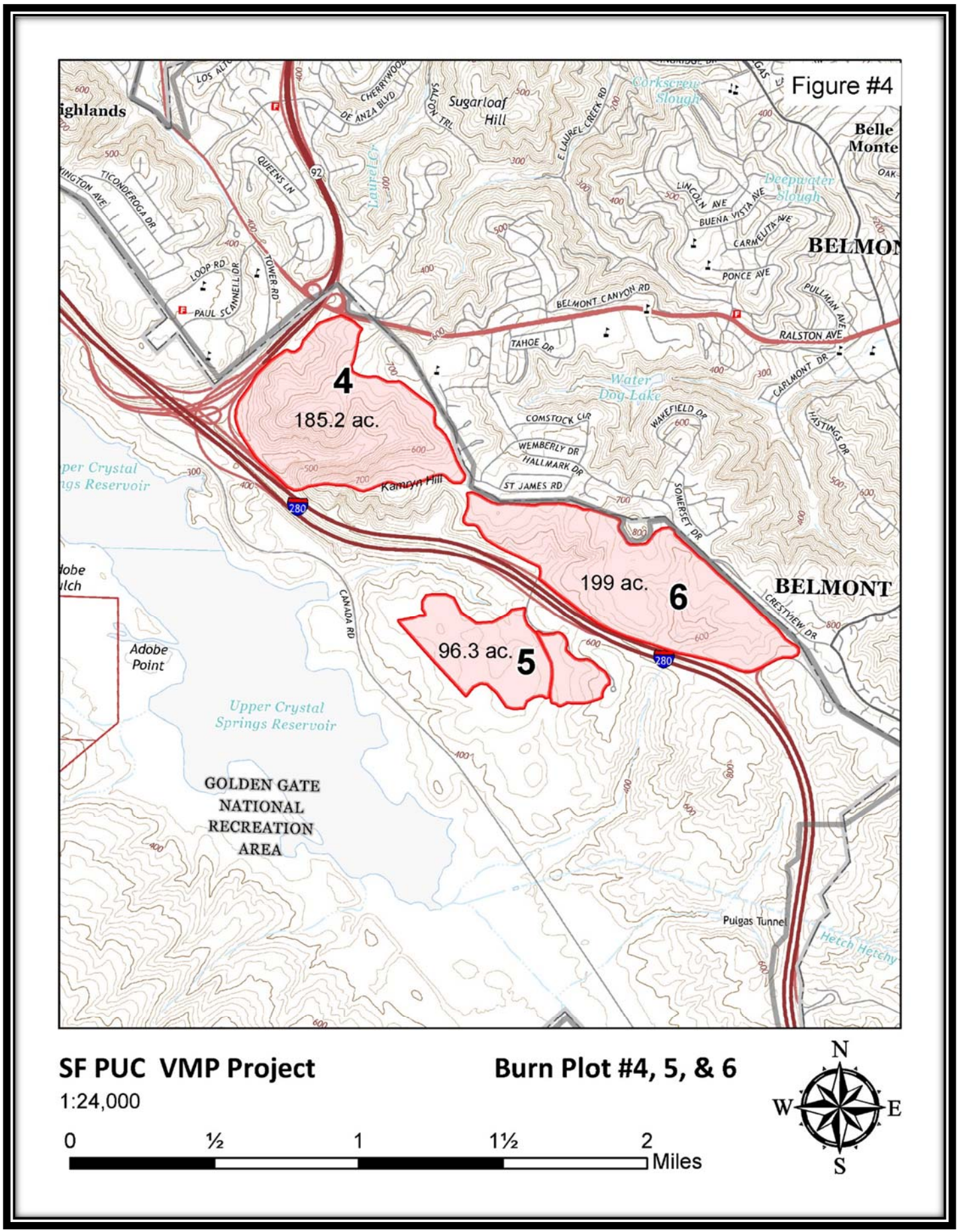
The Peninsula Watershed is managed by San Francisco Public Utilities Commission (SFPUC). Located on the San Francisco Peninsula approximately six miles south of San Francisco, in San Mateo County, the Peninsula includes several hydrologic watersheds: 17,140 acres in the San Mateo Creek Watershed, 4,590 acres in the Pilarcitos Creek watershed, and small portions of several surrounding watersheds.

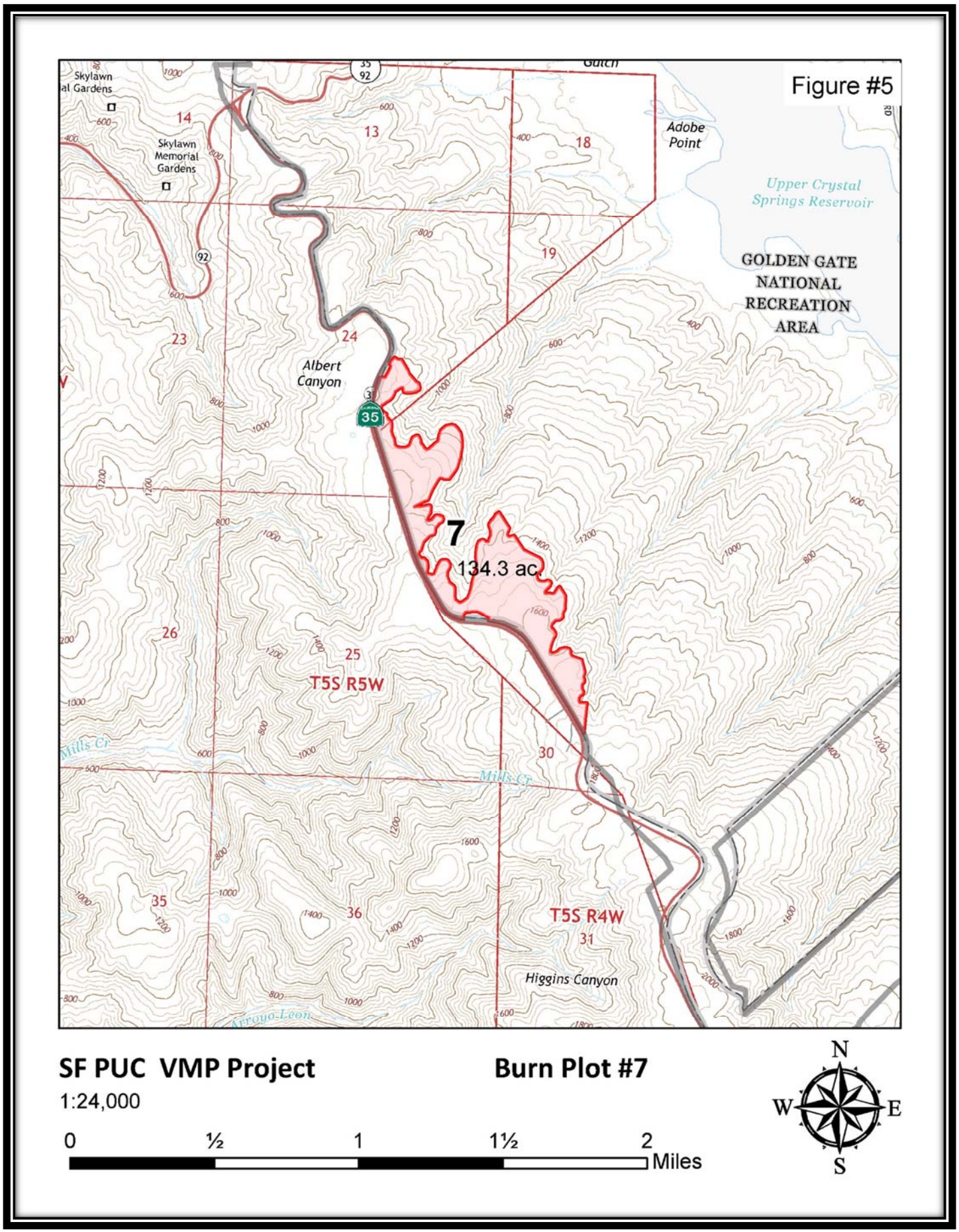
The Peninsula Watershed is a protected resource that supplies municipal drinking water to San Francisco, Santa Clara and San Mateo Counties. This system includes three reservoirs on the property: The Crystal Springs and San Andreas reservoirs, which lie along the San Andreas fault, and Pilarcitos Reservoir, located in the upper watershed south of Montara Mountain. Land Management of the Peninsula Watershed is directed with the objective of providing high quality, efficient and reliable water in a manner that is inclusive of environmental and community interests. The Peninsula Watershed is a state-designated Fish and Game Refuge. Recreational use ~~is restricted to~~ includes the Fifield-Cahill Ridge Trail, a 10-mile volunteer led trail managed by SFPUC, ~~and~~ the 17.5-mile Crystal Springs Regional Trail managed by the San Mateo County Parks Department and the Crystal Springs Cross Country Course. Current routine maintenance and vegetation management is designed to protect water quality, supply, infrastructure and the watersheds Wildland Urban Interface (WUI).

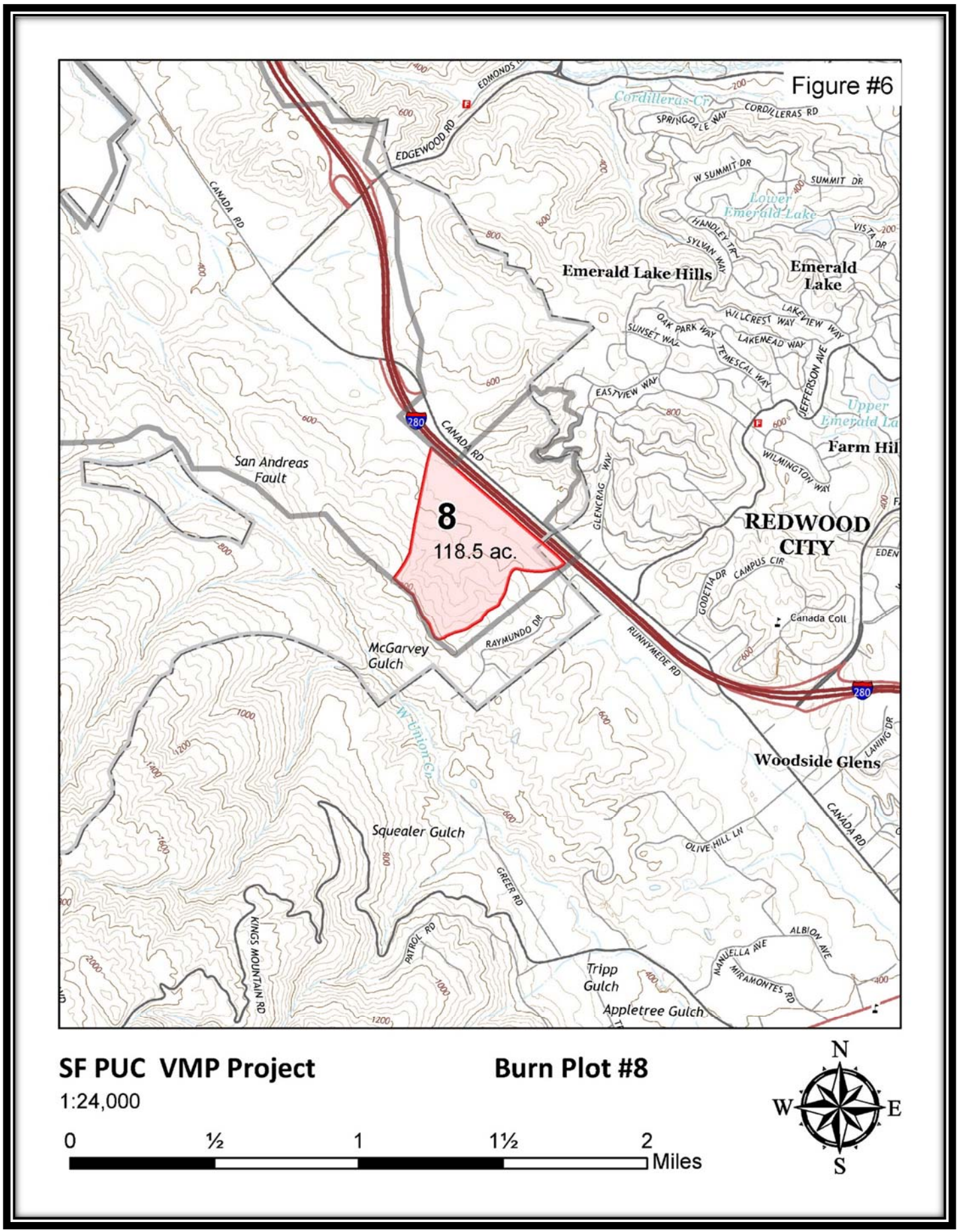


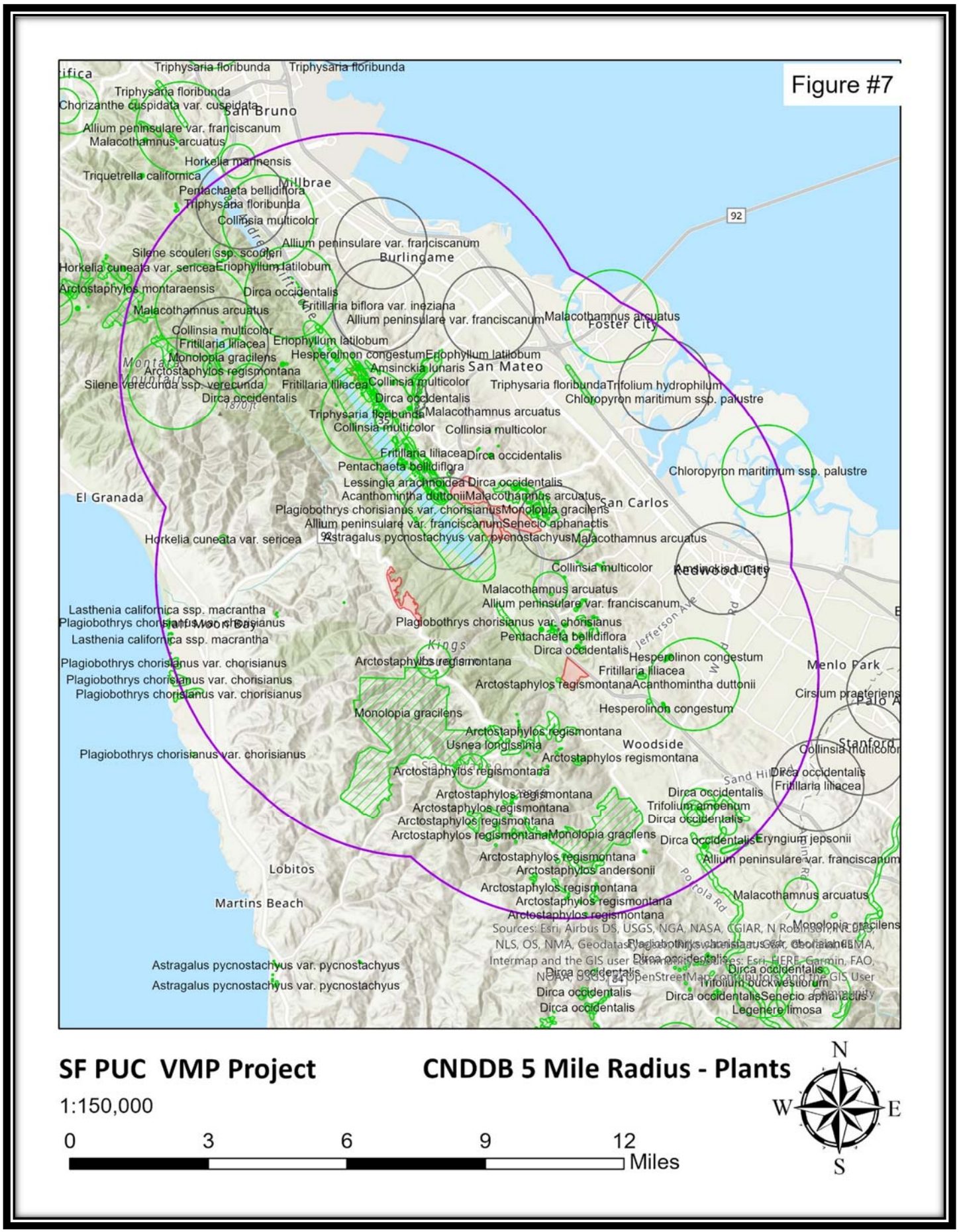












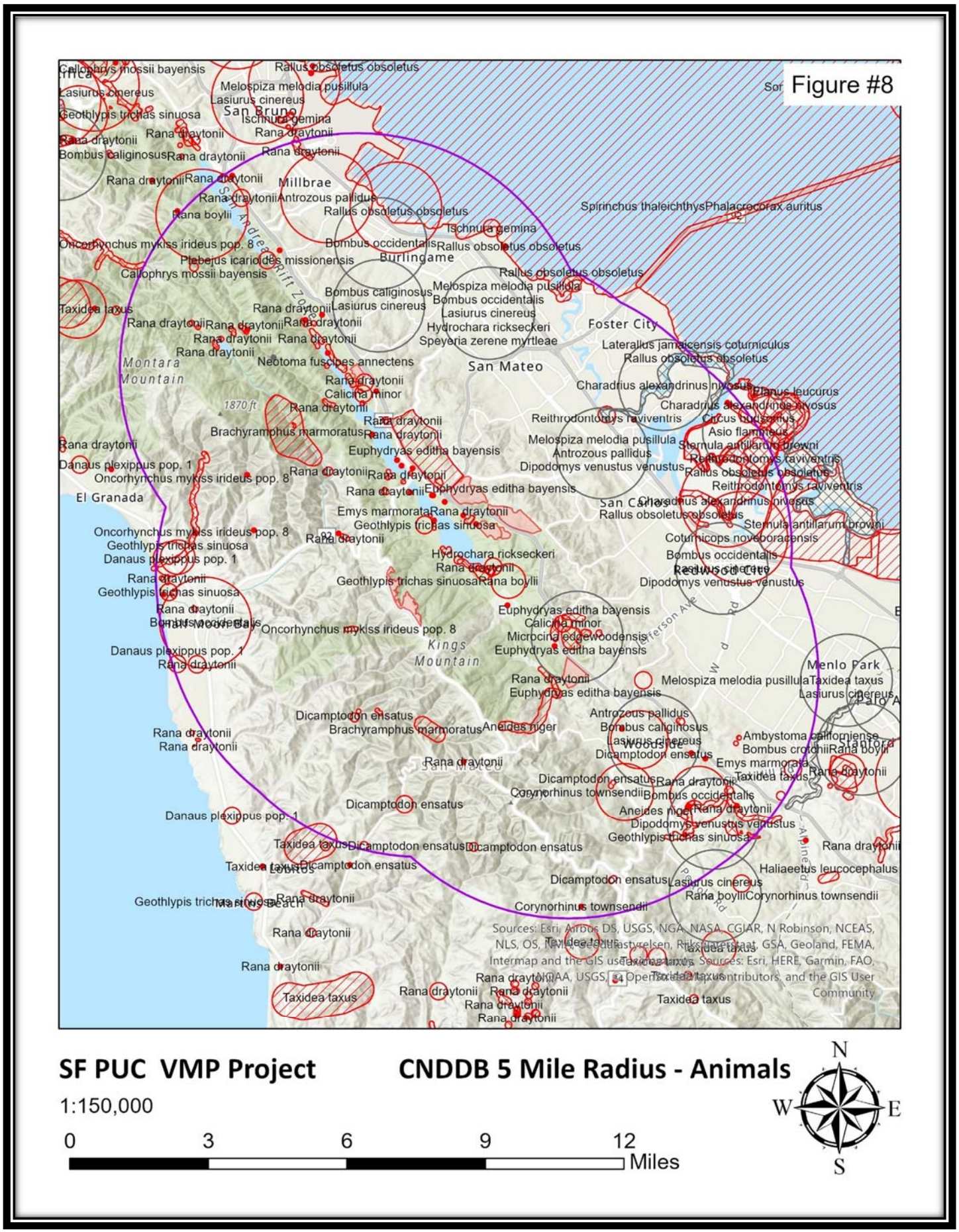


Figure 9. Coyote brush in Unit 4.

Figure 10. Existing disk along the WUI on the eastern edge of Unit 6.

Figure 11. Matrix of grassland and coyote brush in Unit 6.

Figure 12. Vegetation in Unit 8 can be characterized as a matrix of oak woodland and coyote brush scrub, with limited areas of grassland.

Figure 13. Dense woodland stand of predominately coast live oak contributing to a significant fire risk adjacent to homes in unit 8

Conclusion of the Mitigated Negative Declaration

ENVIRONMENTAL PERMITS

The proposed project may require the following environmental permits and CAL FIRE may be required to comply with the following state regulations:

Smoke Management Plan – will be approved annually by Bay Area Air Quality Management District

MITIGATION MEASURES

The following 17 mitigation measures will be implemented by CAL FIRE to avoid or minimize environmental impacts. Implementation of these mitigation measures will reduce the environmental impacts of the proposed project to a less than significant level.

Mitigation Measure #1: Pre-treatment Survey for Special Status Plant Species
Prior to the project implementation, all impact areas within a given burn unit will be surveyed for special status plant species. Plant surveys will occur when each potential plant species is in bloom or otherwise identifiable. This may require more than one survey (e.g., an early and late season survey). The determination of timing and number of plant survey visits will be performed by a qualified botanist. Surveys will be conducted in accordance with guidelines and protocols developed by CNPS (2001) and CDFW (2018).

Mitigation Measure #2: Avoidance of State or Federally Listed or Candidate Plant Species
Impacts to state and federally listed or candidate plant species will be avoided. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. Broadcast burning of areas inhabited by herbaceous annual, stump-sprouting, or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact.

Mitigation Measure #3: Avoidance of CRPR List 1 and 2 Plant Species
Impacts to CRPR List 1 and 2 plant species will be avoided wherever possible. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. If direct impacts cannot be avoided, no more than 10% of an occurrence/population (by number of individuals or areal extent) will be impacted. Direct impacts include control line installation, mastication if it occurs, broadcast burning, etc. Broadcast burning of areas inhabited by herbaceous annual or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact. Broadcast burning of shrub species may occur any time of year without constituting a direct impact. Specific conditions to protect western leatherwood from high intensity fire are discussed below in Mitigation Measure #4.

Mitigation Measure #4: Manual Pre-Treatment of Fuels in Stands of Western Leatherwood
Western leatherwood is a woody perennial shrub species whose fire ecology is currently unknown. This species has been observed to resprout vigorously when cut completely to the ground or by grazing, even when done repeatedly (Kriewall 2001). This indicates that western leatherwood likely has the capability of resprouting from its crown and rootstock following fire and the burning of above ground woody material. However, it is unknown how resilient the below ground tissue is, and it may be killed by a medium or high intensity fire if it produces sufficient soil heating. In order reduce the intensity of fire within and adjacent to

any western leatherwood populations which occur in a burn unit, manual fuel reduction treatments will be carried out within a buffer around all western leatherwood individuals. Buffer distance will be determined by a qualified botanist based on the fuel type occurring adjacent to western leatherwood. For example, areas of light fuel loading (e.g., grass) may only require a 10-foot buffer, while areas of higher fuel loads (e.g., brush) may require a 20-foot buffer. Hand crews utilizing chainsaws will cut and remove woody material (both living and dead) of non-special status plants within the buffer. The amount of fuel reduction to prevent negative impacts of medium or high intensity fire on western leatherwood will be determined by a qualified botanist. The pre-burn fuel reduction will result in low intensity fire in the vicinity of any western leatherwood individuals, thereby significantly reducing the chance of below ground tissue mortality and allowing individuals to resprout from crown and rootstock following broadcast burning.

Mitigation Measure #5: Fire Return Interval to Support Obligate Seeder Special Status Shrub Species The following species are classified as obligate seeder species which may be threatened by short return intervals: Anderson's manzanita (Arctostaphylos andersonii), Kings Mountain manzanita (Arctostaphylos regismontana), and Montara manzanita (Arctostaphylos montaraensis) (Baldwin et al 2012, CNPS 2020). These species reproduce following fire solely though seed present in the soil. Repeated short fire return intervals (<10 years, but possible longer intervals as well) deplete the seedbank of these species without allowing them to grow to maturity where they can reproduce and replenish the seedbank. Over time, repeated short fire return intervals may result in extirpation of these obligate seeder shrub species if they occur in the project area. Sufficient time will be given between burns to allow replenishment of the seedbank. The fire interval required to maintain special- status obligate seeders will be determined by a qualified botanist based on a population level, site-specific analysis. While in all likelihood burning will only take place once in each unit. re-burning of an area containing these species may occur if the site-specific analysis shows that the population would tolerate re-burning without a significant degradation in population size and vigor.

Mitigation Measure #6: Survey for and Avoid Occupied Mission Blue Butterfly Host Plants. If host plant locations are documented inside proposed burn areas, they will either be avoided or surveyed. For locations that are avoided no project activities shall occur within 25 feet of the outer perimeter of the host plants. An additional buffer will be added if the qualified biologist determines that a larger buffer is needed to protect nectar plants near occupied larval host plants. For locations that are surveyed these locations will be thoroughly surveyed once every two weeks for the presence of Mission blue butterfly eggs and larvae (including evidence of larval feeding) March thru June. Surveys shall be conducted by qualified biologists with demonstrated field experience identifying all MBB life stages. If no eggs or larvae are found at a given host plant location, the location shall be considered unoccupied for that year ~~and project activities may commence in the fall without implementing avoidance measures~~. Unoccupied host plant locations may be burned unless they are determined to be important dispersal habitat by a qualified biologist. All unoccupied locations must be resurveyed for Mission blue butterfly eggs and larvae in subsequent burn years (i.e., the "unoccupied" status is only valid for the year in which the survey is conducted). Host plant locations at which eggs and/or larvae are found shall be considered occupied for that year and no project activities shall occur within 25 feet of the outer perimeter of the location. This distance is expected to be large enough to protect larvae because second instar larvae diapause in leaf litter at the base of larval food plants and last instar larvae pupate on or near the base of food plants (USFWS 2010).

Mitigation Measure #7: Biological Monitoring for San Francisco Garter Snake and California Red-legged Frog. Project activities on Units 3, 5, 7 and 8 shall be monitored where suitable habitat occurs by a qualified biologist or biological monitor to ensure that subsequent measures are adequately implemented to avoid direct mortality of these species. The biologist(s) or biological monitor(s) shall have the authority to stop work if San Francisco garter snakes or California red-legged frogs are found during project activities.

Mitigation Measure #8: Environmental Awareness Training and Burn Coordination. The biologist or biological monitor shall provide pre-project environmental awareness training to all crew members working on Units 3, 5, 7 and 8 about the potential presence of San Francisco garter snake and California red-legged frog in the project area. The training shall include basic information on species identification and habitat, describe how the species may be encountered in the work area, and review all species protection measures.

Biological monitors shall be involved in ignition sequence planning. Biological monitors shall remain outside burn operations areas for safety reasons unless fireline qualified or escorted by fireline qualified personnel. Biological monitors shall be properly dressed and equipped per CAL FIRE regulations and burn protocols. The lead biological monitor shall be in communication with either the Ignition Specialist or the Incident Commander directly or through a designated CAL FIRE representative to facilitate efficient communication regarding the safety of San Francisco garter snakes and California red-legged frogs.

Mitigation Measure #9: Pre-activity Surveys for San Francisco Garter Snake and California Red-legged frog. No more than 24 hours prior to conducting project activities in suitable habitat on Units 3, 5, 7 and 8, qualified biologists or biological monitors shall conduct visual encounter surveys of upland habitat in work areas for individual San Francisco garter snakes and California red-legged frogs. Survey intensity of upland areas within these units will be determined by the qualified biologist based on areas which are more likely to support San Francisco garter snake and California red-legged frog. A final survey of drainages, valley foothill riparian habitat, and seasonal wetland habitat where individual snakes and frogs are more likely to occur shall be conducted immediately prior to prescribed burns. Burn piles will also be surveyed prior to ignition in areas where they may provide suitable habitat. Any San Francisco garter snake or California red-legged frog found in a location where it may be at risk will be captured and released (if proper permits are obtained from USFWS and CDFW) in a safe area or allowed to leave the area on its own accord. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys but escapes capture or is allowed to leave on its own accord, an area approximately 0.25 acres in diameter around the individual shall be protected from the burn. Alternatively, CAL FIRE may postpone burning of the area and conduct another pre-activity survey prior to the rescheduled burn. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys and leaves the burn area on its own accord, no buffer or rescheduling would be required. A biological monitor shall remain at the location where the individual was seen to ensure it does not re-enter the burn area. If it does, a 0.25-acre buffer area shall be established, or the burn postponed as described above.

Only biologists specifically approved by the USFWS and CDFW shall be allowed to capture, handle, and relocate species individuals. If necessary during the burn, individual San Francisco garter snakes (but not red-legged frogs) may be held in captivity in a pillow case for less than 24 hours and may later be released in a vegetated area near the point of capture after the burn has been completed. The number of San Francisco garter snakes and California red-legged frogs encountered and transferred to safe areas or held in captivity during treatment shall be reported to the Bay Delta Fish & Wildlife Office, and each individual San Francisco garter snake shall be photographed for use in identification.

Mitigation Measure #10: Pre-activity Surveys for Nesting Birds. Within 10 days prior to any ground disturbing, vegetation clearing, or broadcast burning activities during the nesting season, a qualified biologist or biological monitor shall conduct a pre-activity nesting bird survey of all potential nesting habitat within control line and burn areas, including a 100-foot buffer for passerine species and a 250-foot buffer for raptors. If there is a lapse between the survey time and initiation of work activities of 10 days or greater, the nesting bird survey shall be repeated.

If active nests are found during the survey or at any time during the project, work in that area shall stop and a qualified biologist or biological monitor shall determine an appropriate no-work buffer around the nest based on the activity and species and mark the buffer using flagging, pin flags, lathe stakes, or similar marking method. No work shall occur within the buffer until the young have fledged or the nest(s) are no longer active, as determined by the biologist or biological monitor.

Mitigation Measure #11: Pre-activity Surveys for Bat Maternity Roosts. A qualified biologist familiar with bat roosting ecology shall assess hazard trees for suitable bat roosting habitat if any such trees would be removed during the maternity season (i.e., March 1 to August 31). High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). If no such features or bat sign is detected, no further action beyond preparation of a memorandum describing survey methods and conditions and results would be required.

If the biologist observes bat sign (e.g., guano, urine staining, musky odor), an evening visual emergence survey of the source tree will be conducted from 0.5 hour before to 1–2 hours after sunset for a minimum of two nights, using night-vision goggles and/or full-spectrum acoustic detectors to assist in species identification. If evening visual emergence surveys confirm the presence of an active bat roost, that roost will remain undisturbed with a buffer as determined in consultation with CDFW until August 31 or until a qualified biologist has determined that the roost is no longer active.

If a non-maternity roost in a hazard tree is found, humane eviction may be attempted using procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. Any CDFW-approved bat evictions must be conducted after August 31, when most young have left maternity colonies.

Mitigation Measure #12: Avoid Woodrat Houses When Establishing Control Lines and Disturb Burn Piles Prior to Ignition. Woodrat houses shall not intentionally be destroyed. Where feasible (i.e., clearing vegetation for control lines), an exclusion buffer of at least 10 feet from houses shall be established to avoid moving or disturbing the houses or the logs or branches on which houses nest. Existing vegetative screening for nests will be left in place provided the integrity of the control line is not compromised. Burn piles which may have become occupied by woodrats will be sufficiently disturbed prior to ignition by a qualified biologist to encourage any resident woodrats to flee the pile.

Implementation of the above measure would minimize, but not entirely avoid, impacts on San Francisco dusky-footed woodrats at Unit 8. Stick houses in the interior portions of burn areas, if present, would still be consumed by fire and there may be some mortality of individual woodrats. However, patches of suitable habitat, including houses that will be avoided when establishing control lines as well as those on portions of Unit 8 outside the burn area, would remain after the project is completed. The project would temporarily reduce the number of woodrats currently residing on Unit 8 but it would not eliminate the species from the site, which is adjacent to extensive habitat on the Peninsula Watershed. As long as areas of dense shrub cover are maintained over a landscape, prescribed understory fires in oak woodland are unlikely to significantly alter dusky-footed woodrat populations (Lee and Tietje 2005). Moreover, the intent of the proposed project is to reduce the risk of large catastrophic wildfires that would have even more severe effects on woodrats and other wildlife. Dusky-footed woodrats are common to abundant where suitable habitat occurs, and most habitat within the range of the San Francisco subspecies is protected by regional park and open space organizations (e.g., East Bay Regional Park District, Midpeninsula Regional Open Space District, Peninsula Open Space Trust, Santa Clara Valley Open Space Authority). For these reasons, and with implementation of Mitigation Measure #12, the project would have a less than significant impact on San Francisco dusky-footed woodrat.

Mitigation Measure #13: Site Control Line Construction and Heavy Equipment Use Outside of Native or Serpentine Grassland When Feasible.
Areas of native or serpentine grassland will be delineated by a qualified botanist prior to control line construction. Siting of control will occur outside of areas of native or serpentine grassland whenever possible to eliminate impacts to these sensitive natural communities. Additionally, use of heavy equipment (i.e., bulldozers) to pre-treat brush will not occur in areas of high-quality serpentine grassland. In cases where native or serpentine grassland cannot be avoided, implementation of Mitigation Measure #14 will occur.

Mitigation Measure #14: Limit Control Line Construction to Handline in Native or Serpentine Grassland
Construction of control line in some areas may take place with a bulldozer, which utilizes a 12-foot-wide blade and can result in significant soil disturbance. In areas of native grassland or serpentine grassland, when it cannot be avoided entirely, control line construction will be restricted to handline. In these grass dominated areas, handline construction will be approximately 3 feet wide, and will result in significantly less soil disturbance then a dozer as crews utilizing hand tools will be able to remove vegetation down to bare mineral soil without disturbing more than the first few inches of the soil profile.

Mitigation Measure #15: Limit Out-of-Season Burning in Native or Serpentine Grassland.
Out-of-season burning would be avoided when possible to protect native serpentine grasslands. Out-of-season burning is currently identified as being late winter thru spring (particularly January/February).

Mitigation Measure #16: Cleaning Equipment of Organic Material Prior to Entering Work Area.
Crews will be instructed to clean clothing and equipment of organic material prior to entering work areas in order to limit the introduction of weed propagules into the project area. Crews will also be instructed to decontaminate boot soles and tools with a ≥70% Ethyl or isopropyl alcohol solution to prevent spread of Phytophthora.

Mitigation Measure #17: Discovery of Human Remains
If human remains are discovered, project activity shall cease and the County Coroner will be notified. If the remains are determined to be historical, CAL FIRE will contact the CAL FIRE Archaeologist and the Native American Heritage Commission, if necessary.

SUMMARY OF FINDINGS

This IS-MND has been prepared to assess the project's potential effects on the environment and an appraisal of the significance of those effects. Based on this IS-MND, it has been determined that the proposed project will not have any significant effects on the environment after implementation of mitigation measures. This conclusion is supported by the following findings:

1. The proposed project will have no effect related to Agricultural Resources, Land Use and Planning, Mineral Resources, Population and Housing, Public Services, Utilities and Service Systems

2. The proposed project will have a less than significant impact on Aesthetics, Air Quality, Energy, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Recreation, Transportation, and Wildfire, and Mandatory Findings of Significance.

3. Mitigation is required to reduce potentially significant impacts related to Biological Resources, Cultural Resources, and Tribal Cultural Resources.

The Initial Study-Environmental Checklist included in this document discusses the results of resource-specific environmental impact analyses that were conducted by the Department. This initial study revealed that potentially significant environmental effects could result from the proposed project. However, CAL FIRE revised its project plans and has developed mitigation measures that will eliminate impact or reduce environmental impacts to a less than significant level. CAL FIRE has found, in consideration of the entire record, that there is no substantial evidence that the proposed project as currently revised and mitigated would result in a significant effect upon the environment. The IS-MND is therefore the appropriate document for CEQA compliance.

INITIAL STUDY-ENVIRONMENTAL CHECKLIST

The environmental factors checked below would be potentially affected by this project involving at least one impact that is a potentially significant impact as indicated by the checklist on the following pages.

Environmental Factors Potentially Affected

☒ Aesthetics	☒ Greenhouse Gas Emissions	☐ Public Services
☐ Agriculture Resources	☒ Hazards & Hazardous Materials	☒ Recreation
☒ Air Quality	☒ Hydrology and Water Quality	☒ Transportation
☒ Biological Resources	☐ Land Use and Planning	☒ Tribal Cultural Resources
☒ Cultural Resources	☐ Mineral Resources	☐ Utilities and Service Systems
☒ Energy	☒ Noise	☒ Wildfire
☒ Geology and Soils	☐ Population and Housing	☒ Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION would be prepared.

☒ I find that although the proposed project COULD have a significant effect on the environment, there WOULD NOT be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION would be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project COULD have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Matthew Reischman — 6/29/2021

Matthew Reischman
Assistant Deputy Director
California Department of Forestry and Fire Protection

Date

Environmental Checklist and Discussion

AESTHETICS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Except as provided in Public Resources Code § 21099, would the project have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Less than Significant Impact: The project area is visible throughout eastern San Mateo County and is an important viewshed from dense urban development to an undeveloped wildland setting. Project implementation would result in temporary blackening of broadcast burn areas. This appearance is temporary in nature, and significant new vegetation growth will occur following the onset of winter rains which will restore the area to a similar visual quality as what occurred prior to project implementation in grass dominated areas. Some areas of blackened vegetation will remain for longer, where shrub or tree vegetation is burnt, however these areas will eventually return to their prior appearance. Additionally, control lines and unit boundaries follow natural features based on topography, vegetation, and existing infrastructure such as roads. Therefore, they will blend into the landscape as they will not be straight in appearance (compared to vegetation management under utility lines, for example).

Expansive views from scenic vistas would continue to be dominated by the existing visual resources, including trees and other vegetation, as only a small percentage of the watershed is proposed to be treated with broadcast burning (~4%). The rest of the watershed will not be affected and will retain the same visual character. Additionally, burn units would be completed individually over multiple years, so that the visual effect of blackened vegetation would be limited to individual units and subunits as they are treated, and would not occur simultaneously. No more than approximately 1% of the watershed would be treated in any individual year. An annual cap of 200 acres will be burned each year, likely in 30-60 acre subunits. Neither Unit 4 nor Unit 6 will not be burned in their entirety in one day.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Except as provided in Public Resources Code § 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐

Less than Significant Impact: Numerous designated state scenic highways occur in the project vicinity and would have views of the project area. These include: Highway 35, Highway 92, Highway 280, Highway 580. As described above in *Aesthetics (a)*, project implementation would have a less than significant impact on scenic resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Except as provided in Public Resources Code § 21099, in non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly	☐	☐	☒	☐

accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	

Less than Significant Impact: The project, while occurring adjacent to an urbanized area, will occur entirely within non-urbanized areas. Therefore, the project will not conflict with applicable zoning or other regulations governing scenic quality. As described above in *Aesthetics (a)*, project implementation would not have a significant impact on scenic resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Except as provided in Public Resources Code § 21099, would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Less than Significant Impact: The project will not create a new permanent source of light or glare. Minimal glare may occur through light reflected from vehicles and equipment. However, this would be temporary in nature (no more than a week), often blocked from view by vegetation or topography, and insignificant when compared to glare created by buildings and major roadways in the project vicinity. Broadcast burning could potentially produce a nighttime light source. However, initial ignition and the majority of fire activity will be completed by the end of the day, and residual flame activity will be minimal at night.

AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒

No Impact. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as delineated on the Farmland Mapping and Monitoring Program map for San Mateo County occurs in the project area (DOC 2018).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒

No Impact. The project will not conflict with existing agricultural zoning or a Williamson Act contract, as none exist in the project area (County of San Mateo 2020).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☒

No Impact: The project will not conflict with existing zoning or cause any rezoning of forest land or timberland. All areas with 10% or more native tree cover will remain at or above 10% cover. The number and composition of native overstory tree species will remain consistent with pre-project conditions.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒

No Impact: There are no aspect of this project that would constitute Timber Operations under the California Forest Practice Rules. No land conversion or changes in land use will occur as a result of this project. Trees may be removed for safety or if non-native species, and all areas with 10% or more native tree cover will remain at or above 10% cover. While most of the treatment areas consist of grass or brush, some forest understory burning will occur. Forest understory burning will be designed to not convert forest land to a non-forest use.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	☐	☐	☐	☒

No Impact: No farmland occurs in the project area.

AIR QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒

No Impact: The project will not conflict with or obstruct implementation of the applicable air quality plan. CAL FIRE will have an approved Smoke Management Plan from the Bay Area Air Quality Management District (BAAQMD). We will conform to the air quality standards for the Bay Area in real time.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐

Less than Significant Impact: A smoke management plan will be submitted annually to the Bay Area Air Quality Management District. This will ensure that an accurate analysis of cumulative emissions within the Bay Area Air Basin, as they have knowledge of all local burning being conducted daily. Burning will only occur on designated burn days and within the approved prescription. Burns will be conducted to ensure that smoke generated from the project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

CAL FIRE has deemed this prescribed fire necessary and in the public interest. Material will not be windrowed or piled in most cases due to the volume of material, and the steep slopes that this vegetation occupies. Burning will be limited to less than 200 acres annually for this project. Some of the heavier woody material will be crushed or killed prior to burning to increase consumption. This material will be allowed to dry 30 days before burning.

CAL FIRE will obtain a spot weather forecast from the National Weather Service (NWS) and will also receive a forecast from the BAAQMD meteorologist in the days leading up to the burn. A minimum mixing height of at least 500 feet is required. A test burn will be conducted prior to the burn to ensure that smoke dispersal objectives are being met.

Treating this acreage without prescribed fire would not be possible. These large and steep burn units are inaccessible to heavy equipment. The cost of reducing the fuels manually would be unfeasible. The location of this project – directly adjacent to high density housing, major infrastructure and the water supply for San Francisco makes the cost of inaction too high. Because of the population density and HWY 280, there can be multiple fire starts each year. The area has a significant fire history which must be addressed under the current trend of large, damaging wildfires. The air quality impacts from an uncontrolled wildfire would undoubtedly be more impactful. NOAA (2020) states that wildfires emit substantial amounts of volatile and semi-volatile organic materials and nitrogen oxides that form ozone and organic particulate matter. Direct emissions of toxic pollutants can affect first responders and residents.

California wildfires produce so much carbon dioxide that in any given year they can wipe out the emissions cuts that the State Air Resources Board is trying to achieve. From 2013-2015 California's estimated emissions from fires on federal land alone were greater than the cuts achieved across the state's economy (Baker 2017).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Less than Significant Impact: The project area is located adjacent to a dense urban area with sensitive receptors including schools, hospitals, senior housing, and State Highways among others. Burning will be

restricted to designated burn days within prescription, and BAAQMD will be consulted the morning of each burn day to ensure that conditions are conducive to smoke dispersal. If conditions change during the course of the burn and smoke begins to impact communities with sensitive receptors, the burn will be terminated. CAL FIRE will monitor conditions and cease lighting if conditions become unfavorable and HWY 280 becomes affected by smoke. Public notifications will be conducted prior to anticipated burn days, per the Smoke Management Plan with BAAQMD.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

Less than Significant Impact: The project area is located adjacent to dense urban areas with a substantial population size. Burning will be restricted to designated burn days within prescription, and BAAQMD will be consulted the morning of each burn day to ensure that conditions are conducive to smoke dispersal. If conditions change during the course of the burn and smoke begins to impact communities with sensitive receptors, the burn will be terminated. The smell of smoke may be present in the area for a day or two, however it is not expected to adversely affect the population. This should be balanced with the fuel reduction benefits this project offered to homes directly adjacent to the burn unit.

CAL FIRE conducted pile burning projects in the winter of 2020 on other SFPUC property directly behind homes in the Highlands area of San Mateo County (between Units 3 & 4) and received an excellent reception from residents. There were no complaints to BAAQMD about that project.

BIOLOGICAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project 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 or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated:

Special-Status Plant Species

Reconnaissance level surveys of the project area were conducted by CAL FIRE Environmental Scientist Matthew Mosher on April 28th and 29th, 2020. The purpose of these surveys were to provide a high-level view of the potential for special status plant species to occur in the project area. Prior to visiting the site, a 12-quadrangle search of the project vicinity centered around the *San Mateo* and *Woodside, California* USGS quadrangles was conducted on the California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) Rare Plant Inventory to determine which special status plant species were known to occur in the vicinity of the project area. This search was limited to State or Federally listed or candidate species, and California Rare Plant Rank (CRPR) List 1 and 2 species. Project impacts to CRPR

List 3 and 4 species are not considered significant as those species do not meet then definition of endangered or rare in State CEQA Guidelines Section 15380(b). Additionally, GIS data for all known occurrences of special status plant species on watershed land was provided by SFPUC and reviewed. Figure 7 shows the project area and CNNDB occurrences of special status plant species within a 5-mile radius. This figure does not include confidential SFPUC data. Table 1 below includes all special status plant species which occur within the project vicinity (as defined above) as well as their potential to occur in the project area.

Table 1. Special Status Plant Species and Potential to Occur in the Project Area

Common Name (Scientific Name)	Status	Habitat	Potential to Occur
San Mateo thorn-mint (*Acanthomintha duttonii*)	1B.1, FE, CE	Relatively open areas on serpentine soils in chaparral and valley and foothill grassland.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur on serpentine soils in Unit 3.
Blasdale's bent grass (*Agrostis blasdalei*)	1B.2	Coastal dunes, coastal bluff scrub and coastal prairie.	**Absent.** Restricted to coastal situations.
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	1B.2	Dry hillsides, open cismontane woodland and valley and foothill grassland, on clay soils, often on serpentine, sometimes volcanics.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Units 3, 4, 5, 6, and 8.
bent-flowered fiddleneck (*Amsinckia lunaris*)	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub.	**Present.** Known to occur in Unit 3. Potential to occur in Units 4, 5, 6, and 8.
Anderson's manzanita (*Arctostaphylos andersonii*)	1B.2	Edges and openings in broadleafed upland forest, chaparral, north coast coniferous forest.	**Potentially Present.** Known to occur in watershed outside of project area. Moderate potential to occur in Units 4, 5, 6, 7 and 8.
Franciscan manzanita (*Arctostaphylos franciscana*)	1B.1, FE	Coastal scrub underlain by serpentinite.	**Absent.** Only known occurrence is in the Presidio of San Francisco.
San Bruno Mountain manzanita (*Arctostaphylos imbricata*)	1B.1, CE	Rocky areas of chaparral and coastal scrub.	**Absent.** Restricted to San Bruno Mountain**.**
Presidio manzanita (*Arctostaphylos montana* ssp. *ravenii*)	1B.1, FE, CE	Serpentinite outcrops in chaparral, coastal prairie, and coastal scrub.	**Absent.** Only known occurrence is in the Presidio of San Francisco.
Montara manzanita (*Arctostaphylos montaraensis*)	1B.2	Maritime chaparral and coastal scrub.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Unit 7.
Pacific manzanita (*Arctostaphylos pacifica*)	1B.1, CE	Chaparral and coastal scrub.	**Absent.** Restricted to San Bruno Mountain**.**
Kings Mountain manzanita (*Arctostaphylos regismontana*)	1B.2	Granitic or sandstone soils in broadleaf upland forest, chaparral, and north coast coniferous forest.	**Potentially Present.** May occur in Unit 7, although specimen is more likely *Arctostaphylos crustacea* (SFPUC 2020). Occurs immediately adjacent to Unit 8. High potential to occur in Units 4, 5, 6, 7 and 8.
coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*)	1B.2	Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools.	**Absent.** Restricted to the coast.
alkali milk-vetch (*Astragalus tener* var. *tener*)	1B.2	Alkaline soils in playas, valley and foothill grassland (adobe clay), vernal pools.	**Absent.** Restricted to the saline bayside situations in our region. No extant occurrences in the south bay.
Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*)	1B.1	Occurs along margins on vernally moist alkaline grassland.	**Absent.** Not known to occur on the peninsula. No habitat present in the project area.
pappose tarplant (*Centromadia parryi* ssp. *parryi*)	1B.2	Occurs in chaparral, coastal prairie, meadows and seeps, coastal salt marsh, and valley and foothill grassland in vernally mesic, often alkaline site.	**Absent.** Not known to occur on the bayside of the peninsula. No habitat present in the project area.
Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*)	1B.2	Occurs in coastal salt marshes.	**Absent.** No habitat present in project area.
San Francisco Bay spineflower (*Chorizanthe cuspidata* var. *cuspidata*)	1B.2	Sandy soils in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub.	**Absent.** Restricted to coastal situations.

Common Name (Scientific Name)	**Status**	**Habitat**	**Potential to Occur**
robust spineflower (*Chorizanthe robusta* var. *robusta*)	1B.1, FE	Cismontane woodland, coastal dunes, coastal scrub, chaparral on marine sand deposits or sandstone outcrops.	**Absent.** Restricted to areas of coastal influence. Mostly occurs in Santa Cruz County, or one historic occurrence extends range this far north.
Franciscan thistle (*Cirsium andrewsii*)	1B.2	Coastal bluff scrub, broadleafed upland forest, coastal scrub, coastal prairie.	**Absent.** Restricted to areas of coastal influence.
Crystal Springs fountain thistle (*Cirsium fontinale* var. *fontinale*)	1B.1, FE, CE	Serpentine seeps in a variety of habitats.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Unit 3.
compact cobwebby thistle (*Cirsium occidentale* var. *compactum*)	1B.2	Chaparral, Coastal dunes, Coastal prairie, Coastal scrub	**Absent.** Only one historical occurrence from San Francisco in project vicinity. Restricted to coastal situations.
lost thistle (*Cirsium praeteriens*)	1A	Unknown.	**Absent.** Presumed extinct and is only recorded as occurring historically in the southern bay area.
round-headed Chinese-houses (*Collinsia corymbosa*)	1B.2	Coastal dunes.	**Absent.** Restricted to coastal situations.
San Francisco collinsia (*Collinsia multicolor*)	1B.2	Shaded understory of coast live oak woodland or mixed forest in sheltered, generally mesic canyon bottom settings (Elkhorn Slough 2020)	**Potentially Present.** Potential to occur in Units 3, 4, 6, and 8.
western leatherwood (*Dirca occidentalis*)	1B.2	Occurs in mesic situations in a variety of forested and chaparral habitats.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Units 4, 5, 6, 7, and 8.
Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*)	1B.1	Occurs in the sandhills habitat of Santa Cruz County, on Zayante soils.	**Absent.** Restricted to the Zayante soils of Santa Cruz County.
San Mateo woolly sunflower (*Eriophyllum latilobum*)	1B.1, FE, CE	Shaded moist sites on steep grassy or sparsely wooded slopes; roadcuts.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Unit 8.
Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*)	1B.1	Vernal pools.	**Absent.** No habitat present in the project area. Reaches northern range limit in Santa Clara County.
Jepson's coyote thistle (*Eryngium jepsonii*)	1B.2	Vernal pools in clay soils.	**Absent.** No habitat occurs in the project area.
minute pocket moss (*Fissidens pauperculus*)	1B.2	Bare gravelly soil in dried stream beds and on banks, often associated with the Coast Redwood Forest	**Absent.** No habitat occurs in the project area.
Hillsborough chocolate lily (*Fritillaria biflora* var. *ineziana*)	1B.1	Serpentine soils in grassland and cismontane woodland.	**Potentially Present.** Known to occur in watershed outside of project area. Potential to occur in Unit 3
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	1B.1	Coastal bluff scrub, prairie, and scrub.	**Absent.** No habitat occurs in the project area. Only known to occur in Marin County.
fragrant fritillary (*Fritillaria liliacea*)	1B.2	Adobe or clay-rich soils in coastal prairie or native bunchgrass grassland, frequently on serpentine derived soils.	**Potentially Present.** Known to occur in the watershed. Potential to Occur in Units 3, 4, 5, and 6.
blue coast gilia (*Gilia capitata* ssp. *chamissonis*)	1B.1	Coastal dunes and scrub	**Absent.** Restricted to coastal situations.
dark-eyed gilia (*Gilia millefoliata*)	1B.2	Coastal dunes	**Absent.** Restricted to coastal situations.
Diablo helianthella (*Helianthella castanea*)	1B.2	Occurs in a variety of habitats, sometimes under part shade adjacent to oaks or chaparral, sometimes in open grassland. Usually rocky, thin soils.	**Potentially Present.** Most abundant in the east bay, however one population occurs on San Bruno Mountain. Potential to Occur in Units 4, 5, 6, 7, and 8.

Common Name (Scientific Name)	Status	Habitat	Potential to Occur
congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	1B.2	Grassland, sometimes roadsides.	**Absent.** Extirpated south of Marin county.
short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)	1B.2	Sandy soils in coastal bluff scrub, dunes and prairie.	**Absent.** Restricted to coastal situations.
Marin western flax (*Hesperolinon congestum*)	1B.1, FT, CT	Grassland and chaparral on serpentine.	**Present.** Known to occur in Unit 3. No potential to occur in other units.
water star-grass (*Heteranthera dubia*)	2B.2	Occurs in marshes and swamps, in alkaline, still or slow-moving water.	**Absent.** Perennial marshes or swamps do not occur in the project area.
Kellogg's horkelia (*Horkelia cuneata var. sericea*)	1B.1	Old dunes and coastal sandhills.	**Absent.** Restricted to coastal situations.
Point Reyes horkelia (*Horkelia marinensis*)	1B.2	Coastal dunes, prairie, and scrub.	**Absent.** Restricted to coastal situations.
island rock lichen (*Hypogymnia schizidiata*)	1B.3	On bark and wood of hardwoods and conifers along the coast.	**Absent.** Restricted to coastal situations.
perennial goldfields (*Lasthenia californica* ssp. *macrantha*)	1B.2	Coastal bluff scrub, dunes, and scrub.	**Absent.** Restricted to coastal situations.
Contra Costa goldfields (*Lasthenia conjugens*)	1B.1, FE	Vernal pools.	**Absent.** No habitat occurs in the project area. Not known to occur in San Mateo county.
legenere (*Legenere limosa*)	1B.1	Vernal pools.	**Absent.** No habitat occurs in the project area.
coast yellow leptosiphon (*Leptosiphon croceus*)	1B.1, CE	Coastal bluff scrub and prairie.	**Absent.** Restricted to coastal situations.
rose leptosiphon (*Leptosiphon rosaceus*)	1B.1	Coastal bluff scrub.	**Absent.** Restricted to coastal situations.
Crystal Springs lessingia (*Lessingia arachnoidea*)	1B.2	Grassy slopes on serpentine.	**Present.** Known to occur in Unit 3. No potential to occur in other units.
San Francisco lessingia (*Lessingia germanorum*)	1B.1, FE, CE	Coastal scrub on remnant dunes.	**Absent.** No habitat present in project area.
coast lily (*Lilium maritimum*)	1B.1	Occurs in a variety of habitats. Considered extirpated from the bay area, if it occurred here at all.	**Absent.** Extirpated from the project region.
Ornduff's meadowfoam (*Limnanthes douglasii* ssp. *ornduffii*)	1B.1	Agricultural field, meadows and seeps.	**Absent.** Only known from coastal agricultural fields. No habitat occurs in the project area.
arcuate bush-mallow (*Malacothamnus arcuatus*)	1B.2	Chaparral and cismontane woodland. Can be locally abundant in early successional burns.	**Potentially Present.** Known to occur in the watershed. Potential to Occur in Units 4, 5, 6, 7, and 8.
Hall's bush-mallow (*Malacothamnus hallii*)	1B.2	Open chaparral.	**Absent.** Not known to occur in the Santa Cruz mountains or San Mateo County.
marsh microseris (*Microseris paludosa*)	1B.2	Moist grassland and open woodlands.	**Potentially Present.** Typically found in coastal situations, however, can occur more inland. Potential to Occur in Units 4, 5, 6, 7, and 8.
northern curly-leaved monardella (*Monardella sinuata* ssp. *Nigrescens*)	1B.2	Dunes, openings in coastal scrub, and ponderosa pine sandhills.	**Absent.** Occurs near to the coast. No habitat present in project area.
woodland woolythreads (*Monolopia gracilens*)	1B.2	Serpentinitic areas in grasslands, or openings in chaparral or oak woodlands.	**Potentially Present.** Potential to Occur in Units 3, 4, 5, 6, and 8.

Common Name (Scientific Name)	Status	Habitat	Potential to Occur
Dudley's lousewort (*Pedicularis dudleyi*)	1B.2, CR	Shaded areas in redwood forests, associated with areas of bare mineral soil such as road cuts.	**Absent.** No habitat present in project area.
white-rayed pentachaeta (*Pentachaeta bellidiflora*)	1B.1, FE, CE	Grassland with dry rocky slopes with thin soils. Often found on serpentine.	**Potentially Present.** Known to occur in the watershed. Although unlikely, there is potential to occur in Unit 3.
white-flowered rein orchid (*Piperia candida*)	1B.2	Open to shady sites, conifer and mixed evergreen forest.	**Absent.** No habitat present in project area.
Choris' popcornflower (*Plagiobothrys chorisianus* var. *chorisianus*)	1B.2	Variety of mesic habitats, coastal prairie and openings in meadows in oak woodland and mixed evergreen forest.	**Potentially Present.** Known to occur in the watershed. Potential to occur in Unit 8.
Oregon polemonium (*Polemonium carneum*)	2B.2	Coastal prairie and scrub, lower montane coniferous forest.	**Absent.** No habitat present in project area.
Hickman's cinquefoil (*Potentilla hickmanii*)	1B.1, FE, CE	Vernally wet meadows and open pine forest along the coast.	**Absent.** Restricted to coastal situations.
chaparral ragwort (*Senecio aphanactis*)	2B.2	Drying alkaline flats/rocky areas in chaparral, cismontane woodland, and coastal scrub.	**Absent.** No habitat present in project area.
Scouler's catchfly (*Silene scouleri* ssp. *scouleri*)	2B.2	Coastal bluff scrub, prairie, and grassland.	**Absent.** Restricted to coastal situations.
San Francisco campion (*Silene verecunda* ssp. *verecunda*)	1B.2	Occurs in a variety of grassland and brush habitats along the coast.	**Absent.** Restricted to coastal situations.
long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*)	1B.2	Alkaline marshes, mud flats, meadows, and hot springs.	**Absent.** No habitat present in project area.
most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*)	1B.2	On serpentine outcrops, on ridges and slopes.	**Absent.** Not known to occur on the Peninsula.
slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*)	2B.2	Shallow freshwater marshes and swamps.	**Absent.** No habitat present in project area.
California seablite (*Suaeda californica*)	1B.1, FE	Coastal salt marsh.	**Absent.** No habitat present in project area.
two-fork clover (*Trifolium amoenum*)	1B.1, FE	Coastal bluff scrub, and grassland. Sometimes on serpentine.	**Potentially Present.** Potential to occur in Units 3, 4, 5, 6 and 8
Santa Cruz clover (*Trifolium buckwestiorum*)	1B.1	Vernally moist swales, saturated, clay-rich upland soils in coastal prairie, vernally moist dune hollows, and edges of humic-soil meadow openings in forest.	**Potentially Present.** Potential to occur in Units 4, 5, 6, and 8
saline clover (*Trifolium hydrophilum*)	1B.2	Marshes, swamps, vernal pools, and mesic/alkaline areas in grassland.	**Absent.** No habitat present in the project area
San Francisco owl's-clover (*Triphysaria floribunda*)	1B.2	Coastal prairie, coastal scrub, and grassland. On and off serpentine.	**Potentially Present**. Known to historically occur in watershed, but no recent observations have been made. Potential to occur in Units 3, 4, 5, and 6.
coastal triquetrella (*Triquetrella californica*)	1B.2	Grows on soil in coastal bluff scrub and coastal scrub.	**Absent.** No habitat present in the project area
caper-fruited tropidocarpum (*Tropidocarpum capparideum*)	1B.1	Grassland in alkaline hills.	**Absent.** No habitat present in the project area.

23 special-status plant species were determined to have the potential to occur in the project area (Table 2). These species are shown with the Units they may potentially occur in, their life history, and bloom period. A brief explanation of each life history category and how they relate to potential project impacts are discussed below.

Annual herb: These species complete their life cycle within one year. They germinate in late fall or winter, generally with the onset of winter rains. Most flower in spring, although some species will wait until late summer to flower. Following flowering, the plants produce seed and die. Between seed set and the onset of germination, these plants only exist as seeds in the soil. During this window, broadcast burning may be implemented without direct impacts to annual plant species. Direct impacts may still occur from ground disturbing activities such as control line construction.

Perennial herb: These species life cycle lasts for more than one year. As with annual herbs, they germinate with the onset of wetting rains. Some species may flower that first year and continue to flower in subsequent years, others require 2 or 3 years of growth before first flowering. Therefore, direct impacts to these perennial plants may occur through broadcast burning at any time of year through burning of above ground tissue and potential mortality. Ground disturbing activities may also impact perennial plants at any time of year.

Perennial herb (geophyte): These species are similar to perennial herbs, however they utilize a below ground storage organs such as corms, tubers, or rhizomes. These storage organs contain energy, generally in the form of carbohydrate, and water. This allows the plant to survive adverse conditions, such as heat from fire killing above ground tissue. Similar to annual herbs, broadcast burning would not directly impact geophytic species if conducted after seed set in spring/early summer, and before above ground tissue grows following the onset of wetting rains. Direct impacts would occur if burning was conducted during the growing season through burning of above ground tissue, although below ground mortality would be very limited. Direct impacts may also occur from ground disturbing activities such as control line construction.

Shrub (obligate seeder): These are large, woody, long lived species which reproduce following fire exclusively from seed and receive germination cues from fire (generally from compounds present in smoke). These species do not grow burls and cannot resprout from below ground tissue. Broadcast burning of these species may occur at any time of year, as fire will stimulate the already established seedbank and will result in significant germination, replacing those individuals that were killed by fire. Pre-treatment, such as high blading, may also occur without significant impacts as long as the pre-treated brush is subsequently burned, allowing for germination of seeds present in the seedbank. Direct impacts may still occur from ground disturbing activities such as control line construction

Shrub (facultative seeder): Similar to obligate seeder shrub species, except in addition to reproduction from seed these plants are also able to resprout from bellow group tissue. The only special status plant within this life form with potential to occur in the project area is arcuate bush-mallow, which is threatened by fire suppression (CNPS 2020). Broadcast burning may occur at any time of year, as this species will respond favorably to fire, and will be much more abundant following broadcast burning then before. Pre-treatment, such as high blading, may also occur without significant impacts as long as the pre-treated brush is subsequently burned, allowing for germination of seeds present in the seedbank. Direct impacts may still occur from ground disturbing activities such as control line construction

Shrub (stump sprouter): This category is similar to the facultative seeder shrub category, with plants able grow from seed as well as respount from their stump following removal of above ground tissue. The only species in the category is western leatherwood. This life history category is considered distinct from facultative seeder shrubs because the fire ecology of western leatherwood is not known, particularly the seedbank response to fire and the capacity of below ground tissue to survive higher intensity fires. However, this species has been observed to resprout from its stump following trimming to ground level, indicating that it likely has some ability to resprout following broadcast burning (Kriewall 2001).

Table 2. Special Status Plants with Potential to Occur in the Project Area

Common Name (Scientific Name)	Status	Potential Units	Life History	Bloom Period
San Mateo thorn-mint (*Acanthomintha duttonii*)	1B.1, FE, CE	Unit 3	Annual herb	April - June
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	1B.2	Units 3, 4, 5, 6, and 8.	Perennial herb (Geophyte)	May - June
bent-flowered fiddleneck (*Amsinckia lunaris*)	1B.2	Unit 3, 4, 5, 6, and 8.	Annual herb	March - June
Anderson's manzanita (*Arctostaphylos andersonii*)	1B.2	Units 4, 5, 6, 7 and 8.	Shrub (obligate seeder)	November - May
Montara manzanita (*Arctostaphylos montaraensis*)	1B.2	Unit 7.	Shrub (obligate seeder)	January - March
Kings Mountain manzanita (*Arctostaphylos regismontana*)	1B.2	Units 4, 5, 6, 7 and 8.	Shrub (obligate seeder)	January - April
Crystal Springs fountain thistle (*Cirsium fontinale* var. *fontinale*)	1B.1, FE, CE	Unit 3.	Perennial herb	March - October
San Francisco collinsia (*Collinsia multicolor*)	1B.2	Units 3, 4, 6, and 8.	Annual herb	March - May
western leatherwood (*Dirca occidentalis*)	1B.2	Units 4, 5, 6, 7, and 8.	Shrub (stump sprouter)	January - March
San Mateo woolly sunflower (*Eriophyllum latilobum*)	1B.1, FE, CE	Unit 8.	Perennial Herb	May - June
Hillsborough chocolate lily (*Fritillaria biflora* var. *ineziana*)	1B.1	Unit 3	Perennial herb (geophyte)	March - April
fragrant fritillary (*Fritillaria liliacea*)	1B.2	Units 3, 4, 5, and 6.	Perennial herb (geophyte)	February to April
Diablo helianthella (*Helianthella castanea*)	1B.2	Units 4, 5, 6, 7, and 8.	Perennial Herb	March - June
Marin western flax (*Hesperolinon congestum*)	1B.1, FT, CT	Unit 3.	Annual herb	April - July
Crystal Springs lessingia (*Lessingia arachnoidea*)	1B.2	Unit 3.	Annual herb	July - October
arcuate bush-mallow (*Malacothamnus arcuatus*)	1B.2	Units 4, 5, 6, 7, and 8.	Shrub (facultative seeder)	April - September

Common Name (Scientific Name)	Status	Potential Units	Life History	Bloom Period
marsh microseris (*Microseris paludosa*)	1B.2	Units 4, 5, 6, 7, and 8.	Perennial herb	April - June
woodland woolythreads (*Monolopia gracilens*)	1B.2	Units 3, 4, 5, 6, and 8.	Annual herb	March - July
white-rayed pentachaeta (*Pentachaeta bellidiflora*)	1B.1, FE, CE	Unit 3.	Annual herb	March - May
Choris' popcornflower (*Plagiobothrys chorisianus* var. *chorisianus*)	1B.2	Unit 8.	Annual herb	March - June
two-fork clover (*Trifolium amoenum*)	1B.1, FE	Units 3, 4, 5, 6 and 8	Annual herb	April - June
Santa Cruz clover (*Trifolium buckwestiorum*)	1B.1	Units 4, 5, 6, and 8	Annual herb	April - October
San Francisco owl's-clover (*Triphysaria floribunda*)	1B.2	Units 3, 4, 5, and 6.	Annual herb	April - June

Permanent impacts on special-status plants that could reduce their number substantially or restrict their range would be considered significant. Impacts may occur from control line construction, pre-treatment of brush, or from broadcast burning. With implementation of Mitigation Measures #1-5, impacts to special status plant species would be less than significant.

Mitigation Measure #1: Pre-treatment Survey for Special Status Plant Species
Prior to the project implementation, all impact areas within a given burn unit will be surveyed for special status plant species. Plant surveys will occur when each potential plant species is in bloom or otherwise identifiable. This may require more than one survey (e.g., an early and late season survey). The determination of timing and number of plant survey visits will be performed by a qualified botanist. Surveys will be conducted in accordance with guidelines and protocols developed by CNPS (2001) and CDFW (2018).

Mitigation Measure #2: Avoidance of State or Federally Listed or Candidate Plant Species
Impacts to state and federally listed or candidate plant species will be avoided. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. Broadcast burning of areas inhabited by herbaceous annual, stump-sprouting, or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact.

Mitigation Measure #3: Avoidance of CRPR List 1 and 2 Plant Species
Impacts to CRPR List 1 and 2 plant species will be avoided wherever possible. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. If direct impacts cannot be avoided, no more than 10% of an occurrence/population (by number of individuals or areal extent) will be impacted. Direct impacts include control line installation, mastication if it occurs, broadcast burning, etc. Broadcast burning of areas inhabited by herbaceous annual or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact. Broadcast burning of shrub species may occur any time of year

without constituting a direct impact. Specific conditions to protect western leatherwood from high intensity fire are discussed below in Mitigation Measure #4.

Mitigation Measure #4: Manual Pre-Treatment of Fuels in Stands of Western Leatherwood
Western leatherwood is a woody perennial shrub species whose fire ecology is currently unknown. This species has been observed to resprout vigorously when cut completely to the ground or by grazing, even when done repeatedly (Kriewall 2001). This indicates that western leatherwood likely has the capability of resprouting from its crown and rootstock following fire and the burning of above ground woody material. However, it is unknown how resilient the below ground tissue is, and it may be killed by a medium or high intensity fire if it produces sufficient soil heating. In order reduce the intensity of fire within and adjacent to any western leatherwood populations which occur in a burn unit, manual fuel reduction treatments will be carried out within a buffer around all western leatherwood individuals. Buffer distance will be determined by a qualified botanist based on the fuel type occurring adjacent to western leatherwood. For example, areas of light fuel loading (e.g., grass) may only require a 10 foot buffer, while areas of higher fuel loads (e.g., brush) may require a 20 foot buffer. Hand crews utilizing chainsaws will cut and remove woody material (both living and dead) of non-special status plants within the buffer. The amount of fuel reduction to prevent negative impacts of medium or high intensity fire on western leatherwood will be determined by a qualified botanist. The pre-burn fuel reduction will result in low intensity fire in the vicinity of any western leatherwood individuals, thereby significantly reducing the chance of below ground tissue mortality and allowing individuals to resprout from crown and rootstock following broadcast burning.

Mitigation Measure #5: Fire Return Interval to Support Obligate Seeder Special Status Shrub Species
The following species are classified as obligate seeder species which may be threatened by short return intervals: Anderson's manzanita (Arctostaphylos andersonii), Kings Mountain manzanita (Arctostaphylos regismontana), and Montara manzanita (Arctostaphylos montaraensis) (Baldwin et al 2012, CNPS 2020). These species reproduce following fire solely though seed present in the soil. Repeated short fire return intervals (<10 years, but possible longer intervals as well) deplete the seedbank of these species without allowing them to grow to maturity where they can reproduce and replenish the seedbank. Over time, repeated short fire return intervals may result in extirpation of these obligate seeder shrub species if they occur in the project area. Sufficient time will be given between burns to allow replenishment of the seedbank. The fire interval required to maintain special- status obligate seeders will be determined by a qualified botanist based on a population level, site-specific analysis. While in all likelihood burning will only take place once in each unit. Re-burning of an area containing these species may occur if the site-specific analysis shows that the population would tolerate re-burning without a significant degradation in population size and vigor.

Special-Status Animal Species

A wildlife resource assessment for the project was prepared by Dudek (2020) and is included in Appendix B.

Ten special-status wildlife species are known to occur or could potentially occur in the project area. The project would not result in the permanent conversion or degradation of habitat for Mission blue butterfly, San Francisco garter snake, or California red-legged frog because prescribed burning is an important management tool for maintaining floral diversity for butterflies (McKnight et al. 2018) and removing thatch and woody vegetation from upland habitat for garter snakes and frogs. Increased thatch buildup and shrub cover degrade upland habitat by discouraging use by rodents that create burrows and prohibiting movement through uplands (Ford et al. 2013, USFWS 2005). In other words, the project would be beneficial for the habitat of all three species because it would improve habitat over the long-term. Project activities could still result in direct injury or mortality of individuals, however. The project could also impact nests of special-

status bird species and San Francisco dusky-footed woodrat. Potential impacts and recommended mitigation measures for each potentially affected species or species group are further described below.

Mission Blue Butterfly

Occupied Mission blue butterfly habitat (i.e., summer lupine locations supporting eggs or larvae) is present along the edges of Units 4 and 8. These areas would be avoided when creating control lines prior to burning. If additional summer lupine locations are found in the interior of burn areas in the future, however, prescribed burns could result in the mortality of eggs or larvae on the plants. This would be a significant impact because it would reduce the viability of the Peninsula Watershed population of this rare species and contribute to its decline. Implementation of the following measure would avoid mortality of Mission blue butterfly eggs or larvae:

Mitigation Measure #6: Survey for and Avoid Occupied Mission Blue Butterfly Host Plants. If ~~limited~~ host plant locations are documented inside proposed burn areas, they will either be avoided or surveyed. For locations that are avoided no project activities shall occur within 25 feet of the outer perimeter of the host plants. An additional buffer will be added if the qualified biologist determines that a larger buffer is needed to protect nectar plants near occupied larval host plants. For locations that are surveyed these locations ~~may~~ will be thoroughly surveyed once every two weeks for the presence of Mission blue butterfly eggs and larvae (including evidence of larval feeding) March thru June. Surveys shall be conducted by qualified biologists with demonstrated field experience identifying all MBB life stages. If no eggs or larvae are found at a given host plant location, the location shall be considered unoccupied for that year ~~and project activities may commence in the fall without implementing avoidance measures. This mitigation measure will be limited to areas which support small numbers of Mission Blue Butterfly host plants and will be not be used in areas with substantial host plant population.~~ Unoccupied host plant locations may be burned unless they are determined to be important dispersal habitat by a qualified biologist. All unoccupied locations must be resurveyed for Mission blue butterfly eggs and larvae in subsequent burn years (i.e., the "unoccupied" status is only valid for the year in which the survey is conducted). Host plant locations at which eggs and/or larvae are found shall be considered occupied for that year and no project activities shall occur within 25 feet of the outer perimeter of the location. This distance is expected to be large enough to protect larvae because second instar larvae diapause in leaf litter at the base of larval food plants and last instar larvae pupate on or near the base of food plants (USFWS 2010).

San Francisco Garter Snake and California Red-legged Frog

While the project area does not support any aquatic breeding habitat for San Francisco garter snake or California red-legged frog, Units 3, 5, and 8 are connected to and within dispersal distance of occupied breeding habitat (although San Francisco garter snakes have not been observed at Homestead Pond north of Unit 8 in recent years). Areas within 3,280 feet and 1.7 miles of occupied San Francisco garter snake or California red-legged frog breeding habitat, respectively, would likely be considered nonbreeding habitat by the wildlife agencies (USFWS and CDFW) and could support individuals during the dry season. Drainages and valley foothill riparian habitat (i.e., willows) are more likely to provide such habitat since they retain some soil moisture year-round. Any project activities occurring in these areas have potential to result in direct mortality of individual garter snakes and/or red-legged frogs. This would be a significant impact because it would reduce the viability of the Peninsula Watershed populations of these species and contribute to the species' decline. Implementation of the following measures (Units 3, 5, and 8 only) would avoid mortality of San Francisco garter snakes and California red-legged frogs:

Mitigation Measure #7: Biological Monitoring for San Francisco Garter Snake and California Red-legged Frog. Project activities on Units 3, 5, 7 and 8 shall be monitored were suitable habitat occurs by a

qualified biologist or biological monitor to ensure that subsequent measures are adequately implemented to avoid direct mortality of these species. The biologist(s) or biological monitor(s) shall have the authority to stop work if San Francisco garter snakes or California red-legged frogs are found during project activities.

Mitigation Measure #8: Environmental Awareness Training and Burn Coordination. The biologist or biological monitor shall provide pre-project environmental awareness training to all crew members working on Units 3, 5, 7 and 8 about the potential presence of San Francisco garter snake and California red-legged frog in the project area. The training shall include basic information on species identification and habitat, describe how the species may be encountered in the work area, and review all species protection measures.

Biological monitors shall attend and may participate in any ignition sequence planning. Biological monitors shall be properly dressed and equipped per CAL FIRE regulations and burn protocols. Biological monitors shall remain outside burn operations areas for safety reasons but the lead biological monitor shall be in radio contact with either the Ignition Specialist or the Incident Commander directly to facilitate efficient communication regarding the safety of San Francisco garter snakes and California red-legged frogs.

Mitigation Measure #9: Pre-activity Surveys for San Francisco Garter Snake and California Red-legged frog. No more than 24 hours prior to conducting project activities on Units 3, 5, 7 and 8, qualified biologists or biological monitors shall conduct visual encounter surveys of upland habitat in work areas for individual San Francisco garter snakes and California red-legged frogs. Survey intensity of upland areas within these units will be determined by the qualified biologist based on areas which are more likely to support San Francisco garter snake and California red-legged frog. A final survey of drainages, valley foothill riparian habitat, and seasonal wetland habitat where individual snakes and frogs are more likely to occur shall be conducted immediately prior to prescribed burns. Burn piles will also be surveyed prior to ignition in areas where they may provide suitable habitat. Any San Francisco garter snake or California red-legged frog found in a location where it may be at risk will be captured and released in a safe area or allowed to leave the area on its own accord. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys but escapes capture, an area approximately 0.25 acres in diameter around the individual shall be protected from the burn. Alternatively, CAL FIRE may postpone burning of the area and conduct another pre-activity survey prior to the rescheduled burn. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys and leaves the burn area on its own accord, no buffer or rescheduling would be required. A biological monitor shall remain at the location where the individual was seen to ensure it does not re-enter the burn area. If it does, a 0.25-acre buffer area shall be established, or the burn postponed as described above.

Only biologists specifically approved by the USFWS and CDFW shall be allowed to capture, handle, and relocate species individuals. If necessary during the burn, individual San Francisco garter snakes (but not red-legged frogs) may be held in captivity in a pillow case for less than 24 hours and may later be released in a vegetated area near the point of capture after the burn has been completed. The number of San Francisco garter snakes and California red-legged frogs encountered and transferred to safe areas or held in captivity during treatment shall be reported to the Bay Delta Fish & Wildlife Office, and each individual San Francisco garter snake shall be photographed for use in identification.

Special-Status Birds

The project area provides nesting habitat for a variety of native coastal scrub and oak woodland birds, including special-status species such as grasshopper sparrow (Unit 3), olive-sided flycatcher (Unit 7), northern harrier (all but Unit 7), and white-tailed kite (all). If conducted during the nesting season (typically

defined by CDFW as February 1–August 31, with peak activity between April and June), project activities could directly impact active nests in affected grassland and coastal scrub. While it is unlikely that proposed activities will require the removal of or impacts to suitable nest trees, noise generated from any project activities conducted may indirectly impact birds nesting nearby by causing visual and audible disturbance that interferes with normal nesting behavior (e.g., adults may abandon eggs or nestlings due to increased stress levels or perceiving the presence of humans and construction equipment as a threat). While smaller birds nesting greater than 50 feet from work areas may tolerate slightly higher-than-normal disturbance levels (especially if nesting on slopes below and outside visual range of project activities) and therefore maintain normal nesting behavior, raptors such as northern harrier and white-tailed kite maintain larger nesting territories and thus can be more sensitive to disturbance within 250 feet of nest sites or more. Adults may abandon incomplete nest structures, eggs, or recently hatched young if they perceive vehicle traffic and/or project activities as a threat. Impacts on nesting special-status birds would be significant because they would reduce the viability of local populations and contribute to declines of these species. Implementation of the following measure would avoid impacts on nesting special-status birds (as well as other native birds):

Mitigation Measure #10: Pre-activity Surveys for Nesting Birds. Within 10 days prior to any ground disturbing, vegetation clearing, or broadcast burning activities during the nesting season, a qualified biologist or biological monitor shall conduct a pre-activity nesting bird survey of all potential nesting habitat within control line and burn areas, including a 100-foot buffer for passerine species and a 250-foot buffer for raptors. If there is a lapse between the survey time and initiation of work activities of 10 days or greater, the nesting bird survey shall be repeated.

If active nests are found during the survey or at any time during the project, work in that area shall stop and a qualified biologist or biological monitor shall determine an appropriate no-work buffer around the nest based on the activity and species and mark the buffer using flagging, pin flags, lathe stakes, or similar marking method. No work shall occur within the buffer until the young have fledged or the nest(s) are no longer active, as determined by the biologist or biological monitor.

Special-Status Bats

Large tree hollows suitable for cavity-roosting bats, including pallid bat, were observed in Unit 8 and similar hollows may be present in other woodlands in the project area. The project will minimize tree removals as much as possible but removal of some larger (greater than 12 inches in diameter) trees may be necessary if they pose a threat to control line integrity and/or human safety. If hazard trees supported suitable bat roosting habitat (i.e., large hollows) and were removed during the bat maternity season (generally March to August in California), the project could directly impact a maternity roost, resulting in mortality of adults and dependent young. This impact would be significant because loss of roosting habitat is considered one of the primary conservation issues facing bat populations, with loss of maternity roosts considered especially significant for pallid bats (H.T. Harvey & Associates 2019). Implementation of the following measure would avoid impacts on bat maternity roosts.

Mitigation Measure #11: Pre-activity Surveys for Bat Maternity Roosts. A qualified biologist familiar with bat roosting ecology shall assess hazard trees for suitable bat roosting habitat if any such trees would be removed during the maternity season (i.e., March 1 to August 31). High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). If no such features or bat sign is detected, no further action beyond preparation of a memorandum describing survey methods and conditions and results would be required.

If the biologist observes bat sign (e.g., guano, urine staining, musky odor), an evening visual emergence survey of the source tree will be conducted from 0.5 hour before to 1–2 hours after sunset for a minimum of two nights, using night-vision goggles and/or full-spectrum acoustic detectors to assist in species identification. If evening visual emergence surveys confirm the presence of an active bat roost, that roost will remain undisturbed with a buffer as determined in consultation with CDFW until August 31 or until a qualified biologist has determined that the roost is no longer active.

If a non-maternity roost in a hazard tree is found, humane eviction may be attempted using procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. Any CDFW-approved bat evictions must be conducted after August 31, when most young have left maternity colonies.

San Francisco Dusky-footed Woodrat

Numerous San Francisco dusky-footed woodrat stick houses are present in Unit 8. Based on the high-quality habitat and abundance of food items (e.g., woody plants, fungi, flowers, and seeds) for this species throughout the unit, it is likely that many of the houses are occupied. Project activities would reduce habitat for this species on Unit 8 by removing dense shrub cover and existing stick houses; activities could also result in mortality of individual woodrats if they are unable to escape houses before being consumed by fire. There would be a significant impact on the local woodrat population if the entire unit became inhospitable to woodrats and all occupied stick houses were destroyed. Implementation of the following measure would reduce impacts on San Francisco dusky-footed woodrat:

Mitigation Measure #12: Avoid Woodrat Houses When Establishing Control Lines and Disturb Burn Piles Prior to Ignition. Woodrat houses shall not intentionally be destroyed. Where feasible (i.e., clearing vegetation for control lines), an exclusion buffer of at least 10 feet from houses shall be established to avoid moving or disturbing the houses or the logs or branches on which houses nest. Existing vegetative screening for nests will be left in place provided the integrity of the control line is not compromised. Burn piles which may have become occupied by woodrats will be sufficiently disturbed prior to ignition by a qualified biologist to encourage any resident woodrats to flee the pile.

Implementation of the above measure would minimize, but not entirely avoid, impacts on San Francisco dusky-footed woodrats at Unit 8. Stick houses in the interior portions of burn areas, if present, would still be consumed by fire and there may be some mortality of individual woodrats. However, patches of suitable habitat, including houses that will be avoided when establishing control lines as well as those on portions of Unit 8 outside the burn area, would remain after the project is completed. The project would temporarily reduce the number of woodrats currently residing on Unit 8 but it would not eliminate the species from the site, which is adjacent to extensive habitat on the Peninsula Watershed. As long as areas of dense shrub cover are maintained over a landscape, prescribed understory fires in oak woodland are unlikely to significantly alter dusky-footed woodrat populations (Lee and Tietje 2005). Moreover, the intent of the proposed project is to reduce the risk of large catastrophic wildfires that would have even more severe effects on woodrats and other wildlife. Dusky-footed woodrats are common to abundant where suitable habitat occurs, and most habitat within the range of the San Francisco subspecies is protected by regional park and open space organizations (e.g., East Bay Regional Park District, Midpeninsula Regional Open Space District, Peninsula Open Space Trust, Santa Clara Valley Open Space Authority). For these reasons, and with implementation of Mitigation Measure #12, the project would have a less than significant impact on San Francisco dusky-footed woodrat.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project have a substantial adverse effect 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 or the U.S. Fish and Wildlife Service?	☐	☒	☐	☐

Less than Significant Impact with Mitigation incorporated: As part of the April 28th and 29th, 2020 reconnaissance survey, Mr. Mosher also identified areas supporting riparian habitat or areas which may support sensitive natural communities as defined by CDFW (2019). While burn unit, locations were chosen to avoid major watercourses, some small intermittent and ephemeral drainages do occur in the project area. As discussed in the project description, no control line construction or brush pre-treatment with heavy equipment will occur within WLPZs. Herbicide treatment within WLPZs will be limited to aquatic formulations, and no herbicide application will occur within 10 feet of an aquatic feature. Broadcast burning may occur within WLPZs and riparian areas. Given the heavy, green vegetation cover and lack of pretreatment directly along watercourses, fire intensity is expected to be low. Fuel consumption in these areas will be minimal, and most of the woody shrub and tree vegetation will remain intact.

Most of the vegetation types that occur in the project area are common and not considered sensitive by CDFW. However, areas of relatively high-quality native grassland (>10% cover of native needlegrass (*Stipa* sp) and other perennial grass species) do occur in various areas stands throughout the project area, and these sometimes form a matrix with areas of California annual grassland dominated by non-native annual grasses such as wild oat (*Avena* sp.) and ripgut brome (*Bromus diandrus*). Additionally, Unit 3 is predominately composed of high-quality serpentine grassland, which supports a plethora of native plant species and numerous special-status plants, including Marin dwarf flax (*Hesperolinon congestum*, FT, CT, 1B.1), Crystal Springs lessingia (*Lessingia arachnoidea*, 1.B2) and bent flowered fiddleneck (*Amsinckia lunaris*, 1B.2). While existing trail and road infrastructure will be utilized as control line whenever possible, some control line construction resulting in removal of vegetation to bare mineral soil and associated soil disturbance will occur. Given the local rarity of these grassland habitat types, large amounts of soil disturbance would be considered significant. Implementation of Mitigation Measure #13, Mitigation Measure #14, Mitigation Measure #15, and Mitigation Measure #16 would reduce these impacts to a less than significant level.

Mitigation Measure #13: Site Control Line Construction and Heavy Equipment Use Outside of Native or Serpentine Grassland When Feasible.
Areas of native or serpentine grassland will be delineated by a qualified botanist prior to control line construction. Siting of control will occur outside of areas of native or serpentine grassland whenever possible to eliminate impacts to these sensitive natural communities. Additionally, use of heavy equipment (i.e., bulldozers) to pre-treat brush will not occur in areas of high-quality serpentine grassland. In cases where native or serpentine grassland cannot be avoided, implementation of Mitigation Measure #14 will occur.

Mitigation Measure #14: Limit Control Line Construction to Handline in Native or Serpentine Grassland
Construction of control line in some areas may take place with a bulldozer, which utilizes a 12 foot-wide blade and can result in significant soil disturbance. In areas of native grassland or serpentine grassland, when it cannot be avoided entirely, control line construction will be restricted to handline. In these grass dominated areas, handline construction will be approximately 3 feet wide, and will result in significantly less soil

disturbance then a dozer as crews utilizing hand tools will be able to remove vegetation down to bare mineral soil without disturbing more than the first few inches of the soil profile.

Mitigation Measure #15: Limit Out-of-Season Burning in Native or Serpentine Grassland.
Out-of-season burning would be avoided when possible to protect native serpentine grasslands. Out-of-season burning is currently identified as being late winter thru spring (particularly January/February).

Mitigation Measure #16: Cleaning Equipment of Organic Material Prior to Entering Work Area.
Crews will be instructed to clean clothing and equipment of organic material prior to entering work areas in order to limit the introduction of weed propagules into the project area. Crews will also be instructed to decontaminate boot soles and tools with a ≥70% Ethyl or isopropyl alcohol solution to prevent spread of Phytophthora.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project 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?	☐	☐	☒	☐

Less than Significant Impact: The project area has been chosen specially to avoid areas with substantial or high-quality wetlands. However, some small, seasonal wetlands do occur within the project area. As discussed in the project description, no control line construction or pre-treatment (mechanical or herbicide) will occur within wetlands. Broadcast burning of areas containing wetlands may occur. Areas that are still wet during broadcast burning will likely burn in a mosaic pattern, with areas of burnt vegetation and areas of unburnt vegetation. If burning takes place after seasonal wetlands have dried, all vegetation within the wetland is likely to be consumed. However, as the wetland in the project site are primarily characterized by herbaceous vegetation such as rushes (*Juncus* sp.) and sprikerush (*Eleocharis* sp.), heat production will remain low allowing below ground rootstock and rhizomes to remain intact. Vegetation will begin to recover shortly following the burn, and vegetation should recover to pre-existing or better condition within one year of broadcast burning. Therefore, broadcast burning in wetlands in the project area would not cause a significant loss of wetland habitat function and would not be considered significant. Please see *Hydrology and Water Quality* for analysis of project impacts to those resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project 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?	☐	☐	☒	☐

Less than Significant Impact: The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors. No Bay Area critical linkages (Penrod et al. 2013) occur in the project area. The project would not create any new barriers (e.g., roads, structures) that would permanently alter existing wildlife movement patterns through the Peninsula

Watershed and Santa Cruz Mountains landscape block. Resident wildlife that regularly move through the burn units while foraging and dispersing may temporarily alter their movement patterns to avoid increased noise and human activity generated by the project and burn areas during prescribed fires and potentially several weeks after (due to reduced cover). Similarly, migratory wildlife (e.g., birds and bats) may avoid using areas exposed to increased noise and human activity as stopover habitat if the project were conducted during a fall or spring migration periods. Such impacts would be temporary, however, and both native and migratory wildlife are expected to resume normal movement patterns soon after the project is completed.

The project would not impede the use of native wildlife nursery sites. Implementation of Mitigation Measure #11 would require identification and avoidance of active native bird nests. The project would not remove any large native trees potentially supporting bat maternity roosts. No other nursery sites are expected to occur in the project area.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

No Impact: The project will comply with all relevant San Mateo county policies and ordinances protecting biological resources, including the significant tree ordinance. The San Mateo County significant tree ordinance applies only to private lands, and CAL FIRE is exempt when a representative identifies the tree as a hazard.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

No Impact: No Habitat Conservation Plans, Natural Community Conservation Plans, or other approved habitat plans occur in the project area.

CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☒	☐

Less than Significant Impact: Historical resources will not be significantly impacted through project activities. A historic records search was completed with information from California Register of Historical Resources (CHRIS) through the Northwest Information Center in Sonoma on March 20, 2020. Native American Tribal notification letters were sent on March 17, 2020 from the most current contact list for San Mateo County. A follow up notification was mailed April 8, 2020 to the contacts provided by the Native American Heritage Commission. No response was received. A confidential archeological report is filed with

California State Archeologist Benjamin Harris on June 19, 2020 and any sites that require protection measures are addressed and approved by Mr. Harris therein. A CAL FIRE Forester or her designee will meet on site to discuss and implement the protection measure per the Confidential ASR.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐

Less than Significant Impact: Archeological resources will not be significantly impacted through project activities. A historic records search was completed with information from California Register of Historical Resources (CHRIS) through the Northwest Information Center in Sonoma on March 20, 2020. Native American Tribal notification letters were sent on March 17, 2020 from the most current contact list for San Mateo County. A follow up notification was mailed April 8, 2020 to the contacts provided by the Native American Heritage Commission. No response was received. A confidential archeological report was filed with California State Archeologist Benjamin Harris on June 19, 2020. Known sites were excluded from the project area and will not be impacted.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated: There are limited ground disturbing activities, most known control lines have been identified prior to burning and were included in the archaeological survey. There is still potential that human remains will be unearthed during ground disturbing activities. Impacts to human remains due to ground disturbance are potentially significant, Mitigation Measure #17 will reduce this impact to a less than significant level.

Mitigation Measure #17: Discovery of Human Remains
If human remains are discovered, project activity shall cease and the County Coroner will be notified. If the remains are determined to be historical, CAL FIRE will contact the CAL FIRE Archaeologist and the Native American Heritage Commission, if necessary.

ENERGY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Less than Significant Impact: Fossil fuels would be consumed through use of vehicles and equipment during project implementation. Vehicle trips and equipment usage will be limited to those required to complete the proposed project. A major objective of this project is to prevent uncontrolled wildfire. During an uncontrolled wildfire, resources are dispatched without regard to energy efficiency as the primary consideration is public safety. Project implementation will reduce the risk of uncontrolled wildfire, thereby reducing the chance of inefficient or wasteful energy consumption by response personnel and equipment. Additionally, vehicle and equipment use will be limited to the duration of the project and would not result in a permanent increase in energy use.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

No Impact: This project will not impact plans for renewable energy or energy efficiency.

GEOLOGY AND SOILS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☐	☒

No Impact: The project does not include the construction of structures or other features which could result in loss, injury, or death during the rupture of a known earthquake fault.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?	☐	☐	☐	☒

No Impact: The project does not include the construction of structures or other features which could result in loss, injury, or death during strong seismic ground shaking.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?	☐	☐	☐	☒

No Impact: The project does not include the construction of structures or other features which could result in loss, injury, or death during seismic-related ground failure.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	☐	☐	☒	☐

Less than Significant Impact: Broadcast burning and related site preparation could potentially increase the risk of landslides through both vegetation loss that results in decreased transpiration and subsequent increased chance of soil saturation, and also by impacting root systems which stabilize slopes. Vegetation loss will occur as a result of all project activities and root systems could be removed through moderate or high intensity fire burning down through vegetation root systems, by uprooting of woody vegetation during control line construction, or by uprooting woody vegetation through high blading.

The broadcast burn prescription will be designed to minimize soil burn severity by excluding burning in conditions that would result in a high severity fire. This will result in root systems generally remaining intact, particularly for shrub and tree species with deep root systems. While some root systems would be impacted by fire, sufficient root stock is expected to remain intact throughout each burn unit to provide sufficient slope stabilization to avoid risk of landslides. The retention of most root systems will lead to coppice growth for most woody vegetation post-fire, meaning the effect of transpiration loss will be short lived as vegetation matures.

Control line constructions results in the removal of all vegetation down to bare mineral soil. Some or all root systems will be removed during control line construction. However, control lines are long, linear features, ranging between 3 and 12 Feet in width. These long, linear features would not cause enough destabilization of an area to cause landslides, as the root systems adjacent to the control lines would remain intact. Additionally, control lines would not be constructed on slopes above 50 percent, where landslides would be most likely to occur naturally.

High blading of shrub stands results in crushed woody vegetation, and in some cases vegetation will be knocked over and their root systems will be pulled out of the ground. However, most of the vegetation in these areas will not be toppled, and their root systems will remain intact during and following brush crushing activities, providing continued stabilization of slopes. Coppice growth will occur for most woody species following this activity as well, again leading to only temporary transpiration loss.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

Less than Significant Impact: The erosion hazard for soils in the project area was derived from the USDA web soil survey tool (NRCS 2020). The ratings indicate the erosion hazard for each soil type following disturbance activities which expose the soil surface (e.g., broadcast burning, control line construction), due to

sheet or rill erosion. The ratings are based on soil type, soil erosion factor K, and an index of rainfall erosivity.

USDA defines the erosion hazard ratings as follows : A rating of "slight" indicates that erosion is unlikely under ordinary climatic conditions; "moderate" indicates that some erosion is likely and that erosion-control measures may be needed; "severe" indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and "very severe" indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical (NRCS 2020). Soils in the project area rated as followings: severe (88.6%), moderate (3.7%), slight (3.8%), null or not rated (4%).

Potential for significant soil erosion could occur due to high intensity fire completely removing vegetation, duff and organic layers from the soil surface. Additionally, control lines which are cleared down to bare mineral soil have the potential for increased erosion. Erosion may also result from use of heavy equipment on steep slopes.

Broadcast Burning

The project has been designed to minimize soil erosion and loss of top soil as much as possible. Burn plans will be written for each fuel type and will be designed to minimize soil burn severity in order to avoid significant erosion or loss of topsoil. While broadcast burning will generally result in significant bare soil (particularly in grass fuel types), the relatively low burn intensity will result in the retention of root structure across most of the project area. While topsoil erosion may occur in limited amounts due to soil detachment from rain drop impact and sheet erosion, these effects are expected to only occur during the initial rain events following project implementation. Following the first wetting rains, seed germination and reestablishment of vegetative cover from the seed bank will occur, stabilizing the soil surface from further erosion. Additionally, coppice growth of most woody vegetation will occur within weeks after burning, leading to additional soil surface cover. Therefore, impacts of broadcast burning on erosion is considered less than significant.

Heavy Equipment Use

Soil disturbance from control line construction or brush crushing, in addition to soil compaction, can increase erosion potential. A minor amount of disturbance will occur as a result of heavy equipment use. The level of disturbance is largely dependent on the type of equipment used, where it is used and how moist the soil is. Unlike rubber-tired equipment, tracked equipment is generally considered to exert relatively light ground pressures, leading to minimal soil compaction and rutting when conditions are dry. PSI for tracked equipment varies, but a common range for mastication equipment is 2-10 psi (Vitorelo et al. 2009). The project design incorporates methods intended to reduce the potential of soil erosion caused by heavy equipment to a less than significant level:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester.
- No work will occur in Watercourse and Lake Protection Zones (WLPZ), defined as extending 50 feet from intermittent and perennial aquatic features.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐

Less than Significant Impact: Please see *Geology and Soils (d)* for an analysis of the projects impacts on potential landslides. The project does not include construction of structures. Therefore, there would be no risk from lateral spreading, subsidence, liquefaction, or collapse.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☐	☒

No Impact: The project does not include the construction of any structures. Therefore, there would be no risk to life and property from expansive soils.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

No Impact. The project does not include construction of septic tanks or wastewater treatments systems.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

No Impact: The project would not result in soil disturbance deeper then the top few inches of the soil profile. Therefore, there is no potential for the destruction of unique paleontological resource or paleontological feature.

GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐

Less than Significant Impact: The project will generate greenhouse gas emissions by burning of vegetation and the use of fuel by vehicles traveling to and from the site and heavy equipment. We aim to burn ~~one or two burn units annually~~ up to approximately 200 acres, this will include different subunits within the project area.

Fossil Fuel Consumption

- Average 16 miles round trip to and from Belmont Station per engine and pick up (16 miles for 20 engine days=320 miles; 16 miles for 20 pickup truck days= 320 pickup truck days= 640 miles)
- 260 gallons drip torch mix (4:1; diesel: gasoline)
- 5 Days of Bulldozer work (35 gallons per day of light work)
- Masticator (16 hours of use X 8 gallons per hour, transport 6 miles per gallon, 100 miles round trip from Felton)

Engine Travel	320 miles/8 miles per gallon =	40 gallons
Diesel Drip Torch Mix		195 gallons
Dozer Work	5 days X 35 gallons=	175 gallons
Masticator Work	16 hours X 8 gallons per hour =	128 gallons
Masticator Transport	100 miles X 6 gallons	600 gallons
		1,138 gallons diesel
Pick up Truck Travel	320 miles/15 miles per gallon =	22 gallons
Gasoline Drip Torch Mix		65 gallons
		87 gallons gasoline

1,138 gallons diesel X 10.15 kg CO_2/gal = 11,550.7 kilograms CO_2e
11,550.7 kilograms CO_2e ÷ 1000 kg/metric ton = 11.55 metric tons of CO_2e from diesel

87 gallons gasoline X 8.88 kg CO_2/gal.= 772.56 kilograms CO_2e
772.56 kilograms CO_2e ÷ 1000 kg/metric ton = .77256 metric tons CO_2e from gasoline

Fossil Fuel Consumption = 11.55 + .773 = **12.323 metric tons CO_2e from gasoline and diesel**

Conversion Factors	
1 gallon diesel = 10.15 kilograms CO_2	*1 metric ton = 1000 kilograms*
1 gallon gasoline = 8.88 kilograms CO_2	*1 ton = 0.907185 metric tons*
One ton carbon = 3.667 tons CO_2	

Broadcast Burning
A First Order Fire Effects Model (FOFEM) program was used to estimate greenhouse gas emissions from broadcast burning for the project. The FOFEM results are attached to this report in Appendix C

While some of the units are close to 300 acres, the fuel types are not uniform. The dominating fuel type is grass, with a variable coyote brush (*Baccharis pilularis*) component. Two units (7 and 8) have a limited tree element, mostly Monterey pine (Pinus radiata) and coast live oak (*Quercus agrifolia*) respectively. The most accurate representation of the potential emissions would be to combine these fuel types to account for variation. CAL FIRE does not anticipate broadcast burning more than 200 acres of area within this project.

The potential fuel type emissions of CO_2e are estimated as follows:
50% Purple tussock grass- California oatgrass grassland
50% Northern Coastal Scrub

Purple tussock grass- California oatgrass grassland Fuel Model (USFS- Fuel Characteristic Classification System):

3.56 total fuel load tons/acre, carbon content is 1.55 tons C/acre. Per FOFEM, the total fuel load will be reduced by 93.3%, releasing 1.46 tons C/ acre.
1.46 tons C/acre X .907185 = 1.324 metric tons C/acre
1.324 metric tons C/acre X 3.667= 4.855 metric tons CO_2e/acre
4.855 metric tons CO_2e/acre X 100 acres per year = **485.5 metric tons CO_2e** from broadcast burning 100 acres of grassland annually.

North Coastal Scrub:

5.8 total fuel load tons/acre, carbon content is 2.7 tons C/acre. Per FOFOEM, the total fuel load will be reduced by 68.9%, releasing 1.93 tons C/acre.
1.93 tons C/acre X .907185 = 1.588 metric tons C/acre
1.588 metric tons C/acre X 3.667= 5.825 metric tons CO_2e/acre
5.825 metric tons CO_2e/acre X 100 acres per year = **582.45 metric tons CO_2e** from broadcast burning 100 acres of coastal scrub annually.

Maximum CO_2e annually from burning is estimated at **1,067.95 metric tons CO_2e**
Fossil Fuel Consumption annually is estimated at **12.323 metric tons CO_2e from gasoline and diesel**.

Total possible emissions annually could be as much as **1,079.97 metric tons CO_2e**

The BAAQMD does not have a threshold of significance for prescribed burning. Much of these emissions are carbon which is part of the natural carbon cycle (as opposed to vehicle emissions) and will be re-sequestered through the regrowth of new, more vigorous vegetation. By removing dead trees, decadent brush, and thatch in the grassland, this project will create a more healthy and robust vegetative community which is more resilient in the face of wildfire. This will reduce potential greenhouse gas emissions over time, in addition to reducing the chance of a high intensity wildfire burning over a large area. Prescribed burns have been shown to emit 25% to 50% less CO(2) than a wildfire of the equivalent size (Wiedinmyer and Hurteau 2010).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Less than Significant Impact: This project does not conflict with any current plans to reduce GHG. The main objective of this project is to reduce the threat of an uncontrolled wildfire, which would be a significant source of GHG emissions. One estimate of the 2018 California Fire Season by the U.S. Geological Survey (USGS) states that 68 million tons of carbon dioxide was released, or 15% of the state's total emissions (DOI

2018). Proper forest management, including prescribed burning will reduce the risk of wildfire and uninhibited GHG emissions.

HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Less than Significant Impact: Project implementation would require the use and transportation of various fuels, oil, and lubricants for equipment such as vehicles, dozers, chainsaws, and drip torches. These substances could be potentially hazardous if released into the environment, particularly adjacent to watercourse. Additionally, herbicides may be used to pretreat brush prior to broadcast burning.

All equipment will be properly maintained and inspected daily to ensure that no leaks are present. Equipment will not be refueled within 50 feet of a watercourse. All hazardous herbicides, fuel, oil, and lubricants will be stored in leak proof containers. Herbicides use will be consistent with recommendations of a licensed Pest Control Advisor (PCA) and will comply with all appropriate laws and regulations as governed by the Environmental Protection Agency (EPA), Department of Pesticide Regulation (DPR), and the County of San Mateo. Herbicide application will be performed by an applicator appropriately licensed by the State.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

Less than Significant Impact: See analysis in *Hazards and Hazardous Materials (a)* for information regarding prevention of release of hazardous materials into the environment.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

No Impact: ~~No schools exist or are proposed within one-quarter mile of the project area.~~ Fox Elementary is approximately 300 feet from Unit 4, however hazardous materials will not be used within a quarter mile of that location. Please see analysis in Air Quality for potential impacts of smoke on sensitive receptors, including the school.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒

No Impact: The project area does not occur on a known hazardous material site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐

Less than Significant Impact: At its closest point, the project area is over 2 miles away from the nearest airport (San Francisco International Airport, SFO). The project area does not intersect with noise contour data presented in the noise exposure maps for the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport (Ricondo & Associates 2012). The project area is outside of the normal approach and departure lanes for SFO, and any aircraft flying over the project area would be at a relatively high altitude where aircraft noise would be minimal.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact: The project would not affect an adopted emergency response plan or emergency evacuation. No alterations to roadways or other evacuation routes would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☒

No Impact: The project's main purpose is to decrease the risk of catastrophic wildfire affecting people and structures in the vicinity of the project area through a reduction in fuel loading. See analysis in *Wildfire* for further discussion.

HYDROLOGY AND WATER QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Less Than Significant Impact: Broadcast burning can result in an increase in run-off, erosion, and sedimentation, particularly in scrub and grassland vegetation types where fire severity is generally higher and more bare soil occurs following burning. Additionally, use of herbicides could potentially affect water quality through off-site movement from runoff, leaching, drift, or spills. The project is designed to reduce potential effects on water quality.

Broadcast Burning

The burn prescription will be designed to limit burn severity to the extent feasible, particularly to limit soil heating to the point that would cause hydrophobic soil development. No work which includes ground disturbance or use of heavy equipment will occur during heavy precipitation or while soils remain saturated to prevent additional erosion and possible sedimentation. The project's purpose is to reduce the risk of catastrophic, high severity wildfire from occurring in the project area. Prescribed fire has significantly less of an impact on run-off, erosion, and sedimentation then unplanned wildfire owing to its reduced intensity (MacDonald et al. 2004, Wohlgemuth et al. 1999).

Herbicide

Potential effects of herbicides on water quality have been reduced through incorporation of BMPs into the project design:

- Herbicide will be applied under the recommendations of a licensed PCA.
- Herbicide use will be conducted in a manner consistent with the label.
- No herbicide application will occur within 24-hours of predicted rainfall.
- Only aquatic formulations of herbicide will be used within WLPZs, and no herbicide applications will occur within 10-feet of an aquatic feature.
- All herbicide will be stored in spill proof containers, and herbicide mixing will occur outside of WLPZs
- Herbicide will be applied by an applicator licensed by the State.

Since the project has been designed to minimize impacts to surface or ground water quality, this impact is considered less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒

No Impact: The project does not contain a component that would affect groundwater supplies or interfere with groundwater recharge. Minor increases in ground water recharge may occur as a result of decreased transpiration. Any increase would be temporary as vegetative growth resumes post-burn.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial on- or off-site erosion or siltation?	☐	☐	☒	☐

Less than Significant Impact: Use of heavy equipment has the potential to have minor effects on existing drainage patterns through soil disturbance from high blading or control line construction, particularly if the disturbance occurs within existing watercourse. The following BMPs included in the project description will ensure that any alterations are minor and less than significant:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester.
- No work will occur in WLPZ's, defined as extending 50 feet from intermittent and perennial aquatic features.

High intensity fires can create hydrophobic soils. Use of cool prescriptions during broadcast burns will ensure soils retain most of their functionality for absorption, infiltration and drainage.

As any alteration to drainage patterns will be minor, and no substantial on- or off-site erosion or siltation will result.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding?	☐	☐	☒	☐

Less than Significant Impact: Use of heavy equipment has the potential to have minor effects on existing drainage patterns through soil disturbance from high blading or control line construction, particularly if the disturbance occurs within existing watercourse. The following BMPs included in the project description will ensure that any alterations are minor and less than significant:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where

deemed necessarily by a CAL FIRE Forester.
- No work will occur in WLPZ's, defined as extending 50 feet from intermittent and perennial aquatic features.

A minor increase in surface runoff is possible post-burn. Use of cool prescriptions during broadcast burns will ensure soils retain most of their functionality for absorption, infiltration and drainage.

As any alteration to drainage patterns will be minor, and no on- or off-site flooding will result.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐

Less than Significant Impact: Use of heavy equipment has the potential to have minor effects on existing drainage patterns through soil disturbance from high blading or control line construction, particularly if the disturbance occurs within existing watercourse. The following BMPs included in the project description will ensure that any alterations are minor and less than significant:
- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester.
- No work will occur in WLPZ's, defined as extending 50 feet from intermittent and perennial aquatic features.

A minor increase in surface runoff, ash, and debris is possible post-burn. Use of cool prescriptions during broadcast burns will ensure unburned organic material remains on the soil surface to largely intercept and capture post-fire pollutants on site, and that soils will retain most of their functionality for absorption, infiltration and drainage. Additionally, unburned areas between burn units and drainages will act as sufficient filtration areas to further prevent post-fire pollutants from reaching bodies of water.

As any alteration to drainage patterns will be minor, no increase in runoff water which would exceed the capacity of existing or planned stormwater drainage system or contribute addition sources of polluted runoff will result.

	Potentially Significant Impact	Less Than Significant	Less Than Significant Impact	No Impact
f) Would the project substantially alter the existing drainage pattern of the site or area,				

including through the alteration of the course of a stream or river or through the addition of impervious surfaces, or substantially increase the rate or amount of surface runoff in a manner which would impede or redirect flows?	☐	with Mitigation Incorporated ☐	☒	☐

Less than Significant Impact: Use of heavy equipment has the potential to have minor effects on existing drainage patterns through soil disturbance from high blading or control line construction, particularly if the disturbance occurs within existing watercourse. The following BMPs included in the project description will ensure that any alterations are minor and less than significant:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester.
- No work will occur in WLPZ's, defined as extending 50 feet from intermittent and perennial aquatic features.

High intensity fires can create hydrophobic soils. A minor increase in surface runoff is possible post-burn. Use of cool prescriptions during broadcast burns will ensure soils retain most of their functionality for absorption, infiltration and drainage.

As any alteration to drainage patterns will be minor, no change which would impede or redirect flows will result.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	☐	☐	☐	☒

No Impact: The project does not include the construction of structures or other facilities to store hazardous materials which may become inundated during a natural disaster.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
h) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

No Impact: The proposed project has no relation to a water quality control plan or sustainable groundwater management plan.

LAND USE AND PLANNING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project physically divide an established community?	☐	☐	☐	☒

No Impact: There are no communities within the project area. Additionally, impacts would not result in any permanent and substantial land changes which could result in physical division.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

No Impact. The project does not conflict with any established land use plan for the project area, including the Peninsula Watershed Management Plan (EDAW 2002) and the Peninsula Watershed Vegetation Management Plan (Wildland Resource Management 2007).

NOISE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☐	☐	☒	☐

Less than Significant Impact: Noise will be generated during project implementation through use of equipment including chainsaws, use of vehicles and heavy equipment such as fire engines, dozers, and masticators, and potential use of helicopters during broadcast burn operations. While this will create additional sources of noise, much of the project area is located away from residential areas, schools, hotels, libraries, nursing homes, or other sensitive receptors. When project activity will occur close to sensitive receptors, increased levels of noise will be temporary, as crews will move to new areas as work is completed. Therefore, no permanent increases in noise levels will result, and temporary impacts will be limited in length.

When CAL FIRE is conducting governmental activities under the authority of state law or the State Constitution, they are exempt from local government plans, policies, and ordinances. Still, all efforts will be made the comply with County of San Mateo noise ordinances. This includes restricting work to daytime hours (7:00 a.m. to 6:00 p.m), and when possible, restricting work to weekdays (Monday – Friday).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒

No Impact: Project implementation would not result in the operation of any source of ground vibration, such as pile driving, drilling, boring, or rock blasting.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Less than Significant Impact: At its closest point, the project area is over 2 miles away from the nearest airport (San Francisco International Airport, SFO). The project area does not intersect with noise contour data presented in the noise exposure maps for the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport (Ricondo & Associates 2012). The project area is outside of the normal approach and departure lanes for SFO, and any aircraft flying over the project area would be at a relatively high altitude where aircraft noise would be minimal.

MINERAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

No Impact. There are no known mineral resources in the project area.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

No Impact: There are no locally important mineral resource recovery sites within the project area.

POPULATION AND HOUSING

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒

No Impact: The project will not induce population growth. No development is proposed as part of the project.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

No Impact: The project will take place entirely within SFPUC Peninsula Watershed land, and no housing occurs there or will be impacted by project activities. Project implementation would result in a reduction of fire hazard to adjacent communities, which would lessen the chances of a large wildfire occurring and displacing substantial numbers of existing people.

PUBLIC SERVICES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection?	☐	☐	☐	☒

No Impact: The project will not result in any changes that would require expansion or creation of public services, including fire protection, police protection, schools, parks, or other public facilities.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain	☐	☐	☐	☒

acceptable service ratios, response times, or other performance objectives for police protection?				

No Impact: The project will not result in any changes that would require expansion or creation of public services, including fire protection, police protection, schools, parks, or other public facilities.

c) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for schools?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

No Impact: The project will not result in any changes that would require expansion or creation of public services, including fire protection, police protection, schools, parks, or other public facilities.

d) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for parks?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

No Impact: The project will not result in any changes that would require expansion or creation of public services, including fire protection, police protection, schools, parks, or other public facilities.

e) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities?	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
	☐	☐	☐	☒

No Impact: The project will not result in any changes that would require expansion or creation of public services, including fire protection, police protection, schools, parks, or other public facilities.

RECREATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐

Less than Significant Impact: While most of the watershed is closed to public access, limited recreational opportunities do occur. The most significant recreational facility being the Crystal Springs Cross Country Course, which hosts several large meets a year. The event calendar will be consulted prior to implementation and CAL FIRE will not burn on days committed to races. CAL FIRE will be in contact with course managers to determine potential burn days. The project will not close the Course for any significant length of time (only a few days at most), and will not result in permanent damage to the Course that would render it unusable. Project implementation may result in a temporary increase in use of existing trails if recreational users are interested in the project and the resulting effects. However, this increase will be temporary in nature immediately following project implementation, and usage will be restricted to existing trail and road infrastructure which are designed to accommodate significant foot traffic. Therefore, no significant deterioration of recreation facilities would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

No impact: The project does not include construction or expansion of recreational facilities.

TRANSPORTATION

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒

No Impact: The project will not alter the physical transportation network within the Watershed.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines § 15064.3(b)?	☐	☐	☐	☒

No Impact: The project will not conflict or be inconsistent with CEQA Guidelines § 15064.3(b).

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐

Less than Significant: The project will not result any changes to geometric design features of transportation networks. There is potential for the project to temporarily increase transportation hazards due to smoke generated by broadcast burns, especially in areas which are adjacent to Highway 280, a major freeway and transportation artery. Smoke could potentially affect driver visibility and distract drivers. Prior to ignition, a test burn will be conducted to ensure that smoke dispersal is adequate to avoid impacts to major transportation arteries including Highway 280. In smoke dispersal is no longer adequate at any point during the burn and is impacting nearby transportation arteries, the burn will be terminated.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project result in inadequate emergency access?	☐	☐	☐	☒

No Impact. The project will not change currently existing emergency access. All existing roads and watershed access points will remain intact and usable following project implementation.

TRIBAL CULTURAL RESOURCES

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code § 5020.1(k)?	☐	☐	☐	☒

No Impact: This project will not impact Tribal Cultural Resources. CAL FIRE has designed this project to avoid impacts to cultural and historic resources. A historic records search was completed with information from California Register of Historical Resources (CHRIS) through the North West Information Center in Sonoma on March 20, 2020. Native American Tribal notification letters were sent on March 17, 2020 from the most current contact list for San Mateo County. A follow up notification was mailed April 8, 2020 to the contacts provided by the Native American Heritage Commission. An archeological survey report was filed

with State Archeologist Benjamin Harris on June 19, 2020. Known sites were excluded from the project area and will not be impacted.

The primary objective of the project is prescribed burning, which has enormous cultural value to tribes in California. For thousands of years Native Californians have used intentional burning to renew food sources, medicinal and cultural resources, create habitat for animals and reduce the risk of larger more devastating wildfires. CAL FIRE is attempting to create a culture where fire is a tool, not a threat. Local tribes have been very supportive of local prescribed fire projects (Valentin Lopez, Amah Mutsun Tribal Band, consultation for 2017 Lower Empire Grade VMP) and we continue to enjoy a good relationship with Tribal members. We welcome their input and ancestral knowledge regarding land management activities.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Less than Significant Impact with Mitigation Incorporated: There are limited ground disturbing activities, most known control lines have been identified prior to burning and were included in the archaeological survey. There is still potential that human remains will be unearthed during ground disturbing activities. Impacts to human remains due to ground disturbance are potentially significant. Implementation of Mitigation Measure #17 (refer to *Cultural Resources (c)*) will reduce this impact to a less than significant level.

UTILITIES AND SERVICE SYSTEMS

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☐	☒

No Impact: The project is not a development or infrastructure project and would not result in the relocation or construction of new or expanded utilities.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒

No Impact: The project is not a development or infrastructure project and would not require any water supply.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☐	☐	☐	☒

No Impact: The project is not a development or infrastructure project or will not result in any additional wastewater treatment needs.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒

No Impact: The project will not generate solid waste.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

No Impact: The project will not generate solid waste.

WILDFIRE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

No Impact: The project would not impair existing emergency response plans or emergency evacuation plans. Project implementation would reduce fuel loading in the project area, thereby reducing the chances of the area requiring emergency response for wildfire, reduce the rate of spread and intensity of wildlife, as well as give fire personnel areas to halt fire spread.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

Less than Significant Impact: The primary objective of this project is to reduce the risk of wildfire by reducing fuel loading through broadcast burning when conditions are conducive to doing so without subjecting nearby communities to the excessive pollutant concentrations of uncontrolled wildfire. The adherence to a burn prescription and sufficient fire suppression resources on hand during burns ensures a very low probability of an uncontrolled wildfire.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒

No Impact: A very small portion of this project is classified state responsibility areas (SRA) very high fire hazard severity zones (VHFHSZ). It is adjacent to land classified as SRA VHFHSZ. The project will expand upon preexisting disk lines and fuel breaks created by SFPUC and further reduce the wildfire hazard near homes and escape routes. Units 4 and 6 are located between the city of Belmont and Interstate 280, where the median home value is over $1,000,000. Unit 7 is along Highway 35, as a major evacuation route for the Santa Cruz Mountains. Unit 8 boarders Runnymeade Drive and the town of Woodside. The wildland areas are the State Responsibility Area (SRA), the response area for CAL FIRE. The city of Belmont and Woodside are Local Responsibility Area (LRA), the response area for Woodside Fire Protection and San Mateo Consolidated Fire. No additional infrastructure or fuel breaks will be needed.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d) If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding	☐	☐	☒	☐

or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				

Less than Significant Impact: A small portion of this project is classified SRA VHFHSZ. It is adjacent to land classified as SRA VHFHSZ. Project impacts relating to flooding, landslides, run-off, slope instability, and drainage changes are analyzed in *Geology and Soils* and *Hydrology and Water Quality* and are considered less than significant.

The purpose of this project is to reduce the risk of catastrophic wildfire which could have significant effects on flooding, landslides, run-off, slope instability, and drainage changes. Therefore, the project would not increase, but decrease, the risk of these impacts occurring due to uncontrolled wildfire.

MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project have the potential to substantially degrade the quality of the environment, 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, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

Less than Significant Impact with Mitigation Incorporated: The intent of the proposed project is to help protect people, property, wildlife habitat and the environment by reducing the threat of a catastrophic wildfire. The proposed project has been designed to not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. Areas where the project could have potentially significant impacts on these resources were identified and addressed with mitigation measures in the *Environmental Checklist and Discussion.*

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Would the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐

The proposed project would not significantly contribute to any cumulative effect. As discussed in the *Environmental Checklist and Discussion*, the effects of the project on the environment would be minor, especially when compared to development projects in the region. Implementation of the proposed project would not result in any permanent environmental impacts or conversion of wildland to urban land.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Would the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

No project-related environmental effects were identified that will cause substantial adverse effects on human beings. The project will provide better protection to the community and adjacent wildlands by decreasing the threat of catastrophic wildfire, thus having a net benefit effect on human beings.

APPENDIX A

Mitigation Monitoring and Reporting Plan

In accordance with CEQA Guidelines § 15074(d), when adopting a mitigated negative declaration, the lead agency will adopt a mitigation monitoring and reporting plan (MMRP) that ensures compliance with mitigation measures required for project approval. CAL FIRE is the lead agency for the above-listed project and has developed this MMRP as a part of the final IS-MND supporting the project. This MMRP lists the mitigation measures developed in the IS-MND that were designed to reduce environmental impacts to a less-than-significant level. This MMRP also identifies the party responsible for implementing the measure, defines when the mitigation measure must be implemented, and which party or public agency is responsible for ensuring compliance with the measure.

POTENTIALLY SIGNIFICANT EFFECTS AND MITIGATION MEASURES

The following is a list of the resources that will be potentially affected by the project and the mitigation measures made part of the Initial Study-Mitigated Negative Declaration.

Mitigation Measure #1: Pre-treatment Survey for Special Status Plant Species
Prior to the project implementation, all impact areas within a given burn unit will be surveyed for special status plant species. Plant surveys will occur when each potential plant species is in bloom or otherwise identifiable. This may require more than one survey (e.g., an early and late season survey). The determination of timing and number of plant survey visits will be performed by a qualified botanist. Surveys will be conducted in accordance with guidelines and protocols developed by CNPS (2001) and CDFW (2018).
Schedule: Prior to vegetation clearing, ground disturbing activities, or broadcast burning.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #2: Avoidance of State or Federally Listed or Candidate Plant Species
Impacts to state and federally listed or candidate plant species will be avoided. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. Broadcast burning of areas inhabited by herbaceous annual, stump-sprouting, or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact.
Schedule: Prior to vegetation clearing, ground disturbing activities, or broadcast burning.
Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #3: Avoidance of CRPR List 1 and 2 Plant Species
Impacts to CRPR List 1 and 2 plant species will be avoided wherever possible. A suitable buffer distance will be established by a qualified botanist based upon species specific biology and the potential of specific activities to impact plant populations. If direct impacts cannot be avoided, no more than 10% of an occurrence/population (by number of individuals or areal extent) will be impacted. Direct impacts include control line installation, mastication if it occurs, broadcast burning, etc. Broadcast burning of areas inhabited by herbaceous annual or geophyte species may occur once the species is dormant/has completed its annual lifecycle without constituting a direct impact. Broadcast burning of shrub species may occur any time of year without constituting a direct impact. Specific conditions to protect western leatherwood from high intensity fire are discussed below in Mitigation Measure #4.
Schedule: Prior to vegetation clearing, ground disturbing activities, or broadcast burning.
Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #4: Manual Pre-Treatment of Fuels in Stands of Western Leatherwood
Western leatherwood is a woody perennial shrub species whose fire ecology is currently unknown. This species has been observed to resprout vigorously when cut completely to the ground or by grazing, even when done repeatedly (Kriewall 2001). This indicates that western leatherwood likely has the capability of resprouting from its crown and rootstock following fire and the burning of above ground woody material. However, it is unknown how resilient the below ground tissue is, and it may be killed by a medium or high intensity fire if it produces sufficient soil heating. In order reduce the intensity of fire within and adjacent to any western leatherwood populations which occur in a burn unit, manual fuel reduction treatments will be carried out within a buffer around all western leatherwood individuals. Buffer distance will be determined by a qualified botanist based on the fuel type occurring adjacent to western leatherwood. For example, areas of light fuel loading (e.g., grass) may only require a 10 foot buffer, while areas of higher fuel loads (e.g., brush) may require a 20 foot buffer. Hand crews utilizing chainsaws will cut and remove woody material (both living and dead) of non-special status plants within the buffer. The amount of fuel reduction to prevent negative impacts of medium or high intensity fire on western leatherwood will be determined by a qualified botanist. The pre-burn fuel reduction will result in low intensity fire in the vicinity of any western leatherwood individuals, thereby significantly reducing the chance of below ground tissue mortality and allowing individuals to resprout from crown and rootstock following broadcast burning.
Schedule: Prior to broadcast burning.
Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #5: Fire Return Interval to Support Obligate Seeder Special Status Shrub Species
The following species are classified as obligate seeder species which may be threatened by short return intervals: Anderson's manzanita (Arctostaphylos andersonii), Kings Mountain manzanita (Arctostaphylos regismontana), and Montara manzanita (Arctostaphylos montaraensis) (Baldwin et al 2012, CNPS 2020). These species reproduce following fire solely though seed present in the soil. Repeated short fire return intervals (<10 years, but possible longer intervals as well) deplete the seedbank of these species without allowing them to grow to maturity where they can reproduce and replenish the seedbank. Over time, repeated

short fire return intervals may result in extirpation of these obligate seeder shrub species if they occur in the project area. Sufficient time will be given between burns to allow replenishment of the seedbank. The fire interval required to maintain special- status obligate seeders will be determined by a qualified botanist based on a population level, site-specific analysis. While in all likelihood burning will only take place once in each unit. re-burning of an area containing these species may occur if the site-specific analysis shows that the population would tolerate re-burning without a significant degradation in population size and vigor.
Schedule: Prior to re-burning units containing obligate seeder special status shrub species.
Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #6: Survey for and Avoid Occupied Mission Blue Butterfly Host Plants. If host plant locations are documented inside proposed burn areas, they will either be avoided or surveyed. For locations that are avoided no project activities shall occur within 25 feet of the outer perimeter of the host plants. An additional buffer will be added if the qualified biologist determines that a larger buffer is needed to protect nectar plants near occupied larval host plants. For locations that are surveyed these locations will be thoroughly surveyed once every two weeks for the presence of Mission blue butterfly eggs and larvae (including evidence of larval feeding) March thru June. Surveys shall be conducted by qualified biologists with demonstrated field experience identifying all MBB life stages. If no eggs or larvae are found at a given host plant location, the location shall be considered unoccupied for that year. Unoccupied host plant locations may be burned unless they are determined to be important dispersal habitat by a qualified biologist. All unoccupied locations must be resurveyed for Mission blue butterfly eggs and larvae in subsequent burn years (i.e., the "unoccupied" status is only valid for the year in which the survey is conducted). Host plant locations at which eggs and/or larvae are found shall be considered occupied for that year and no project activities shall occur within 25 feet of the outer perimeter of the location. This distance is expected to be large enough to protect larvae because second instar larvae diapause in leaf litter at the base of larval food plants and last instar larvae pupate on or near the base of food plants (USFWS 2010).
Schedule: Prior to vegetation clearing, ground disturbing activities, or broadcast burning.
Responsible Party: SFPUC shall be responsible for surveying Mission blue butterfly host plants, CAL FIRE shall be responsible for avoiding occupied Mission blue butterfly host plants
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #7: Biological Monitoring for San Francisco Garter Snake and California Red-legged Frog. Project activities on Units 3, 5, 7 and 8 shall be monitored where suitable habitat occurs by a qualified biologist or biological monitor to ensure that subsequent measures are adequately implemented to avoid direct mortality of these species. The biologist(s) or biological monitor(s) shall have the authority to stop work if San Francisco garter snakes or California red-legged frogs are found during project activities.
Schedule: Immediately prior to and during vegetation clearing, ground disturbing activities, or broadcast burning.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____

Date: _____

Mitigation Measure #8: Environmental Awareness Training and Burn Coordination. The biologist or biological monitor shall provide pre-project environmental awareness training to all crew members working on Units 3, 5, 7 and 8 about the potential presence of San Francisco garter snake and California red-legged frog in the project area. The training shall include basic information on species identification and habitat, describe how the species may be encountered in the work area, and review all species protection measures.

Biological monitors shall attend and may participate in any ignition sequence planning. Biological monitors shall be properly dressed and equipped per CAL FIRE regulations and burn protocols. Biological monitors shall remain outside burn operations areas for safety reasons but the lead biological monitor shall be in radio contact with either the Ignition Specialist or the Incident Commander directly to facilitate efficient communication regarding the safety of San Francisco garter snakes and California red-legged frogs.
Schedule: Immediately prior to and during vegetation clearing, ground disturbing activities or broadcast burning.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #9: Pre-activity Surveys for San Francisco Garter Snake and California Red-legged frog. No more than 24 hours prior to conducting project activities in suitable habitat on Units 3, 5, 7 and 8, qualified biologists or biological monitors shall conduct visual encounter surveys of upland habitat in work areas for individual San Francisco garter snakes and California red-legged frogs. Survey intensity of upland areas within these units will be determined by the qualified biologist based on areas which are more likely to support San Francisco garter snake and California red-legged frog. A final survey of drainages, valley foothill riparian habitat, and seasonal wetland habitat where individual snakes and frogs are more likely to occur shall be conducted immediately prior to prescribed burns. Burn piles will also be surveyed prior to ignition in areas where they may provide suitable habitat. Any San Francisco garter snake or California red-legged frog found in a location where it may be at risk will be captured and released (if proper permits are obtained from USFWS and CDFW) in a safe area or allowed to leave the area on its own accord. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys but escapes capture or is allowed to leave on its own accord, an area approximately 0.25 acres in diameter around the individual shall be protected from the burn. Alternatively, CAL FIRE may postpone burning of the area and conduct another pre-activity survey prior to the rescheduled burn. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys and leaves the burn area on its own accord, no buffer or rescheduling would be required. A biological monitor shall remain at the location where the individual was seen to ensure it does not re-enter the burn area. If it does, a 0.25-acre buffer area shall be established, or the burn postponed as described above.

Only biologists specifically approved by the USFWS and CDFW shall be allowed to capture, handle, and relocate species individuals. If necessary during the burn, individual San Francisco garter snakes (but not red-legged frogs) may be held in captivity in a pillow case for less than 24 hours and may later be released in a vegetated area near the point of capture after the burn has been completed. The number of San Francisco garter snakes and California red-legged frogs encountered and transferred to safe areas or held in captivity during treatment shall be reported to the Bay Delta Fish & Wildlife Office, and each individual San Francisco garter snake shall be photographed for use in identification.

Schedule: Immediately prior to and during vegetation clearing, ground disturbing activities or broadcast burning.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #10: Pre-activity Surveys for Nesting Birds. Within 10 days prior to any ground disturbing, vegetation clearing, or broadcast burning activities during the nesting season, a qualified biologist or biological monitor shall conduct a pre-activity nesting bird survey of all potential nesting habitat within control line and burn areas, including a 100-foot buffer for passerine species and a 250-foot buffer for raptors. If there is a lapse between the survey time and initiation of work activities of 10 days or greater, the nesting bird survey shall be repeated.

If active nests are found during the survey or at any time during the project, work in that area shall stop and a qualified biologist or biological monitor shall determine an appropriate no-work buffer around the nest based on the activity and species and mark the buffer using flagging, pin flags, lathe stakes, or similar marking method. No work shall occur within the buffer until the young have fledged or the nest(s) are no longer active, as determined by the biologist or biological monitor.
Schedule: During the bird nesting season, within 10 days of ground disturbing, vegetation clearing, or broadcast burning activities.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #11: Pre-activity Surveys for Bat Maternity Roosts. A qualified biologist familiar with bat roosting ecology shall assess hazard trees for suitable bat roosting habitat if any such trees would be removed during the maternity season (i.e., March 1 to August 31). High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). If no such features or bat sign is detected, no further action beyond preparation of a memorandum describing survey methods and conditions and results would be required.

If the biologist observes bat sign (e.g., guano, urine staining, musky odor), an evening visual emergence survey of the source tree will be conducted from 0.5 hour before to 1–2 hours after sunset for a minimum of two nights, using night-vision goggles and/or full-spectrum acoustic detectors to assist in species identification. If evening visual emergence surveys confirm the presence of an active bat roost, that roost will remain undisturbed with a buffer as determined in consultation with CDFW until August 31 or until a qualified biologist has determined that the roost is no longer active.

If a non-maternity roost in a hazard tree is found, humane eviction may be attempted using procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. Any CDFW-approved bat evictions must be conducted after August 31, when most young have left maternity colonies.
Schedule: March 1 to August 31, prior to vegetation clearing activities.
Responsible Party: SFPUC shall be responsible to carry-out this mitigation measure.

Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #12: Avoid Woodrat Houses When Establishing Control Lines and Disturb Burn Piles Prior to Ignition. Woodrat houses shall not intentionally be destroyed. Where feasible (i.e., clearing vegetation for control lines), an exclusion buffer of at least 10 feet from houses shall be established to avoid moving or disturbing the houses or the logs or branches on which houses nest. Existing vegetative screening for nests will be left in place provided the integrity of the control line is not compromised. Burn piles which may have become occupied by woodrats will be sufficiently disturbed prior to ignition by a qualified biologist to encourage any resident woodrats to flee the pile.

Implementation of the above measure would minimize, but not entirely avoid, impacts on San Francisco dusky-footed woodrats at Unit 8. Stick houses in the interior portions of burn areas, if present, would still be consumed by fire and there may be some mortality of individual woodrats. However, patches of suitable habitat, including houses that will be avoided when establishing control lines as well as those on portions of Unit 8 outside the burn area, would remain after the project is completed. The project would temporarily reduce the number of woodrats currently residing on Unit 8 but it would not eliminate the species from the site, which is adjacent to extensive habitat on the Peninsula Watershed. As long as areas of dense shrub cover are maintained over a landscape, prescribed understory fires in oak woodland are unlikely to significantly alter dusky-footed woodrat populations (Lee and Tietje 2005). Moreover, the intent of the proposed project is to reduce the risk of large catastrophic wildfires that would have even more severe effects on woodrats and other wildlife. Dusky-footed woodrats are common to abundant where suitable habitat occurs, and most habitat within the range of the San Francisco subspecies is protected by regional park and open space organizations (e.g., East Bay Regional Park District, Midpeninsula Regional Open Space District, Peninsula Open Space Trust, Santa Clara Valley Open Space Authority). For these reasons, and with implementation of Mitigation Measure #12, the project would have a less than significant impact on San Francisco dusky-footed woodrat.
Schedule: March 1 to August 31, prior to vegetation clearing activities.
Responsible Party: SFPUC shall be responsible for surveying for and flagging woodrat houses, CAL FIRE shall be responsible for avoiding woodrat houses during control line construction.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____
Date: _____

Mitigation Measure #13: Site Control Line Construction and Heavy Equipment Use Outside of Native or Serpentine Grassland When Feasible.
Areas of native or serpentine grassland will be delineated by a qualified botanist prior to control line construction. Siting of control will occur outside of areas of native or serpentine grassland whenever possible to eliminate impacts to these sensitive natural communities. Additionally, use of heavy equipment (i.e., bulldozers) to pre-treat brush will not occur in areas of high-quality serpentine grassland. In cases where native or serpentine grassland cannot be avoided, implementation of Mitigation Measure #14 will occur.
Schedule: Prior to control line construction.
Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.
Verification of Compliance:
Monitoring Party: CAL FIRE
Initials: _____

Date: _____

Mitigation Measure #14: Limit Control Line Construction to Handline in Native or Serpentine Grassland

Construction of control line in some areas may take place with a bulldozer, which utilizes a 12 foot-wide blade and can result in significant soil disturbance. In areas of native grassland or serpentine grassland, when it cannot be avoided entirely, control line construction will be restricted to handline. In these grass dominated areas, handline construction will be approximately 3 feet wide, and will result in significantly less soil disturbance then a dozer as crews utilizing hand tools will be able to remove vegetation down to bare mineral soil without disturbing more than the first few inches of the soil profile.

Schedule: Prior to control line construction.

Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #15: Limit Out-of-Season Burning in Native or Serpentine Grassland.

Out-of-season burning would be avoided when possible to protect native serpentine grasslands. Out-of-season burning is currently identified as being late winter thru spring (particularly January/February).

Schedule: Prior to project activities.

Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #16: Cleaning Equipment of Organic Material Prior to Entering Work Area.

Crews will be instructed to clean clothing and equipment of organic material prior to entering work areas in order to limit the introduction of weed propagules into the project area. Crews will also be instructed to decontaminate boot soles and tools with a ≥70% Ethyl or isopropyl alcohol solution to prevent spread of Phytophthora.

Schedule: Prior to project activities.

Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE

Initials: _____

Date: _____

Mitigation Measure #17: Discovery of Human Remains

If human remains are discovered, project activity shall cease and the County Coroner will be notified. If the remains are determined to be historical, CAL FIRE will contact the CAL FIRE Archaeologist and the Native American Heritage Commission, if necessary.

Schedule: During project activities.

Responsible Party: CAL FIRE shall be responsible to carry-out this mitigation measure.

Verification of Compliance:

Monitoring Party: CAL FIRE
Initials: _____
Date: _____

A copy of the completed MMRP will be forwarded to: CAL FIRE Environmental Protection Program, P.O. Box 944246, Sacramento, CA 94244.

APPENDIX B

Wildlife Resource Assessment

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June 24, 2020 12564

Sheena Sidhu, PhD
Conservation Project Manager
San Mateo Resource Conservation District
80 Stone Pine Road, Suite 100
Half Moon Bay, California 94019

Subject: Wildlife Resource Assessment for the Proposed San Francisco Public Utilities Commission (SFPUC) Prescribed Burn Project, San Mateo County, California

Dear Ms. Sidhu:

At the request of the San Mateo Resource Conservation District (RCD), Dudek conducted a wildlife resource assessment for the proposed SFPUC (San Francisco Public Utilities Commission) Prescribed Burn Project (project) that includes six distinct prescribed burn units (i.e., Units 3–8) in the SFPUC's Peninsula Watershed. The project is a component of the RCD's Forest Health and Fire Resiliency (FHFR) Program which includes forest management and fuel reduction projects throughout San Mateo County and the adjacent Santa Cruz Mountains. SFPUC and the California Department of Forestry and Fire Protection (CAL FIRE) are other key project partners.

The purpose of the assessment and this letter report is to inform analysis of potential project impacts on biological resources under the California Environmental Quality Act (CEQA). Specifically, it is intended to support RCD's preparation of an Initial Study/Mitigated Negative Declaration (IS/MND) for the project. Because documentation and analysis of vegetation types, special-status plants, sensitive natural communities, and jurisdictional waters is being performed by others (i.e., CAL FIRE), this report focuses on environmental topics pertaining to wildlife (i.e., special-status wildlife species, wildlife corridors, native wildlife nursery sites).

The report is divided into four parts. First, a brief description of the proposed project is provided to illustrate Dudek's understanding for purposes of evaluating potential project impacts on wildlife resources. Next, a description of the methods used to collect background information on wildlife resources in the project vicinity and conduct a field reconnaissance of the project area is provided, followed by a summary of the results of these efforts. Finally, potential impacts on wildlife resources from the proposed project are discussed. Recommended mitigation measures to avoid or minimize these impacts are also provided.

Project Understanding

The proposed project would broadcast burn approximately 714 acres of grassland, shrubland (i.e., coastal scrub), and some woodland understory across six burn units (Units 3–8) (project area) on SFPUC's Peninsula Watershed. The goal of this effort is to reduce the amount and continuity of brush and other woody vegetation within the burn units. Burn units were chosen adjacent to roads, trails and existing disk lines to limit the amount of control line that must be constructed.

Fire control lines will be established using wet lines, disk lines, mowing, hand crews or bulldozers (i.e., dozer lines). Existing trails, roads, or disk lines will be used as much as possible, but in some areas it will be necessary to construct new dozer lines, hand lines, or disk/mow lines. Dozer lines are created by using a bulldozer to remove all vegetation along the line, only allowing bare mineral soil to remain. For the proposed project, the width of dozer lines will generally be the width of one dozer blade, approximately 12 feet. Use of bulldozers and other heavy equipment would conform to the following conditions to minimize environmental impacts:

- Heavy equipment will be rubber or steel tracked.
- Heavy equipment use will not occur on wet saturated soils.
- Heavy equipment use will not occur on slopes exceeding 30%.
- Heavy equipment will operate perpendicular to (up and down) the slope where feasible.
- Water bars will be constructed in control lines to prevent erosion caused by stormwater, where deemed necessarily by a CAL FIRE Forester based on guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules.
- No work will occur in Watercourse and Lake Protection Zones (WLPZ), as defined in Sections 946.5, 936.4, and 956.5 of the California Forest Practice Rules.

Some burn areas may need to be pretreated by killing some or all brush and allowing it to cure for at least 30 days. This encourages the vegetation to burn more completely and allows it to burn in a wider range of conditions. Pretreated vegetation may remain on site until grasses can grow up around it and all material can be burned at once. The primary method of brush pretreatment for the proposed project will involve crushing stands of brush by driving a bulldozer with its blade lifted through stands, a practice commonly referred to as “high-blading”. No high blading will occur in WLPZs. Alternatively, brush may be pretreated by herbicide application and by cutting with chainsaws. The following best management practices (BMPs) will be implemented before and during herbicide application:

- Herbicide will be applied under the recommendations of a licensed pest control advisor (PCA).
- Herbicide use will be conducted in a manner consistent with the label.
- No herbicide application will occur within 24 hours of predicted rainfall.
- Only aquatic formulations of herbicide will be used within WLPZs, and no herbicide applications will occur within 10 feet of an aquatic feature.
- All herbicide will be stored in spill proof containers, and herbicide mixing will occur outside of WLPZs.
- Herbicide will be applied by an applicator licensed by the State.

Burn piles may be created where fuels need to be reduced, either before or after the burn. This treatment may be used to improve the appearance or dispose of unburnt material.

Trees under 10 inches in diameter may need to be thinned or removed to reduce fire intensity in some areas. Some larger trees (particularly dying Monterey Pine) will need to be removed as they pose a threat to control lines and safety. Some trees may need to be limbed to prevent fire from climbing in to the canopy. Mastication maybe used in some areas to augment control lines or to protect sensitive resources. CAL FIRE helicopters may be used to light fuels in the interior of larger burn units.

Methods

This section summarizes Dudek's methods for compiling information on wildlife resources in the project vicinity and documenting existing habitat conditions in the field. The literature review focused on identifying special-status wildlife species occurrences in the project vicinity. For this report, special-status wildlife species are defined as animal species or subspecies that are (1) listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (FESA); (2) listed as threatened or endangered, or proposed for listing, under the California Endangered Species Act (CESA); (3) designated by the California Department of Fish and Wildlife (CDFW) as a California Species of Special Concern (SSC); and/or (4) designated as fully protected under Sections 3511, 4700, 5050, and 5515 the California Fish and Game Code.

Literature Review

To identify special-status wildlife species present or potentially present in the project area, Dudek queried the CDFW California Natural Diversity Database (CNDDB) (CDFW 2020); generated a Trust Resource Report from the U.S. Fish and Wildlife Service (USFWS) Information, Planning and Conservation (IPaC) online tool (USFWS 2020); and reviewed SFPUC's geographic information systems (GIS) data layer for special-status animal occurrences in the Peninsula Watershed (SFPUC, unpubl. data). The CNDDB query comprised the Montara Mountain, San Mateo, Woodside, Half Moon Bay, Palo Alto, Mindego Hill, La Honda, and San Gregorio U.S. Geological Survey 7.5-minute quadrangles.

To identify "*established* [emphasis added] native resident or migratory wildlife movement corridors" that could be impacted by the project (i.e., part d of the biological resources checklist in Appendix G to the CEQA Guidelines), Dudek reviewed the *Critical Linkages: Bay Area and Beyond* project report (Penrod et al. 2013) as well as applicable datasets (Penrod 2014a, 2014b) in CDFW's BIOS viewer (version 5.89.14c). Dudek also reviewed the "Large Landscape Blocks, Critical Linkages, & Highway Barriers" layer of the Bay Area Conservation Lands Network (CLN) Explorer tool (Bay Area Open Space Council n.d.), which represents the current online portal for this data.

Field Reconnaissance

Dudek wildlife biologist Matt Ricketts conducted a reconnaissance-level survey of the project area on May 12–13, 2020 (Table 1). The purpose of the assessment was to document existing habitat conditions in each unit and evaluate habitat suitability for special-status wildlife species. Observations of dominant vegetation communities, wildlife species, and habitat features were recorded using binoculars, digital data collection tools (e.g., Gaia GPS, Theodolite for iOS), and a field notebook.

Field observations of wildlife species and habitat were used to refine the list of special-status species occurring or potentially occurring in the project area. Several California SSC did not appear in the above databases but were either directly observed (e.g., grasshopper sparrow [*Ammodramus savannarum*]) or added to the list based on the presence of suitable habitat and/or documented eBird (2020) observations during the nesting season (e.g.,

northern harrier [*Circus hudsonius*]). Tables of special-status wildlife species evaluated for this report and wildlife observed during the field survey are provided in Attachments A and B, respectively.

Table 1. Survey Dates and Times

Date	Burn Unit	Start Time	Stop Time	Weather
May 12, 2020	8	10:20 AM	1:25 PM	Cloud cover 30-60% with intermittent drizzle, light breeze, ~55-60°
	5	2:15 PM	3:40 PM	Cloud cover 5%, light breeze, ~63°
	3	4:25 PM	5:10 PM	Cloud cover 100%, light air, 58°
May 13, 2020	7	8:30 AM	11:45 AM	Cloud cover 50–80%, gentle breeze, 56°
	6	1:05 PM	4:10 PM	Cloud cover 20-40%, gentle breeze, 58°
	4	4:40 PM	6:05 PM	Cloud cover 40–60%, gentle breeze, 58°

Results

This section summarizes wildlife habitat types and special-status wildlife habitat (including nearby occurrences) for each prescribed burn unit. It also summarizes established native resident or migratory wildlife corridors that have been identified in the project vicinity (Penrod et al. 2013). Habitat types were classified using the California Wildlife Habitat Relationships (CWHR) classification scheme (Mayer and Laudenslayer 1988); a crosswalk between habitat types and vegetation alliances mapped for the project is provided in Table 2. Representative photographs are provided in Attachment C.

Table 2. Crosswalk between Vegetation Alliances and Wildlife Habitat Types for the SFPUC Prescribed Burn Project

Vegetation Alliance[1]	Habitat Type[2]
Arroyo Willow Alliance	Valley Foothill Riparian (VRI)
Built-up Urban disturbance	Urban (URB)
California Annual Grassland Weedy Alliance	Annual Grassland (AGS)
California Annual Grasslands with Native Component	Annual Grassland (AGS)
Chamise Alliance	Coastal Scrub (CSC)
Coast Live Oak Alliance	Coastal Oak Woodland (COW)
Coffeeberry Alliance	Coastal Scrub (CSC)
Coyote Brush Alliance	Coastal Scrub (CSC)
Eucalyptus spp. Alliance	Eucalyptus (EUC)
Monterey Cypress Grove	Closed-Cone Pine-Cypress (CCR)
Poison Oak Alliance	Coastal Scrub (CSC)
Serpentine Grassland Alliance	Perennial Grassland (PGS)

1 Schirokauer et al. 2003
2 Mayer and Laudenslayer 1988

Wildlife Habitat

Most of the project area supports coastal scrub and coastal oak woodland with small to moderately sized patches of annual grassland (Table 2; Figure 1). Arroyo willow thickets within the ephemeral drainages were classified as valley foothill riparian for consistency with the CWHR classification scheme but lack the multilayered, high-canopy structure of mature riparian forests. Wildlife habitat types for each burn unit are described below. Units 4, 5, and 6 are discussed together since they are in the same general area (i.e., between the City of Belmont and Upper Crystal Springs Reservoir) and contain similar habitat types.

The project area provides high-quality habitat for native wildlife adapted to coastal scrub, coastal oak woodland, and grasslands. Amphibians and reptile species expected to occur in addition to those listed in Attachment B include arboreal salamander (*Aneides lugubris*), California slender salamander (*Batrachoseps attenuatus*), Sierran treefrog (*Pseudacris sierra*), southern alligator lizard (*Elgaria multicarinata*), California striped racer (*Coluber lateralis lateralis*), California kingsnake (*Lampropeltis californiae*), gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis*). Common mammal species expected to occur include Virginia opossum (*Didelphis virginiana*), coyote (*Canis latrans*), striped skunk (*Mephitis mephitis*), and western gray squirrel (*Sciurus griseus*), among others.

Unit 3. Unit 3 is located south of the Crystal Springs Golf Course and supports coastal scrub, coastal oak woodland, annual grassland, and perennial grassland. The grassland in the southern portion of the unit is located on a serpentine outcrop and supports high-quality native perennial grassland dominated by purple needle grass (*Nassella pulchra*). Coyote brush (*Baccharis pilularis*) and poison oak (*Toxicodendron diversilobum*) co-dominate the coastal scrub areas.

Units 4–6. Coastal scrub is the dominant habitat type in these three units, although substantial areas of mature coastal oak woodland are also present on Units 4 and 6. Coyote brush is the dominant plant in the coastal scrub community in Unit 6 while coyote brush and poison oak co-dominate the scrub community in Units 4 and 5. Most of the bird species listed in Attachment B were observed in this area.

Unit 5 contains two small wetlands that provide habitat for species that breed and/or forage in seasonal pools. These features are too small to meet the minimum mapping unit (MMU) requirement of the vegetation map used for the project (Schirokauer et al. 2003) and are therefore mapped as grassland or coastal scrub in Figure 1c. CAL FIRE staff observed tadpoles (presumably Sierra treefrogs) in the small wetland formed by an old borrow ditch west of Sheep Camp Trail on May 19, 2020. The slightly larger wetland east of the trail may also support treefrogs but no open water was present on May 12. This wetland also supports limited freshwater emergent wetland vegetation (i.e., bulrush [*Typha* sp.]).

Valley foothill riparian habitat (i.e., arroyo willow vegetation alliance) occurs in a north-facing drainage in the norther portion of Unit 5. Wilson's warbler (*Cardellina pusilla*), lazuli bunting (*Passerina amoena*), and song sparrow (*Melospiza melodia*) were heard singing in this area on May 12.

Unit 7. Unit 7 is located adjacent to SR 35 (Skyline Boulevard) and is the highest and westernmost of the six burn units. It contains coastal scrub and stands of closed-cone pine cypress forest dominated by planted Monterey cypress (*Cupressus macrocarpa*). Several Douglas-firs (*Pseudotsuga menziesii*) are also present. Because of the higher elevation and coastal fog influence, the coastal scrub is more mesic than that in the lower-elevation units and supports dense thickets of California hazel (*Corylus cornuta*) in addition to poison oak and coyote brush. In

addition, Unit 7 is the only location where the following coniferous forest bird species were observed: Pacific wren (*Troglodytes pacificus*), red-breasted nuthatch (*Sitta canadensis*), olive-sided flycatcher (*Contopus cooperi*), and red crossbill (*Loxia curvirostra*). All were detected in closed-cone pine cypress forest.

Unit 8. Unit 8 is located at the southern end of the SFPUC Peninsula Watershed lands and contains coastal scrub, coastal oak woodland, grassland, and several riparian areas dominated by arroyo willows. Coyote brush and poison oak co-dominate the coastal scrub areas.

Two oak snags with hollows suitable for cavity-roosting bats (e.g., pallid bat) were observed in coastal oak woodland in the southern portion of the unit on May 12 (37.44991, -122.28136; 37.449150, -122.282912), and trees in other wooded areas may also contain similar habitat.

Special-Status Wildlife Species

A total of 39 special-status wildlife species were identified as occurring or potentially occurring in the project vicinity (Attachment A). Twenty-six (26) of these species were eliminated from further consideration because the project area lacks suitable habitat (e.g., tidal salt marshes of the San Francisco Estuary) or is outside their known geographic range. Three California SSC, Santa Cruz black salamander (*Aneides flavipunctatus niger*), American badger (*Taxidea taxus*) and Townsend's big-eared bat (*Corynorhinus townsendii*), have low potential to occur (see Attachment A for rationale). The remaining species considered to have moderate to high potential to occur or were observed during the May 12–13 field reconnaissance and are discussed further below.

Mission Blue Butterfly

The federally endangered Mission blue butterfly (*Plebejus icarioides missionensis*) is known to occur on the Peninsula Watershed and has been monitored there since 2012. During annual surveys conducted by Coast Ridge Ecology (2020) in 2019, it was observed at 89 of 170 known host plant locations. Eighty-eight (88) of these host plant locations were patches of summer lupine (*Lupinus formosus*), and the remaining manycolored lupine (*L. variicolor*) location was adjacent to a large patch of *L. formosus*. These observations are consistent with previous monitoring years in which the species was only observed using *L. variicolor* when it was associated with adjacent large patches of *L. formosus*, indicating the latter as the favored host plant for Mission blue butterfly in the Peninsula Watershed. One of these host plant locations occurs between Golf Course Drive and Interstate (I) 280 approximately 1,200 feet north of Unit 3. At the time of writing, there are 14 other host plant locations on or near the project area: 11 along the northeastern edge of Unit 4 (i.e., Ralston unit), two along the southeastern edge of Unit 8 (i.e., Runnymede), and one at the southwestern edge of Unit 8 (SFPUC, unpubl. data). All of these *L. formosus* locations are assumed to be occupied by the species.

San Francisco Garter Snake and California Red-legged Frog

San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) and California red-legged frog (*Rana draytonii*) are federally listed under FESA and both are known to occur on the Peninsula Watershed. San Francisco garter snake is endangered under FESA and CESA and is also a California fully protected species; California red-legged frog is threatened under FESA and a California SSC. Both species are associated with freshwater emergent wetlands, typically bordering larger freshwater ponds or lakes. Areas that support California red-legged frogs also tend to be suitable for San Francisco garter

snakes because the latter prey on the former. California red-legged frogs require semi-permanent waterbodies that hold water for a minimum of 20 weeks to complete their life cycle. Typically, such conditions are met by ponds or still pools within streams that retain water through August or September (Ford et al. 2013).

San Francisco garter snakes and California red-legged frogs require suitable upland or nonbreeding aquatic habitat near aquatic breeding sites. California red-legged frogs need moist areas in which to take refuge from the heat and predators, such as intermittent or ephemeral streams with dense riparian vegetation, overhanging banks, and rootwads; springs or spring boxes; rodent burrows; and damp leaf litter in riparian woodlands (Ford et al. 2013). Rodent burrows are an important nonbreeding upland habitat component for garter snakes because they provide hibernation sites during the winter and escape cover year-round (USFWS 2006). San Francisco garter snakes generally remain within 1 kilometer (3,280 feet) of aquatic breeding habitat (USFWS 2006), while California red-legged frog movements have been documented up to 1.7 miles from breeding ponds (Fellers and Kleeman 2007).

Although there are no suitable breeding ponds or freshwater wetlands for either species in the project area, such habitat occurs within 1 mile of Units 3, 5, and 8 (CDFW 2020; SFPUC, unpubl. data). San Francisco garter snakes have been observed adjacent to Lower Crystal Springs Reservoir approximately 1,000 feet west of Unit 3, and California red-legged frog has been observed from ponds to the south (475 feet) and southeast (300 feet) of Unit 3. There are multiple occurrences of both species at the eastern edge of Upper Crystal Springs Reservoir and along Canada Road, approximately 990–1,500 feet west of Unit 5. The drainage in the northern portion of Unit 5 is connected to this habitat, and individual frogs and/or snakes could move up this drainage and use the small wetlands and willow thickets during the nonbreeding season. Both species have been observed at Homestead Pond and Edgewood Basin, approximately 0.4 mile and 1 mile northwest of Unit 8, respectively, although San Francisco garter snakes have not been observed at Homestead Pond in recent years (C. Apperson, pers. comm.; AECOM 2019). Moist areas (e.g., willow thickets, seeps, stream channels with dense overhanging vegetation) on Unit 8 may provide dry-season refuges for individuals breeding at these locations during the summer and fall months. If present, such individuals could occur anywhere on the unit with the onset of the rainy season as they move towards breeding sites in the later fall and winter.

Special-Status Birds

The project area provides nesting habitat for four special-status bird species. Grasshopper sparrow (*Ammodramus savannarum*), olive-sided flycatcher (*Contopus cooperi*), and northern harrier (*Circus hudsonius*) are California SSC, while white-tailed kite (*Elanus leucurus*) is designated as fully protected under the California Fish and Game Code. A single grasshopper sparrow was heard singing in the serpentine grassland on Unit 3 on May 12 and this area provides high-quality nesting habitat. A single olive-sided flycatcher was heard singing on Unit 7 on May 13. This individual may have been a migrant but could also have remained to nest since the large trees adjacent to openings provide suitable nesting habitat. Dudek observed a white-tailed kite foraging over the northern portion of Unit 4 on May 13; shrubs and trees throughout the project area provide suitable nesting habitat for this species. No northern harriers were observed during the May surveys but there are several nesting season observations near Unit 5 in eBird (2020); grassland and scrub with dense ground vegetation in the project area may support nesting by this species.

Special-Status Bats

The project area provides roosting habitat for two special-status bat species: pallid bat (*Antrozous pallidus*) and western red bat (*Lasiurus blossevillii*). Both are California SSC. Day roosting sites for pallid bats include caves, crevices, mines, and occasionally in hollow trees and buildings. Night roosts may be in more open sites such as porches and open buildings (Harris 1990a). Western red bats roost primarily in trees, less often in shrubs. Roost sites are often in habitat edges adjacent to streams, fields, or urban areas (Harris 1990b). Two oak snags with hollows suitable for roosting pallid bats were observed in oak woodland in Unit 8 on May 12 (one is shown in Photo 9 in Attachment C) and others may be present in other woodlands throughout the project area. Trees throughout the project area could also support foliage-roosting western red bats. No caves or structures suitable for bat roosting occur in the project area.

San Francisco Dusky-footed Woodrat

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a subspecies of the more widely distributed dusky footed woodrat that is designated a California SSC by CDFW. Dusky-footed woodrats build houses made of sticks, typically at the base of trees and shrubs, but sometimes in the low to mid-level canopy of a tree. It prefers forests and woodlands with a moderate canopy and dense understory, particularly on the upper banks of riparian forests or within poison oak-dominated scrub. The dusky-footed woodrat feeds on a variety of woody plants, fungi, flowers and seeds. Dudek observed 17 woodrat stick houses on Unit 8 on May 12 and more may be present. Coastal scrub and oak woodland on this unit provide high-quality habitat for this subspecies. No woodrat houses were observed in other portions of the project area.

Wildlife Corridors and Habitat Linkages

The term *corridor* is used by ecologists and conservation planners in a variety of ways. For the purposes of this report, a wildlife corridor is defined as “any space, usually linear in shape, that improves the ability of organisms to move among patches of their habitat” (Hilty et al. 2006). Corridors can be viewed over broad spatial scales, from those connecting continents (e.g., Isthmus of Panama) to structures crossing canals or roads. Most wildlife corridors analyzed within the context of land use planning are moderate in scale and facilitate regional wildlife movement among habitat patches and through human-dominated landscapes. As mentioned above, “established…wildlife movement corridors” analyzed under CEQA for this report are constitute large landscape blocks or critical linkages identified by Penrod et al. (2013).

The entire Peninsula Watershed, including the project area, is in the “Santa Cruz Mountains” large landscape block mapped by Penrod et al. (2013) and included in the Bay Area CLN (Bay Area Open Space Council 2020). Large landscape blocks are areas of high ecological integrity that “build upon the existing conservation network in the region” (Penrod 2014b) upon which critical linkages were delineated by Penrod et al. (2013). No such critical linkages occur in or near the project area. The burn units facilitate local wildlife movement through the Peninsula Watershed because they are connected to adjacent undeveloped lands. Ephemeral drainages with dense tree cover, such as those on Unit 8 and at the southeastern corner of Unit 6, likely serve as local movement corridors for resident wildlife traveling up and down the slopes on either side of the watershed.

Impact Analysis

This section identifies potential project impacts on wildlife resources and recommended mitigation measures to reduce impacts to a less-than-significant level under CEQA. It is intended to address applicable questions from the environmental checklist for biological resources in Appendix G to the CEQA Guidelines. The full text of these questions are provided under the applicable resource topic heading. Remaining biological resource topics (including special-status plant species) are addressed in separate documents.

Special-Status Wildlife Species

a) Would the project 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 or U.S. Fish and Wildlife Service?

Potentially Significant Unless Mitigation Incorporated. Ten special-status wildlife species are known to occur or could potentially occur in the project area. The project would not result in the permanent conversion or degradation of habitat for Mission blue butterfly, San Francisco garter snake, or California red-legged frog because prescribed burning is an important management tool for maintaining floral diversity for butterflies (McKnight et al. 2018) and removing thatch and woody vegetation from upland habitat for garter snakes and frogs. Increased thatch buildup and shrub cover degrade upland habitat by discouraging use by rodents that create burrows and prohibiting movement through uplands (Ford et al. 2013, USFWS 2005). In other words, the project would be beneficial for the habitat of all three species because it would improve habitat over the long-term. Project activities could still result in direct injury or mortality of individuals, however. The project could also impact nests of special-status bird species and San Francisco dusky-footed woodrat. Potential impacts and recommended mitigation measures for each potentially affected species or species group are further described below.

Mission Blue Butterfly

Occupied Mission blue butterfly habitat (i.e., host plant locations supporting eggs or larvae) is present along the edges of Units 4 and 8. These areas would be avoided when creating control lines prior to burning. If additional host plant locations are found in the interior of burn areas in the future, however, prescribed burns could result in the mortality of eggs or larvae on the plants. This would be a significant impact because it would reduce the viability of the Peninsula Watershed population of this rare species and contribute to its decline. Implementation of the following measure would avoid mortality of Mission blue butterfly eggs or larvae:

> **Mitigation Measure BIO-1: Survey for and Avoid Occupied Mission Blue Butterfly Host Plants.** If host plant locations are documented inside proposed burn areas, they will either be avoided or surveyed. For locations that are avoided no project activities shall occur within 25 feet of the outer perimeter of the host plants. For locations that are surveyed these locations will be thoroughly surveyed once every two weeks for the presence of Mission blue butterfly eggs and larvae (including evidence of larval feeding) between March and June. Surveys shall be conducted by qualified biologists with demonstrated field experience identifying all MBB life stages. If no eggs or larvae are found at a given host plant location, the location shall be considered *unoccupied* for that year and project activities may commence in the fall without implementing avoidance measures. All unoccupied locations must be resurveyed for Mission blue butterfly eggs and larvae in subsequent burn years (i.e., the "unoccupied" status is only valid for the year in which the survey is conducted). Host plant locations at which eggs and/or

larvae are found shall be considered *occupied* for that year and no project activities shall occur within 25 feet of the outer perimeter of the location. This distance is expected to be large enough to protect larvae because second instar larvae diapause in leaf litter at the base of larval food plants and last instar larvae pupate on or near the base of food plants (USFWS 2010).

San Francisco Garter Snake and California Red-legged Frog

While the project area does not support any aquatic breeding habitat for San Francisco garter snake or California red-legged frog, Units 3, 5, and 8 are connected to and within dispersal distance of occupied breeding habitat (although San Francisco garter snakes have not been observed at Homestead Pond north of Unit 8 in recent years). Areas within 3,280 feet and 1.7 miles of occupied San Francisco garter snake or California red-legged frog breeding habitat, respectively, would likely be considered nonbreeding habitat by the wildlife agencies (USFWS and CDFW) and could support individuals during the dry season. Drainages and valley foothill riparian habitat (i.e., willows) are more likely to provide such habitat since they retain some soil moisture year-round. Any project activities occurring in these areas have potential to result in direct mortality of individual garter snakes and/or red-legged frogs. This would be a significant impact because it would reduce the viability of the Peninsula Watershed populations of these species and contribute to the species' decline. Implementation of the following measures (Units 3, 5, and 8 only) would avoid mortality of San Francisco garter snakes and California red-legged frogs:

Mitigation Measure BIO-2: Biological Monitoring for San Francisco Garter Snake and California Red-legged Frog. Project activities on Units 3, 5, 7 and 8 shall be monitored where suitable habitat occurs by a qualified biologist or biological monitor to ensure that subsequent measures are adequately implemented to avoid direct mortality of these species. The biologist(s) or biological monitor(s) shall have the authority to stop work if San Francisco garter snakes or California red-legged frogs are found during project activities.

Mitigation Measure BIO-3: Seasonal Work Window. Project activities on Units 3, 5, and 8 shall be conducted between June 1 and the onset of the rainy season (i.e., precipitation greater than 0.25 inches) whenever possible, as this avoids the time of year when San Francisco garter snakes and California red-legged frogs are most active and likely to impacted by project activities.

Mitigation Measure BIO-4: Environmental Awareness Training and Burn Coordination. The biologist or biological monitor shall provide pre-project environmental awareness training to all crew members working on Units 3, 5, 7 and 8 about the potential presence of San Francisco garter snake and California red-legged frog in the project area. The training shall include basic information on species identification and habitat, describe how the species may be encountered in the work area, and review all species protection measures.

Biological monitors shall attend and may participate in any ignition sequence planning. Biological monitors shall be properly dressed and equipped per CAL FIRE regulations and burn protocols. Biological monitors shall remain outside burn operations areas for safety reasons but the lead biological monitor shall be in radio contact with either the Ignition Specialist or the Incident Commander directly to facilitate efficient communication regarding the safety of San Francisco garter snakes and California red-legged frogs.

Mitigation Measure BIO-5: Pre-activity Surveys for San Francisco Garter Snake and California Red-legged frog. No more than 24 hours prior to conducting project activities on Units 3, 5, 7 and 8, qualified biologists

or biological monitors shall conduct visual encounter surveys of upland habitat in work areas for individual San Francisco garter snakes and California red-legged frogs. Survey intensity of upland areas within these units will be determined by the qualified biologist based on areas which are more likely to support San Francisco garter snake and California red-legged frog. A final survey of drainages, valley foothill riparian habitat, and seasonal wetland habitat where individual snakes and frogs are more likely to occur shall be conducted immediately prior to prescribed burns. Burn piles will also be surveyed prior to ignition in areas where they may provide suitable habitat. Any San Francisco garter snake or California red-legged frog found in a location where it may be at risk will be captured and released (if proper permits are obtained from USFWS and CDFW) in a safe area or allowed to leave the area on its own accord. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys but escapes capture, an area approximately 0.25 acres in diameter around the individual shall be protected from the burn. Alternatively, CAL FIRE may postpone burning of the area and conduct another pre-activity survey prior to the rescheduled burn. If a San Francisco garter snake or California red-legged frog is located during the immediate pre-burn surveys and leaves the burn area on its own accord, no buffer or rescheduling would be required. A biological monitor shall remain at the location where the individual was seen to ensure it does not re-enter the burn area. If it does, a 0.25-acre buffer area shall be established, or the burn postponed as described above.

Only biologists specifically approved by the USFWS and CDFW shall be allowed to capture, handle, and relocate species individuals. If necessary during the burn, individual San Francisco garter snakes (but not red-legged frogs) may be held in captivity in a pillow case for less than 24 hours and may later be released in a vegetated area near the point of capture after the burn has been completed. The number of San Francisco garter snakes and California red-legged frogs encountered and transferred to safe areas or held in captivity during treatment shall be reported to the Bay Delta Fish & Wildlife Office, and each individual San Francisco garter snake shall be photographed for use in identification.

Special-Status Birds

The project area provides nesting habitat for a variety of native coastal scrub and oak woodland birds, including special-status species such as grasshopper sparrow (Unit 3), olive-sided flycatcher (Unit 7), northern harrier (all but Unit 7), and white-tailed kite (all). If conducted during the nesting season (typically defined by CDFW as February 1–August 31, with peak activity between April and June), project activities could directly impact active nests in affected grassland and coastal scrub. While it is unlikely that proposed activities will require the removal of or impacts to suitable nest trees, noise generated from any project activities conducted may indirectly impact birds nesting nearby by causing visual and audible disturbance that interferes with normal nesting behavior (e.g., adults may abandon eggs or nestlings due to increased stress levels or perceiving the presence of humans and construction equipment as a threat). While smaller birds nesting greater than 50 feet from work areas may tolerate slightly higher-than-normal disturbance levels (especially if nesting on slopes below and outside visual range of project activities) and therefore maintain normal nesting behavior, raptors such as northern harrier and white-tailed kite maintain larger nesting territories and thus can be more sensitive to disturbance within 250 feet of nest sites or more. Adults may abandon incomplete nest structures, eggs, or recently hatched young if they perceive vehicle traffic and/or project activities as a threat. Impacts on nesting special-status birds would be significant because they would reduce the viability of local populations and contribute to declines of these species. Implementation of the following measure would avoid impacts on nesting special-status birds (as well as other native birds):

Mitigation Measure BIO-6: Pre-activity Surveys for Nesting Birds. Within 10 days prior to any ground disturbing, vegetation clearing, or broadcast burning activities during the nesting season, a qualified biologist or biological monitor shall conduct a pre-activity nesting bird survey of all potential nesting habitat within control line and burn areas, including a 100-foot buffer for passerine species and a 250-foot buffer for raptors. If there is a lapse between the survey time and initiation of work activities of 10 days or greater, the nesting bird survey shall be repeated.

If active nests are found during the survey or at any time during the project, work in that area shall stop and a qualified biologist or biological monitor shall determine an appropriate no-work buffer around the nest based on the activity and species and mark the buffer using flagging, pin flags, lathe stakes, or similar marking method. No work shall occur within the buffer until the young have fledged or the nest(s) are no longer active, as determined by the biologist or biological monitor.

Special-Status Bats

Large tree hollows suitable for cavity-roosting bats, including pallid bat, were observed in Unit 8 and similar hollows may be present in other woodlands in the project area. The project will minimize tree removals as much as possible but removal of some larger (greater than 12 inches in diameter) trees may be necessary if they pose a threat to control line integrity and/or human safety. If hazard trees supported suitable bat roosting habitat (i.e., large hollows) and were removed during the bat maternity season (generally March to August in California), the project could directly impact a maternity roost, resulting in mortality of adults and dependent young. This impact would be significant because loss of roosting habitat is considered one of the primary conservation issues facing bat populations, with loss of maternity roosts considered especially significant for pallid bats (H.T. Harvey & Associates 2019). Implementation of the following measure would avoid impacts on bat maternity roosts.

Mitigation Measure BIO-7: Pre-activity Surveys for Bat Maternity Roosts. A qualified biologist familiar with bat roosting ecology shall assess hazard trees for suitable bat roosting habitat if any such trees would be removed during the maternity season (i.e., March 1 to August 31). High-quality habitat features (e.g., large tree cavities, basal hollows, loose or peeling bark, larger snags) will be identified, and the area around these features searched for bats and bat sign (e.g., guano, culled insect parts, staining). If no such features or bat sign is detected, no further action beyond preparation of a memorandum describing survey methods and conditions and results would be required.

If the biologist observes bat sign (e.g., guano, urine staining, musky odor), an evening visual emergence survey of the source tree will be conducted from 0.5 hour before to 1–2 hours after sunset for a minimum of two nights, using night-vision goggles and/or full-spectrum acoustic detectors to assist in species identification. If evening visual emergence surveys confirm the presence of an active bat roost, that roost will remain undisturbed with a buffer as determined in consultation with CDFW until August 31 or until a qualified biologist has determined that the roost is no longer active.

If a non-maternity roost in a hazard tree is found, humane eviction may be attempted using procedures designed in consultation with CDFW to reduce the likelihood of mortality of evicted bats. Any CDFW-approved bat evictions must be conducted after August 31, when most young have left maternity colonies.

San Francisco Dusky-footed Woodrat

Numerous San Francisco dusky-footed woodrat stick houses are present in Unit 8. Based on the high-quality habitat and abundance of food items (e.g., woody plants, fungi, flowers, and seeds) for this species throughout the unit, it is likely that many of the houses are occupied. Project activities would reduce habitat for this species on Unit 8 by removing dense shrub cover and existing stick houses; activities could also result in mortality of individual woodrats if they are unable to escape houses before being consumed by fire. There would be a significant impact on the local woodrat population if the entire unit became inhospitable to woodrats and all occupied stick houses were destroyed. Conducting activities outside the peak breeding season of March to May season (i.e., between June 15 and December 31 as stipulated in Mitigation Measure BIO-3) is expected to minimize mortality of adults and dependent young confined to nests in houses. Implementation of the following measure would reduce impacts on San Francisco dusky-footed woodrat:

> **Mitigation Measure BIO-8: Avoid Woodrat Houses When Establishing Control Lines and Disturb Burn Piles Prior to Ignition.** Woodrat houses shall not intentionally be destroyed. Where feasible (i.e., clearing vegetation for control lines), an exclusion buffer of at least 10 feet from houses shall be established to avoid moving or disturbing the houses or the logs or branches on which houses nest. Existing vegetative screening for nests will be left in place provided the integrity of the control line is not compromised. Burn piles which may have become occupied by woodrats will be sufficiently disturbed prior to ignition by a qualified biologist to encourage any resident woodrats to flee the pile.

Implementation of the above measure would minimize, but not entirely avoid, impacts on San Francisco dusky-footed woodrats at Unit 8. Stick houses in the interior portions of burn areas, if present, would still be consumed by fire and there may be some mortality of individual woodrats. However, patches of suitable habitat, including houses that will be avoided when establishing control lines as well as those on portions of Unit 8 outside the burn area, would remain after the project is completed. The project would temporarily reduce the number of woodrats currently residing on Unit 8 but it would not eliminate the species from the site, which is adjacent to extensive habitat on the Peninsula Watershed. As long as areas of dense shrub cover are maintained over a landscape, prescribed understory fires in oak woodland are unlikely to significantly alter dusky-footed woodrat populations (Lee and Tietje 2005). Moreover, the intent of the proposed project is to reduce the risk of large catastrophic wildfires that would have even more severe effects on woodrats and other wildlife. Dusky-footed woodrats are common to abundant where suitable habitat occurs, and most habitat within the range of the San Francisco subspecies is protected by regional park and open space organizations (e.g., East Bay Regional Park District, Midpeninsula Regional Open Space District, Peninsula Open Space Trust, Santa Clara Valley Open Space Authority). For these reasons, and with implementation of Mitigation Measure Bio-8, the project would have a less than significant impact on San Francisco dusky-footed woodrat.

Wildlife Corridors, Habitat Linkages, and Nursery Sites

d) Would the project 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?

The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established wildlife corridors. No Bay Area critical linkages (Penrod et al. 2013) occur in the project area. The project would not create any new barriers (e.g., roads, structures) that would permanently alter existing wildlife movement

patterns through the Peninsula Watershed and Santa Cruz Mountains landscape block. Resident wildlife that regularly move through the burn units while foraging and dispersing may temporarily alter their movement patterns to avoid increased noise and human activity generated by the project and burn areas during prescribed fires and potentially several weeks after (due to reduced cover). Similarly, migratory wildlife (e.g., birds and bats) may avoid using areas exposed to increased noise and human activity as stopover habitat if the project were conducted during a fall or spring migration periods. Such impacts would be temporary, however, and both native and migratory wildlife are expected to resume normal movement patterns soon after the project is completed.

The project would not impede the use of native wildlife nursery sites. Implementation of Mitigation Measure BIO-7 would require identification and avoidance of active native bird nests. The project would not remove any large native trees potentially supporting bat maternity roosts. No other nursery sites are expected to occur in the project area.

Conclusions

Based on Dudek's review and analysis of the proposed project and biological resources in the project area, and with implementation of the mitigation measures outlined herein, the proposed project is not expected to result in significant impacts on wildlife resources in the project area.

If you have any questions or concerns regarding the content of this letter report, please contact me at 510.601.2502 or mricketts@dudek.com.

Sincerely,

Matt Ricketts
Senior Biologist

Att.: *Figures*
Attachment A: Special-Status Wildlife Species Evaluated for Potential to Occur in the Project Area
Attachment B: Wildlife Species Observed in the Project Area, May 12–13, 2020
Attachment C: Representative Photographs
cc: *Sarah Collamer, CAL FIRE*
Matthew Moser, CAL FIRE
Carin Apperson, SFPUC

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SOURCE: Aerial Bing Maps 2020, CalFire 2020

DUDEK

0 300 600 Feet

FIGURE 1A

Habitat Type - Treatment Unit 3

SFPUC Prescribed Burn Project

SOURCE: Aerial Bing Maps 2020, CalFire 2020

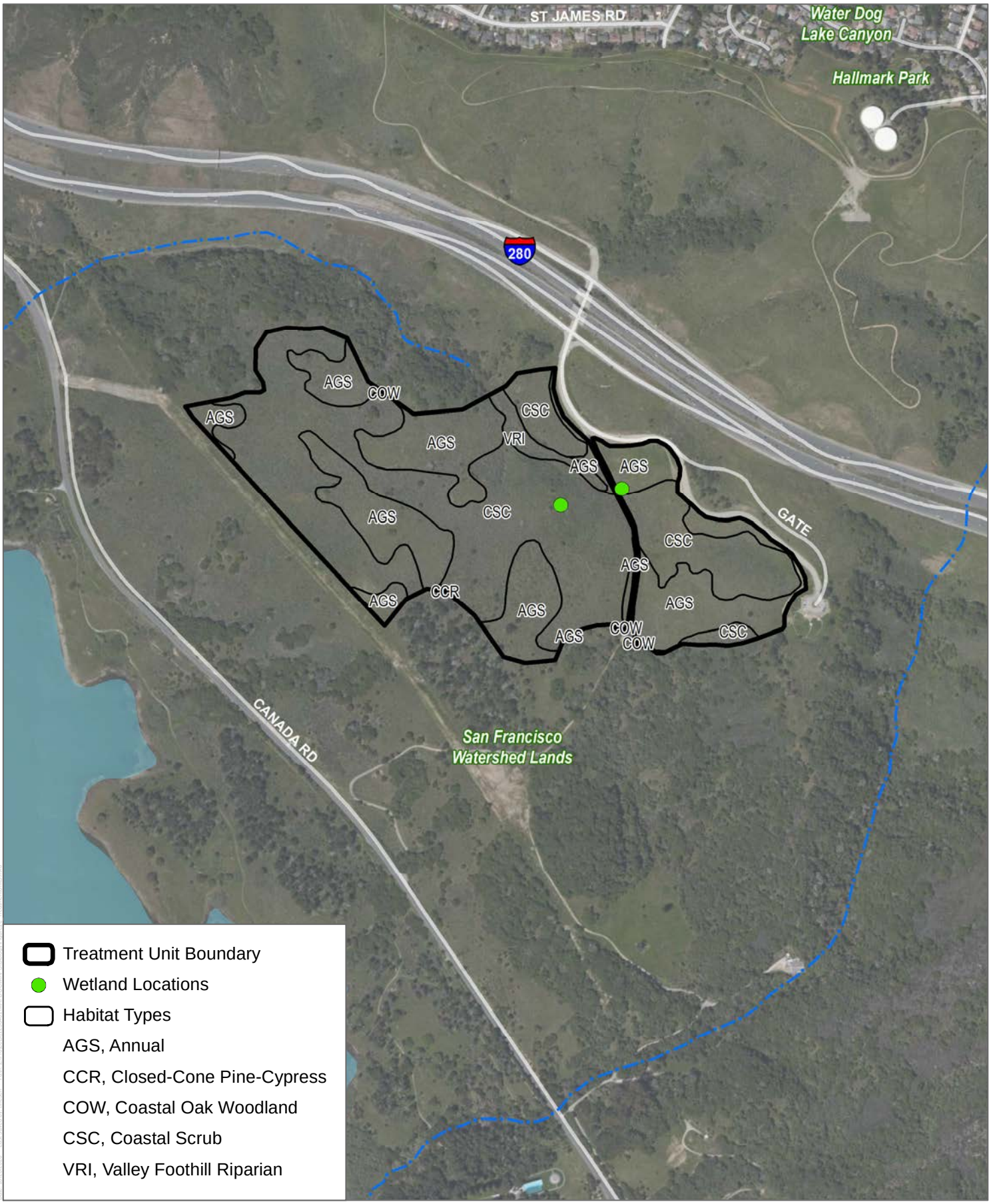
DUDEK

0 400 800 Feet

FIGURE 1B

Habitat Type - Treatment Unit 4

SFPUC Prescribed Burn Project



SOURCE: Aerial Bing Maps 2020, CalFire 2020

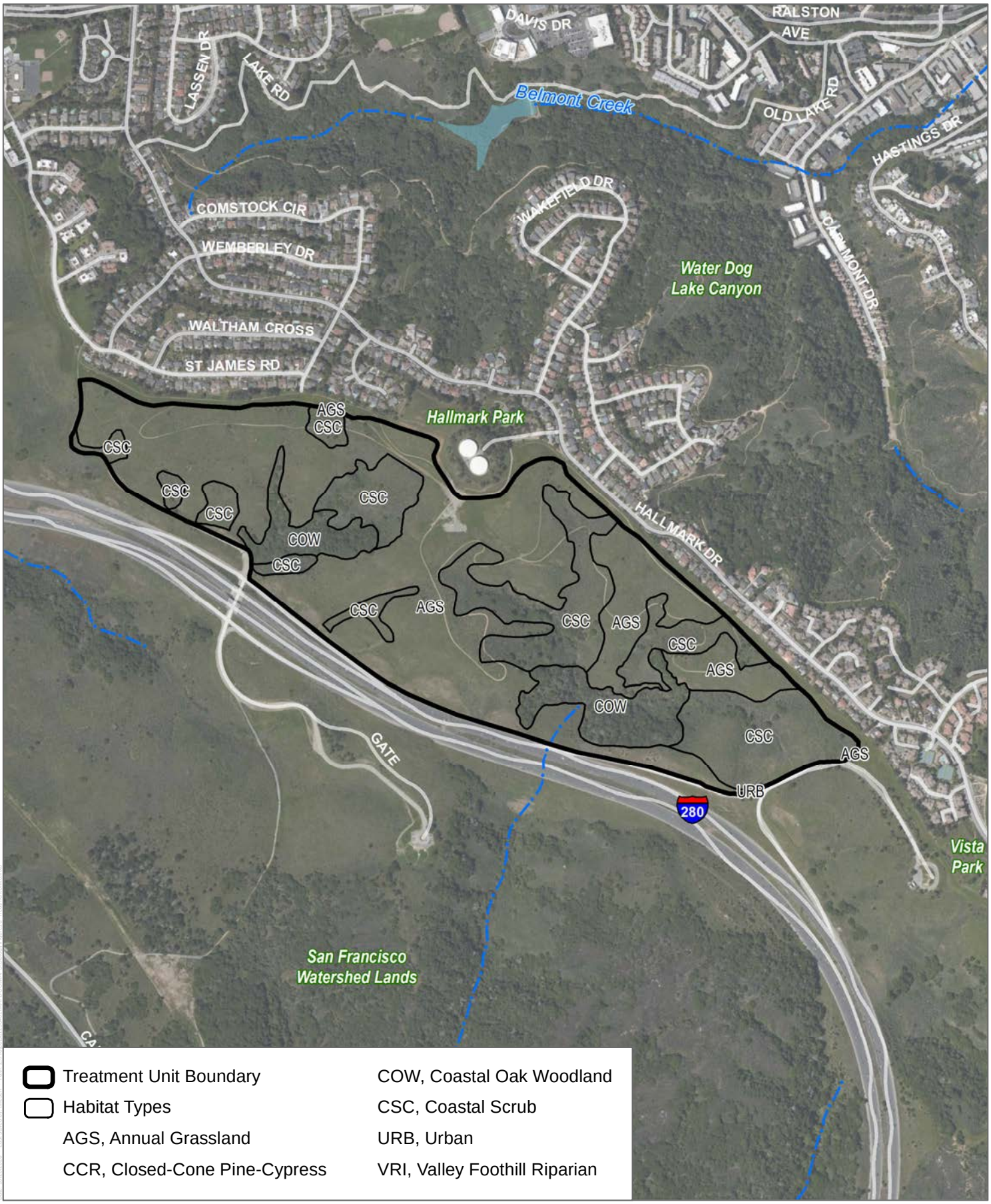
DUDEK

0 400 800 Feet

FIGURE 1C

Habitat Type - Treatment Unit 5

SFPUC Prescribed Burn Project



SOURCE: Aerial Bing Maps 2020, CalFire 2020

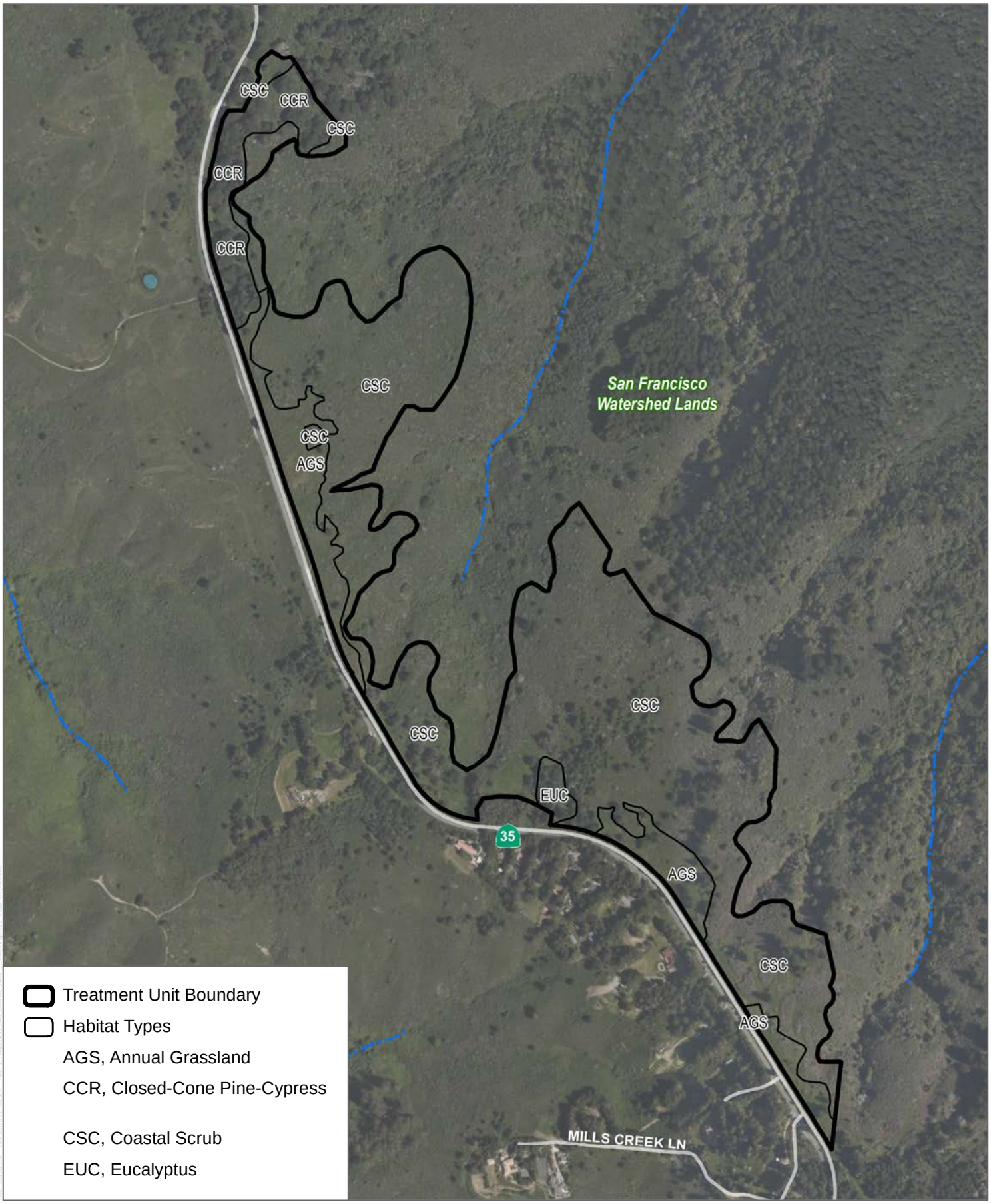
DUDEK

0 500 1,000 Feet

FIGURE 1D

Habitat Type - Treatment Unit 6

SFPUC Prescribed Burn Project



SOURCE: Aerial Bing Maps 2020, CalFire 2020

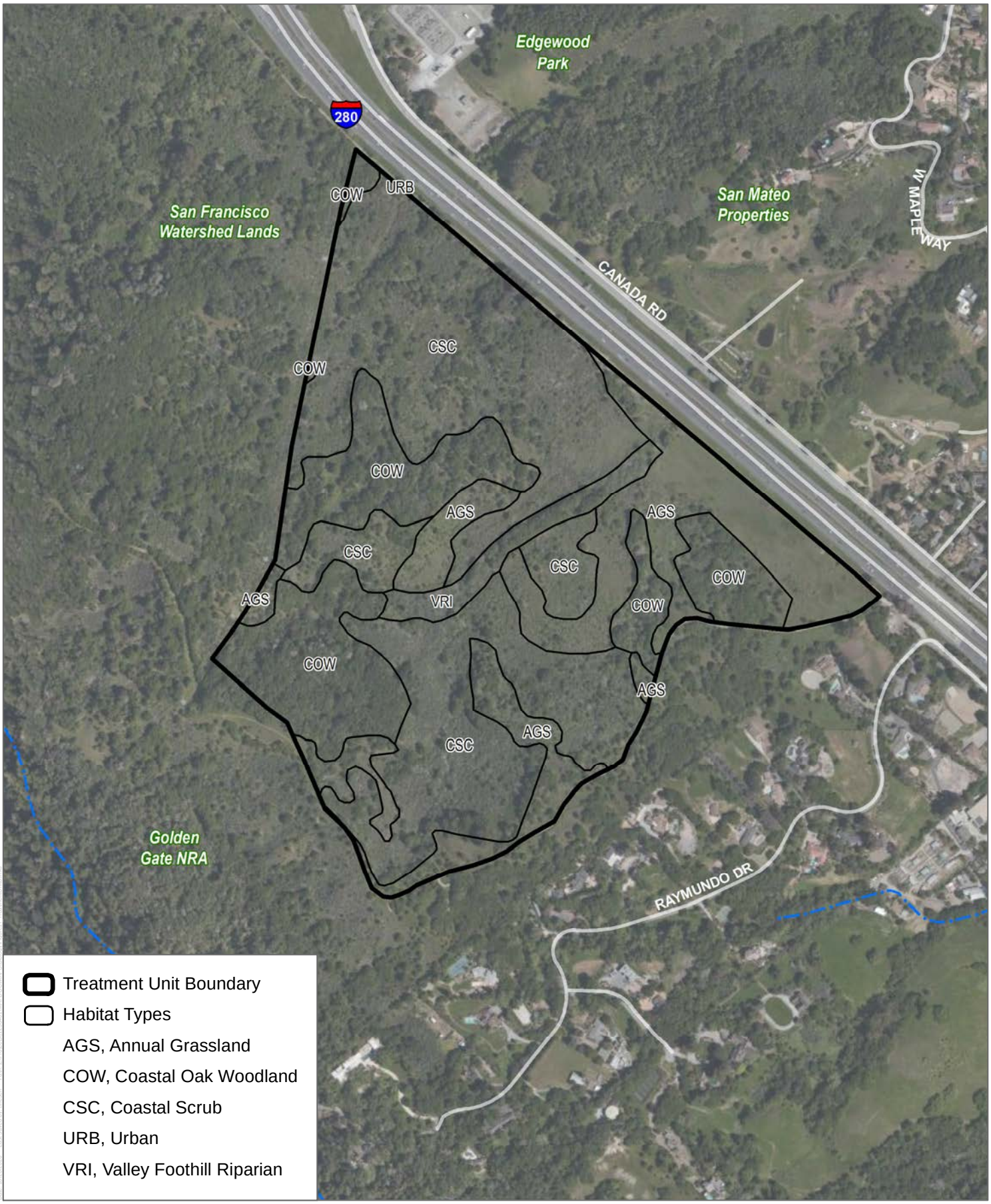
DUDEK

0 400 800 Feet

FIGURE 1E

Habitat Type - Treatment Unit 7

SFPUC Prescribed Burn Project



SOURCE: Aerial Bing Maps 2020, CalFire 2020

DUDEK

0 300 600 Feet

FIGURE 1F

Habitat Type - Treatment Unit 8

SFPUC Prescribed Burn Project

Attachment A

Special-Status Wildlife Species Evaluated for Potential to Occur in the Project Area

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
Invertebrates				
Bay checkerspot butterfly	*Euphydryas editha bayensis*	FT/None	Serpentine grassland in Santa Clara and San Mateo Counties. Primary host plant is native plantain (*Plantago erecta*) with two secondary host plants: purple owl's-clover (*Castilleja densiflora*) and exserted paintbrush (*Castilleja exserta*).	**Not expected to occur.** The project area is outside of the species' known geographic range.
Mission blue butterfly	*Plebejus icarioides missionensis*	FE/None	Coastal chaparral and coastal grasslands in Marin, San Francisco, and San Mateo Counties; host plants are silver lupine (*Lupinus albifrons*), summer lupine (*L. formosus*), and manycolored lupine (*L. variicolor*)	**Present.** Multiple occurrences in the Peninsula Watershed, including occupied host plants in Units 4 and 6 (Coast Ridge Ecology 2020).
Myrtle's silverspot butterfly	*Speyeria zerene myrtleae*	FE/None	Restricted to four areas in western Marin and southwestern Sonoma Counties: Point Reyes National Seashore, two state beaches in Sonoma County, and Bodega Bay. Within these areas it occurs in coastal dunes, coastal scrub, and coastal prairie that support western dog violet (Viola adunca), its only known larval host plant.	**Not expected to occur.** The project area is outside of the species' known geographic range.
San Bruno elfin butterfly	*Callophrys mossii bayensis*	FE/None	Restricted to San Mateo County; known colonies occur at San Bruno Mountain, the Montara Mountain region, and Milagra Ridge. Within these areas it occurs in coastal grasslands and low scrub on north-facing slopes that support stonecrop (*Sedum sphathulifolium*), its only known larval host plant.	**Not expected to occur.** This species is known to occur in the northern portion of the Peninsula Watershed (Coast Ridge Ecology 2020) but there are no host plants or documented occurrences in or near the project area.
western bumble bee, southern subspecies	*Bombus occidentalis occidentalis*	None/PSE	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease. Current known locations are high elevation sites in northern California and a few sites on the northern California coast. Nests underground in squirrel burrows, in mouse nests, and in open west-southwest facing slopes bordered by trees.	**Not expected to occur.** The project area is within the historic range of this subspecies but is outside its current known distribution in California.

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
Fishes				
Delta smelt	*Hypomesus transpacificus*	FT/SE	Sacramento-San Joaquin Delta; seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay	**Not expected to occur.** The project area is outside of the species' known geographic range.
Longfin smelt	*Spirinchus thaleichthys*	FC/ST	San Francisco Estuary and Sacramento-San Joaquin Delta, Humboldt Bay, and estuaries of Eel River and Klamath River. Larval survey data from the San Francisco Estuary and Bay-Delta indicate that spawning occurs from November to May, peaking from February to April.	**Not expected to occur.** The project area is outside of the species' known geographic range.
Pacific lamprey	*Entosphenus tridentatus*	None/SSC	Freshwater habitat includes lakes, rivers, and creeks; soft substrates in shallow areas along banks.	**Not expected to occur.** The project area is outside of the species' known geographic range.
steelhead - central California coast DPS	*Oncorhynchus mykiss irideus pop. 8*	FT/None	Spawns in streams from the Russian River, Sonoma County, to Aptos Creek, Santa Cruz County, California (inclusive). Also occur in drainages tributary to San Francisco and San Pablo Bays. Regardless of life history strategy, for the first year or two of life rainbow trout and steelhead are found in cool, clear, fast-flowing permanent streams and rivers where riffles predominate over pools, there is ample cover from riparian vegetation or undercut banks, and invertebrate life is diverse and abundant.	**Not expected to occur.** The project area does not support suitable habitat.
tidewater goby	*Eucyclogobius newberryi*	FE/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River, Humboldt County.	**Not expected to occur.** The project area is outside of the species' known geographic range.

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
Amphibians and Reptiles				
California giant salamander	*Dicamptodon ensatus*	None/SSC	Known from wet coastal forests and chaparral near streams and seeps from Mendocino Co. south to Monterey Co. and east to Napa Co. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**Not expected to occur.** The project area does not support suitable habitat.
California red-legged frog	*Rana draytonii*	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	**Moderate potential to occur.** There are multiple occurrences of this species in the Peninsula Watershed (CDFW 2020; SFPUC unpubl. data), including several within 1 mile of Units 3, 5, and 8. These sites lack suitable aquatic breeding habitat but individuals from nearby breeding sites could occur during the nonbreeding season.
California tiger salamander	*Ambystoma californiense*	FT/ST	Annual grassland, valley–foothill hardwood, and valley–foothill riparian habitats; vernal pools, other ephemeral pools, and (uncommonly) along stream courses and man-made pools if predatory fishes are absent	**Not expected to occur.** The project area does not support suitable habitat.
foothill yellow-legged frog	*Rana boylii*	None/SE	Rocky streams and rivers with open banks in forest, chaparral, and woodland	**Not expected to occur.** There is a historic CNDDB occurrence along Canada Road approximately 0.9 mile south of Unit 5 but the species is now considered extirpated from this area (CDFW 2020).
red-bellied newt	*Taricha rivularis*	None/SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Primarily occurs in redwood forests but also uses forests with Douglas fir, tanoak, and madrone. Breeds in moderate to fast-flowing streams with rocky bottoms.	**Not expected to occur.** The project area is outside of the species' known geographic range.

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*	FE/FP, SE	Endemic to San Francisco Peninsula from northern San Mateo County along eastern Santa Cruz Mountains and west to Point Ano Nuevo. Most commonly associated with emergent vegetation along the borders of ponds, marshes, and lakes. Rodent burrows in adjacent uplands are an important habitat component as they provide hibernation sites and escape cover.	**Moderate potential to occur.** There are multiple occurrences of this species in the Peninsula Watershed (CDFW 2020; SFPUC unpubl. data), including several within 1 mile of Units 3, 5, and 8. These sites lack suitable aquatic breeding habitat but individuals from nearby breeding sites could occur during the nonbreeding season.
Santa Cruz black salamander	*Aneides flavipunctatus niger*	None/SSC	Restricted to mesic forests in the fog belt of the outer Coast Range of San Mateo, Santa Cruz, and Santa Clara counties. Mixed deciduous and coniferous woodlands and coastal grasslands. Occurs in moist streamside microhabitats and is found under rocks, talus, and damp woody debris.	**Moderate potential to occur.** There is an nonspecific (exact location and date unknown) CNDDB occurrence from the "1970s" in McGarvey Gulch (Huddart County Park) immediately west of Unit 8. The lack of perennial streams likely precludes this subspecies from occurring on Unit 8 but absent focused surveys its presence cannot be completely ruled out (i.e., it lives underground and is therefore very difficult to detect).
western pond turtle	*Actinemys marmorata*	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	**Not expected to occur.** There are multiple occurrences of this species in the Peninsula Watershed (CDFW 2020; SFPUC unpubl. data) but the project area does not support suitable aquatic or terrestrial habitat. None of the burn sites are within 800 feet (i.e., the approximate distance from occupied ponds recommended by Zaragoza et al. [2015] to conserve pond turtle terrestrial habitat) of occupied ponds.
Birds				
bald eagle	*Haliaeetus leucocephalus*	BGEPA/FP, SE	Nests in forested areas adjacent to large bodies of water, including seacoasts, rivers, swamps, large lakes; winters near large bodies of water in lowlands and mountains	**Not expected to occur.** This species has been observed wintering near Crystal Springs Reservoir but the project area does not support nesting or foraging habitat.

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
bank swallow (nesting)	*Riparia riparia*	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	**Not expected to occur.** The project area does not support suitable habitat.
burrowing owl	*Athene cunicularia*	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	**Not expected to occur.** The project area does not support suitable habitat (i.e., ground squirrel burrows).
California black rail	*Laterallus jamaicensis coturniculus*	None/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	**Not expected to occur.** The project area is outside of the species' known geographic range.
California least tern (nesting colony)	*Sternula antillarum browni*	FE/FP, SE	Forages in shallow estuaries and lagoons; nests on sandy beaches or exposed tidal flats	**Not expected to occur.** The project area is outside of the species' known geographic range.
golden eagle (nesting & wintering)	*Aquila chrysaetos*	BGEPA/FP	Nests and winters in hilly, open/semi-open areas, including shrublands, grasslands, pastures, riparian areas, mountainous canyon land, open desert rimrock terrain; nests in large trees and on cliffs in open areas and forages in open habitats	**Not expected to occur.** The project area does not support suitable habitat.
grasshopper sparrow (nesting)	*Ammodramus savannarum*	None/SSC	Nests and forages in moderately open grassland with tall forbs or scattered shrubs used for perches	**High potential to occur.** Individual heard singing in grassland at southern end of Unit 3 on May 12, 2020. This area supports high-quality nesting habitat. Low- to moderate-quality grassland habitat also present on Unit 6.
marbled murrelet	*Brachyramphus marmoratus*	FT/SE	Nests in old-growth coastal forests, forages in subtidal and pelagic habitats	**Not expected to occur.** This species is known to occur in the northern portion of the Peninsula Watershed (CDFW 2020; SFPUC, unpubl. data) but the projecta area does not support suitable habitat.
northern harrier (nesting)	*Circus hudsonius*	None/SSC	Nests in open wetlands (marshy meadows, wet lightly-grazed pastures, old fields, freshwater and brackish marshes); also in drier habitats (grassland and grain fields); forages in grassland, scrubs, rangelands, emergent wetlands, and other open habitats	**High potential to occur.** The project area supports suitable nesting habitat for this species. There are three eBird observations of this species on Unit 6 during the nesting season (April to August).

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
olive-sided flycatcher (nesting)	*Contopus cooperi*	None/SSC	Nests in mixed-conifer, montane hardwood–conifer, Douglas-fir, redwood, red fir, and lodgepole pine habitats; usually close to water	**High potential ot occur.** Individual heard singing on Unit 7 on May 13, 2020. Stands of Monterey cypress and Douglas fir on this unit support suitable nesting habitat for this species.
tricolored blackbird (nesting colony)	*Agelaius tricolor*	None/SSC, ST	Nests in freshwater, emergent wetlands with cattails or tules, but also in Himalayan blackberrry; forages in grasslands, woodland, and agriculture	**Not expected to occur.** The project area does not support suitable habitat.
western snowy plover (nesting)	*Charadrius alexandrinus nivosus*	FT/SSC	On coasts nests on sandy marine and estuarine shores; in the interior nests on sandy, barren or sparsely vegetated flats near saline or alkaline lakes, reservoirs, and ponds	**Not expected to occur.** The project area is outside of the species' known geographic range.
white-tailed kite (nesting)	*Elanus leucurus*	None/FP	Nests in woodland, riparian, and individual trees near open lands; forages opportunistically in grassland, meadows, scrubs, agriculture, emergent wetland, savanna, and disturbed lands	**High potential to occur.** The project area supports suitable nesting habitat for this species. Individual seen foraging over northern portion of Unit 4 on May 13, 2020.
yellow rail	*Coturnicops noveboracensis*	None/SSC	Nesting requires wet marsh/sedge meadows or coastal marshes with wet soil and shallow, standing water	**Not expected to occur.** The project area does not support suitable habitat.
Mammals				
American badger	*Taxidea taxus*	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	**Low potential to occur.** The project area supports open coastal scrub (e.g., Unit 6) and small grasslands but there are no known occurrences of this species in the Peninsula Watershed (CDFW 2020, SFPUC, unpubl. data) and no dens were observed during the May 2020 site visits.
pallid bat	*Antrozous pallidus*	None/SSC	Grasslands, shrublands, woodlands, forests; most common in open, dry habitats with rocky outcrops for roosting, but also roosts in man-made structures and trees	**Moderate potential to occur.** Large tree hollows suitable for roosting by this speceis were observed on Unit 8 and similar hollows may be present in other trees in the project area.
salt-marsh harvest mouse	*Reithrodontomys raviventris*	FE/FP, SE	Tidal salt marshes of the San Francisco Estuary.	**Not expected to occur.** The project area is outside of the species' known geographic range.

Common Name	Scientific Name	Status (Federal/State)	Habitat	Potential to Occur in Project Area
salt marsh wandering shrew	*Sorex vagrans halicoetes*	None/SSC	Tidal salt marshes of South San Francisco Bay.	**Not expected to occur.** The project area is outside of the species' known geographic range.
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*	None/SSC	Forest habitats with a moderate canopy and moderate to dense understory	**Present.** Multiple stick nests were observed on Unit 8
Townsend's big-eared bat	*Corynorhinus townsendii*	None/SSC	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava tubes, man-made structures, and tunnels	**Low potential to occur.** Although this species has been observed roosting in tree hollows, it rarely does so and is primarly associated with caves and cave-like roosting habitat. No such features are present in the project area.
western red bat	*Lasiurus blossevillii*	None/SSC	Forest, woodland, riparian, mesquite bosque, and orchards, including fig, apricot, peach, pear, almond, walnut, and orange; roosts in tree canopy	**Moderate potential to occur.** The project area supports suitable habitat for this and other foliage-roosting bats.

Status Legend
FE: Federally Endangered
FT: Federally Threatened
FC: Federal Candidate
BGEPA: Bald and Golden Eagle Protection Act
SSC: California Species of Special Concern
FP: California Fully Protected Species
SE: State Endangered
ST: State Threatened

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Attachment B

Wildlife Species Observed in the Project Area, May 12–13, 2020

Reptiles

Lizards

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis—western fence lizard

Birds

Bushtits

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

Cardinals, Grosbeaks and Allies

CARDINALIDAE—CARDINALS AND ALLIES

Passerina amoena—lazuli bunting

Creepers

CERTHIIDAE—CREEPERS

Certhia americana—brown creeper

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous purpureus—purple finch

Loxia curvirostra—red crossbill

Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus cooperi—olive-sided flycatcher

Empidonax difficilis—Pacific-slope flycatcher

Myiarchus cinerascens—ash-throated flycatcher

Hawks

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk

Buteo jamaicensis—red-tailed hawk

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

Selasphorus sasin—Allen's hummingbird

Jays, Magpies and Crows

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay

Corvus brachyrhynchos—American crow

Corvus corax—common raven

Cyanocitta stelleri—Steller's jay

Kinglets

REGULIDAE—KINGLETS

Regulus satrapa—golden-crowned kinglet

Mockingbirds and Thrashers

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Toxostoma redivivum—California thrasher

New World Quail

ODONTOPHORIDAE—NEW WORLD QUAIL

Callipepla californica—California quail

New World Vultures

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

Nuthatches

SITTIDAE—NUTHATCHES

Sitta canadensis—red-breasted nuthatch

Sitta pygmaea—pygmy nuthatch

Old World Warblers and Gnatcatchers

POLIOPTILIDAE—GNATCATCHERS

Polioptila caerulea—blue-gray gnatcatcher

Owls

STRIGIDAE—TYPICAL OWLS

Bubo virginianus—great horned owl

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Patagioenas fasciata—band-tailed pigeon

Zenaida macroura—mourning dove

* *Columba livia*—rock pigeon (rock dove)

Quails, Pheasants and Relatives

PHASIANIDAE—PARTRIDGES, GROUSE, TURKEYS, AND OLD WORLD QUAIL

Meleagris gallopavo—wild turkey

Swallows

HIRUNDINIDAE—SWALLOWS

Hirundo rustica—barn swallow

Petrochelidon pyrrhonota—cliff swallow

Stelgidopteryx serripennis—northern rough-winged swallow

Tachycineta thalassina—violet-green swallow

Swifts

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

Thrushes

TURDIDAE—THRUSHES

Catharus ustulatus—Swainson's thrush

Turdus migratorius—American robin

Titmice

PARIDAE—CHICKADEES AND TITMICE

Poecile rufescens—chestnut-backed chickadee

Vireos

VIREONIDAE—VIREOS

Vireo huttoni—Hutton's vireo

Waxwings

BOMBYCILLIDAE—WAXWINGS

Bombycilla cedrorum—cedar waxwing

Wood Warblers and Allies

PARULIDAE—WOOD-WARBLERS

Cardellina pusilla—Wilson's warbler
Geothlypis tolmiei—MacGillivray's warbler
Setophaga nigrescens—black-throated gray warbler
Leiothlypis celata—orange-crowned warbler

Woodpeckers

PICIDAE—WOODPECKERS AND ALLIES

Dryocopus pileatus—pileated woodpecker
Dryobates pubescens—downy woodpecker
Dryobates villosus—hairy woodpecker

Wrens

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren
Troglodytes pacificus—Pacific wren

New World Sparrows

PASSERELLIDAE—NEW WORLD SPARROWS

Ammodramus savannarum—grasshopper sparrow
Junco hyemalis—dark-eyed junco
Melospiza melodia—song sparrow
Melozone crissalis—California towhee
Pipilo maculatus—spotted towhee

Typical Warblers, Parrotbills, Wrentit

SYLVIIDAE—SYLVIID WARBLERS

Chamaea fasciata—wrentit

Mammals

Pocket Gophers

GEOMYIDAE—POCKET GOPHERS

Thomomys bottae—Botta's pocket gopher

Ungulates

CERVIDAE—DEERS

Odocoileus hemionus—mule deer

Rats, Mice, and Voles

CRICETIDAE—RATS, MICE, AND VOLES

Microtus californicus—California vole

* signifies introduced (non-native) species

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Attachment C

Representative Photographs

Photo 1: Perennial/serpentine grassland on Unit 3. Grasshopper sparrow heard singing here on May 12, 2020.

Photo 2: Coastal scrub in northern portion of Unit 4. White-tailed kite seen foraging here on May 13, 2020.

Photo 3: Seasonal wetland east of Sheep Camp Trail in Unit 5. Photo taken May 12, 2020.

Photo 4: Seasonal wetland in old borrow ditch west of Sheep Camp Trail in Unit 5. Photo taken May 19, 2020.

Photo 5: Typical coastal scrub in Unit 6. Drier and more open than scrub in other units.

Photo 6: Coastal scrub with scattered coast live oak and California buckeye in eastern portion of Unit 6. Denser and higher native component than other portions of Unit 6.

Photo 7: Typical coastal scrub in Unit 7. More mesic than scrub in other units (see ferns in lower frame).

Photo 8: Closed-cone cypress forest in Unit 7. Pacific wren and brown creeper were heard here on May 13, 2020.

<table>
<tr><td>  </td><td> 
</td></tr>
<tr><td>Photo 9: Tree hollows such as those in this dead tree on Unit 8 could support roosting bats.</td><td>Photo 10: One of multiple San Francisco dusky-footed woodrat nests present in coastal scrub and oak woodland on Unit 8.</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Photo 11: Willow thicket at base of drainage in Unit 8. Several such areas are present in other drainages and could support San Francisco garter snakes and/or California red-legged frogs during the nonbreeding season.</td><td>Photo 12: View west across Unit 8 from Crystal Springs Trail. The willow thicket in Photo 11 is visible to the right.</td></tr>
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APPENDIX C

FOFEM Results

TITLE: Results of FOFEM model execution on date: 6/3/2020

FUEL CONSUMPTION CALCULATIONS

Region: PacificWest
Cover Type: 065 Purple tussockgrass -- California oatgrass grassland
Fuel Type: Natural
Additional Reference: FOFEM 391

FUEL CONSUMPTION TABLE

Fuel Component Name	Preburn Load (T/ac)	Consumed Load (T/ac)	Postburn Load (T/ac)	Percent Reduced (%)	Equation Reference Number	Moist. (%)
Litter	1.04	1.04	0.00	100.0	999	
Wood (0-1/4 inch)	0.00	0.00	0.00	0.0	999	
Wood (1/4-1 inch)	0.00	0.00	0.00	0.0	999	10.0
Wood (1-3 inch)	0.00	0.00	0.00	0.0	999	
Wood (3+ inch) Sound	0.00	0.00	0.00	0.0	999	15.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Wood (3+ inch) Rotten	0.00	0.00	0.00	0.0	999	15.0
3->6	0.00	0.00	0.00	0.0		
6->9	0.00	0.00	0.00	0.0		
9->20	0.00	0.00	0.00	0.0		
20->	0.00	0.00	0.00	0.0		
Duff	0.72	0.48	0.24	66.7	2	40.0
Herbaceous	1.80	1.80	0.00	100.0	22	
Shrubs	0.00	0.00	0.00	0.0	23	
Crown foliage	0.00	0.00	0.00	0.0	37	
Crown branchwood	0.00	0.00	0.00	0.0	38	
Total Fuels	3.56	3.32	0.24	93.3		

FIRE EFFECTS ON FOREST FLOOR
Mineral Soil Exposed (%) 50.8 Equation: 10

Ground and Surface Fuel Carbon Loading

Fuel Component Name	Preburn Carbon (T/ac)	Postburn Carbon (T/ac)
Litter	0.38	0.00
Wood	0.00	0.00
Duff	0.27	0.09
Herbaceous	0.90	0.00
Shrub	0.00	0.00
Foliage+Branch	0.00	0.00
Total	1.55	0.09

TITLE: Results of FOFEM model execution on date: 6/2/2020

FUEL CONSUMPTION CALCULATIONS

Region: PacificWest
Cover Type: SRM 204 - North Coastal Shrub
Fuel Type: Slash
Fuel Reference: CFM

FUEL CONSUMPTION TABLE

Fuel Component Name	Preburn Load (T/ac)	Consumed Load (T/ac)	Postburn Load (T/ac)	Percent Reduced (%)	Equation Reference Number	Moist. (%)
Litter	0.50 u	0.50	0.00	100.0	999	
Wood (0-1/4 inch)	1.00 u	1.00	0.00	100.0	999	
Wood (1/4-1 inch)	0.50 u	0.39	0.11	77.3	999	10.0
Wood (1-3 inch)	0.75 u	0.26	0.49	34.5	999	
Wood (3+ inch) Sound	0.15 u	0.00	0.15	0.1	999	15.0
3->6	0.04	0.00	0.04	0.4		
6->9	0.04	0.00	0.04	0.1		
9->20	0.04	0.00	0.04	0.0		
20->	0.04	0.00	0.04	0.0		
Wood (3+ inch) Rotten	0.15 u	0.01	0.14	9.6	999	15.0
3->6	0.04	0.01	0.03	19.9		
6->9	0.04	0.00	0.03	10.4		
9->20	0.04	0.00	0.04	5.7		
20->	0.04	0.00	0.04	2.5		
Duff	1.00 u	0.67	0.33	66.7	2	40.0
Herbaceous	0.75 u	0.75	0.00	100.0	22	
Shrubs	1.00 u	0.60	0.40	60.0	23	
Crown foliage	0.00	0.00	0.00	0.0	37	
Crown branchwood	0.00	0.00	0.00	0.0	38	
Total Fuels	5.80	4.18	1.62	72.0		

'u' Preburn Load is User adjusted

FIRE EFFECTS ON FOREST FLOOR
Mineral Soil Exposed (%) 50.8 Equation: 10

Ground and Surface Fuel Carbon Loading

Fuel Component Name	Preburn Carbon (T/ac)	Postburn Carbon (T/ac)
Litter	0.19	0.00
Wood	1.27	0.45
Duff	0.37	0.12
Herbaceous	0.38	0.00
Shrub	0.50	0.20
Foliage+Branch	0.00	0.00
Total	2.70	0.77

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