
Marin Wildfire Prevention Authority

# Greater Ross Valley Shaded Fuel Break Project
# CalVTP Project Specific Analysis and Addendum

**May 2022**

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PANORAMA
ENVIRONMENTAL, INC.

Marin Wildfire Prevention Authority

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# CalVTP Project Specific Analysis and Addendum

**May 2022**


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# 1 Introduction

## 1.1 Overview of Proposed Project

The Central Marin Fire Department (Central Marin Fire) has collaborated with the Ross Valley Fire Department, Kentfield Fire Protection District, and Marin County Fire Department, and is proposing a Marin Wildfire Prevention Authority (MWPA) Core Project, referred to as the Greater Ross Valley Shaded Fuel Break (GRVSFB) project. The goal of the GRVSFB project is to create and maintain a continuous reduced-fuel and forest-health-restoration zone around the communities in Central Marin. The proposed project would involve conducting vegetation management activities to create an approximately 38-mile-long continuous shaded fuel break within a 1,379-acre area. Wildland Urban Interface (WUI) fuel reduction areas up to 497 acres adjacent to the fuel break may also be treated. The project areas are shown in Figure 1 through Figure 3. The project definition is described in Attachment A, Greater Ross Valley Shaded Fuel Break Project Definition Report.

The GRVSFB project would be implemented on private and public lands within Marin County, City of Larkspur, City of Mill Valley, Town of Fairfax, Town of Ross, Town of Corte Madera, Town of San Anselmo, and Kentfield as well as on lands managed by the Marin County Open Space District (MCOSD)/Marin County Parks. A small area of the fuel break is on lands managed by the Marin Municipal Water District (MMWD). The fuel break in these areas is managed under MMWD's existing programs. Figure 4 through Figure 6 provide a depiction of the underlying landownership across the GRVSFB project.

The GRVSFB project is within a State Responsibility Area (SRA) for 911 acres of land for which Marin County Fire Department is contracted to conduct fire protection services by the California Department of Forestry and Fire Prevention (CAL FIRE). The remaining 967 acres fall within the Local Responsibility Area (LRA) serviced by Central Marin Fire, Kentfield Fire District, the Ross Valley Fire Department, and Marin County Fire Department; however, the same types of vegetation communities are found in the LRA areas as the SRA areas and are often contiguous to the SRA areas.

**Figure 1 Overall Proposed GRVSFB Project (Map 1 of 3)**

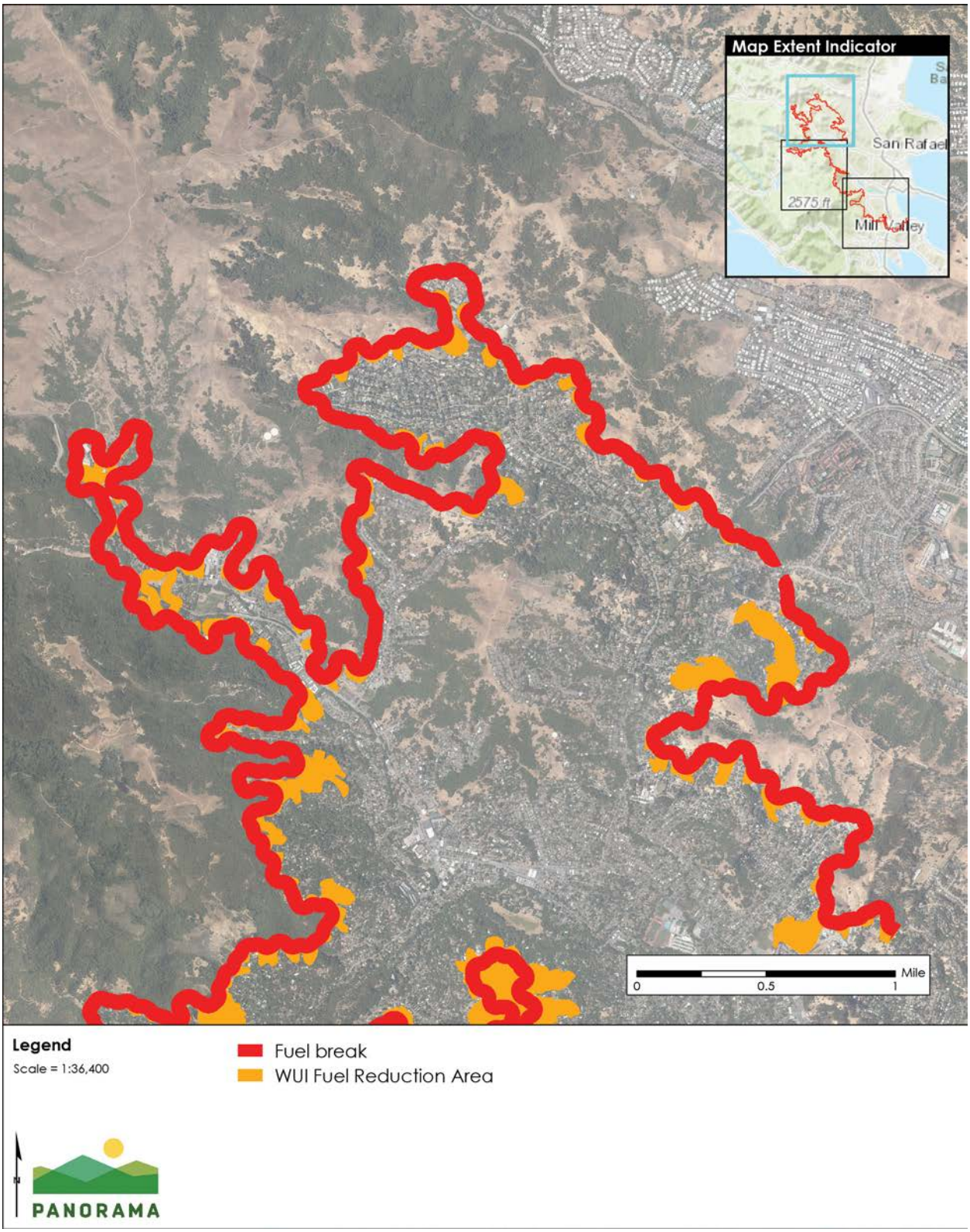


**Figure 2 Overall Proposed GRVSFB Project (Map 2 of 3)**

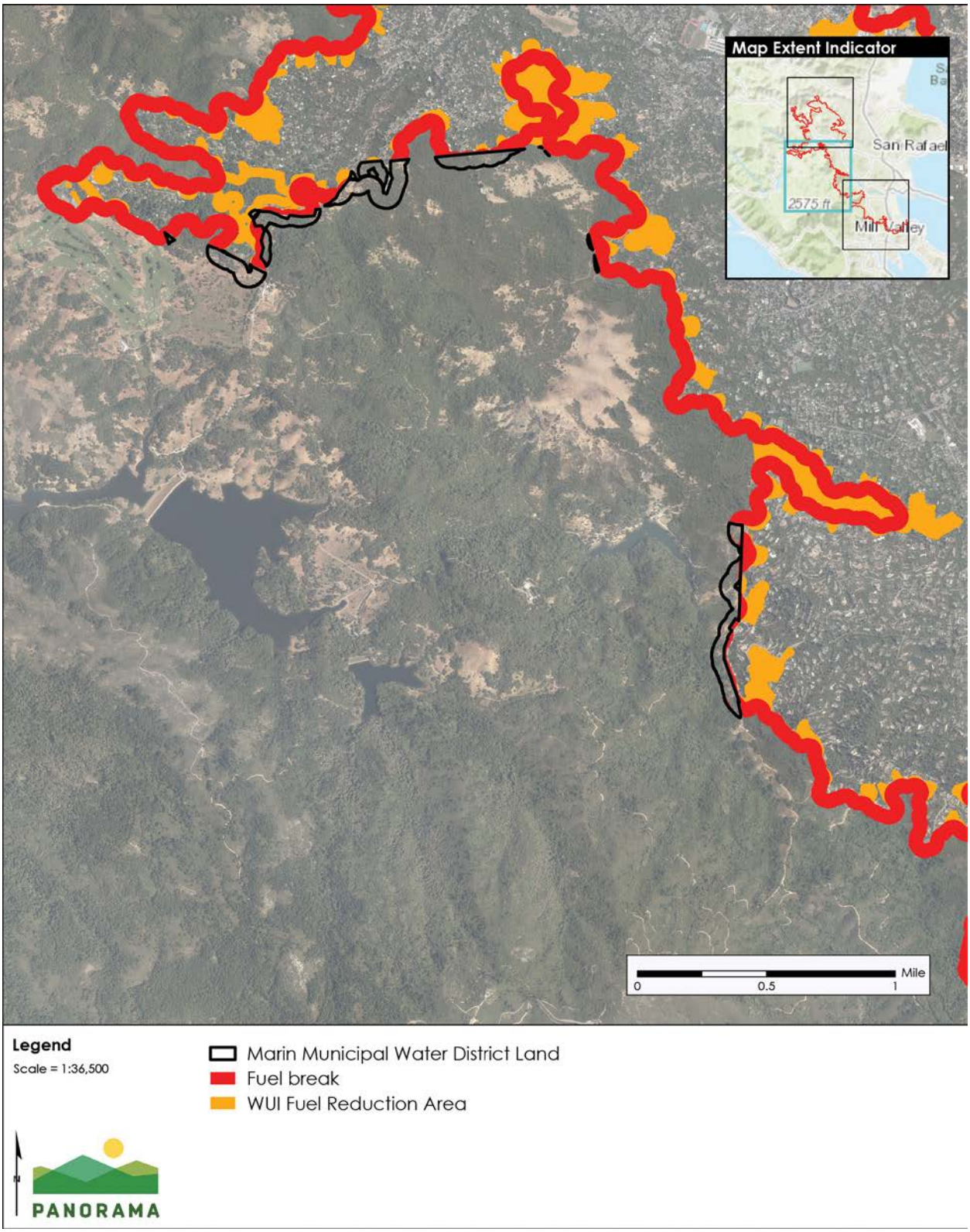


**Figure 3 Overall Proposed GRVSFB Project (Map 3 of 3)**

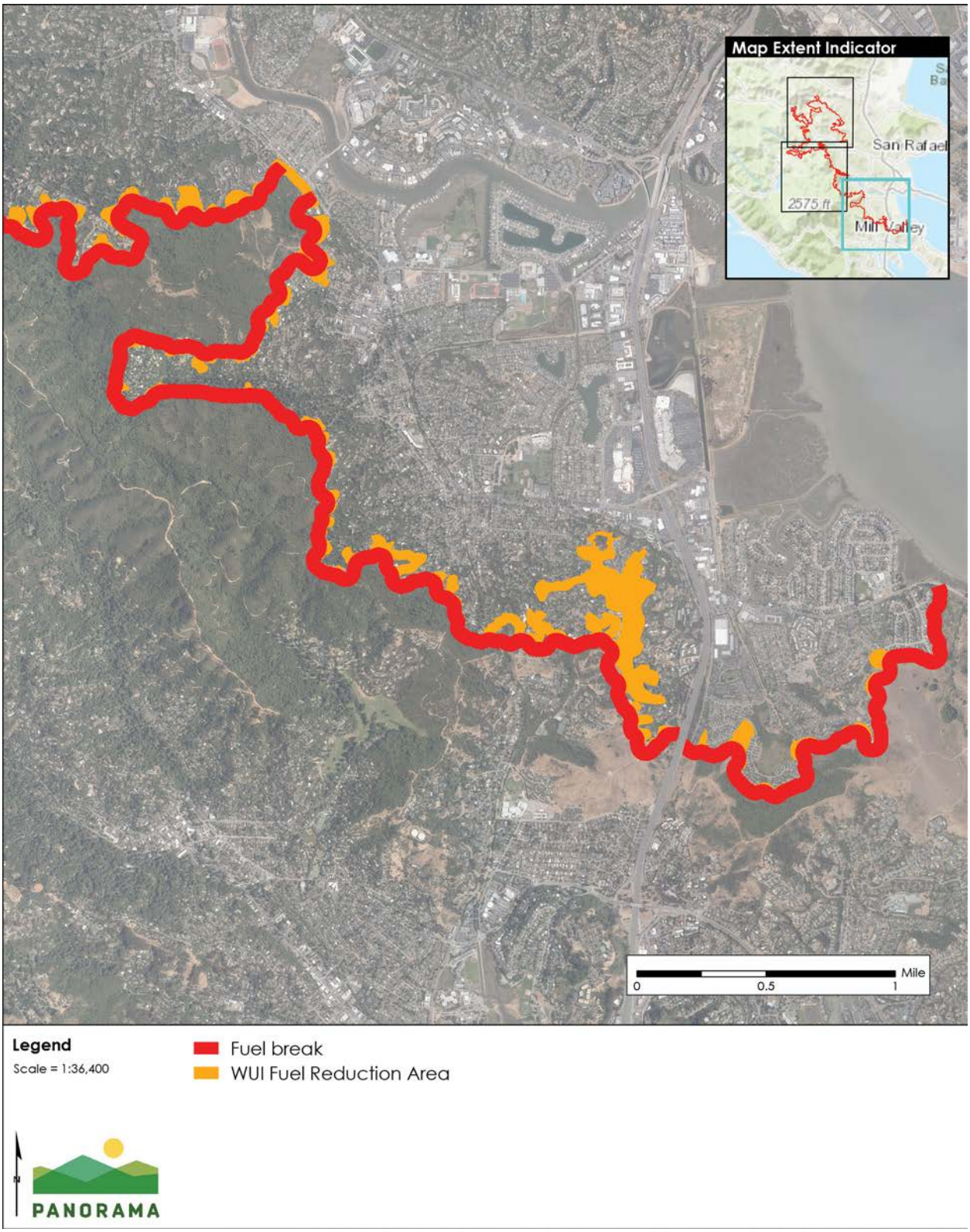


**Figure 4 Land Management in the Area of the Proposed Project (Map 1 of 3)**

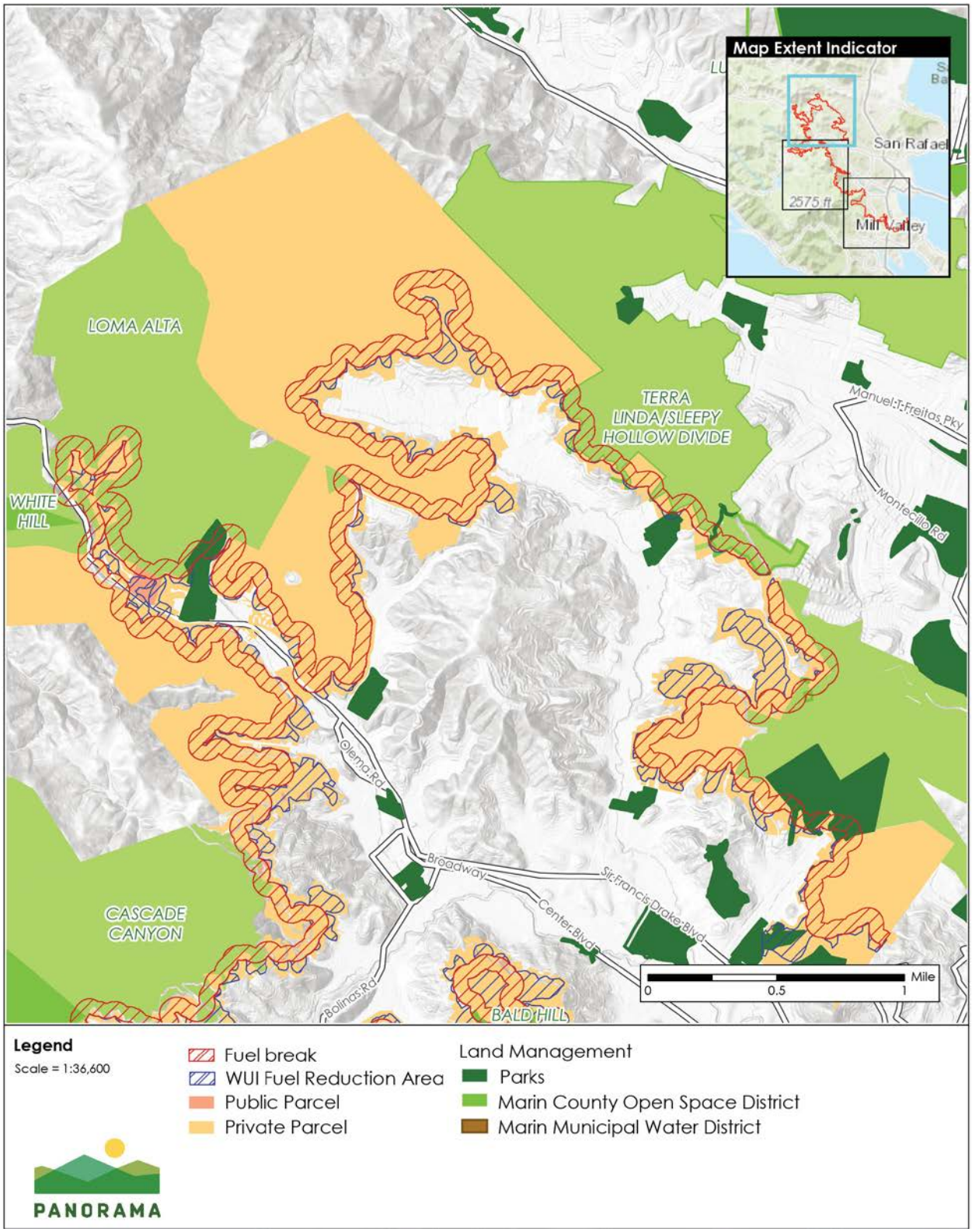


**Figure 5 Land Management in the Area of the Proposed Project (Map 2 of 3)**

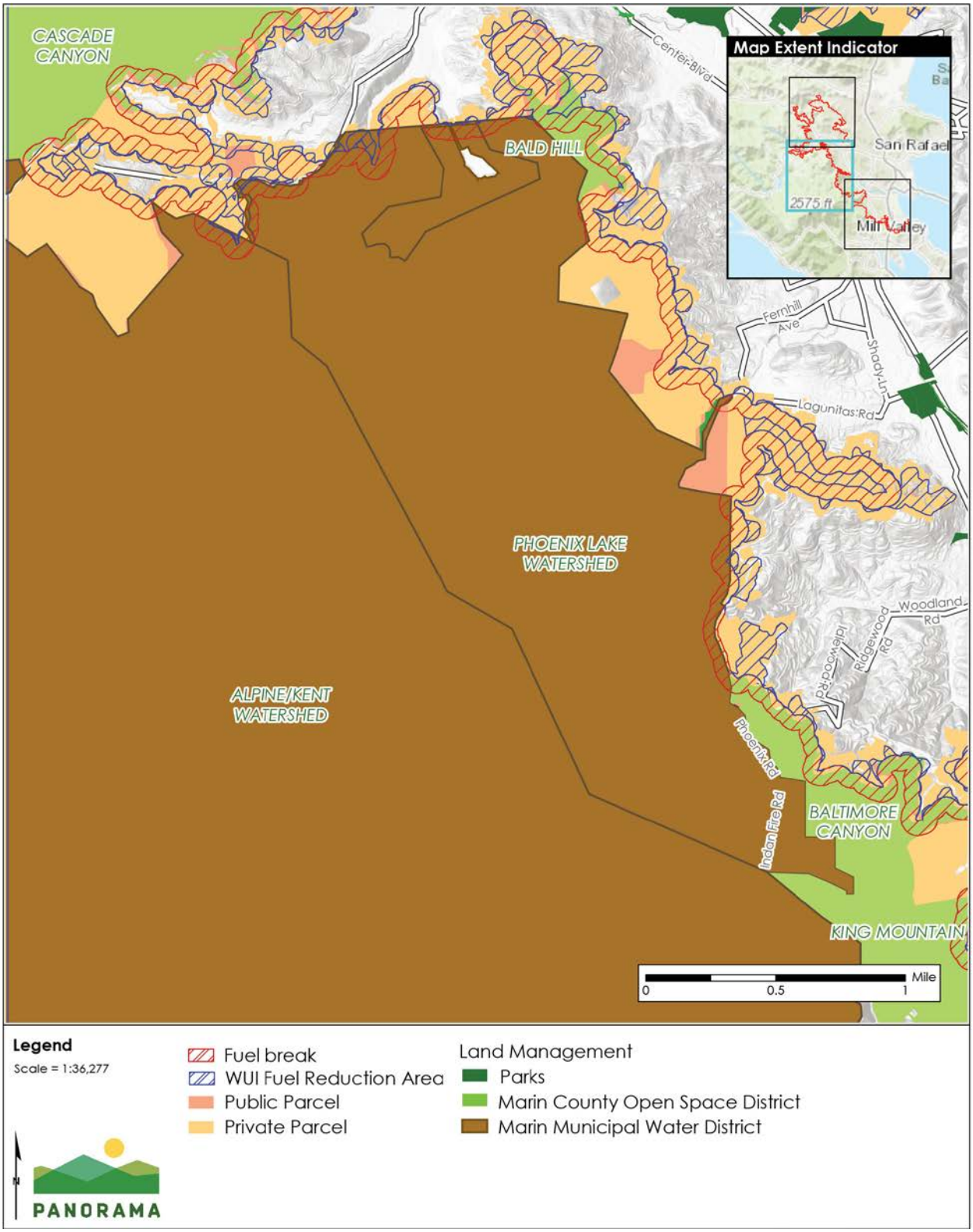
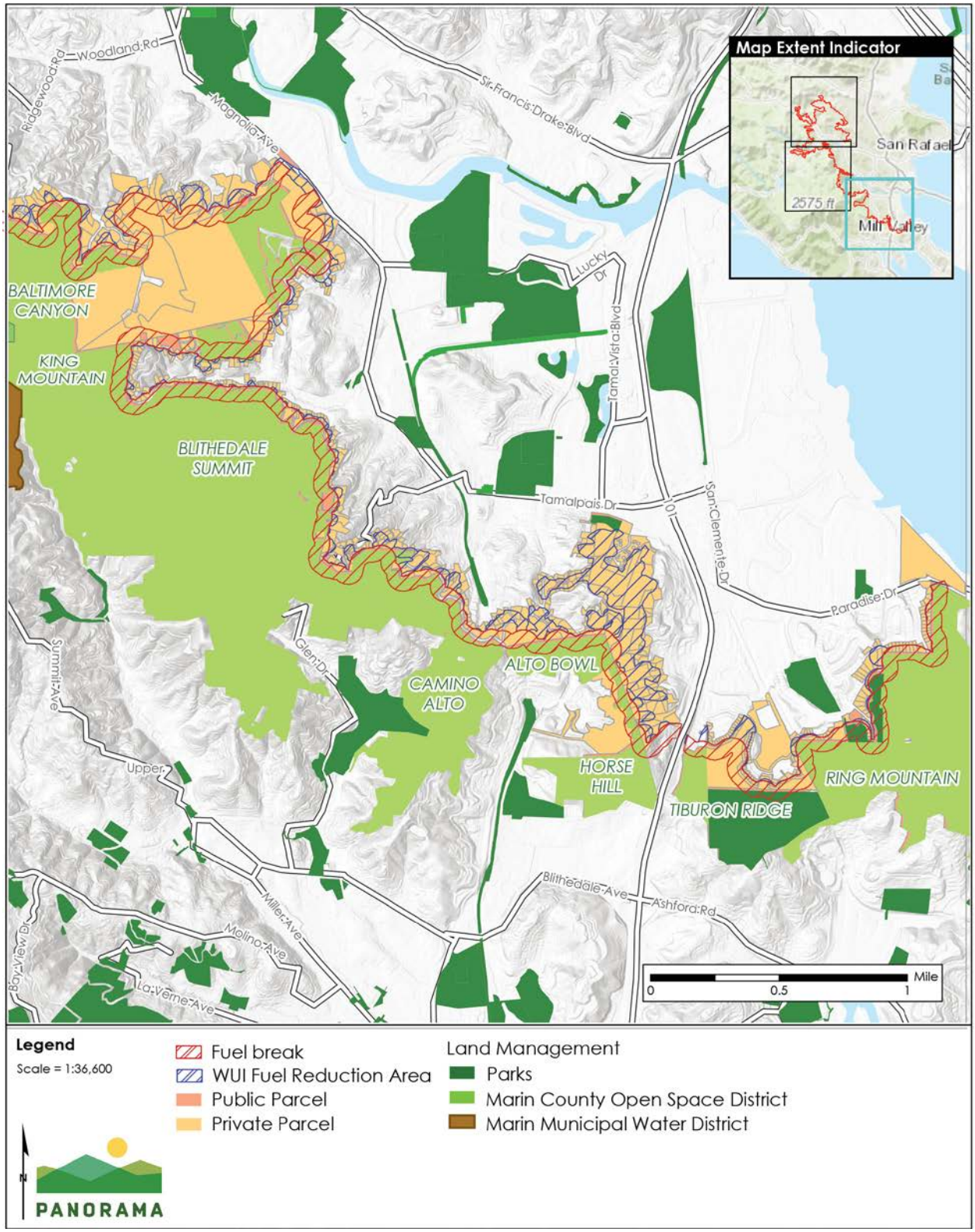


**Figure 6 Land Management in the Area of the Proposed Project (Map 3 of 3)**



## 1.2 California Environmental Quality Act

The MWPA has evaluated the proposed treatments for the California Environmental Quality Act (CEQA) compliance as later activities covered by CAL FIRE's California Vegetation Treatment Program (CalVTP) Program Environmental Impact Report (PEIR) using the Project-Specific Analysis (PSA) checklist herein. For the purposes of implementing the CalVTP, the MWPA is considered the project proponent by providing funding for the proposed vegetation treatment. As the proposed project has been found to be consistent with the CalVTP for which CAL FIRE was the lead agency, the MWPA is therefore serving as a responsible agency under CEQA. Approximately 17 percent of the proposed project falls within MCOSD and Marin County Parks lands. On that account, MCOSD/Marin County Parks is also a responsible agency under CEQA.

Consistent with CEQA Guidelines Section 15168(c)(2), if the potential environmental impacts of a proposed vegetation treatment project are determined to be covered by the environmental impacts analyzed in the PEIR, the project may be approved using a finding that the project is within the scope of the PEIR. Such a finding would constitute CEQA compliance under the PEIR. The PEIR identified the range of environmental impacts associated with vegetation treatment projects and required implementation of standard project requirements (SPRs) and mitigation measures (MMs) to address and minimize these impacts. In accordance with the PEIR, all relevant SPRs and MMs would be incorporated into the proposed project. Under CEQA, no additional review is required for a project that is consistent with the PEIR.

The CalVTP identifies the portion of the SRA where vegetation conditions are suitable for vegetation treatments as "the treatable landscape." Within the GRVSFB project area, 936 acres are within the treatable landscape and 940 acres are outside of the modeled treatable landscape. However, under the CalVTP, areas outside the treatable landscape can be included into the PEIR through an addendum if the types of vegetation are covered already, the types of treatment methods are covered, and no new or substantially greater impacts would occur. This document, therefore, also serves as an addendum to the CalVTP PEIR for the inclusion of the additional 940 acres outside of the modeled treatable landscape. The proposed project (Project ID 2022-05) analyzed in this PSA and addendum excludes land addressed by existing programs and environmental compliance documents, including MMWD lands.[1] The analysis presented in this PSA covers fuel reduction activities from 0 up to 300 feet around structures on private lands in addition to public lands. According to Public Resources Code (PRC) Section 4291, private homeowners are required to maintain defensible space of 100 feet around structures, but not beyond the property line, unless a greater distance or fuel modification beyond the property line is required by regulation. Private homeowners conducting defensible space treatment activities with private funding in accordance with state and local regulation does not constitute

[1] The overall GRVSFB project encompasses areas with existing fuel management programs by Marin Municipal Water District (MMWD) conducted under their Biodiversity, Fire, and Fuels Integrated Plan, as these areas tie into the overall effectiveness of the proposed fuel break.

a project under CEQA (CEQA Guidelines Sections 15377 and 15378) and are not required to comply with CEQA. The analysis affords the opportunity for public funds to be used to implement defensible space on private property within 100 feet of structures, however, in general these treatments will be conducted by the individual homeowners who would not be required to comply with this PSA.

Implementation of the proposed project would be managed by Central Marin Fire and associated fire agencies but would be partially or fully funded by Measure C funds administered by the MWPA over the coming years. Grant funding for implementation of the proposed project is being sought from CAL FIRE under the Fire Prevention Grant Program and, if awarded, would be used to implement all or portions of the proposed project over the coming years.

## 1.3 Purpose of the Project-Specific Analysis/Addendum

This document serves as a PSA to evaluate whether the proposed project is within the scope of the CalVTP PEIR. Proposed treatment projects qualifying as within the scope of the PEIR must be consistent with the treatment types and treatment activities covered in the CalVTP and the geographic extent of the CalVTP treatable landscape.

As further discussed in Chapter 2, Project Description, the proposed treatment types and treatment activities are all consistent with the CalVTP PEIR. The project contains proposed treatment areas within and outside of the CalVTP treatable landscape due to the method by which the CalVTP treatable landscape was digitally modeled and the resulting degree of mapping resolution. These areas are dispersed in small sections of treatment areas, as shown in Figure 7 through Figure 9. The CalVTP treatable landscape was modeled using desktop applications to exclude certain vegetation types (e.g., wetlands), apply buffers around geographic and topographic features, and demarcate jurisdictional boundaries (e.g., SRAs and LRAs), which resulted in some disjointed and scattered treatable landscape areas. However, if the areas of the proposed project outside of the CalVTP treatable landscape have essentially the same, or substantially similar, landscape conditions and vegetation cover as the adjacent areas within the treatable landscape, the environmental analysis in the PEIR would be applicable.

Consistent with Public Resources Code Section 21166 and CEQA Guidelines Sections 15162, 15163, 15164, and 15168, an addendum to an EIR is appropriate where a previously certified EIR has been prepared and some changes or revisions to the project are proposed, or the circumstances surrounding the project have changed, but none of the changes or revisions result in new or substantially more severe significant environmental impacts. For the proposed project, the proposal to treat areas outside of the CalVTP treatable landscape represents a minor revision or change to the project (i.e., the CalVTP treatable landscape). The PSA checklist (see Chapter 3, Project-Specific Analysis) includes the criteria to support an addendum to the CalVTP PEIR for the inclusion of proposed treatment areas outside the CalVTP treatable landscape.

**Figure 7** **Overall Proposed GRVSFB Project Within and Outside the CalVTP Modeled Treatable Landscape (Map 1 of 3)**

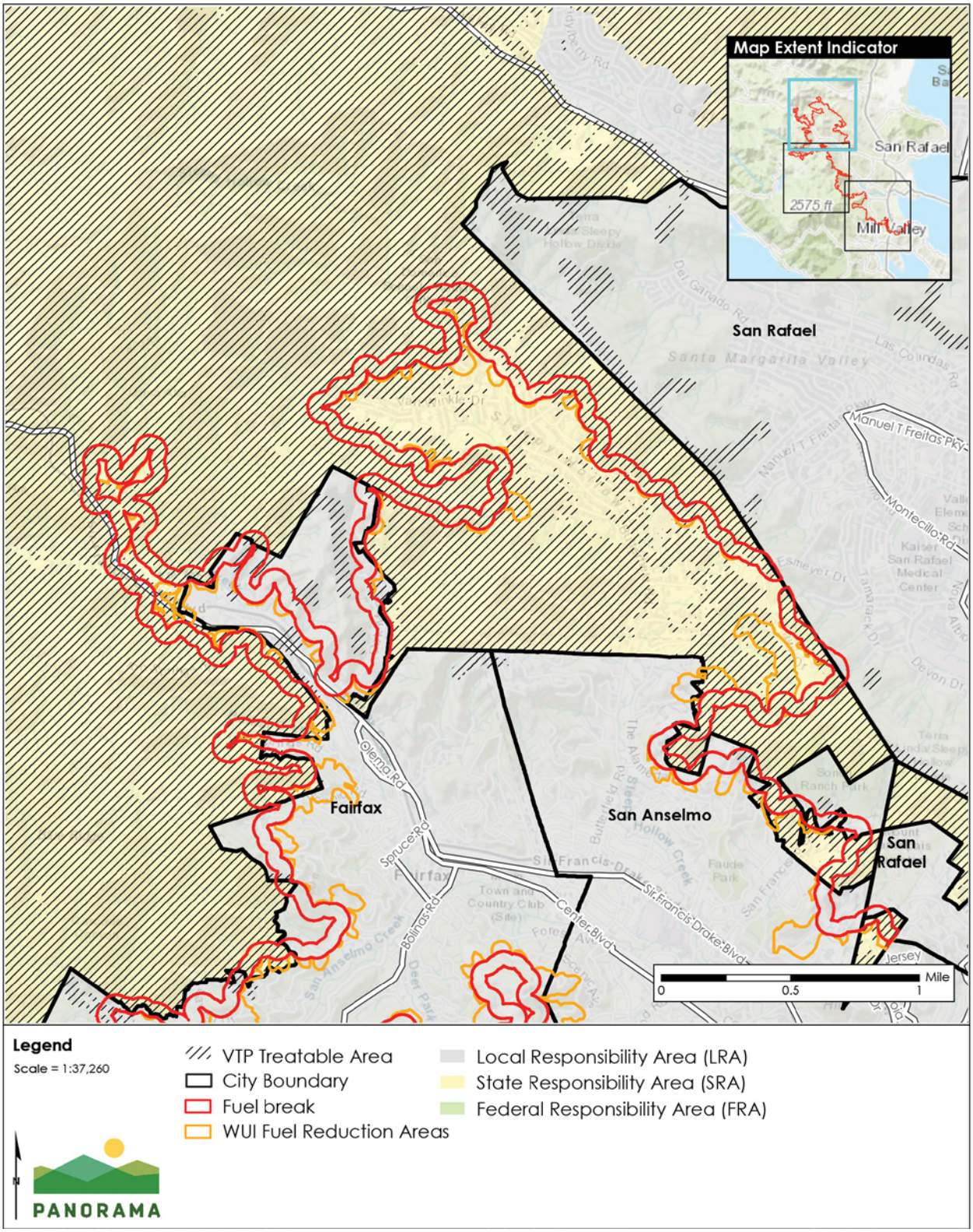


**Figure 8** **Overall Proposed GRVSFB Project Within and Outside the CalVTP Modeled Treatable Landscape (Map 2 of 3)**

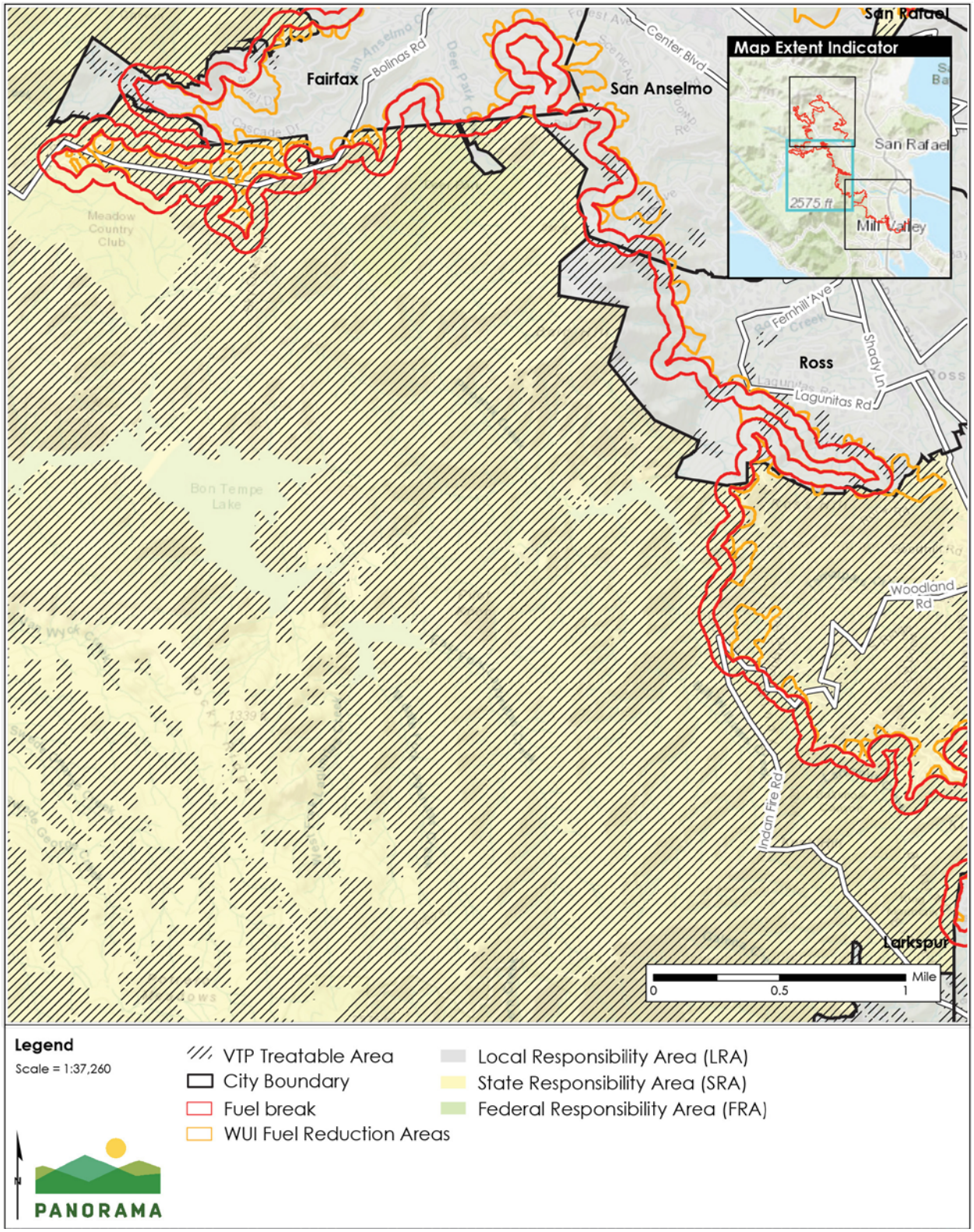
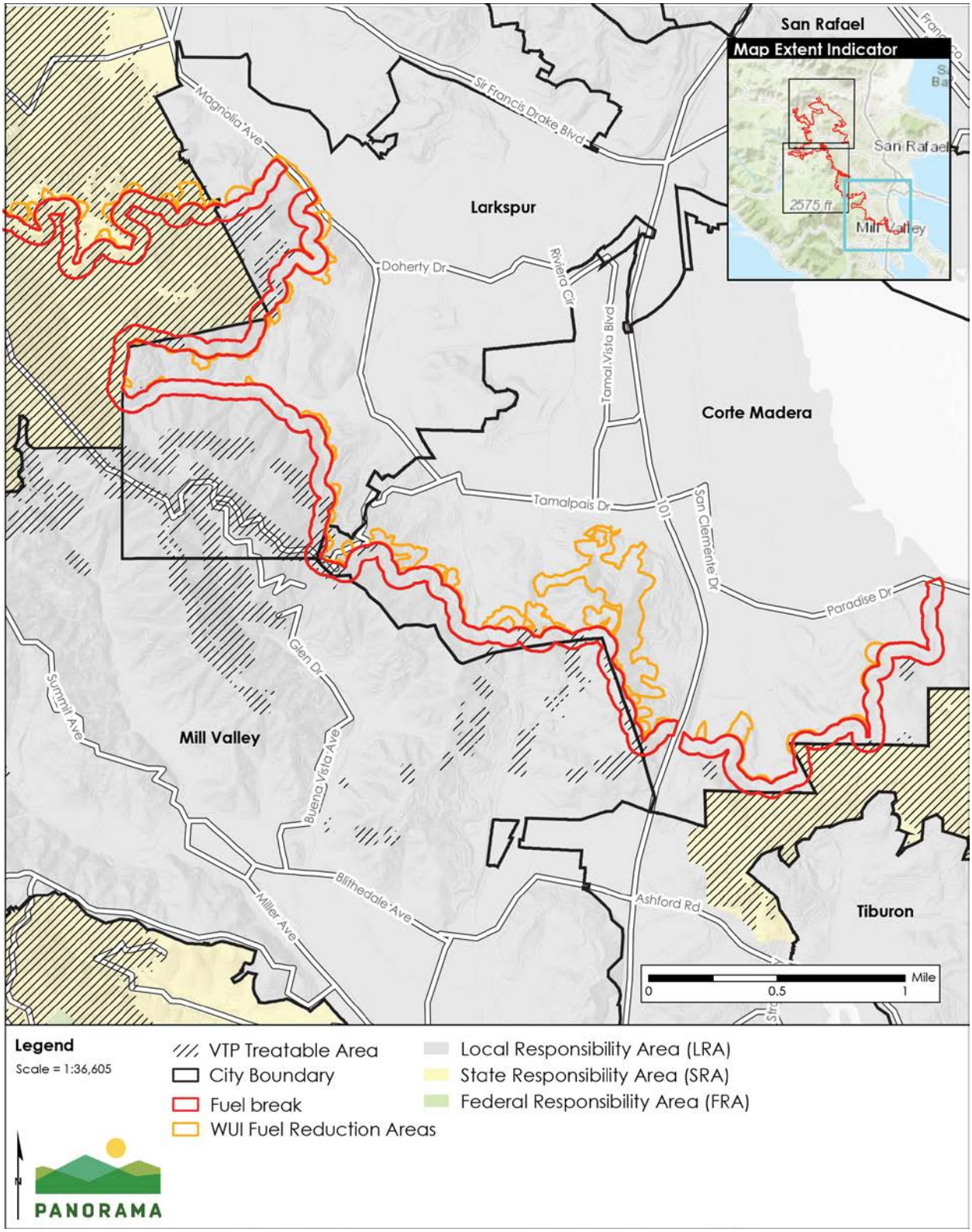


**Figure 9** **Overall Proposed GRVSFB Project Within and Outside the CalVTP Modeled Treatable Landscape (Map 3 of 3)**



The checklist evaluates each environmental resource area in terms of whether the proposed project, including the "changed condition" of additional geographic area, would result in significant impacts that would be substantially more severe than those covered in the PEIR and/or would result in any new impacts that were not covered in the PEIR. This document serves as both a PSA and an addendum to the CalVTP PEIR for analysis under CEQA for the proposed project. The project-specific mitigation monitoring and reporting program, which identifies the CalVTP SPRs and MMs applicable to the proposed project, is included as Attachment F. The SPRs identified in Attachment F have been incorporated into the proposed vegetation treatments as a standard part of treatment design and implementation.

# 2 Project Description

## 2.1 Project Location

The proposed project would involve reduction of fuel loads around communities within central Marin County, including City of Larkspur, City of Mill Valley, Town of Fairfax, Town of Ross, Town of Corte Madera, Town of San Anselmo, and Kentfield, bordering open spaces and within the WUI. The proposed GRVSFB project passes through land owned and/or managed by local jurisdictions, MCOSD/Marin County Parks, and private landowners. Existing fuel management areas, such as those on MMWD lands, are not proposed for treatment under the proposed project analyzed in this PSA but tie into the overall effectiveness of the proposed fuel break. Wildfire hazard risk is high in the areas of the proposed fuel break as a result of the spread of exotic, invasive fire-hazardous vegetation and decades of dead vegetation accumulation, due to over a hundred years of fire suppression, as well as increased risk of anthropogenic ignition due to the density of urban development. The proposed project area is shown in Figure 1 through Figure 3.

## 2.2 Description of Project

### 2.2.1 Purpose

The purpose of the proposed project is to create and maintain a continuous reduced-fuel and forest-health-restoration zone around the communities in Central Marin to reduce wildfire hazards, including wildfire intensity and rate of spread, as well as to provide strategic locations for firefighters and emergency personnel to fight a wildfire in the event of ignition. To achieve this goal, the proposed project would reduce excess and ladder fuels within a generally 200-foot-wide fuel break (but up to 300 feet, where appropriate) and would restore forest health by enhancing native, fire-resilient plant communities, primarily through weed removal. Land manager or owner coordination would occur, and approval would be sought for implementation of the proposed project.

### 2.2.2 Proposed CalVTP Treatments

The proposed project is broken up according to prioritized segments and land ownership, which are shown in Table 1. Figure 10 through Figure 12 show the prioritized project areas. The project areas by vegetation type are shown in Table 2. The proposed CalVTP treatments for both initial and maintenance treatments are listed in Table 3 and shown in Figure 13 through Figure 15.

**Figure 10 Proposed GRVSFB Project Modeled Prioritization (Map 1 of 3)**

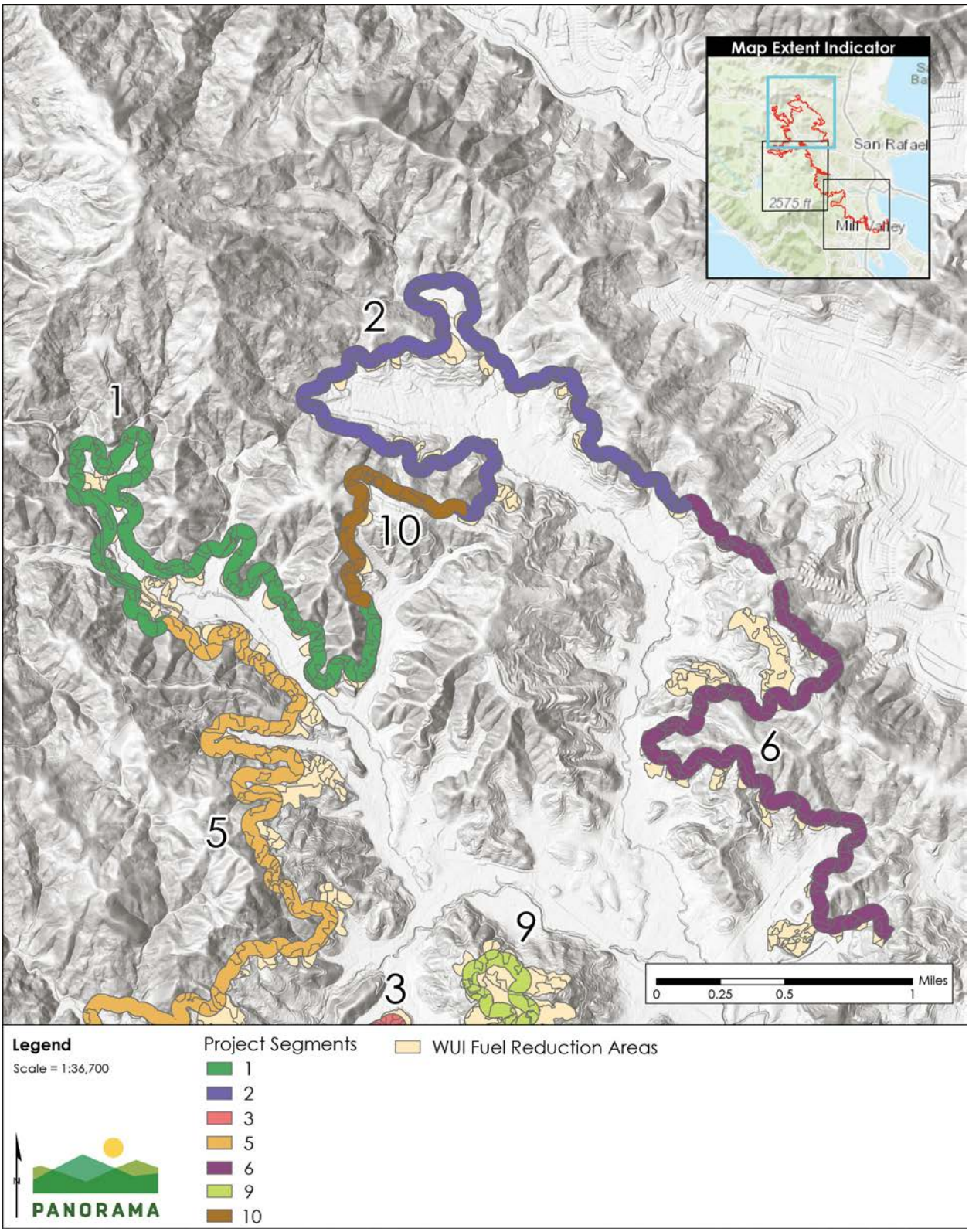


**Figure 11 Proposed GRVSFB Project Modeled Prioritization (Map 2 of 3)**

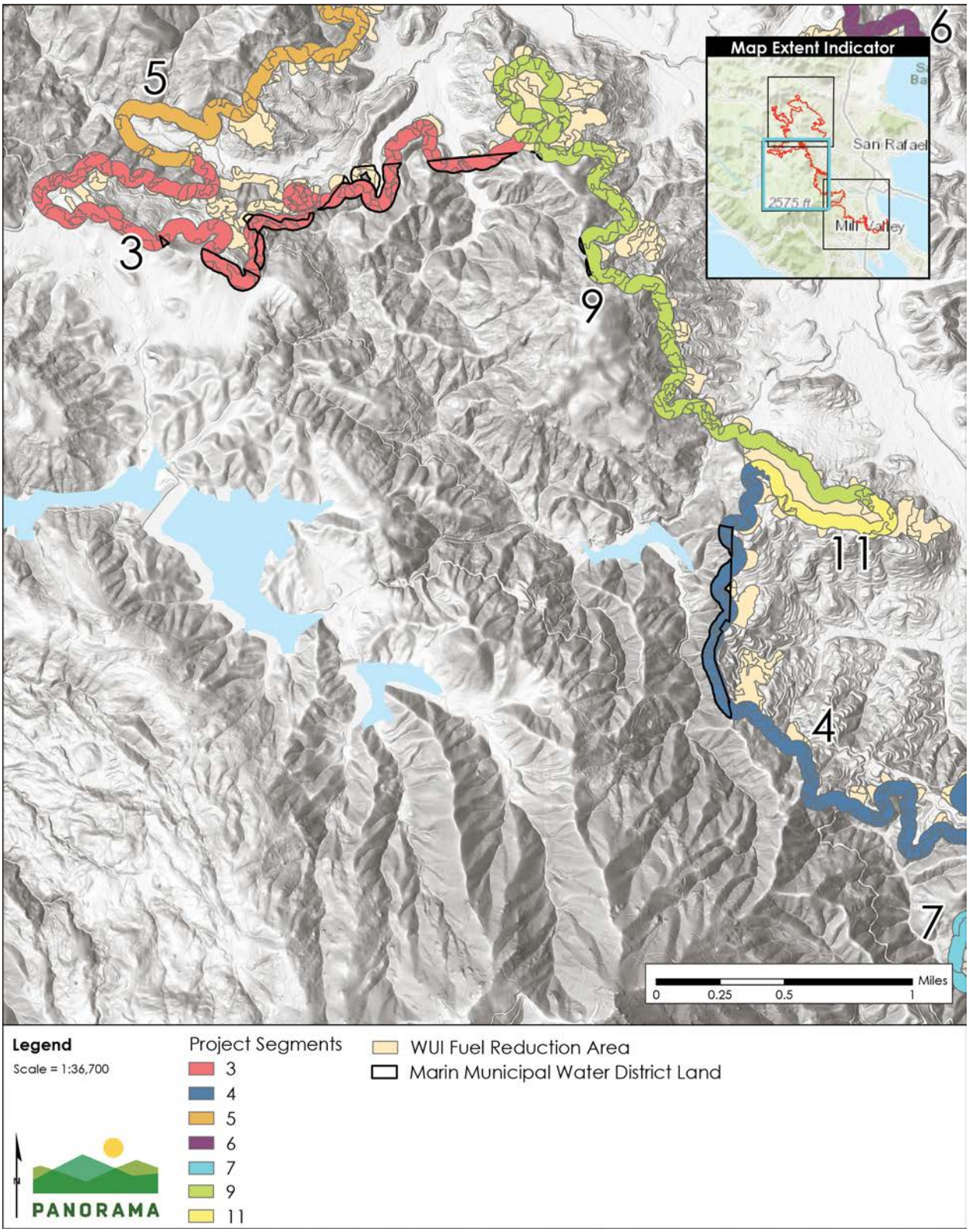


**Figure 12 Proposed GRVSFB Project Modeled Prioritization (Map 3 of 3)**

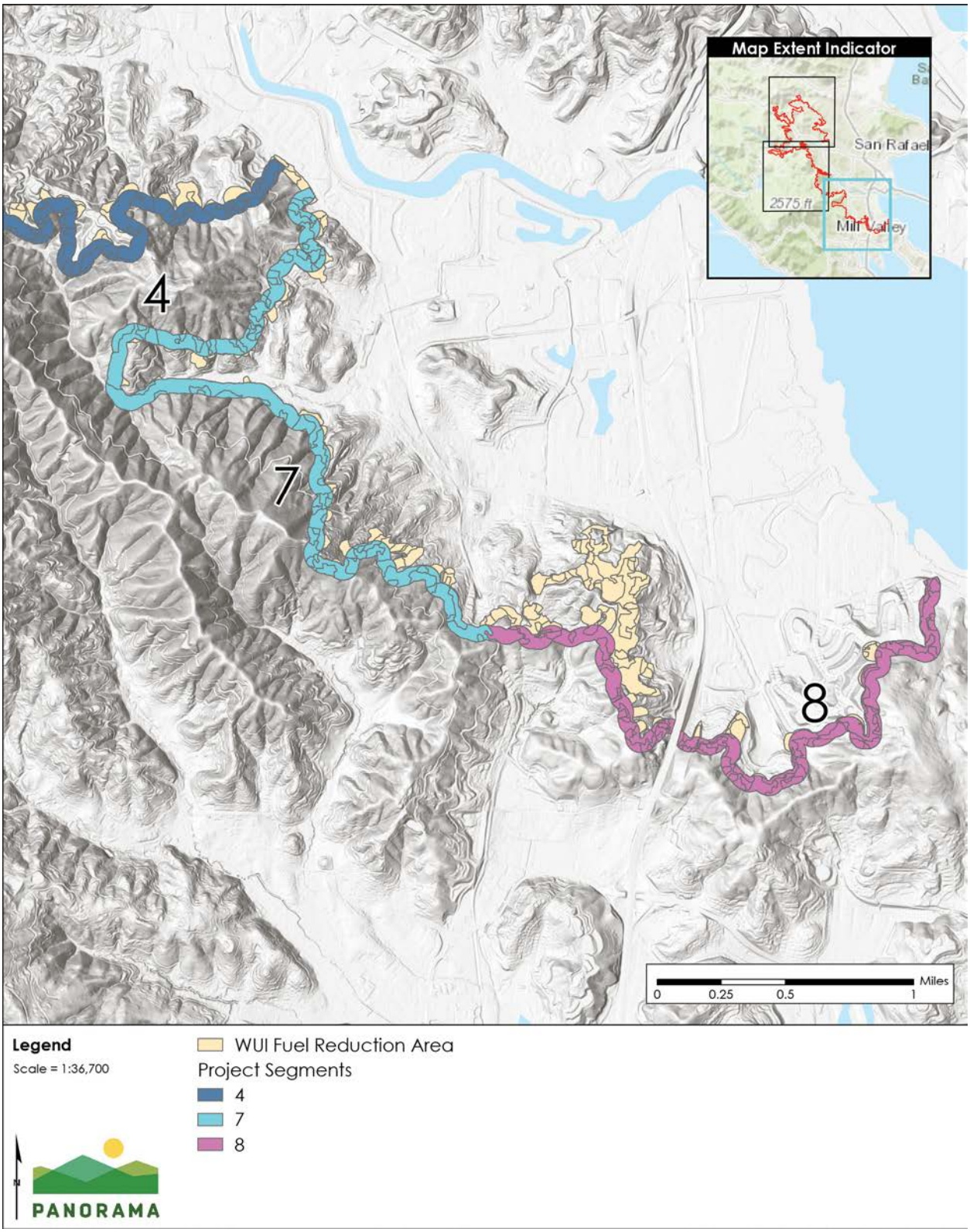


**Figure 13 Proposed GRVSFB Project Modeled Treatment Types (Map 1 of 3)**

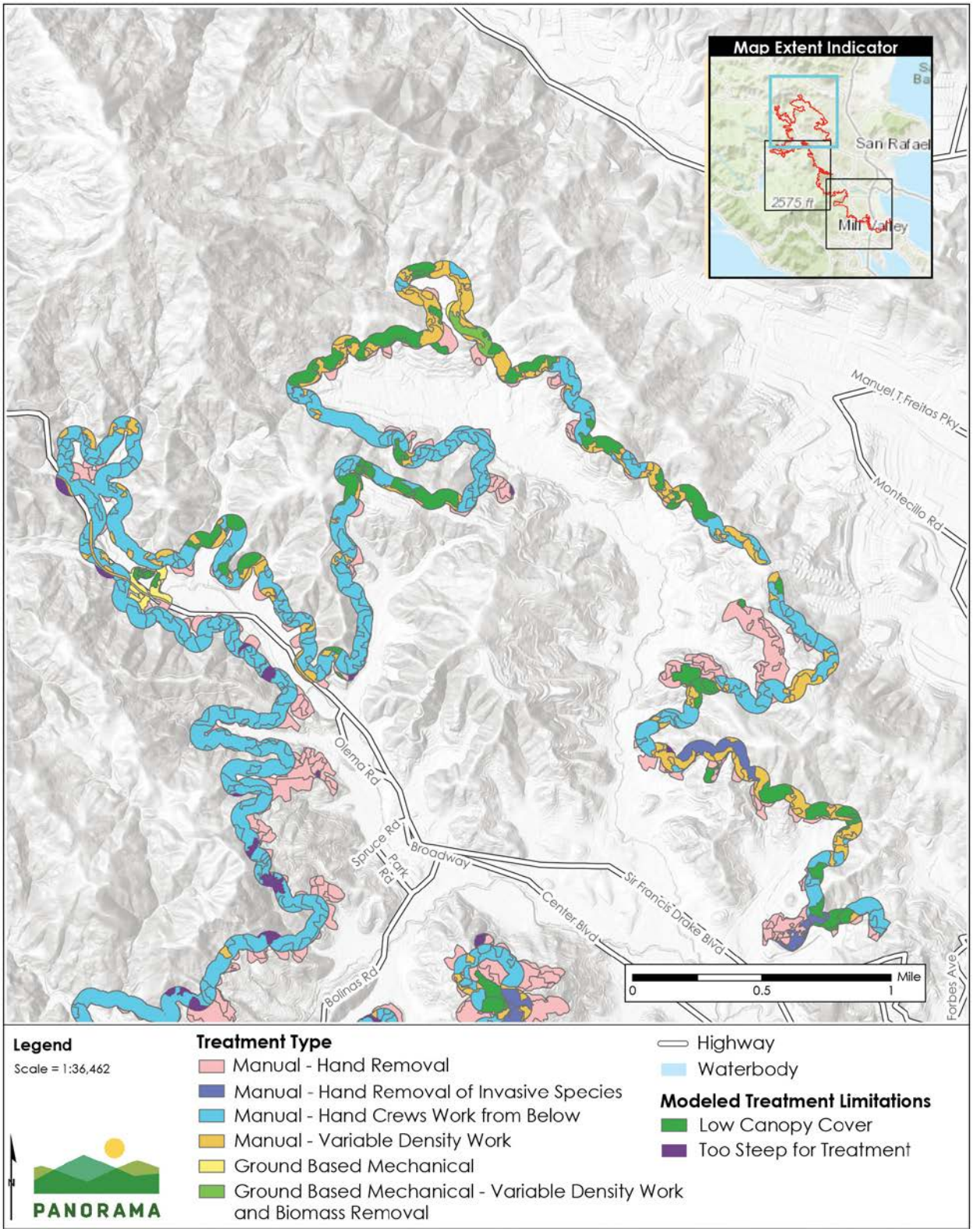


**Figure 14 Proposed GRVSFB Project Modeled Treatment Types (Map 2 of 3)**

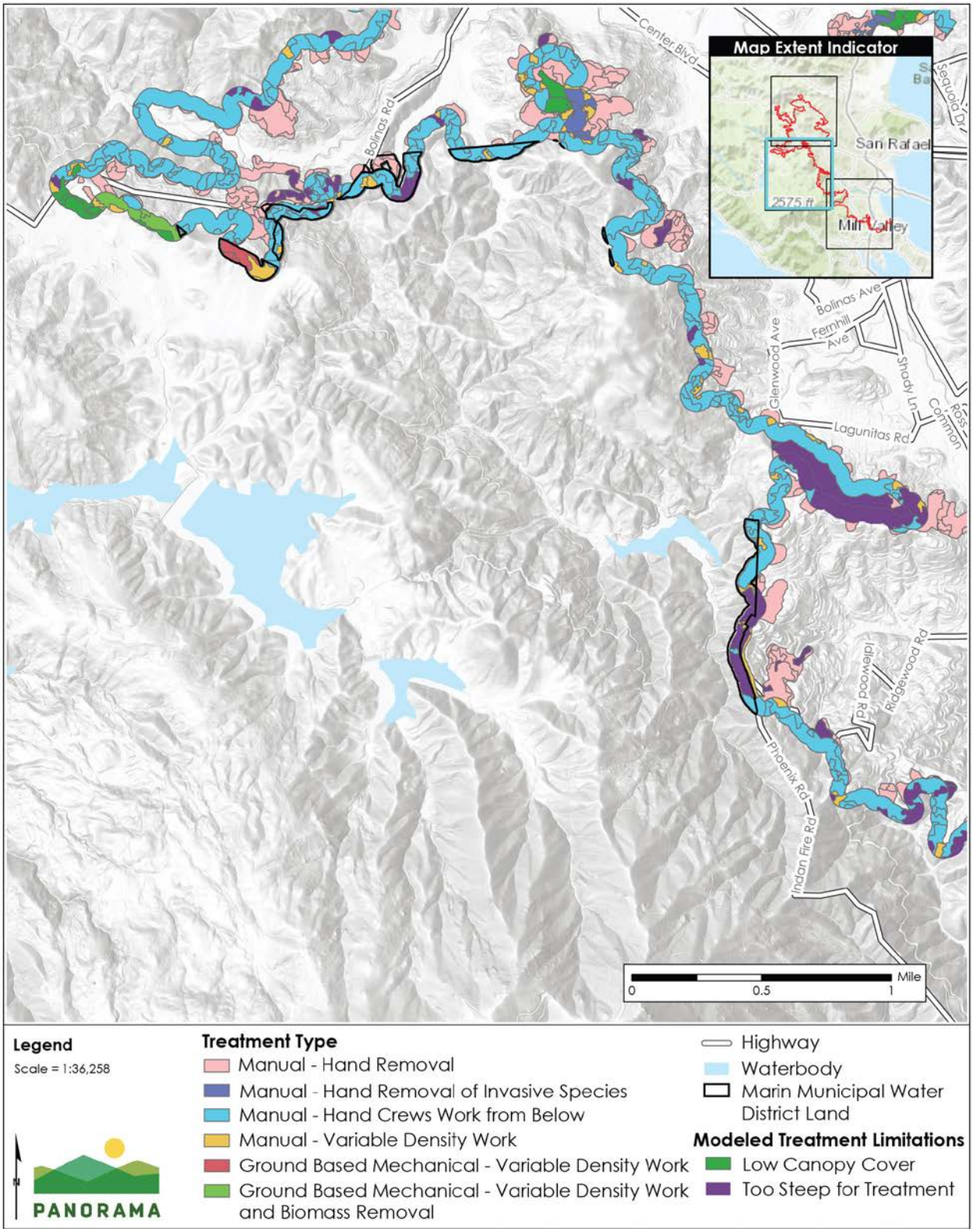


**Figure 15 Proposed GRVSFB Project Modeled Treatment Types (Map 3 of 3)**

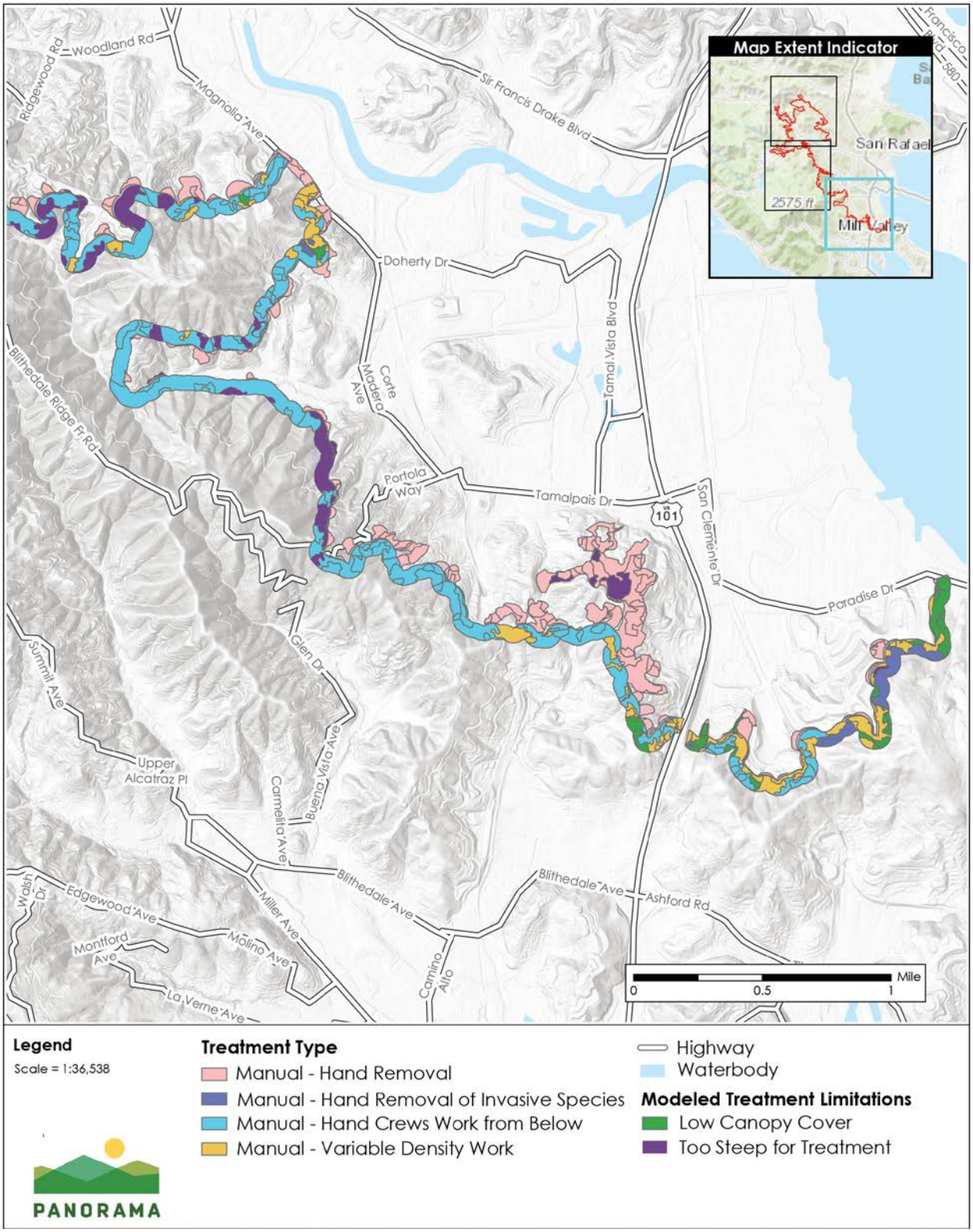


**Table 1 Project Segments by Land Ownership and Size**

| Project segments (see Section 2.2.3) | Land manager | Acres | Total acres | Estimated schedule for initial treatments[a] |
|---|---|---|---|---|
| 1 | private | 102.3 | 150 | July 2022 through January 2023 |
| | Marin County Open Space District | 47.7 | | |
| 2 | private | 132.5 | 149 | July 2022 through January 2023 |
| | Marin County Open Space District | 16.5 | | |
| 3 | private | 103 | 108 | July 2023 through January 2024 |
| | Marin County Open Space District | 5.1 | | |
| 4 | private | 68.0 | 121 | July 2023 through January 2024 |
| | Marin County Open Space District | 52.4 | | |
| | Ross, Town of | 0.9 | | |
| 5 | private | 142.9 | 169 | July 2024 through January 2025 |
| | Marin County Open Space District | 26.1 | | |
| 6 | private | 107 | 143 | July 2024 through January 2025 |
| | Marin County Open Space District | 26.0 | | |
| | San Anselmo, City of | 8.6 | | |
| | Marin County Parks Department, County of | 0.4 | | |
| 7 | Marin County Open Space District | 87.1 | 150 | July 2025 through January 2026 |
| | private | 58.2 | | |
| | Larkspur, City of | 4.7 | | |
| 8 | Marin County Open Space District | 49.2 | 117 | July 2025 through January 2026 |
| | The Nature Conservancy | 28.8 | | |
| | Private | 25.3 | | |
| | Corte Madera, Town of | 9.5 | | |

| Project segments (see Section 2.2.3) | Land manager | Acres | Total acres | Estimated schedule for initial treatments[a] |
|---|---|---|---|---|
| | Tiburon, Town of | 4.2 | | |
| 9 | private | 121 | 139 | July 2026 through January 2027 |
| | Marin County Open Space District | 14.2 | | |
| | Ross, Town of | 4.1 | | |
| 10 | private | 38.4 | 40 | July 2026 through January 2027 |
| | Marin County Open Space District | 1.6 | | |
| 11 | private | 28 | 28 | |
| WUI fuel reduction area | private | 478.1 | 492 | |
| | Marin County Open Space District | 9.5 | | |
| | San Anselmo, City of | 4.8 | | |
| | Corte Madera, Town of | 0.1 | | |
| **Total CalVTP proposed project** | **private** | **1,405** | **1,806** | |
| | **public** | **401** | | |
| | Marin Municipal Water District[b] | 70.2 | | |
| **Total GRVSFB project** | **private** | **1,405** | **1,876** | |
| | **public** | **471** | | |

Notes:

Numbers may not add due to rounding.

[a] Timing may change based on funding sources, resource availability, and changing conditions. More segments may be completed sooner should grant funding be available. Maintenance of earlier segments may overlap initial treatments on later segments.

[b] 4.8 acres are within the WUI fuel reduction area instead of the fuel break.

**Table 2 GRVSFB Project Areas by Vegetation Type**

| Vegetation community | Vegetation type | Acres | Percentage |
|---|---|---|---|
| **Shaded Fuel Break** | | | |
| Developed | developed | 59.0 | 4.3 |
| | vineyard | 0.3 | 0.0 |
| | major road | 3.3 | 0.2 |

| Vegetation community | Vegetation type | Acres | Percentage |
|---|---|---|---|
| | *Subtotal* | *62.6* | *4.5* |
| Herbaceous | California Annual & Perennial Grassland mapping unit | 187.2 | 13.6 |
| | Californian Cliff, Scree & Rock vegetation group | 0.7 | 0.1 |
| | *Subtotal* | *187.9* | *13.6* |
| Native forest | *Acer macrophyllum* Association (bigleaf maple) | 0.4 | 0.0 |
| | *Aesculus californica* Alliance (California buckeye) | 4.1 | 0.3 |
| | *Arbutus menziesii* Alliance (Pacific madrone) | 71.6 | 5.2 |
| | deciduous hardwood (urban window) | 0.6 | 0.0 |
| | *Pseudotsuga menziesii* mapping unit (Douglas fir) | 3.3 | 0.2 |
| | *Quercus agrifolia* Alliance (coastal live oak) | 260.2 | 18.9 |
| | *Quercus chrysolepis* Alliance (canyon live oak) | 1.2 | 0.1 |
| | *Quercus garryana* Alliance (Oregon white oak) | 35.4 | 2.6 |
| | *Quercus kelloggii* Alliance (California black oak) | 11.4 | 0.8 |
| | *Quercus lobata* Alliance (valley oak) | 45.3 | 3.3 |
| | *Total oak alliances* | *353.5* | *25.6* |
| | *Sequoia sempervirens* Alliance (redwood) | 151.6 | 11.0 |
| | *Umbellularia californica* Alliance (California bay) | 463.0 | 33.6 |
| | uncharacterized forest fragment | 2.2 | 0.2 |
| | *Subtotal* | *1,050.3* | *76.2* |
| Native shrub | *Adenostoma fasciculatum* Alliance (chamise) | 7.9 | 0.6 |
| | *Arctostaphylos glandulosa* Alliance (Eastwood's manzanita) | 1.6 | 0.1 |

| Vegetation community | Vegetation type | Acres | Percentage |
|---|---|---|---|
| | *Artemisia californica* – (*Salvia leucophylla*) Alliance (California sagebrush) | 1.1 | 0.1 |
| | *Baccharis pilularis* Alliance (coyote brush) | 30.6 | 2.2 |
| | *Salix lasiolepis* Alliance (aroyo willow) | 0.7 | 0.1 |
| | uncharacterized shrub fragment | 5.5 | 0.4 |
| | *Subtotal* | *47.4* | *3.4* |
| Non-native forest | *Acacia spp.* – *Grevillea* spp. – *Leptospermum laevigatum* Semi-Natural Alliance | 3.3 | 0.2 |
| | *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 14.7 | 1.1 |
| | non-native forest | 0.5 | 0.0 |
| | *Pinus radiata* Plantation Provisional Semi-Natural Association (Monterey pine) | 0.4 | 0.0 |
| | *Subtotal* | *18.9* | *1.4* |
| Non-native shrub | *Genista monspessulana* Semi-Natural Association (French broom) | 10.9 | 0.8 |
| | non-native shrub | 0.8 | 0.1 |
| | *Subtotal* | *11.7* | *0.9* |
| **Total Shaded Fuel Break** | | **1,379.0** | **100.0** |
| **WUI Fuel Reduction Area** | | | |
| Developed | developed | 34.6 | 7.0 |
| | vineyard | 0.0 | 0.0 |
| | major road | 0.8 | 0.2 |
| | *Subtotal* | *35.4* | *7.1* |
| Herbaceous | California Annual & Perennial Grassland mapping unit | 30.8 | 6.2 |
| Native forest | *Acer macrophyllum* – *Alnus rubra* Alliance (red alder) | 0.1 | 0.0 |
| | *Acer macrophyllum* Association (bigleaf maple) | 0.4 | 0.1 |

| Vegetation community | Vegetation type | Acres | Percentage |
|---|---|---|---|
| | *Arbutus menziesii* Alliance (Pacific madrone) | 15.7 | 3.2 |
| | deciduous hardwood (urban window) | 0.0 | 0.0 |
| | *Quercus agrifolia* Alliance (coastal live oak) | 103.5 | 20.8 |
| | *Quercus garryana* Alliance (Oregon white oak) | 10.5 | 2.1 |
| | *Quercus kelloggii* Alliance (California black oak) | 3.7 | 0.8 |
| | *Quercus lobata* Alliance (valley oak) | 10.6 | 2.1 |
| | *Total oak alliances* | *128.3* | *25.8* |
| | *Sequoia sempervirens* Alliance (redwood) | 79.2 | 15.9 |
| | *Umbellularia californica* Alliance (California bay) | 189.1 | 38.0 |
| | uncharacterized forest fragment | 0.4 | 0.1 |
| | *subtotal* | *444.1* | *89.3* |
| Native shrub | *Adenostoma fasciculatum* Alliance (chamise) | 0.9 | 0.2 |
| | *Arctostaphylos glandulosa* Alliance (Eastwood's manzanita) | 0.0 | <0.01 |
| | *Baccharis pilularis* Alliance (coyote brush) | 3.5 | 0.7 |
| | uncharacterized shrub fragment | 0.0 | 0.0 |
| | *Subtotal* | *4.4* | *0.9* |
| Non-native forest | *Acacia spp.* – *Grevillea* spp. – *Leptospermum laevigatum* Semi-Natural Alliance | 0.3 | 0.1 |
| | *Eucalyptus* (*globulus, camaldulensis)* Provisional Semi-Natural Association | 5.0 | 1.0 |
| | non-native forest | 2.1 | 0.4 |
| | *Pinus radiata* plantation Provisional Semi-Natural Association (Monterey pine) | 1.3 | 0.3 |
| | *Subtotal* | *8.6* | *1.7* |

| Vegetation community | Vegetation type | Acres | Percentage |
|---|---|---|---|
| Non-native shrub | *Genista monspessulana* Semi-Natural Association (French Broom) | 4.6 | 0.9 |
| | *Cortaderia (jubata, selloana)* Semi-Natural Alliance (pampas grasses) | 0.2 | 0.0 |
| | *Subtotal* | *4.7* | *1.0* |
| **Total WUI Fuel Reduction Area** | | **497.0** | **100.0** |

Notes:

Numbers may not total due to rounding.

[a] Values shown include the approximately 70 acres of MMWD lands, with 65 acres of MMWD lands in the fuel break and 5 acres in the WUI fuel reduction area. Total fuel break covered in this PSA is therefore 1,314 acres. Total WUI fuel reduction areas covered in this PSA is 492 acres (see Table 3).

**Table 3 Proposed CalVTP Project Initial Treatments**

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| Shaded fuel break | creation of a continuous fuel break approximately 200 feet, but up to 300 feet, in width, including thinning of understory and invasive species removal | manual treatments | 1,083, up to 1,299[a] | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring outside the nesting season, from August through January each year |
| | | ground-based mechanical treatments | 15 | skid steers or tractors with mounted masticators, or mowers; ride mowers | |
| | | prescribed herbivory | An estimated up to 325 acres may also be treated with prescribed herbivory | livestock; goats, sheep, cattle, horses | as needed |
| | | herbicide | Targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 1,314 acres) | herbicide and applicator materials | as needed |
| | | pile burn | As needed with material removed within the entire fuel break area (up to 1,314 acres) | drip torch | as needed |
| Wildland-urban interface (WUI) fuel reduction area | fuel reduction in open spaces to reduce wildfire hazards | manual treatments | 426, up to 484 | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring |

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| | | ground-based mechanical treatments | 8 | skid steers or tractors with mounted masticators, or mowers; and ride mowers | outside the nesting season, from August through January each year |
| | | prescribed herbivory | An estimated up to 121 acres may also be treated with prescribed herbivory | livestock; goats, sheep, cattle, horses | as needed |
| Wildland-urban interface (WUI) fuel reduction area | fuel reduction in open spaces to reduce wildfire hazards | herbicide | Targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 492 acres) | herbicide and applicator materials | as needed |
| | | pile burn | As needed with material removed within the entire fuel break area (up to 492 acres) | drip torch | as needed 1. |
| **Total acres** | | | **1,587, up to 1,806** | | |

Note:

[a] Includes 232 acres of areas that were determined through modeling to be too steep or have too low of canopy cover. Treatment in these areas, however, is not precluded if the fire agency determines through site inspections that treatment is necessary and possible.

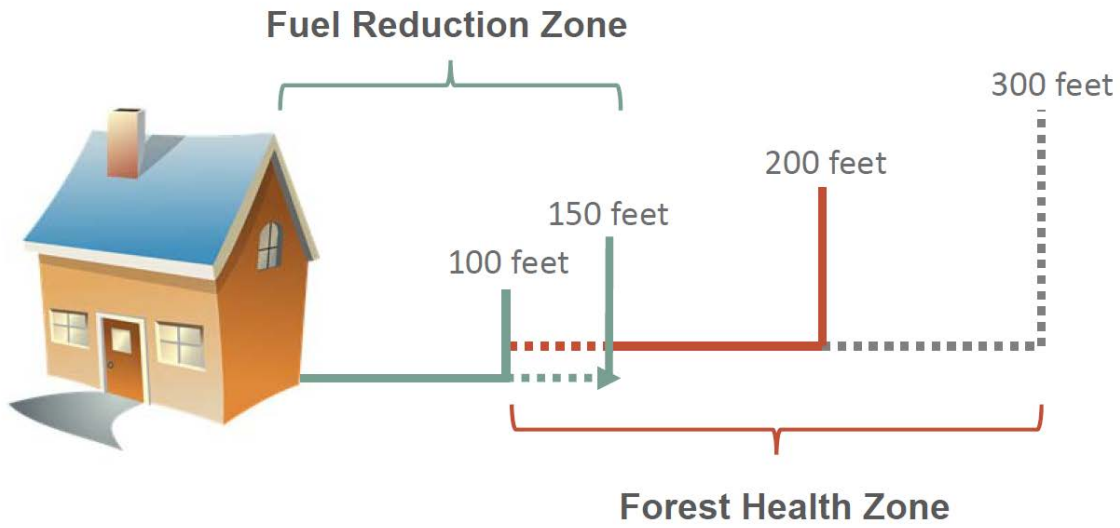
### 2.2.3 Initial Treatments

#### Treatment Types

**Fuel Break**

The proposed project includes development and maintenance of a continuous reduced-fuel and forest-health-restoration zone within the typically 200-foot-wide fuel break around structures in the WUI at the periphery of communities adjacent to undeveloped open spaces. Portions of the fuel break may extend up to 300 feet from structures or may be less than 200 feet, based on topography, site conditions, and land management constraints. Within the portion of the fuel break typically 100 to 150 feet from structures, as determined appropriate by fire professionals and based on site conditions, treatments may include higher intensity fuel reduction typical of defensible space, with a focus on vertical and horizontal spacing in addition to removal of invasive species and dead and dying vegetation, if required by local fire codes or ordinances. Beyond 100 to 150 feet from structures, generally vegetation treatments would be lower intensity, focused primarily on removal of invasive and non-native, fire hazardous vegetation, removal of dead and dying vegetation, and limbing of native trees to mimic conditions that might exist in a natural environment where natural fires were allowed to occur. Refer to Figure 16 for a diagram of the fuel reduction and forest health zones within the overall fuel break. For the purposes of this analysis, an area up to 300 feet has been evaluated across the entire length of the fuel break.

**Figure 16 Typical Fuel Break Treatment Zones[2]**




In forested areas, the treatment would result in a shaded fuel break with retention of tree canopy and thinning of understory branches and vegetation. In grasslands, vegetation would

[2] Treatments that would reduce invasive species cover, maintain native tree canopy, reduce the likelihood of crown fire, and reduce potential tree mortality following a wildfire were identified as providing forest health benefits.

generally remain, but encroaching shrubs and trees may be limbed, thinned, or removed. Refer to the treatment prescriptions by cover type in this section for more information.

**Wildland-Urban Interface Fuel Reduction**
The project area also includes fuel reduction within several extended areas of open space within the WUI that are located between the fuel break and structures. These areas are not part of the fuel break but could be treated to further increase wildland fire protections. Vegetation would be thinned to reduce density and fuel loads in these areas. These areas are also shown in Figure 1 through Figure 3. Refer to the treatment prescriptions by cover type for more information.

## Treatment Methods

**Overview**
Fuel treatment methods vary depending on cover type, condition of vegetation, topography, costs, and efficiency and in conformance with landowner/manager requirements. The primary treatment methods or activities that may be implemented include manual treatments, ground-based mechanical treatment, prescribed herbivory, and targeted herbicide application (CalVTP PEIR Section 2.5.2).

**Manual Treatment**
Manual treatments include use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous woody species and remove dead woody vegetation and low-lying shrubs and common coyote brush. These treatments are typically used where access for larger equipment is not feasible. Invasive species removal can be performed manually (or mechanically). Equipment and tools that could be used include chainsaws, pole pruners, loppers, and string trimmers.

**Ground-Based Mechanical Treatment**
Motorized equipment would be used to cut, uproot, crush/compact, or chop existing vegetation on slopes generally less than 35 percent, or over 35 percent for limited distances or with special equipment. The equipment and tools that could be used include skid steers or tractors with mounted masticators, mowers, and ride mowers.

**Prescribed Herbivory**
Prescribed herbivory would be used to reduce fuel loads, typically in shrubland and forest understory, but grasslands as well, and may be used as a pretreatment before implementation of other methods. Livestock may include horses, cattle, sheep, or goats. Prescribed herbivory may require the installation of temporary fencing where natural barriers are not present and temporary water facilities and other infrastructure (e.g., tanks, corrals, fences) as well as the deployment of guard animals and/or a shepherd.

Goats are often used for targeted reduction of fine fuels such as grasses and herbaceous vegetation. Goat grazing would involve transporting a herd of goats to the designated prescribed herbivory sites. Site preparation would involve installation of a portable electric fence to contain the goats, powered by a battery charged by a generator or solar panels and water trough. The herder would determine the area to be grazed based on site conditions; it

would typically range from 1 to 2 acres but can be up to 5 acres at one time for goats or a much larger area (larger than 5 acres) for other types of livestock, such as sheep or cattle.

**Herbicide Application**

Herbicides would be used in a targeted manner as stump and spot spray treatments to kill or prevent regrowth of invasive and non-native species such as broom and eucalyptus. The proposed project would use herbicides as part of an integrated pest management approach with other methods of invasive species eradication. Herbicides would be applied in adherence to all United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (CalEPA) regulations and in such a way to prevent over drift. Only target plant species would be affected. Herbicides would only be used as allowable based on local regulations (e.g., City of Fairfax Municipal Code Chapter 8.52).

### Biomass Disposal

**Overview**

Project debris would generally be processed through chipping and hauling, chipping, and broadcasting, or burning through pile burns or use of an air curtain burner or similar equipment. The cut vegetation materials may be processed in a variety of ways if off-hauled, including but not limited to use in pyrolysis-biomass conversion or enhanced composting. Approximately 20 to 30 cubic yards of material could be off hauled from a single treatment area for processing each workday.

**Chipping**

An All-Terrain Vehicle (ATV) and tracked towable chipper may be used to process cut vegetative materials. The vegetative material would be fed through the chipper and broadcast at treatment areas or hauled away for processing. Chipped material spread on site would be chipped to under 3 inches in size would be applied 2 to 4 inches in depth at most to minimize wildfire risk. Vegetative material, if removed, would be hauled to Marin Sanitary or another appropriate biomass processing facility.

**Pile Burning**[3]

Cut material may be pile burned, depending upon access and the conditions of the treatment area. Suitable treatment areas are typically flat or gentle slopes and have open areas away from tree canopies and power lines. Areas selected would be those away from waterways. Piles would generally be 4 feet in diameter and 4 feet in height. Multiple piles may be burned on a single day. Pile burning would be conducted in compliance with CAL FIRE and Bay Area Air Quality Management District (BAAQMD) Regulation 5 for open burning and burn day restrictions.

[3] In the CalVTP PEIR, pile burning is one of the two categories of burning under the treatment activity referred to as "prescribed burning". Throughout the PSA analysis, the term "pile burning" is used for clarity. No broadcast burning is proposed.

### Air Curtain Burning

Air curtain burning may be used as an alternative to pile burning for sites with higher fuel loading and more woody material and where access to a road or parking lot is available. An air curtain burner places a high velocity curtain of air over a defined burn chamber, which would be conducted in a well-conceived aboveground structure with refractory walls as part of the proposed project. When air curtain burning, the rising particulates or smoke particles (also referred to as "black carbon") from burning the wood waste hit the curtain of air, are bounced back down, and reburn to the area just below, which is usually the hottest area in the burn box and referred to as the "secondary burn chamber." The particles remaining that are light enough to penetrate the air curtain and rise outside of it are limited to gaseous emissions consisting mostly of water vapor and (biogenic) carbon dioxide. The result is a much cleaner, nearly smokeless burn as well as a much faster burn, as some of the air curtain's volume is decisively directed in the burn chamber, over-oxygenating the fire and thereby accelerating it. The burner would be staged on parking lots or roads. The air curtain burner would typically only be run when a backstock of at least 2 days' worth of debris would be available to burn. While the CalVTP PEIR does not explicitly address air curtain burning, the methodology falls within and is less impactful than pile burning, which is covered under the CalVTP PEIR. On this account, air curtain burning is being added as a biomass processing tool through the addendum.

## Treatment Prescriptions by Cover Type

### Overview

Treatments would occur in the three fuel types—tree, shrub, and grass—as described in the CalVTP PEIR Section 2.4.1. The vegetation communities in the proposed project area are generally characterized by non-native annual grassland, chaparral, and oak and mixed woodland. Treatments vary depending on the cover type, as described in the following sections. All healthy, mature native trees would be left in place unless removal were required due to structural or health defects that place infrastructure or lives at risk, or densities pose a fire hazard risk.

### Grasslands

#### *Treatment Methods*

Treatment within non-native annual grassland would be conducted with manual and mechanical removal of grasses and dead woody vegetation and with removal of low-lying shrubs and brush to achieve horizontal spacing and reduce overall fuel loading. Prescribed herbivory would be implemented in areas of shrub encroachment. Herbicide spot treatment would be employed to prevent invasive tree and shrub regrowth.

#### *Prescriptions*

Cutting of grasses and forbs would be conducted. Small, isolated Monterey pine and Douglas fir tree individuals (typically under 10 inches diameter at breast height [dbh]) growing in the grassland would be cut and piled for burning. Larger trees encroaching on or distributed throughout grasslands may have lower limbs removed to reduce vertical fuel continuity. Small trees and brush would be cut. Broom plants or other invasive shrubs encountered in the

grasslands would either be pulled (when soils are moist) or cut for follow-up weed treatment in subsequent years.

**Chapparal**

***Treatment Methods***

Treatment within the chaparral and shrub communities of the site would involve fine fuel management by manual and mechanical thinning to remove dead woody vegetation and shrubs and common coyote brush where needed to achieve horizontal spacing—although areas of shrub communities are fairly limited (2.7 percent) within the proposed project area. Initial treatments may involve more manual and mechanical treatments with maintenance. Herbicide spot treatment would be employed to prevent invasive tree and shrub regrowth.

***Prescription***

Work related to trees in this area would be limited to the removal of small encroaching conifers (typically under 10 inches dbh but up to 12 inches dbh) and removal of limbs from larger trees, as appropriate. Native stands of brush would be thinned to a spacing of 5 to 10 feet, depending upon the site conditions, to achieve horizontal spacing. Non-native plant species such as broom would be removed. Typically, non-native species would be pulled by hand for removal, although larger individuals may be cut.

**Oak and Mixed Woodland**

***Treatment Methods***

Woodland would be treated with manual and mechanical tools to remove and thin understory shrubs and brush as well as dead and dying trees and smaller diameter invasive trees. Thinning of shrubs would focus on the removal first of invasive species and then of fire-prone species to achieve desired fuel reduction. Maintenance would also be accomplished through manual and mechanical methods. Herbicide spot treatment would be employed to prevent invasive tree and shrub regrowth.

***Prescription***

Fuel reduction work within woodland treatment areas would include pruning tree branches 8 to 10 feet above ground (not to exceed 1/3 of the tree's height), removal of dead/downed branches and dead standing trees, and the removal of live trees with a diameter of typically less than 10 inches dbh, but up to 12 inches dbh, to achieve horizontal spacing. Smaller, mature native trees would typically be retained unless the densities pose a fire hazard risk but may be pruned. Understory ladder fuels including non-native, invasive Scotch broom and French broom along with shrub-like understory tree saplings. Hazardous trees (e.g., dead or dying trees) identified by an arborist or qualified fire professional may be removed. One snag would be retained per acre if the snag does not pose a hazard. Non-native trees (less than 12 inches dbh) would be cut and treated to prevent resprouting. Understory ladder fuel including non-native and invasive broom, coyote brush shrubs, and shrub-like understory tree saplings would also be removed in woodland communities. The intent of the woodland treatment would be to minimize ladder fuels and fuel loads and promote native trees.

**Redwood Forest**

***Treatments***

Treatment within redwood communities would be conducted by using manual and mechanical tools.

***Prescription***

Dead and downed branches would be removed. Smaller, mature native trees, such as toyon or bay, would typically be retained unless the densities pose a fire hazard risk, but may be pruned. Native redwood and other trees would be pruned to 8 to 10 feet above ground (not to exceed 1/3 of the tree's height). Dead standing trees and hazard trees would be removed where deemed appropriate by an arborist or qualified fire professional, retaining one snag per acre for habitat, if not a hazard.

### Workers

A single contractor crew would consist of 3 to 7 workers at a single location. The Marin County Fire Tamalpais Crew or inmate/CAL FIRE crew would conduct treatments and would consist of 10 to 12 workers per crew. Crew sizes may vary but would be less than 25. Multiple crews may be working at the same time.

### Site Access

Treatment areas would be accessed via existing fire roads and trails to the maximum extent feasible. Private residences may be used as access points, contingent on the landowner's consent. Vehicles and equipment would be staged at the contractor's yard daily or, given landowner consent, on the property.

### Schedule and Duration

Manual and mechanical treatments would occur during weekdays between 8:00 am and 5:00 pm. Initial treatment is anticipated to begin in fall 2022 and would be conducted over several years.

Treatment areas within the fuel break (segments) have been identified and prioritized based on proximity to open-space interfacing assets at risk, vegetation composition and condition, slope, aspect, fire hazard, and historic wildfire ignition potential. Fire-behavior modeling was performed to evaluate treatment effects to further determine whether potential treatments would reduce fire threat ratings at the segment level. Treatment areas that were shown to have the most potential to reduce fire behavior were prioritized for treatment. The proposed potential phasing is shown in Table 1 and Figure 10 through Figure 12.

Generally, field verification is expected to begin in project segment 1, as this project was modeled to be the highest priority area, then progress to project segments 2 through 11, in consecutive order. Each project segment is approximately 150 acres, within which a variety of treatment methods may be identified as the most effective based on modeling. Treatment methods and treatment prescriptions within these 11 project segments may vary depending on equipment or personnel access, vegetation density, or other factors. It is expected that treatment prescriptions would vary in intensity depending on these factors and distance from structures.

In accordance with State and local defensible space regulations, treatments would be more intensive within 30 feet of a structure, becoming less intense between 30 to 100 or 150 feet, and even less intense beyond 100 to 150 feet of structures. Actual sequencing of implementation could vary based on factors related to feasibility, such as but not limited to access and landowner coordination and permission.

### 2.2.4 Maintenance Treatments

The condition of the treatment areas after treatment would be monitored annually. Maintenance in grasslands or areas where initial treatments were less intense could occur annually. Maintenance would occur every 3 to 5 years in woodlands, forests, and chaparral and annually in grasslands. Areas with broom are anticipated to be treated every 1 to 3 years, depending upon the condition of the sites. Subsequent treatments are anticipated to be the same as the proposed project activities but are subject to change depending on the site's condition and response to initial treatment.

Prior to implementing a maintenance treatment, the project proponent would verify that the expected site conditions as described in the PSA are present in the treatment area. As time passes, the continued relevance of the PSA would be considered by the project proponent in light of potentially changed conditions or circumstances. Where the project proponent determines the PSA is no longer sufficiently relevant, the project proponent would determine whether a new PSA or other environmental analysis is warranted. For example, the project proponent may conduct a reconnaissance survey to verify that conditions are substantially similar to those anticipated in the PSA. Updated information would be documented.

## 2.3 Project Design and Implementation Features

The project proponent plans to meet the appropriate SPRs under the CalVTP PEIR, as noted in Section 3. Additionally, the MWPA has developed specific design and implementation features adapted from several source documents that will be incorporated as applicable into the project design and implementation for each of its projects. The Project Design and Implementation Features (PDIFs) appropriate to the proposed project are listed in Table 3 in Attachment B. PDIFs are not needed to address any new impacts but are a standard part of MWPA Core Projects. Table 3 also notes which PDIFs would meet the SPRs, where appropriate, and which PDIFs do not have a comparable SPR but are relevant to the proposed project.

# 3 The California Vegetation Treatment Program Environmental Checklist

## Project Information

| | | |
|---|---|---|
| 2. | Project title | Greater Ross Valley Shaded Fuel Break |
| 3. | Project proponent name and address | Marin Wildfire Prevention Authority<br>28 Liberty Ship Way, Suite 2800<br>Sausalito, CA 94965 |
| 4. | Contact person information and phone number | Anne Crealock, Planning and Program Manager<br>(415) 231-3913 |
| 5. | Project location | Marin County, CA, See Figure 1 to Figure 3 |
| 6. | Total area to be treated (acres) | 1,314-acre fuel break; 492-acre WUI fuel reduction area |

7. Description of project (Describe the whole action involved, including any phasing of initial treatments as well as planned treatment maintenance, including equipment to be used and planned duration of treatments. Provide cross reference to specific subsections and page numbers from Chapter 2 of the PEIR to demonstrate that treatments are consistent with those analyzed in the PEIR. Attach additional sheets if necessary.)

   See Chapter 2, Project Description

8. Treatment types (See description in CalVTP PEIR Section 2.5.1. Check every applicable category; provide detail in Description of Project.)

☒ Wildland-urban interface fuel reduction
☒ Fuel break
☐ Ecological restoration

9. Treatment activities (See description in CalVTP PEIR Section 2.5.2. Check every applicable category; include number of acres subject to each treatment activity; provide detail in description of Initial Treatment.)

☐ Prescribed burning (broadcast), _____ acres
☒ Prescribed burning (pile burning), of fuel collected from up to 1,806 acres
☒ Mechanical treatment: 15 acres (mowing and mechanical) of fuel break; 8 acres of the WUI fuel reduction area
☒ Manual treatment, up to 1,299 acres of fuel break; up to 484 acres for WUI fuel reduction area
☒ Prescribed herbivory, as and where appropriate on up to an estimated 446 acres
☒ Herbicide application, as and where appropriate within areas of the up to 1,806-acre project area

10. Fuel type (See description in CalVTP PEIR Section 2.4.1. Check every applicable category; provide detail in description of Initial Treatment]

☒ Grass fuel type
☒ Shrub fuel type
☒ Tree fuel type

11. Geographic scope (see Figure 7 to Figure 9)

☐ The treatment site is entirely within the CalVTP treatable landscape.
☒ The treatment site is NOT entirely within the CalVTP treatable landscape.

12. Surrounding and uses and setting

The project area is in central Marin County. The proposed project would be implemented on private and public lands within Marin County, City of Larkspur, City of Mill Valley, Town of Fairfax, Town of Ross, Town of Corte Madera, Town of San Anselmo, and Kentfield as well as on lands managed by the MCOSD/Marin County Parks. The area is a mixture of rural open space and urban communities, predominantly residences at the outskirts of existing towns and cities, at the WUI. The project area is dominated by native forest habitat types, with significant portions of grassland, developed land, and non-native forest. The vegetation communities in the project area include grasslands, chaparral, oak and mixed woodland, and redwood forest.

13. Other Public Agencies Whose Approval is Potentially Required

| Agency | Approval or notification | Component of program |
|---|---|---|
| California Department of Transportation (Caltrans) | encroachment permits | for trimming or removal of trees within and encroachment on Caltrans right-of-way |
| | transportation permits | for oversize or overweight vehicles traveling on Caltrans right-of-way |
| California Department of Forestry and Fire Protection | burn permit | for any pile burn activities in the State Responsibility Area |
| California Department of Fish and Wildlife | streambed alteration agreement | for work within jurisdictional waters |
| Bay Area Air Quality Management District | Open Burning Regulation 5 Notification Form | for any pile burn activities |
| San Francisco Regional Water Quality Control Board | waste discharge requirement | for potential impacts to waters of the state that are not waters of the U.S. |
| Local public works departments; building departments | various types of encroachment, building, planning, or grading permits | for encroachment into roadways to perform work, for any new fire protection infrastructure that may be needed |
| | local tree protection and brush removal permits based on local ordinances of counties and cities | for potential impacts on trees and brush |

| | | |
|---|---|---|
| MCOSD/Marin County Parks | Right-to-enter permit | for access to open space preserves and parks for surveys or implementation |

Coastal Act compliance

☒ The proposed project is NOT within the Coastal Zone.

☐ The proposed project is within the Coastal Zone (check one of the following boxes).

☐ A coastal development permit been applied for or obtained from the local Coastal Commission district office or local government with a certified Local Coastal Plan, as applicable.

☐ The local Coastal Commission district office or local government with a certified Local Coastal Plan (in consultation with the local Coastal Commission district office) has determined that a coastal development permit is not required.

14. Native American consultation

(Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American tribe, begin consultation before the release of an Environmental Impact Report, Negative Declaration, or Mitigated Negative Declaration. For treatment projects that require additional CEQA review and documentation, have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.? Note: For treatment projects that are within the scope of this PEIR, AB 52 consultation has been completed. The Board of Forestry and Fire Protection and CAL FIRE completed consultation pursuant to Public Resources Code section 21080.3.1 in preparation of the PEIR.)

Pursuant to SPR CUL-2, MWPA contacted culturally affiliated tribes via email on March 18, 2022 and March 29, 2022 with project information and a solicitation for any relevant information regarding the project area. No responses have been received to date. The project is within the scope of the PEIR and does not require additional CEQA review and documentation.

15. Use of the PSA for treatment maintenance

(Prior to implementing a maintenance treatment, the project proponent would verify that the expected site conditions as described in the PSA are present in the treatment area. As time passes, the continued relevance of the PSA would be considered by the project proponent in light of potentially changed conditions or circumstances. Where the project proponent determines that the PSA is no longer sufficiently relevant, the project proponent would determine whether a new PSA or other environmental analysis is warranted. In addition to verifying that the PSA continues to provide relevant CEQA coverage for treatment maintenance, the project proponent would update the PSA at the time a maintenance treatment is needed when more than 10 years have passed since the approval of the PSA or the latest PSA update. For example, the project proponent may conduct a reconnaissance survey to verify that conditions are substantially similar to those anticipated in the PSA. Updated information should be documented.)

Prior to re-treating any area within the project boundary, Central Marin Fire and other partner fire agencies would verify that site conditions described in the PSA are still relevant. Maintenance treatments would be ongoing and are covered under this PSA, but this PSA would be updated as appropriate.

16. Standard project requirements and mitigation measures

(Refer to Attachment B to identify which SPRs and Mitigation Measures apply to the project. Complete Attachment B to document the responsible party for each applicable SPR and Mitigation Measure. Check one box below.)

☒ All applicable SPRs and Mitigation Measures are feasible and will be implemented.

☐ There is NO new information which would render mitigation measures previously considered infeasible or not considered in the CalVTP EIR now feasible OR such mitigation measures have been adopted (Guidelines Sec. 15162 [a][3]; PRC Sec. 21166[c])

☐ All applicable SPRs and Mitigation Measures are NOT feasible or will NOT be implemented *(provide explanation).*

Explanation:

## Determination

On the basis of this initial evaluation:

☒ I find that all the effects of the proposed project (a) have been covered in the CalVTP PEIR, and (b) all applicable Standard Project Requirements and mitigation measures identified in the CalVTP PEIR will be implemented. The proposed project is, therefore, WITHIN THE SCOPE of the CalVTP PEIR. NO ADDITIONAL CEQA DOCUMENTATION is required.

☐ I find that the proposed project will have effects that were not covered in the CalVTP PEIR. These effects are less than significant without any mitigation beyond what is already required pursuant to the CalVTP PEIR. A NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project will have effects that were not covered in the CalVTP PEIR or will have effects that are substantially more severe than those covered in the CalVTP PEIR. Although these effects may be significant in the absence of additional mitigation beyond the CalVTP PEIR's measures, revisions to the proposed project or additional mitigation measures have been agreed to by the project partners that would avoid or reduce the effects so that clearly no significant effects would occur. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project will have significant environmental effects that are (a) new and were not covered in the CalVTP PEIR and/or (b) substantially more severe than those covered in the CalVTP PEIR. Because one or more effects may be significant and cannot be clearly mitigated to less than significant, an ENVIRONMENTAL IMPACT REPORT will be prepared.

| | |
|---|---|
| Anne D Crealock | 5/31/2022 |
| Signature | Date |
| Anne Crealock | Planning & Program Manager |
| Printed Name | Title |

## Evaluation of Environmental Impacts

1. A brief explanation is required for each Impact, Standard Project Requirement (SPR), and Mitigation Measure (MM) identified in the Project-Specific Analysis Checklist (PSA Checklist). The information provides clarity for review and/or provides direction to the field staff that will implement the project utilizing the checklist (persons familiar with the project and preparation of the document may be different through the life span of the document). Answers should consider whether the proposed project would result in new or more substantial environmental effects than described in the CalVTP PEIR, after incorporation of applicable SPRs and MM required by the CalVTP PEIR.
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and short-term as well as long-term impacts. Refer to the applicable resource analysis section in the CalVTP PEIR for each environmental topic.
3. Once the project proponent has evaluated the environmental effect that may occur, then the checklist answers must indicate whether the impact is (definitions located in Chapter 3 Environmental Settings, Impacts, and Mitigation Measures, Section 3.1.4 Terminology Used In the PEIR):
    a. **Less Than Significant (LTS)**: An impact, either on its own or with incorporation of SPRs, does not exceed the defined thresholds of significance (no mitigation required) or is potentially significant and can be reduced to less than significant through implementation of feasible mitigation measures.
    b. **Less Than Significant with Mitigation (LTSM)**: An impact was identified within the PEIR that was viewed in totality as potentially significant and/or significantly unavoidable, and the mitigation measures and SPRs and MMs provided in the PEIR will be implemented, mitigating to a point of less than significance.
    c. **Potentially Significant (PS)**: An impact treated as if it were a significant impact. “Potentially” is used to convey that not every qualifying treatment will result in impacts to the reasonably maximum degree that they are disclosed in this PEIR.
    d. **Potentially Significant and Unavoidable (PSU)**: An impact is considered significant and unavoidable if it would result in a substantial adverse change in the environment that cannot be feasibly avoided or mitigated to a less-than-significant level. “Potentially” is used to convey that not every qualifying treatment will result in impacts to the reasonably maximum degree that they are disclosed in this PEIR.
    e. **Significant and Unavoidable (SU)**: An impact is considered significant and unavoidable if it would result in a substantial adverse change in the environment that cannot be feasibly avoided or mitigated to a less-than-significant level.

f. **Not applicable (N/A)**: If the impact is determined to be the same or equal to the impact in the PEIR, the PEIR can be utilized without a Negative Declaration, Mitigated Negative Declaration, or EIR. If there are one or more entries where the impact is evaluated to be greater than the impact in the PEIR, additional documentation is required.

4. Where a Negative Declaration or Mitigated Negative Declaration is required, the environmental review would be guided by the directions for use of the PEIR with later activities in Section 15168. Where an EIR is required, the environmental review would be guided by Sections 15162 and 15163. In the preparation of any environmental document, the environmental analysis may incorporate by reference the analysis from the CalVTP PEIR and focus the environmental analysis solely on issues that were not addressed in the CalVTP PEIR.
5. Project proponents should incorporate into the PSA checklist references to information sources for potential impacts. Include a list of references cited in the PSA and make copies of such references available to the public upon request.
6. Standard Project Requirements (SPRs) and Mitigations Measures (MMs).
   a. **Applicable (yes/no).** Document whether the SPR or mitigation measure is applicable to the project (*yes* or *no*). The applicability should be substantiated in the Environmental Checklist Discussion.
   b. **Implementing entity.** The implementing entity is the individual or organization responsible for carrying out the requirement. This could include the project proponent's project manager, a technical specialist (e.g., archaeologist or biologist), a vegetation management contractor, a partner agency or organization, or other entities that are primarily responsible for carrying out each project requirement.
   c. **Verifying/monitoring entity.** The verifying/monitoring entity is the individual or organization responsible for ensuring that the requirement is implemented. The verifying/monitoring entity may be different from the implementing entity.
   d. **Note**: The cited SPRs and MMs are summarized to manage the template size. Refer to Attachments B and F for the approved CalVTP requirements.

# 3.1 Aesthetics and Visual Resources

## 3.1.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact AES-1: Result in short-term, substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a state scenic highway from treatment activities | LTS | Impact AES-1, pp. 3.2-16 – 3.2-19 | yes | AES-2, AQ-2, AQ-3, REC-1 | NA | LTS | no | yes |
| Impact AES-2: Result in long-term, substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a State scenic highway from WUI fuel reduction, ecological restoration, or shaded fuel break treatment types | LTS | Impact AES-2, pp. 3.2-20 – 3.2-25 | yes | AD-4, REC-1, AES-1, AES-2, AES-3 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact AES-3: Result in long-term substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a state scenic highway from the non-shaded fuel break treatment type | SU | Impact AES-3, pp. 3.2-25 – 3.2-27 | no | NA | None | no impact | no | yes |

Note:

[a] "NA": Not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New aesthetic and visual resource impacts: Would the treatment result in other impacts to aesthetics and visual resources that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

### 3.1.2 Discussion

**Impact AES-1**

The proposed project would involve development and maintenance of a fuel break and WUI fuel reduction areas through use of manual treatments, ground-based mechanical treatments, prescribed herbivory, and targeted herbicide application as well as biomass disposal, including pile burning and use of air burners. The potential for these treatment activities to result in short-term degradation of the visual character of a treatment area was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.2.3, pages 3.2-16–3.2-19). The visual character within the fuel reduction zone is characterized by primarily residential and forested recreational areas. The proposed treatments would occur on private lands as well as publicly owned lands managed primarily by the MCOSD/Marin County Parks and local agencies. Viewers in the vicinity of the treatment areas would be mostly residents or recreationalists from existing trails and unimproved roads that overlook or are adjacent to the treatment areas. Equipment and trucks performing the work would be temporarily visible along or staged near these fuel reduction zones. Smoke from pile burning or air curtain burning may be visible from public viewpoints and would occur during limited timeframes, likely a few days, and in limited areas at any given time. Implementation of SPRs AES-2, REC-1, AQ-2, and AQ-3 require that treatment-related equipment be stored outside of the public viewshed, that recreational users be notified of any temporary recreation area closures, and that a Smoke Management Plan and Burn Plan be submitted for pile burning activities that trigger the threshold (17 CCR Section 80160) to minimize the generation and visibility of smoke from pile burning activities. The potential for the project to result in short-term substantial degradation of the visual character of the project area is within the scope of the PEIR because the proposed treatment activities are consistent with those analyzed in the PEIR. Impacts would be less than significant. The proposed project is not located within the vicinity of an eligible or designated scenic highway.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing scenic resources are essentially the same within and outside of the treatable landscape because the vegetation types that make up the views are the same and are contiguous to the treatable landscape. From the viewer's perspective, they would not differentiate between portions of the project within and outside the treatable landscape. Therefore, the short-term aesthetic impact to the lands within the CalVTP treatable landscape and outside the treatable landscape is the same, with the same SPRs applicable to minimize effects (SPR AQ-2 and SPR AQ-3). This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR. Impacts would be less than significant.

The inclusion of an air burner as a biomass disposal method constitutes a change to the treatment types presented in the PEIR but is not larger or more visible than other treatment types, nor would it remain on the visible landscape for any longer duration than the work itself. It would generate less visible smoke than pile burning, which is included and addressed in the PEIR. From a viewer's perspective, it would be comparable with the treatment activities that are presented in the PEIR, and therefore the short-term aesthetic impact of use of an air burner would be consistent with the discussion in the PEIR, would be less than significant, and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

**Impact AES-2**

Initial and maintenance treatments would include shaded fuel break and WUI fuel reduction treatment types. The potential for these treatment types to result in long-term degradation of the visual character of an area was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.2.3, pages 3.2-20–3.2-22). Treatments would occur on public and private lands. Removal of hazard trees and non-native trees would result in a change in views. As noted in the PEIR Impact AES-2, in the case of a shaded fuel break, because not all of the existing vegetation would be cleared and large trees would remain, vividness, intactness, and unity of views would remain, and the treatments would not substantially affect views. This is true for the proposed project, as well, which would retain tree canopy in forested areas and include thinning of understory branches and vegetation. The proposed project would be designed to improve habitat quality and create a landscape appearance closer to native conditions, and as noted in the PEIR, it could result in long-term beneficial visual impacts. Treatment areas may, however, be visible from public viewpoints. The treatment areas would not be visible from any scenic highways because there are none near the proposed project. The aesthetic impacts would be temporary and short-term, and the natural characteristics of the treatment areas would remain. Implementation of SPRs AES-1, AES-2, and AES-3 minimizes long-term degradation of the visual character by thinning and feathering adjacent vegetation to break up or screen linear edges, staging equipment and vehicles outside of the public viewshed, and providing vegetation screening within and adjacent to treatment areas. Pursuant to SPRs REC-1 and AD-4, recreational users and the public would be notified of any temporary closures to recreational areas or prior to commencement of pile burning operations. The potential for the project to result in long-term substantial degradation of the visual character of the project area is less than significant and, therefore, is within the scope of the PEIR because the proposed treatment activities are consistent with those analyzed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing visual character is essentially the same within and outside of the treatable landscape because the vegetation types that make up the views are the same and are contiguous with the treatable landscape. From the viewer's perspective, they would not differentiate between portions of the project within and outside the treatable landscape. Therefore, the long-term aesthetic impact is also the same, with the same SPRs applicable to minimize effects (SPR AQ-2 and SPR AQ-3) and is less than significant. This determination is consistent with the PEIR and

would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The inclusion of an air burner as a biomass disposal method constitutes a change to the treatment types presented in the PEIR but would not have any long-term visual impacts.

**Impact AES-3**

The proposed treatments would not include the non-shaded fuel break treatment type as specifically defined in the PEIR (CalVTP Final PEIR Section 2.5.1, page 2-11[4]). The proposed project would not result in the potential for long-term substantial degradation of the visual character due to non-shaded fuel break treatment types.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to the approximately up to 250,000 treated acres annually that are located within the approximately 20.3-million-acre treatable landscape. The geographic scope of the aesthetic and visual resource cumulative impact analysis from the CalVTP PEIR is the treatable landscape and surrounding areas with public views of the treatable landscape. In addition to the lands treated under the CalVTP PEIR, there are several similar past, present, and reasonably foreseeable projects that have affected and likely would affect vegetation, and thus aesthetics and visual resources, within and surrounding the treatable landscape (CalVTP Final PEIR Section 4.4.1 page 4-11). Based on review of the CalVTP PEIR cumulative analysis, the proposed project, including lands within and outside the CalVTP treatable landscape, would fall within the cumulative analysis for aesthetics because they would be within the 250,000 acres assumed treated annually, would have similar conditions to the cumulative setting due to their proximity to the treatable landscape and the similar vegetation conditions, and would have the same viewers and viewshed due to their position adjacent to the treatable landscape. As noted in the PEIR, the cumulative analysis would generally be based on the viewshed of the treatable landscape, which may vary in distance, as determined by surrounding topography and landscape features that may limit visibility (CalVTP Final PEIR Section 4.4.1 page 4-11). For the proposed project, the viewsheds of the treatable landscape also encompass the areas outside the treatable landscape. Therefore, the cumulative aesthetic impact analysis for the proposed project, including the areas outside the treatable landscape, is the same as described in the PEIR and is not cumulatively considerable for Impact AES-1 and AES-2. The PEIR found that impacts are cumulatively considerable for Impact AES-3; however, since the proposed project does not include any non-shaded fuel break treatment types, the proposed project's contribution to a significant cumulative impact would not be cumulatively considerable.

[4] **Non-shaded fuel breaks** are typically created where there is a natural change in vegetation type, such as from forest or shrubland to grassland, and all vegetation is removed from the fuel break.

**New Aesthetic and Visual Resource Impacts**

The proposed treatments are consistent with the treatment types and activities covered in the CalVTP PEIR. The site-specific characteristics of the proposed treatments are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.2.1 Environmental Setting and Section 3.2.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions pertinent to aesthetics and visual resources that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as previously described. The use of an air curtain burner constitutes a change in treatment type, but the aesthetic impacts of the air curtain burner are consistent with treatment types analyzed in the PEIR and would not have any new or greater types of visual impacts. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape and addition of the air curtain burner would not constitute a new or substantially more severe significant impact than what was included in the PEIR. Therefore, no new impacts related to aesthetics and visual resources would occur.

## 3.2 Agriculture and Forestry Resources

### 3.2.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact AG-1: Directly result in the loss of forest land or conversion of forest land to a non-forest use or involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use | LTS | Impact AG-1, pp. 3.3-7 – 3.3-8 | yes | NA | NA | LTS | no | yes |

Note:

[a] NA: Not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New agricultural and forestry resources impacts: Would the treatment result in other impacts to agriculture and forestry that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

### 3.2.2 Discussion

**Impact AG-1**

The proposed project would involve development and maintenance of a fuel break and WUI fuel reduction areas through use of manual treatments, ground-based mechanical treatments, prescribed herbivory, and targeted herbicide application as well as biomass disposal, including pile burning and use of air curtain burners. The vegetation communities in the project area include grasslands, chaparral, oak and mixed woodland, and redwood forest. Mechanical treatment within the project area may include the removal of trees that are dead and trees that are less than 12 inches in dbh. Tree cover within woodlands and forested areas remaining after treatment would be consistent with the definition of forest land used in PRC 12220(g): land that can support 10 percent native tree cover of any species under natural conditions. Treatments would include the removal of trees in the overstory and mid-level canopy to improve forest health and reduce wildfire risk; however, treatments would not affect the forest stand conditions directly or indirectly in a way that could result in conversion to a non-forest use. Vegetation management has the potential to improve the forest stand conditions by removing competitive non-native or overcrowded native vegetation. The impacts to forestry resources of the proposed project are within the scope of the PEIR because the proposed treatment activities are consistent with those analyzed in the PEIR. Impacts of the proposed project would be less than significant, and no SPRs or mitigation are required.

The proposed project includes land in the proposed treatment area that is outside the CalVTP treatable landscape, which constitutes a change to the geographic extent presented in the PEIR. Within the boundary of the project area, the existing conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because the vegetation types are the same and are contiguous to the treatable landscape. This impact would also be less than significant and within the scope of the PEIR because the composition of forested land as defined in PRC 12220(g) is essentially the same within and outside the treatable landscape. The treatment activities and intensity of the treatments would be consistent with those analyzed in the PEIR. Therefore, the impact to forest land is also the same, as previously described. No SPRs are applicable to this impact. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The inclusion of an air curtain burner as a biomass processing method constitutes a change to the treatment types presented in the PEIR but would not result in any additional loss of forest lands or conversion of forest lands because it is only an additional way to dispose of removed biomass. The use of an air curtain burner would be comparable with the treatment activities that are presented in the PEIR—namely, pile burning—and therefore would not result in

additional loss of forest lands. Use of an air curtain burner would be consistent with the discussion in the PEIR and would not constitute a new or substantially more severe significant impact than what was included in the PEIR.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 acres treated annually that are located within the approximately 20.3-million-acre treatable landscape. The geographic scope for agricultural and forestry resources is the treatable landscape (CalVTP Final PEIR Section 4.4.2, page 4-12). The inclusion of treatment outside the treatable landscape would expand the geographic scope for the cumulative analysis, but as with the vegetation treatment activities within the treatable landscape, it would not result in the loss of forest land or conversion of forest land to a non-forest use. Although treatment activities would alter forest land through vegetation removal, the activities would be temporary and once complete, the area would remain undeveloped, existing forest. Therefore, the proposed project's contribution to the loss of forest land or conversion of forest land to a non-forest use would not be cumulatively considerable and would be consistent with the analysis in the PEIR.

**New Agriculture and Forestry Resource Impacts**

The proposed project is consistent with the treatment types and activities covered in the CalVTP PEIR. The site-specific characteristics of the proposed treatment project have been considered and found to be consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.3.1 Environmental Setting and Section 3.3.2 Regulatory Setting in Volume II of the Final PEIR). The project proponent has also determined that the inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because the vegetation types are the same and are contiguous to the treatable landscape. The use of an air curtain burner also constitutes a change in treatment type that is consistent with the types analyzed in the PEIR. Therefore, the impacts of the proposed treatment project are also consistent with those covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape, as well as the addition of the air curtain burner, would not give rise to any new significant impacts not addressed in the PEIR. Therefore, no new impact related to agriculture and forestry resources would occur that is not covered in the PEIR.

## 3.3 Air Quality

### 3.3.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact AQ-1: Generate emissions of criteria air pollutants and precursors during treatment activities that would exceed CAAQS or NAAQS | SU | Table 3.4-1; Impact AQ-1, pp. 3.4-26 – 3.4-32; Appendix AQ-1 | yes | AD-4, AQ-1 through AQ-6 | AQ-1 | PSU | no | yes |
| Impact AQ-2: Expose people to diesel particulate matter emissions and related health risk | LTS | Table 3.4-6; Impact AQ-2, pp. 3.4-33 – 3.4-34; Appendix AQ-1 | yes | AQ-1, HAZ-1, NOI-4, NOI-5 | NA | LTS | no | yes |
| Impact AQ-3: Expose people to fugitive dust emissions containing naturally occurring asbestos and related health risk | LTS | Section 3.4.2; Impact AQ-3, pp. 3.4-34 – 3.4-35 | yes | AQ-4, AQ-5 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact AQ-4: Expose people to toxic air contaminants emitted by prescribed burns and related health risk | SU | Section 3.4.2; Impact AQ-4, pp. 3.4-35 – 3.4-37 | yes | AD-4, AQ-2, AQ-3, AQ-6 | NA (no feasible mitigation available) | PSU | no | yes |
| Impact AQ-5: Expose people to objectionable odors from diesel exhaust | LTS | Impact AQ-5, pp. 3.4-37 – 3.4-38 | yes | HAZ-1, NOI-4, NOI-5 | NA | LTS | no | yes |
| Impact AQ-6: Expose people to objectionable odors from smoke during prescribed burning | SU | Section 2.5.2; Impact AQ-6; pp. 3.4-38 | yes | AD-4, AQ-2, AQ-3, AQ-6 | NA (No feasible mitigation available) | PSU | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New air quality impacts: Would the treatment result in other impacts to air quality that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

### 3.3.2 Discussion

**Impact AQ-1**

The proposed project would use vehicles, equipment, mechanical hand tools, and pile and air curtain burning during treatments, which could generate criteria air pollutants that could exceed California ambient air quality standards (CAAQS) or national ambient air quality standards (NAAQS) thresholds for the San Francisco Bay Area Air Basin (California Air Resources Board, 2014). The potential for emissions of criteria pollutants to exceed CAAQS or NAAQS thresholds was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, pages 3.4-26–3.4-33). Emissions of criteria air pollutants related to the proposed treatments are within the scope of the PEIR because the associated equipment and duration of use are consistent with those analyzed in the PEIR.

The SPRs applicable to the proposed project include AD-4 and AQ-1 through AQ-6. SPR AD-4 requires public notification for areas with pile burning treatments prior to commencement of pile burning activities. SPRs AQ-1 through AQ-6 require the project to comply with applicable Bay Area Air Quality Management District (BAAQMD) air quality requirements, submit a Smoke Management Plan and Burn Plan if the pile burning triggers the threshold (17 CCR Section 80160), and follow all safety procedures required of a CAL FIRE crew.

In addition to the SPRs, MM AQ-1 is applicable to the proposed project and would reduce exhaust emissions from off-road equipment because it would require the implementation of emission reduction techniques including using renewable diesel fuel in diesel-powered construction equipment, substituting electric and gas-powered equipment for diesel equipment, and utilizing equipment that meets the Environmental Protection Agency's (EPA) Tier 4 emission standards. The emission reduction techniques identified in MM AQ-1 are feasible for the project. However, given the uncertainty of whether renewable diesel fuel or electric and gas-powered equipment would be available at any specific time during the implementation of the proposed project, as well as uncertainties with the associated emission reductions, the proposed project could still have impacts. The impacts, however, would be within the scope of the impacts addressed in the PEIR, which allows for potentially significant and unavoidable impacts to occur. There are no changes in circumstances that would occur in the proposed project that were not evaluated in the PEIR. Following the implementation of applicable SPRs and MMs, this project's potential to generate emissions of criteria air pollutants and precursors during treatment activities that would exceed CAAQS or NAAQS and conflict with Regional Air Quality Plans would remain within the scope of the PEIR's analysis, which is potentially significant and unavoidable because, as stated in the PEIR, the amount of emission reduction as a result of implementing MM AQ-1 cannot be determined due to various variables assessed in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, page 33).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the air quality conditions present and air basin in the areas outside the treatable landscape are the same as those within the treatable landscape. Areas inside and outside the treatable landscape are immediately adjacent to each other within the same air basin. Emissions from the proposed project are based on acreages and treatment activities and, thus, fall within the PEIR's analysis, and the impacts to air quality from the proposed project are within the scope of the PEIR's determination that the impacts would be potentially significant and unavoidable, but SPRs AD-4 and AQ-1 through AQ-6 would still be implemented.

If an air curtain burner were used, the impacts would be similar to, but less than, the use of pile burning for biomass processing. Air curtain burners operate by trapping particles of smoke under an air curtain, which are then reburned, resulting in very high combustion efficiency (up to 99 to 100 percent reported) (Zahn, 2005; Fuhrmann, 2010, rev. 2020). The air curtain burner includes reduced emissions of carbon monoxide, methane-based gases such as butane (refer to Section 3.19 Greenhouse Gas Emissions for more information), nonmethane gases such as benzene, and much reduced particulate matter emissions. The emissions were not quantified, but the following table (Table 4) demonstrates the average emissions factors for an air curtain burner as compared with pile burning of ponderosa pine, as an example. Since the air curtain burner burns with a 10-percent higher combustion efficiency than pile burning, other pollutants, such as $PM_{10}$, would also be expected to be much lower than pile burning. Smoke, particulate matter, and carbon emissions are low and due to the high combustion efficiency, risk to personnel conducting the burn and any other personnel in the area is relatively low. Use of an air curtain burner would be consistent with the discussion in the PEIR and would not constitute a new or substantially more severe significant impact than what was included in the PEIR.

**Table 4 Average Criteria Pollutant Emission Factors for Pile Burning versus Air Curtain Burning (Pounds of Emissions per Ton of Vegetation)**

| Type | CO | NMHC | $PM_{2.5}$ |
|---|---|---|---|
| Pile burning – ponderosa pine | 178.5 | 9.9 | 25.5 |
| LLC air curtain burner | 26.3 | 1.1 | 1.1 |
| McPherson air curtain burner | 30 | 0.6 | 1.4 |

Notes:
Reactive organic gas (ROG) emission factor is likely less than NMHC so it is conservative to assume it is equal.
CO – carbon monoxide
NMHC – nonmethane hydrocarbons
$PM_{2.5}$ – fine particulate matter

*Source: (Zahn, 2005)*

**Impact AQ-2**

Vehicles and mechanical equipment for treatment activities would emit diesel particulate matter. The potential to expose people to diesel particulate matter was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, pages 3.4-33–3.4-34). The proposed project would comply with SPRs AQ-1, HAZ-1, NOI-4, and NOI-5, which minimize the exposure of people to diesel particulate matter emissions. SPR AQ-1 requires compliance with all applicable air quality regulations, and SPR HAZ-1 requires that all diesel and gasoline-powered equipment be properly maintained to comply with all State and federal emission requirements. In addition, SPR NOI-4 requires vegetation treatment activities and staging areas be located as far as possible from human receptors, and SPR NOI-5 restricts equipment idling time. Diesel particulate matter emissions from the proposed project would be less than significant, and its impacts are within the scope of the PEIR. Treatment activities are consistent with those addressed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the air quality conditions, and sensitive receptors present in the areas outside the treatable landscape (i.e., exposure potential) are essentially the same as those within the treatable landscape because the areas and associated receptors are immediately adjacent to each other and the equipment emitting the diesel particulate matter would be the same. Therefore, the air quality impact is also the same (less than significant), as described above, with the implementation of the same SPRs. There are no changes in circumstances that would occur in the proposed project that were not evaluated in the PEIR, and the impacts of this project would remain less than significant.

The use of an air curtain burner for biomass processing would not result in diesel emissions. No new or greater impacts related to the air curtain burner beyond those addressed in the PEIR would occur.

**Impact AQ-3**

Use of vehicles and mechanical equipment during treatments would involve ground-disturbing activities. Pile and air curtain burning would not involve ground disturbance. The potential to expose people to NOA-containing fugitive dust emissions was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, pages 3.4-34–3.4-35). While no known natural occurring asbestos (NOA) sites are located within or adjacent to the project site, serpentine soils mapped within a small southern portion of project site near the Ring Mountain Preserve could contain NOA, as shown in Figure 7 of Attachment D (USDA, 2021).As discussed in the PEIR, pile burning and ground disturbing activities such as vehicle and heavy equipment usage could result in NOA becoming airborne. In accordance with SPR AQ-5, no ground-disturbing activities would occur in these areas unless an Asbestos Dust Control Plan is prepared and approved by BAAQMD. The proposed project would also implement SPR AQ-4, which minimizes fugitive dust emissions during treatment activities. Potential NOA exposure from the proposed treatments would be less than significant and is within the scope of the activities and impacts addressed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other and are underlain by the same type of serpentine soils and would involve similar or the same types of ground-disturbing activities. Therefore, the air quality impact is also the same, as described above, and would also be less than significant with the implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of an air curtain burner for biomass processing would not constitute ground disturbance. The air curtain burner is placed on the ground surface. No new or greater impacts than were addressed in the PEIR would occur related to the air curtain burner.

**Impact AQ-4**

Pile and, potentially, air curtain burning during treatments could expose people to toxic air contaminants. Pile burning or an air curtain burner may be used to process vegetative debris, depending on the conditions of the work area. Pile burning and an air curtain burner would emit air pollutants including particulate matter. The potential to expose people to toxic air contaminants from prescribed burning (including pile burning) was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, pages 3.4-35–3.4-37). The duration and parameters of the pile burns are within the scope of the activities addressed in the PEIR, and the potential for exposure to toxic air contaminants is also within the scope of the PEIR. The applicable SPRs include AD-4, AQ-2, AQ-3, and AQ-6. The public would be notified of any pile burning, pursuant to SPR AD-4. Implementation of SPRs AQ-2 and AQ-3 requires the submittal of a Smoke Management Plan and Burn Plan. Crews performing pile burns are required to follow all safety procedures required of a CAL FIRE crew, pursuant to SPR AQ-6. The PEIR identifies the impact from prescribed burning (which includes pile burning) as significant and unavoidable. As examined in the PEIR, no additional mitigation measures are feasible, and the impact would remain significant and unavoidable. The impacts from the pile burning for the proposed project were not quantified but would fall within the finding of the PEIR of potentially significant and unavoidable.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other, would emit air pollutants, and would potentially expose the same sensitive receptors. Therefore, the air quality impact is also the same, as described above. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR. The use of an air curtain burner for biomass processing would have lower emissions of TACs, such as benzene (see Table 4) as compared with pile burning activities covered in the PEIR.

Impacts of emissions of TACs from the use of the air curtain burner would fall within the analysis of the PEIR, which identified the impacts of prescribed burning (which includes pile burning) as significant and unavoidable, and thus fall within the finding of the PEIR.

**Impact AQ-5**

Use of vehicles and mechanical equipment during treatments could expose people to objectionable odors from diesel exhaust. The potential to expose people to objectionable odors from diesel exhaust was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, page 37). SPRs applicable to this treatment are HAZ-1, NOI-4, and NOI-5. All diesel and gasoline-powered equipment must be properly maintained to comply with all state and federal emission requirements (SPR HAZ-1). Also, treatment activities and staging areas would be located as far as possible from sensitive receptors, and equipment idling time would be restricted (SPRs NOI-4 and NOI-5). This impact is within the scope of the PEIR, because the proposed activities, as well as the associated equipment and duration of use, are consistent with those analyzed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other and the equipment emitting the odor would be the same. Therefore, the air quality impact is also the same, as described above with implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of an air curtain burner for biomass processing would not result in diesel emissions. No new or greater impacts than were addressed in the PEIR would occur related to the air curtain burner.

**Impact AQ-6**

Pile burning and the potential use of an air curtain burner could expose people to objectionable odors from smoke. The potential to expose people to objectionable odors from prescribed burning (including pile burning) was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.4.3, page 38). The duration and parameters of the prescribed burn are consistent with the activities addressed in the PEIR, and the resultant potential for exposure to objectionable odors from smoke is also within the scope of impacts covered in the PEIR. The applicable SPRs for this treatment are AD-4, AQ-2, AQ-3, and AQ-6. As discussed under Impact AQ-4, the public would be notified of any pile burning (SPR AD-4), a Smoke Management Plan and Burn Plan would be submitted if pile burning triggers the need (17 CCR Section 80160) (SPRs AQ-2 and AQ-3), and pile burning crews are required to follow all safety procedures required of a Cal FIRE crew (SPR AQ-6). The PEIR identifies the impact from smoke from prescribed burning (including pile burning) as significant and unavoidable. As examined in the PEIR, no additional mitigation measures are feasible, and the impact would remain significant and unavoidable.

The impacts from the pile burning for the proposed project were not quantified but would fall within the finding of the PEIR of potentially significant and unavoidable.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other and the treatment, pile burning, would be the same inside and outside the treatable landscape. Therefore, the air quality impact is also the same, as described above, and would fall within the finding of the PEIR—potentially significant and unavoidable—with implementation of the same SPRs. This determination would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of an air curtain burner for biomass processing would have much lower smoke emissions due to the increased combustion efficiency (up to 99 to 100 percent reported) (Zahn, 2005; Fuhrmann, 2010, rev. 2020). Impacts of emissions of smoke from the use of the air curtain burner would likely be less than significant, but would fall within the analysis of the PEIR, which identified the impacts of prescribed burning (including pile burning) as significant and unavoidable.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope of the air quality cumulative impact analysis from the CalVTP PEIR is the air basins within the treatable landscape. In addition to the lands treated under the CalVTP PEIR, there are several similar past, present, and reasonably foreseeable projects that have affected and likely would affect the air basin within and surrounding the treatable landscape (CalVTP Final PEIR Section 4.4.3, page 4-13). Because the treatment areas for the proposed project are within the same air basins inside the treatable landscape and outside the treatable landscape, and the treatment types would be the same, the cumulative contribution of the proposed project would be the same inside and outside the treatable landscape, and the impact conclusions from the PEIR would remain applicable. Contributions of the proposed project would be the same within the treatable landscape as outside the treatable landscape, and the cumulative air quality impact analysis would remain within the findings described in the PEIR—not cumulatively considerable for Impacts AQ-2, AQ-3, and AQ-5 and potentially cumulatively considerable for Impacts AQ-1, AQ-4, and AQ-6.

**New Air Quality Impacts**

The proposed treatments are consistent with the treatment types and activities covered in the CalVTP PEIR. Air emissions associated with an air curtain burner are the same type as those associated with pile burning; however, particulate matter emissions are lower due to the high

combustion efficiency. The site-specific characteristics of the proposed treatments are consistent with the applicable regulatory and environmental conditions presented in the CalVTP PEIR (refer to Section 3.4.1 Regulatory Setting and Section 3.4.2 Environmental Setting in Volume II of the Final PEIR). The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR, but the added acreage would not expand the total annual acreage proposed for treatment under the PEIR of 250,000 acres per year. However, within the boundary of the project area, the existing environmental and regulatory conditions pertinent to air quality that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other, the air basin is the same, and the treatment activities and associated air emissions are the same. Therefore, the impacts are the same and, for the reasons described above, impacts of the proposed treatment project are consistent with those covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impact not addressed in the PEIR. No new impact related to air quality would occur that is not covered in the PEIR.

# 3.4 Archaeological, Historical, and Tribal Cultural Resources

## 3.4.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact CUL-1: Cause a substantial adverse change in the significance of built historical resources | LTS | Impact CUL-1, pp. 3.5-14 – 3.5-15 | yes | CUL-1, CUL-2, CUL-7, CUL-8 | NA | LTS | no | yes |
| Impact CUL-2: Cause a substantial adverse change in the significance of unique archaeological resources or subsurface historical resources | SU | Impact CUL-2, pp. 3.5-15 – 3.5-16 | yes | CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-8 | CUL-2 | LTSM | no | yes |
| Impact CUL-3: Cause a substantial adverse change in the significance of a tribal cultural resource | LTS | Impact CUL-3, pp. 3.5-17 | yes | CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, CUL-6, CUL-8 | None | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact CUL-4: Disturb human remains | LTS | Impact CUL-4, pp. 3.5-18 | yes | CUL-3, CUL-7 | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New archaeological, historical, and tribal cultural resources impacts: Would the treatment result in other impacts to archaeological, historical, and tribal cultural resources that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

### 3.4.2 Discussion

**Background**

Consistent with SPR CUL-1, records searches of the treatment area, including areas within and outside of the treatable landscape, were performed by the Northwest Information Center (NWIC). The records search for the treatment areas was conducted on October 11, 2021 (NWIC File No. 21-0400). The records search indicated 44 previous cultural resource studies within the project area. Of these 44 studies, 16 included fieldwork within the past 20 years that encompasses portions of the project area. The records search identified 87 previously recorded cultural resources within the one-quarter-mile buffer, five of which intersect the project area. Of the five intersecting resources, three are precontact archaeological resources and two are historic-era built-environment resources. The precontact resources include a rock shelter, shell mound site, and three groundstone artifacts. The historic-era resources include a railroad grade, currently in use as a hiking trail, and former plant nursey buildings and structures. The precontact archaeological sites and former railroad grade have not been evaluated for listing on the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). The plant nursery was previously recommended not eligible for listing on the NRHP or the CRHR. A site sensitivity analysis was prepared for the proposed project by Far Western Anthropological Group (Far Western) to identify areas of high potential sensitivity for cultural resources. The records search results and sensitivity analysis are provided in Attachment C.

The Board of Forestry sent letters to 12 Native American tribes on February 9, 2019, notifying each that the PEIR was being prepared under CEQA, as required by California Public Resources Code, Section 21080.3.1. Four tribes requested initiation of tribal consultation. Tribal consultation has been completed with these tribes pursuant to California Public Resources Code, Section 21074. No tribal cultural resources were identified during consultation conducted for the PEIR. SPR CUL-2 requires notification of geographically affiliated Native American tribe(s). The project proponent sent letters to the Federated Indians of Graton Rancheria and Guidiville Indian Rancheria with a description of the project and details of the project location in March 2022. No responses have been received to date.

**Impact CUL-1**

Proposed treatment activities include mechanical treatments and pile and potentially air curtain burning. These activities have some potential to damage historical resources. Use of targeted herbicides and manual treatments would generally not damage historical resource because such resources could be avoided. The cultural records search identified two historic resources (i.e., a railroad grade and plant nursery) that have previously been identified within the treatment area. Of the two historic resources, only the plant nursery was evaluated for listing on the

NRHP and the CRHR, and it was recommended as not eligible. A historical archival review also indicated that a large number of potential historical resources are within the proposed project area and have never been surveyed for or evaluated, such as a cemetery, a winery, a school, and camps. The potential for treatment activities to result in disturbance to, damage to, or destruction of built-environment structures, including those that have not yet been evaluated for historical significance, was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.5.3, page 3.5-14-3.5-15) and was found to be less than significant with the implementation of SPRs. SPR CUL-3 requires pre-field research prior to implementing treatments to identify any other structures that may be 50 years old or older. Structures (e.g., buildings, bridges, roadways) more than 50 years old, including the railroad grade and other potential historical resources that have not been evaluated for historical significance and are present in the treatment area would be avoided pursuant to SPR CUL-7. Within a buffer of 100 feet of the built historical resource, there would be no prescribed (pile and air curtain) burning or mechanical treatment activities. Buffers less than 100 feet for built historical resources would only be used after consultation with, and receipt of written approval from, a qualified archaeologist. All crew members and contractors implementing treatment activities would be trained on the protection of sensitive archaeological, historic, or tribal resources (SPR CUL-8). Impacts would be less than significant with inclusion of these measures.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, because the treatments inside and outside the treatable landscape are the same and the records search was conducted for the full proposed project area plus a 0.25-mile buffer, the potential impact to historical resources is also the same, as described above, and would be less than significant with implementation of the SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Use of an air curtain burner as a means of biomass disposal was not analyzed in the CalVTP. An air curtain burner would be placed on existing disturbed areas or paved areas so would not be located adjacent to historic resources. This impact is within the scope of the PEIR because the intensity of ground disturbance of the project treatments is consistent with that analyzed in the PEIR. The air curtain burner would not impact historic resources as it would not be placed near structures, including historic structures, per SPR CUL-7. The use of the air curtain burner would not constitute a substantially more severe significant impact than what was covered in the PEIR.

**Impact CUL-2**

Vegetation treatments would include the use of heavy equipment, pile burning, and air curtain burning that may disturb soil. These treatment activities have the potential to result in inadvertent discovery of unique archaeological resources or subsurface historical resources, as discussed in the PEIR (CalVTP Final PEIR Volume II Section 3.5.3, pages 3.5-15–3.5-16). The site sensitivity analysis prepared for the project (Attachment C) identified a very low potential for buried archaeological sites within the overall project area (Far Western, 2022). The cultural records search revealed three archaeological resources within the treatment areas. None of the

archaeological resources have been evaluated for eligibility for listing in the NRHP or CRHR. The potential for these treatment activities to result in impacts to unique archaeological resources or subsurface historical resources was evaluated in the PEIR (CalVTP Final PEIR Volume II Section 3.5.3, pages 3.5-15–3.5-16) and was found to be potentially significant and unavoidable in the PEIR but would be less than significant for the proposed project with implementation of SPRs and mitigation. The potential for there to be an impact to unique archaeological resources or subsurface historical resources is within the scope of the activities and impacts discussed in the PEIR; the treatment activities and the extent of ground disturbance of the project treatments are consistent with those analyzed in the PEIR. This impact is within the scope of the PEIR because the intensity of ground disturbance of the project treatments is consistent with that analyzed in the PEIR. Proposed treatments for the project would primarily involve no soil disturbance or very shallow soil disturbance, limiting the potential for effects. There is always a potential for unknown unique archaeological resources or subsurface historical resources to be inadvertently damaged during treatment activities. SPRs CUL-1 through CUL-6 and CUL-8 would be implemented to minimize the risk of inadvertently damaging a previously unknown unique archaeological resource or subsurface historical resources during treatment activities. The applicable SPRs require the following: an archaeological and historical resource record search would be conducted (SPR CUL-1, already conducted for this PSA); all geographically affiliated Native American tribes would be contacted (SPR CUL-2, already conducted for this PSA), pre-field research would be conducted prior to treatment implementation (SPR CUL-3); a site-specific archaeological survey in areas with known cultural resources, areas identified as having high sensitivity for historic-era or buried resources where surveys were not conducted previously, or areas containing tribal cultural resources as identified by geographically affiliated tribe(s) would be conducted and archaeological resources treated, if needed (SPRs CUL-4 and CUL-5); culturally affiliated tribes (Graton Tribe) would be notified if cultural resources are identified within a treatment area and cannot be avoided (SPR CUL-6); and all crew members and contractors implementing treatment activities would be trained on the protection of sensitive archaeological, historical, and tribal cultural resources (SPR CUL-8). The proposed project would also implement MM CUL-2 to further reduce impacts on unknown unique archaeological or subsurface historical resources by ceasing all ground-disturbing activity within 100 feet of the discovery of any previously unknown resource until a qualified archaeologist or archaeologically trained resource professional assesses the significance of the find.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, the potential for discovery of archaeological resources is essentially the same within and outside the treatable landscape because they are immediately adjacent to each other and have similar vegetation and historic use. Therefore, the potential impact to unique archaeological resources or subsurface historical resources is also the same, as described above, and would be less than significant with mitigation and the SPRs previously identified. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Use of an air curtain burner as a means of biomass disposal was not analyzed in the CalVTP. An air curtain burner would be placed on existing disturbed areas or paved areas so would not be located adjacent to historic resources. This impact is within the scope of the PEIR because the intensity of ground disturbance of the project treatments is consistent with that analyzed in the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

**Impact CUL-3**

The Native American Heritage Commission (NAHC) was contacted on February 2, 2022, requesting a review of their Sacred Lands File for this proposed project and list of individuals/groups who might have knowledge concerning cultural and tribal resources within the project area. The NAHC's response, dated March 24, 2022, stated that there are Native American sacred sites documented within the Project area. Letters were sent March 18, 2022, and March 29, 2022, to the two tribes affiliated with the project area, according to the NAHC list. The potential for the proposed treatment activities to cause a substantial adverse change in the significance of a tribal cultural resource during vegetation treatment was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.5.3, page 17). As explained in the PEIR, while tribal cultural resources may be identified within the treatable landscape during development of later treatment projects, implementation of SPRs would avoid any substantial adverse change to any tribal cultural resource. Specifically, SPR CUL-6 requires that the project proponent, in consultation with the culturally affiliated tribe(s), would develop effective protection measures for important tribal cultural resources identified by the tribe(s) to be located within treatment areas. To date, no tribal cultural resources have been identified by the tribes.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the tribal cultural affiliations present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape; therefore, the potential impact to tribal cultural resources is also the same, as described above. SPRs applicable to this treatment include CUL-1 through CUL-6 and CUL-8. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Use of an air curtain burner as a means of biomass disposal was not analyzed in the CalVTP. An air curtain burner would be placed on existing disturbed areas or paved areas so would be unlikely to impact tribal resources. Impacts would be less than significant in conformance with the PEIR.

**Impact CUL-4**

Initial and maintenance treatments would include mechanical treatments utilizing heavy equipment, which would result in ground disturbing activities. The NCIC records search did not reveal any known burials or sites containing human remains. A known cemetery, however, is within the treatment area. The potential for treatment activities to uncover human remains was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.5.3, page 3.5-17) and found

to be less than significant. The potential for human remains to be uncovered during the implementation of the treatment project is minimal due to the nature of the work and the limited resultant ground disturbance from the types of activities proposed, which are mostly manual methods. The impact is within the scope of the PEIR because the treatment activities and the level of ground disturbance are consistent with those analyzed in the PEIR. Known cemeteries (historic era) would be identified per SPR CUL-3 and avoided per CUL-7 to ensure no significant impacts. Should human remains be encountered in the course of implementing the proposed project, as stated in the PEIR, compliance with the California Health and Safety Code Sections 7050.5 and 7052 and PRC Section 5097 would occur. In the event of discovery of human remains, no further disturbance or excavation of the site and the human remains would occur, and the site would be left undisturbed. Impacts would be less than significant.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, the potential for discovery of human remains is essentially the same within and outside the treatable landscape because they are adjacent to each other and have similar vegetation and historic use. As with the land within the treatable landscape, the NCIC records search did not reveal any burials or sites containing human remains outside the treatable landscape. Any known cemeteries would be identified through SPR CUL-3 and avoided per SPR CUL-7. Therefore, the potential impact to human remains is also the same as previously described and less than significant. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Use of an air curtain burner was not assessed in the PEIR. An air curtain burner, if used, would be placed on existing disturbed areas or paved areas that are frequently used, and thus the potential for discovery of human remains from this activity would be minimal. No new or substantially more severe significant impact than what was covered in the PEIR would occur.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope of the archaeological, historical, and tribal cultural resources impact analysis from the CalVTP PEIR is the state of California. In addition to the lands treated under the CalVTP PEIR, there are several similar past, present, and reasonably foreseeable projects that have affected and likely would affect cultural resources, within and surrounding the treatable landscape, and cultural resources are considered nonrenewable members of finite classes (CalVTP Final PEIR Section 4.4.4, page 4-14). Contributions of the proposed project would be the same within the treatable landscape as outside the treatable landscape, and the cumulative cultural impact analysis would remain the same as described in the PEIR. The proposed project would not constitute a cumulatively considerable contribution to an otherwise

significant cumulative impact related to known unique archaeological resources, subsurface historical resources, built historical resources, or human remains.

**New Archaeological, Historical, and Tribal Cultural Resource Impacts**

The proposed treatment is consistent with the treatment types and activities considered in the CalVTP PEIR. The site-specific characteristics of the proposed treatment project are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.5.1 Environmental Setting and Section 3.5.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a changed circumstance to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, the existing environmental and regulatory conditions pertinent to archaeological, historical, or tribal cultural resources that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as previously described. The use of an air curtain burner constitutes a change in treatment type, but the cultural impacts of the air curtain burner are consistent with the types of treatments analyzed in the PEIR and would not constitute new or greater impacts to cultural resources. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape and inclusion of the air curtain burner would not constitute a new or substantially more severe significant impact than what was included in the PEIR. Therefore, no new impact related to archaeological, historical, or tribal cultural resources or human remains would occur.

# 3.5 Biological Resource

## 3.5.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact BIO-1: Substantially affect special-status plant species either directly or through habitat modifications | LTSM | Impact BIO-1, pp. 3.6-131–3.6.138 | yes | BIO-1, BIO-2, BIO-7, BIO-9, GEO-1, GEO-3, GEO-4, GEO-5, GEO-7, HAZ-5 | BIO-1a, BIO-1b | LTSM | no | yes |
| Impact BIO-2: Substantially affect special-status wildlife species either directly or through habitat modifications | LTSM | Impact BIO-2, pp. 3.6-138–3.6-184 | yes | BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-8, BIO-9, BIO-10, BIO-11, HAZ-5, HAZ-6, HYD-1, HYD-2, HYD-3, HYD-4, HYD-5 | BIO-2a, BIO-2b | LTSM | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact BIO-3: Substantially affect riparian habitat or other sensitive natural community through direct loss or degradation that leads to loss of habitat function | LTSM | Impact BIO-3, pp. 3.6-186–3.6-191 | yes | BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-9, HYD-4 | BIO-3a | LTSM | no | yes |
| Impact BIO-4: Substantially affect state or federally protected wetlands | LTSM | Impact BIO-4, pp. 3.6-191–3.6-192 | yes | BIO-3, BIO-4, HYD-1, HYD-2, HYD-3, HYD-4, HYD-5 | BIO-4 | LTSM | no | yes |
| Impact BIO-5: Interfere substantially with wildlife movement corridors or impede use of nurseries | LTSM | Impact BIO-5, pp. 3.6-192–3.6-196 | yes | BIO-1, BIO-2, BIO-4, BIO-5, BIO-10, BIO-11, HYD-5 | BIO-5 | LTSM | no | yes |
| Impact BIO-6: Substantially reduce habitat or abundance of common wildlife | LTS | Impact BIO-6, pp. 3.6-197–3.6-198 | yes | BIO-1, BIO-2, BIO-12 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact BIO-7: Conflict with local policies or ordinances protecting biological resources | no impact | Impact BIO-7, pp. 3.6-198–3.6-199 | yes | AD-3 | NA | no impact | no | yes |
| Impact BIO-8: Conflict with the provisions of an adopted natural community conservation plan, habitat conservation plan, or other approved habitat plan | no impact | Impact BIO-8, pp. 3.6-199–3.6-200 | no | NA | NA | no impact | no | yes |

Note:

[a] NA: Not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: There are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New biological resource impacts: Would the treatment result in other impacts to biological resources that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.5.2 Discussion

### Baseline Studies

**Field Surveys**

Pursuant to SPR BIO-1, biologists from Sequoia Ecological Consulting, Inc., (Sequoia) performed a desktop review of project-specific biological resources and conducted a reconnaissance-level survey of the treatment areas. Reconnaissance-level surveys occurred between the dates of November 15 and December 9, 2021, to identify and document sensitive natural communities, habitat types, and potential sensitive resources within the treatment areas. During these surveys, habitat suitability determinations were made for the potential special-status plant and wildlife species listed in Attachment D.1: Sensitive Species Tables.

**Identification of Sensitive Habitats with Potential to Occur**

Habitat types and the presence of sensitive natural communities were examined by reviewing all available habitat data and ground-truthing in the field, including habitat Alliance descriptions in *A Manual of California Vegetation* (CNPS, 2022b). CDFW's Vegetation Classification and Mapping Program, or VegCAMP (CDFW, 2013) was reviewed for sensitive natural community data. The VegCAMP data for Marin County is not yet complete and has no overlap with the project boundary; however, a second VegCAMP database, focused on MCOSD lands in Marin County, overlapped with 68 percent of the proposed project boundary and thus was reviewed. This database was produced in 2008 and last updated in 2013 (CDFW, 2013). Sequoia biologists also accessed the Golden Gate National Parks Conservancy's (GGNPC) data for Marin County Fine Scale Vegetation Mapping, which is a habitat database that encompasses 100 percent of the proposed project footprint and has finer detail than the VegCAMP data (GGNPC, 2021). The GGNPC database was updated in 2021. It was confirmed that habitat data was consistent between the two datasets, all sensitive habitat types represented in VegCAMP were also present in GGNPC data, and no major contradictions were present in the data. Due to the relative completeness of this dataset, GGNPC's data was utilized for habitat-type mapping. The U.S. Fish and Wildlife's (USFWS) National Wetland Inventory (NWI) (USFWS, 2021)) and the U.S. Department of Agriculture's (USDA) Web Soil Survey data (2021) were also reviewed to determine the presence of sensitive wetland, waterway, and serpentine soil habitats.

A series of maps delineating vegetation types and potential sensitive habitats, or natural communities was prepared by overlaying habitat type data over the treatment area maps (Attachment D.2, Figures 3, 4, and 5). A second set of maps delineating wetlands and waterways was overlaid on these maps for fieldwork but has been reproduced here separately for clarity (Attachment D.2, Figure 6). This habitat data was then verified and/or corrected during the field reconnaissance-level survey using maps loaded in ESRI's FieldMaps using iPad Airs (4$^{th}$ generation). Habitat types were cross-referenced against sensitive natural communities'

lists maintained by CDFW and against the suitable habitats for sensitive plant and wildlife species identified in the desktop review. Field verification of habitat types focused on delineating potentially sensitive communities to Alliance groups. Portions of the project footprint were either not surveyed or surveyed from a distance using binoculars because access was not granted across the entire project footprint (Attachment D.2, Figures 8 and 9).

**Identification of Listed Plant and Animal Species with Potential to Occur**

Appendix Bio-3 (Northern California Coast Section 263A, Tables 9a, 9b, 10a, 10b, and 19) of the PEIR was reviewed for special-status plants and wildlife that could occur within the treatment areas. Species that clearly had no potential for occurrence (e.g., crustaceans, dune-dwelling species) were excluded from considerations.

Sequoia biologists initially reviewed Tables 1a and 1b in Appendix BIO-3 of the CalVTP Final PEIR to identify species known to occur or with potential to occur within the Northern California Coast ecoregion and their associated California Wildlife Habitat Relationship (CWHR) types. A 3-mile buffer query of CNDDB and CNPS databases was used to generate the list. The California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), BIOS 5 (CDFW 2022), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California database (CNPS, 2022) were used to identify the State and federally listed species that may be present within 3 miles of the treatment area (Attachment D.2, Figures 1 and 2). Marin County Parks data was also queried for locally sensitive species within 3 miles of the treatment area. Other databases, including eBird and iNaturalist (2022), were also queried for special-status species that are underrepresented in the CNDDB, such as loggerhead shrike (*Lanius ludovicianus*) and yellow warbler (*Setophaga petechia*). The search yielded fifty (50) State and federally threatened, endangered, or candidate species, CDFW species of special concern and candidate species, and CNPS California Rare Plant Rank (CRPR) Lists 1 and 2 species. The species reviewed are listed below and impacts to each species are analyzed within the Attachment D.1 Biological Resources Species List. From the complete list of species, twenty-four (24) of the special-status plants and seven (7) of the special-status wildlife were determined to have potential to occur or are known to occur within project site boundaries (Table 5).

**Habitats and Sensitive Natural Communities Potentially Present**

The proposed project areas are primarily dominated by native forest habitat types, with significant portions of grassland, developed land, and non-native forest. The project area was composed of the following, from greatest to least dominant habitat types:

- *Umbellularia californica* Alliance native forest (34.69%)
- *Quercus agrifolia* Alliance (19.41%)
- Sequoia sempervirens Alliance (12.28%)
- California Annual and Perennial Grassland (11.54%)
- Developed land (5.12%)
- *Arbutus menziesii* Alliance (4.63%)
- *Quercus lobata* Alliance (2.99 %)

- *Quercus garryana* Alliance (2.43%)
- *Baccharis pilularis* Alliance (1.80%)
- Eucalyptus non-native forest (1.10%)

Several other habitat types were present, but represent less than 1 percent of the total project area each, including *Genista monspessulana* non-native scrub, *Quercus kelloggii* Alliance, *Adenostoma fasciculatum* Alliance, *Aesculus californica* Alliance, acacia non-native Forest, *Pseudosuga menziesii*, *Pinus radiata* plantation , *Arctostaphlos glandulosa* Alliance, *Quercus chrisolepis* Alliance, *Artemisia californica – Salvia leucophylla* Alliance, *Acer macrophyllum* Alliance, *Salix lasiolepis* Alliance, and others. Of these habitat types, eight are considered sensitive by CDFW: *Acer macrophyllum – Alnus rubra* Alliance, *Acer macrophyllum* Association, *Aesculus californica* Alliance, *Arbutus menziesii* Alliance, *Quercus garryana* Alliance, *Quercus lobata* Alliance, *Sequoia sempervirens* Alliance, and *Umbellularia californica* Alliance.

Eight sensitive habitat types were identified in the project footprint, all designated as vulnerable in the State of California by CDFW (shown in Table 5). Sensitive habitat spatial data is available for review in Attachment D.2, Figures 3, 4, and 5. All these sensitive habitat types were ranked by CDFW as G4, "Apparently secure globally," and S3, "Vulnerable within the State of California." *Umbellularia californica* Alliance forest represents 34.69 percent of the project footprint, and the remaining seven sensitive habitat types represent another 22.60 percent of the project footprint in combination, with a total of 57.29 percent of the project footprint falling into sensitive habitat types. A breakdown of habitat types and sensitive status found within the project footprint is shown below in Table 5.

**Table 5 Habitat Types Mapped within the Project Footprint**

| Habitat subgroup | Habitat type | Acreage | Percent cover mapped in project footprint | CDFW sensitivity ranking |
|---|---|---|---|---|
| Developed | developed | 93.6 | 5.12% | N/A |
| | vineyard | 0.3 | 0.02% | N/A |
| | major road | 4.1 | 0.22% | N/A |
| Herbaceous | Californian Annual & Perennial Grassland mapping unit | 218.0 | 11.54% | N/A |
| | Californian Cliff, Scree & Rock vegetation group | 0.7 | 0.04% | N/A |
| Native forest | *Acer macrophyllum* – Alnus rubra Alliance | 0.1 | 0.01% | G4, S3-Sensitive |
| | *Acer macrophyllum* Association | 0.8 | 0.04% | G4, S3-Sensitive |
| | *Aesculus californica* Alliance | 4.1 | 0.21% | G3, S3-Sensitive |

| Habitat subgroup | Habitat type | Acreage | Percent cover mapped in project footprint | CDFW sensitivity ranking |
|---|---|---|---|---|
| | *Arbutus menziesii* Alliance | 87.3 | 4.63% | G4, S3-Sensitive |
| | deciduous hardwood (urban window) | 0.6 | 0.04% | N/A |
| | *Pseudotsuga menziesii* mapping unit | 3.3 | 0.18% | G5, S4 |
| | *Quercus agrifolia* Alliance | 363.7 | 19.41% | none |
| | *Quercus chrysolepis* Alliance | 1.2 | 0.06% | G5, S5 |
| | *Quercus garryana* Alliance | 45.9 | 2.43% | G4, S3-Sensitive |
| | *Quercus kelloggii* Alliance | 15.1 | 0.81% | G4, S4 |
| | *Quercus lobata* Alliance | 55.9 | 2.99% | G3, S3-Sensitive |
| | *Sequoia sempervirens* Alliance | 230.8 | 12.28% | G3, S3-Sensitive |
| | *Umbellularia californica* Alliance | 652.1 | 34.69% | G4, S3-Sensitive |
| | uncharacterized forest fragment | 2.6 | 0.14% | N/A |
| Native shrub | *Adenostoma fasciculatum* Alliance | 8.8 | 0.47% | G5, S5 |
| | *Arctostaphylos glandulosa* Alliance | 1.6 | 0.08% | G4, S4 |
| | *Artemisia californica* – (*Salvia leucophylla*) Alliance | 1.1 | 0.06% | G5, S5 |
| | *Baccharis pilularis* Alliance | 34.1 | 1.80% | G5, S5 |
| | *Salix lasiolepis* Alliance | 0.7 | 0.04% | G4, S4 |
| | uncharacterized shrub fragment | 5.5 | 0.29% | N/A |
| Non-native forest | *Acacia* spp. – *Grevillea* spp. – *Leptospermum laevigatum* Semi-Natural Alliance | 3.6 | 0.19% | N/A, non-native |
| | *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 19.7 | 1.10% | N/A, non-native |
| | non-native Forest | 2.6 | 0.13% | N/A, non-native |
| | *Pinus radiata* plantation Provisional Semi-Natural Association | 1.7 | 0.09% | N/A, non-native |
| Non-native shrub | *Cortaderia* (*jubata, selloana*) Semi-Natural Alliance | 0.2 | 0.01% | N/A, non-native |

| Habitat subgroup | Habitat type | Acreage | Percent cover mapped in project footprint | CDFW sensitivity ranking |
|---|---|---|---|---|
| | *Genista monspessulana* Semi-Natural Association | 15.5 | 0.82% | N/A, non-native |
| | non-native shrub | 0.8 | 0.04% | N/A, non-native |

Notes:
G1 S1: Critically imperiled worldwide/ statewide
G2 S2: Imperiled worldwide/ statewide
G3 S3: Vulnerable worldwide/ statewide
G4 S4: Apparently secure worldwide/ statewide
G5 S5: Demonstrably secure because of its worldwide/ statewide abundance

### Special-Status Plants and Animals with Potential to Occur

Attachment D includes a compilation of special-status plant and wildlife species with potential to occur within the proposed project area, based on the SPR BIO-1 requirement for a data review of biological resources, as previously described. Table 6 comprises the final list of special-status plant and wildlife species with potential to occur within the treatment area based on the data review and reconnaissance-level survey. Full tables, including species that were ruled out and the justification for doing so, are provided in Attachment D.1.

### Impact BIO-1

The proposed project would involve development and maintenance of a fuel break and WUI fuel reduction through use of manual treatments, ground-based mechanical treatments, prescribed herbivory, and targeted herbicide application as well as biomass disposal, including pile burning. Work would focus on treatment of exotic, invasive, and fire-hazardous vegetation; heathy, mature native trees would not be removed as a part of the proposed project. Treatments include prescribed herbivory, targeted herbicide application, removal of invasive vegetation, pile and air curtain burning, and use of manual and mechanical tools, including chainsaws, pole loppers, broom pullers, chippers, and/or tractors or skid steers with a mower/masticator attachment to facilitate vegetation removal. Debris may be cut and scattered in place, chipped, and/or hauled off site. Pile burning may be used. Air curtain burners may also be utilized to remove cut debris.

Manual and mechanical vegetation removal, pile burning, prescribed herbivory, and targeted herbicide application could result in direct or indirect adverse effects to special-status plant species. The project areas contain known occurrences of sensitive plant species as well as potentially suitable habitat for some sensitive plant species (Table 6). The potential for adverse effects to special-status plant species is within the scope of the activities and impacts addressed in the PEIR because the activities and level of disturbance resulting from implementing treatment activities are consistent with those analyzed in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, pages 3.6-131–3.6-138).

**Table 6 Special-Status Wildlife and Plant Species with Potential to Occur within the Project Footprint**

| Species | Listing status | | | Habitat | Potential for occurrence |
|---|---|---|---|---|---|
| | Federal | State | CNPS | | |
| **Special-Status Wildlife** | | | | | |
| Pallid bat (*Antrozous pallidus*) | -- | SSC | -- | The pallid bat roosts in large diameter trees and abandoned buildings. | Known to occur. Documented occurrences are mapped within the project boundary; suitable roosting habitat was observed throughout site and historic occurrences are documented overlapping and nearby the project area. |
| Townsend's big-eared bat (*Corynorhinus townsendii*) | -- | SSC | -- | Townsend's big-eared bat roosts in caves, mines, bridges, buildings, rock crevices, tree hollows in coastal lowlands, and cultivated valleys. They prefer roosting in caves or other similar open spaces. | May occur. Suitable roosting habitat was observed throughout site, and historic occurrences are documented nearby. |
| California giant salamander (*Dicamptodon ensatus*) | -- | SSC | -- | California giant salamander is found in wet coastal forests, such as coastal redwoods, in or near clear, cold permanent and semi-permanent streams and seepages. They are typically found in or near aquatic habitat in fast-moving streams, lakes, or rivers with substantial canopy cover. | Known to occur. Documented occurrences are mapped within the project boundary, and species is highly associated with streams in wet coastal forests, which were observed within the project area. |
| Western pond turtle (*Emys marmorata*) | -- | SSC | -- | Western pond turtles use upland and aquatic habitat in and around freshwater ponds and streams. This species nests in leaves or soil upland from water bodies in flat areas with short vegetation and dry soil. | May occur. Species is highly associated with ponds and streams, and some suitable ponds and streams were observed within the project area. |
| Foothill yellow-legged frog (*Rana boylii*) | -- | CE, SSC | -- | Foothill yellow-legged frogs inhabit rocky streams in a variety of habitats, including habitats such as valley foothill hardwood, valley-foothill riparian, coastal scrub, mixed | May occur. Species is documented as recently as 2018 at a location overlapping the work area at San Anselmo Creek near Cascade Canyon Open Space Preserve. Six additional documented occurrences are mapped within three miles but greater than 0.25 mile from the project footprint, and suitable habitat was |

| Species | Listing status | | | Habitat | Potential for occurrence |
|---|---|---|---|---|---|
| | Federal | State | CNPS | | |
| | | | | conifer, mixed chaparral, and wet meadows. It is typically found in or very close to water. | documented at several creek crossings in the project area. |
| Northern spotted owl (*Strix occidentalis caurina*) | FT | CT | -- | Northern spotted owls live in forests characterized by dense canopies of mature trees, abundant logs, and standing snags. They prefer to nest in mature forest stands with multi-layered canopies and open space among the lower branches to allow for foraging and dispersal. | Known to occur. Documented nests and activity centers are mapped within the project boundary. Suitable breeding habitat was observed during reconnaissance-level surveys. |
| Yellow warbler (*Setophaga petechia*) | -- | SSC | -- | Yellow warblers breed in dense shrubs in forested areas, especially in areas bordering waterways and wetlands. | May occur. Suitable nesting habitat is preset throughout site, and several documented sightings are recorded in eBird during the nesting season for this species. |
| **Special-Status Plants** | | | | | |
| Napa false indigo (*Amorpha californica* var. *napensis*) | -- | -- | CNPS 1B.2 | This perennial shrub is found in wetlands and riparian woodland. | Known to occur. Suitable habitat is present in and near the project area; one occurrence is documented where the project intersects Bolinas Road in Fairfax, another at "Pam's Blue Ridge" in Fairfax, and one in Baltimore Canyon Preserve near Kentfield. |
| Bent-flowered fiddleneck (*Amsinckia lunaris*) | -- | -- | CNPS 1B.2 | This annual herb is found in grasslands, serpentine areas, and gravelly slopes. | Known to occur. Documented where the project abuts Cascade Canyon Preserve. |
| Mt. Tamalpais manzanita (*Arctostaphylos montana* ssp. *montana*) | -- | -- | CNPS 1B.3 | This perennial shrub is found in chaparral and valley grassland. | Known to occur in the project area in the Baltimore Canyon Preserve near Magnolia Ave. Another occurrence at Whites Hill Open Space is recorded as "needs fieldwork." |
| Marin manzanita (*Arctostaphylos virgata*) | -- | -- | CNPS 1B.2 | This perennial shrub is found in closed-cone pine forest, redwood forest, mixed evergreen forest, and chaparral. | May occur. One occurrence was documented in Baltimore Canyon Preserve near the border of the project footprint, and the project contains suitable habitat for this species. |

| Species | Listing status | | | Habitat | Potential for occurrence |
|---|---|---|---|---|---|
| | Federal | State | CNPS | | |
| Tiburon mariposa-lily (*Calochortus tiburonensis*) | FT | CT | CNPS 1B.1 | This perennial herbaceous bulb is found only in serpentine grassland. | Known to occur in the project area where the project abuts Ring Mountain Preserve. |
| Tiburon paintbrush (*Castilleja affinis* var. *neglecta*) | FE | CT | CNPS 1B.2 | This perennial herb is found in serpentine grassland. | Known to occur in the project area where the project abuts Ring Mountain Preserve. |
| Mason's ceanothus (*Ceanothus masonii*) | -- | CR | CNPS 1B.2 | This shrub is found in chaparral. | May occur. Suitable habitat was documented in the project footprint. |
| Mt. Tamalpais thistle (*Cirsium hydrophilum* var. *vaseyi*) | -- | -- | CNPS 1B.2 | This perennial herb is found in serpentine seeps. | May occur. This species has potentially suitable habitat in serpentine soils where the project abuts Ring Mountain Preserve. |
| Western leatherwood (*Dirca occidentalis*) | -- | -- | CNPS 1B.2 | This shrub is found in riparian woodland. | May occur. The project contains suitable habitat for this species. |
| Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*) | -- | -- | CNPS 1B.2 | This annual herb is found in chaparral, coastal prairie, and valley grassland habitat. | Known to occur. This species has documented records in the project area where the project abuts Ring Mountain Preserve, in the Baltimore Canyon Preserve, and in the Deer Park area. |
| Minute pocket moss *(Fissidens pauperculus)* | -- | -- | CNPS 1B.2 | This moss species can be found in seasonally moist hard-packet soils on steep faces, gullies, or cut banks. | May occur. This species has potential to occur in riparian areas within the project footprint. |
| Marin checker lily (*Fritillaria lanceolata* var. *tristulis*) | -- | -- | CNPS 1B.1 | This perennial herb is found in oak or pine scrub or grassland habitat. | May occur. Suitable habitat was documented in the project footprint. |
| Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) | -- | -- | CNPS 1B.2 | This annual herb is found in northern coastal scrub and valley grassland. | May occur. Suitable coastal scrub and grassland habitat is present in small portions of the project area. |
| Marin western flax (*Hesperolinon congestum*) | FT | CT | CNPS 1B.1 | This annual herb is found in serpentine grassland. | Known to occur. This species has documented records in the project area where the project abuts Ring Mountain Preserve. |

| Species | Listing status | | | Habitat | Potential for occurrence |
|---|---|---|---|---|---|
| | Federal | State | CNPS | | |
| Thin-lobed horkelia (*Horkelia tenuiloba*) | -- | -- | CNPS 1B.2 | This perennial herb is found in open chaparral. | May occur. Suitable habitat was documented in the project footprint. |
| Small groundcone (*Kopsiopsis hookeri*) | -- | -- | CNPS 2B.3 | This perennial herb is found in open woodland and mixed conifer forest. | May occur. Occurrences are documented within three miles of the project area, and suitable habitat is present in the proposed treatment area. |
| Marin County navarretia (*Navarretia rosulata*) | -- | -- | CNPS 1B.2 | This annual herb is found in rocky, serpentine areas. | May occur. This species has potentially suitable habitat in serpentine soils where the project abuts Ring Mountain Preserve. |
| Tamalpais oak (*Quercus parvula* var. *tamalpaisensis*) | -- | -- | CNPS 1B.3 | This perennial shrub is found in understory conifer woodland. | May occur. One occurrence was documented in Baltimore Canyon Preserve near the border of the project footprint, and the project contains suitable habitat for this species. |
| Marin checkerbloom (*Sidalcea hickmanii ssp. Viridis*) | -- | -- | CNPS 1B.1 | This perennial herb is found in dry ridges near coast with serpentine soils. | May occur. This species has the potential to be found in serpentine soils where the project abuts Ring Mountain Preserve. |
| Santa Cruz microseris (*Stebbinsoseris decipiens*) | -- | -- | CNPS 1B.2 | This annual herb is found in open coastal, serpentine, and sandy areas. | May occur. This species has the potential to be found in serpentine soils where the project abuts Ring Mountain Preserve. |
| Tamalpais jewelflower (*Streptanthus batrachopus*) | -- | -- | CNPS 1B.3 | This annual herb is found in serpentine barrens and chaparral. | May occur. This species has the potential to be found in serpentine soils where the project abuts Ring Mountain Preserve. |
| Tiburon jewelflower (*Streptanthus gladulosus* ssp. *niger*) | FE | CE | CNPS 1B.1 | This annual herb is found in serpentine outcrops in grasslands. | May occur. This species has the potential to be found in serpentine soils where the project abuts Ring Mountain Preserve. |
| Mt. Tamalpais bristly jewelflower (*Streptanthus glandulosus* ssp. *pulchellus*) | -- | -- | CNPS 1B.2 | This annual herb is found in chaparral and valley grassland habitats. | May occur. Suitable habitat was documented in the project footprint. |

| Species | Listing status | | | Habitat | Potential for occurrence |
|---|---|---|---|---|---|
| | Federal | State | CNPS | | |
| Coastal triquetrella (*Triquetrella californica*) | -- | -- | CNPS 1B.2 | This moss can be found in roadsides, hillsides, rocky slopes, fields, and chaparral: low to moderate elevations. | May occur. Suitable habitat was documented in the project footprint. |
| Showy indian clover (*Trifolium amoenum)* | -- | -- | CNPS 1B.1 | Usually occurs in wetlands and occasionally in non-wetlands. | May occur. Some reintroduction has occurred within 3 miles of the Project. |

Notes:

FE federal endangered species
FT federal threatened species
FC federal candidate species
CE California State endangered
CT California State threatened
FP Fully Protected
SSC California State Species of Special Concern
CR California Rare
CC California State candidate species
CNPS California Native Plant Society Ranks 1B – Plant species rare or endangered in California and elsewhere (not protected under ESA or CESA)
0.1 – Seriously threatened in California (over 80 percent of occurrences threatened; high degree and immediacy of threat)
0.2 – Moderately threatened in California (20 percent to 80 percent of occurrences are threatened; moderate degree and immediacy of threat)

Mechanical treatment and herbicide application may directly or indirectly impact special-status species; however, the removal of understory vegetation and invasive species would promote the regeneration of native species that support a healthier residual forest, and this effort was designed to reduce the risk of catastrophic stand-replace wildfires, which may threaten known sensitive plant populations.

Applicable SPRs include the following:

- Biological resources will be reviewed and surveyed (SPR BIO-1).
- Crew members and contractors will be trained on applicable biological resources (SPR BIO-2).
- Protocol-level surveys for special-status plants will occur in areas identified during SPR BIO-1 as suitable habitat for special-status plant species where adverse effects from the proposed project cannot be clearly avoided (SPR BIO-7). Protocol-level surveys for special-status plants will not be required if adverse effects can be clearly avoided such as the target special-status plant species is a herbaceous annual, stump-sprouting species, or geophyte species, and if the treatment may be carried out during the dormant season for that species or when the species has completed its annual life cycle, provided the treatment will not alter habitat in a way that would make it unsuitable for the special-status plants to reestablish following treatment or destroy seeds, stumps, or roots, rhizomes, bulbs, and other underground parts of special-status plants.
- Invasive-species spread will be prevented (SPR BIO-9).
- Disturbance will be suspended during heavy precipitation (SPR GEO-1).
- Soil areas disturbed by mechanical, prescribed herbivory, and prescribed (pile) burns that exhibit bare soil over 50 percent or more of the treatment area will be stabilized with mulch or organic matter produced from mastication (SPR GEO-3).
- Erosion will be monitored by the project proponent through an inspection for proper implementation of applicable SPRs and mitigations prior to the rainy season, and an inspection will be conducted of the treated areas for evidence of erosion after the first large storm or rainfall event (SPR GEO-4).
- Compacted treatment areas will be drained via water breaks (SPR GEO-5).
- Erosion will be minimized through heavy equipment and slope limitations (SPR GEO-7).
- Herbicide application will not occur within protective buffers for special-status plants to prevent drift and non-target application (SPR HAZ-5).

In addition, MMs BIO-1a and BIO-1b would be required when the following conditions are met:

- where sensitive species are known to occur
- when treatments cannot be completed in the dormant season
- when treatments would be implemented during the growing period of sensitive annual and geophyte species

- where protocol-level surveys are required (per SPR BIO-7) and special-status plants are identified during these surveys

Impacts could be potentially significant, even with implementation of the SPRs, per the CalVTP PEIR. Per MMs BIO-1a and BIO-1b, if special-status plants are identified during protocol-level surveys, a no-disturbance buffer of at least 50 feet would be established around the area occupied by the species within which mechanical treatment and manual treatment would not occur unless a qualified biologist determines that the species would benefit from treatment in the occupied habitat area. With implementation of this mitigation, impacts would be less than significant.

According to the CNDDB, there are seven (7) special-status plant species known to occur within the project footprint: Napa false indigo (*Amorpha californica* var. *napensis*), bent-flowered fiddleneck (*Amsinckia lunaris*), Mt. Tamalpais manzanita (*Arctostaphylos montana* ssp. *montana*), Tiburon mariposa-lily *(Calochortus tiburonensis*), Tiburon paintbrush (*Castilleja affinis* var. *neglecta*), Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*), and Marin western flax (*Hesperolinon congestum*). An additional eighteen (18) plant species have the potential to occur in the project footprint (Table 6). Overall, special-status plant occurrences documented within 3 miles of the proposed project areas are concentrated along the western boundary, where the project abuts several open space and parks lands. Many of the sensitive species that were reviewed are associated with or endemic to serpentine soils, which occur within the southeastern extent of the project footprint, where the project abuts Ring Mountain Preserve (Attachment D.2, Figure 7). The geophytic, stump-sprouting, or annual species, for which effects can be avoided so long as work occurs outside the growing season or during the dormant season include the following:

- bent-flowered fiddleneck (*Amsinckia lunaris*)
- Tiburon buckwheat (Eriogonum luteolum var. caninum)
- congested-headed hayfield tarplant (*Hemizonia congesta ssp. congesta*)
- small groundcone (*Kopsiopsis hookeri*)
- Mt. Tamalpais bristly jewelflower (Streptanthus glandulosus ssp. pulchellus)

An analysis of potential impacts from various treatment activities on each special-status plant species that may occur within 3 miles of project boundaries has been performed (Attachment D.1). With implementation of the SPRs and MMs listed above, including survey protocols and preoperational meetings, impacts to special-status plant species would be less than significant. The impact is within the scope of the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, page 3.6.138) because the treatment activities and intensity are consistent with those analyzed in the PEIR. Areas of potential habitat have been mapped in detail to facilitate identification of pre-work areas for surveys.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape (e.g., no resource is affected outside the treatable

landscape that would not also be similarly affected within the treatable landscape). Therefore, the potential impact on special-status plants is also the same, as described above, and less than significant with mitigation and with implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to special-status plant species. If an above ground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact special-status plant species. Impacts would be the same as described in the PEIR.

### Impact BIO-2

**Summary of Impacts and Relevant SPRs and MMs**
Manual and mechanical vegetation removal, prescribed pile burning, targeted herbicide application, and prescribed herbivory have the potential to result in direct or indirect adverse effects to special-status wildlife species or habitat. The project areas contain known occurrences of sensitive wildlife species as well as potentially suitable habitat for other sensitive wildlife species (Table 6). The impact is within the scope of the PEIR because the treatment activities and intensity are consistent with those analyzed in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, pages 3.6-138–3.6-184).

The potential for adverse effects to special-status wildlife species is within the scope of the activities and impacts addressed in the PEIR because the activities and level of disturbance resulting from treatment activities are consistent with those analyzed in the PEIR. Hand and mechanical treatments, herbivory, and targeted herbicide application would result in reduced understory vegetation that may modify preferred habitats for some species; however, it would promote a healthier, native residual forest habitat. SPRs BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-8, BIO-9, BIO-10, BIO-11, HAZ-5, HAZ-6, HYD-1, HYD-2, HYD-3, HYD-4, and HYD-5 would be implemented to minimize impacts.

Applicable SPRs, not already described under Impact BIO-1, include the following:

- If sensitive natural communities or habitats are present and adverse effects cannot be avoided, then a protocol-level survey will be conducted to identify and map the limits of the potentially sensitive area (SPR BIO-3).
- Treatments will be designed to avoid loss or degradation of riparian habitat function, including retaining a minimum of 75-percent overstory and 50-percent understory canopy (SPR BIO-4).
- Type conversion will be avoided and habitat function in chaparral and coastal sage scrub communities maintained through treatment design, and a minimum of 35-percent relative cover of native chaparral and coastal sage scrub communities will be retained (SPR BIO-5).

- The project will not conflict with the provisions of an adopted natural community conservation plan, habitat conservation plan, or other approved plan (SPR BIO-8).
- Focused or protocol-level surveys will be conducted for special-status wildlife species or nursery sites with potential to be directly or indirectly affected by treatments (SPR BIO-10).
- Install wildlife fencing, which is designed to minimize the chance of wildlife entanglement, allows for wildlife jump-outs, and is highly visible to wildlife (SPR BIO-11).
- Obtain all required licensing and permitting for herbicide application through the Marin County Agricultural Commissioner's office (SPR HAZ-6).
- Comply with water quality regulations including vegetation- and land-disturbance-related Waste Discharge Requirements (SPR HYD-1).
- Avoid construction of new roads (SPR HYD-2).
- Ensure that water quality is protected for prescribed herbivory (SPR HYD-3).
- Identify and protect watercourse and lake protection zones (SPR HYD-4).
- Protect non-target vegetation and special-status species from herbicides (SPR HYD-5).

According to the CNDDB BIOS search, four (4) special-status wildlife species are known to occur within the project footprint: pallid bat (*Antrozous pallidus*), California giant salamander (*Dicamptodon ensatus*), foothill yellow-legged frog (*Rana boylii*), and northern spotted owl (*Strix occidentalis caurina*). In addition, three (3) special-status wildlife species have potential to occur within the project footprint: Townsend's big-eared bat (*Corynorhinus townsendii*), Western pond turtle (*Emys marmorata*), and yellow warbler (*Setophaga petechia*).

**Impacts to Amphibians**

Two special-status amphibian species could occur in the vicinity of the project area where it crosses waterways or wetlands: California giant salamander (*Dicamptodon ensatus*), foothill yellow-legged frog (*Rana boylii*). The California giant salamander is a species of special concern for the State, and the foothill yellow-legged frog is a state candidate for endangered status species. The California giant salamander is known to occur within the proposed project boundary, and the species is highly associated with streams in wet coastal forests, which were observed within the project area. The foothill yellow-legged frog has been documented as recently as 2018 at locations overlapping the project area at San Anselmo Creek near Cascade Canyon Open Space Preserve. This species likes rocky streams in a variety of habitats and are typically found very close to water. Direct and indirect impacts could occur to salamanders and foothill yellow-legged frogs from off-road travel, especially near streams, or from sedimentation caused by various activities, particularly activities that involve ground disturbance.

SPR BIO-10 would apply and requires focused surveys for potential sensitive species within suitable habitats in and adjacent to treatment areas (including all access routes, parking areas, equipment staging areas, and debris storage areas). SPR BIO-2 would require staff training prior to work. SPR GEO-1 would suspend treatment activities during heavy precipitation until soils are no longer saturated, would reduce the potential for project activities to disturb ground

supporting burrows occupied by amphibian species, and would reduce the potential for impacts to these species. SPR BIO-4 requires that treatments would be designed to avoid loss or degradation of riparian habitat function. SPRs HYD-1 and HYD-4 requires compliance with water quality regulations to reduce the potential for impacts to aquatic habitat occupied by these species. Impacts could still be significant and, therefore, MM BIO-2a would also apply. MM BIO-2a includes avoidance of treatment in occupied habitat or outside the sensitive period in the species' life history. While ground-disturbing work in riparian corridors and near waterways would be limited in intensity, most work would occur in the late summer and early fall, when there is less rainfall and these species are less active, further reducing impacts. MM BIO-2b would also apply. Under this measure, biological monitoring would be required for treatment activities within or adjacent to sensitive habitat areas (e.g., streams, seeps, springs, talus slopes for California giant salamander or foothill yellow-legged frog), flagging areas for avoidance, relocation of individual animals, and/or other measures recommended by the California Department of Fish and Wildlife (CDFW) as necessary to avoid injury to or mortality of these species. Impacts to special-status amphibians would be reduced to less than significant with implementation of these measures, consistent with the PEIR.

**Impacts to Western Pond Turtles**

Western pond turtles use upland and aquatic habitat in and around freshwater ponds and streams. This species nests in leaves or soil upland from water bodies in flat areas with short vegetation and dry soil and is highly associated with ponds and streams. Manual and mechanical methods of vegetation removal could impact upland areas used for egg laying, and vehicles or livestock used for prescribed herbivory could trample pond turtles or their eggs. SPR BIO-10 would require focused surveys if working near ponds and streams to identify special-status species. SPR BIO-2 would require staff training prior to work to raise awareness. Impacts could still be significant. MMs BIO-2a and BIO-2b would also apply, which require avoidance and monitoring. Impacts would be less than significant with implementation of these measures, consistent with the PEIR.

**Impacts to Northern Spotted Owls**

Documented northern spotted owl nests and activity centers are mapped within the project boundary, and suitable breeding habitat was observed during reconnaissance-level surveys. The breeding season for northern spotted owl in Marin County generally extends from February 1 through July 31 (Cal. Code Regs., tit. 14, § 895). Manual and mechanical removal of vegetation and pile burning could impact nesting northern spotted owls, a federal and state threatened species. Tree trimming or removal of understory shrubs could result in removal of or damage to a nest, disturbance to nesting pairs and nestlings, and/or direct injury to individual owls. Use of heavy equipment would temporarily elevate noise levels in areas surrounding the work zone. Should nesting occur within or near the work zone, depending on the timing and magnitude of the related noise, nesting by northern spotted owl could be disrupted. Human activities conducted within the visual line of sight of a nest could also disturb nesting activities. The shaded fuel break and WUI fuel reduction areas are within 200 feet to 300 feet of structures and on-going human activity. Birds nesting in these areas may have

higher tolerance for human activities; however, given the level of noise and human presence associated with the activities, impacts could occur. Some vegetation management activities would involve removal of woody debris, which could result in destruction of woodrat nests, the main prey of the northern spotted owl. Given the relatively narrow width of the fuel break and WUI fuel reduction areas compared with the wildland hunting areas available to woodrats, impacts to northern spotted owl prey base would be minimal. The opening of the understory may also benefit spotted owl hunting in these areas. Smoke from pile burns could also impact nesting behavior. Vegetation management activities could result in one or more of the above conditions while nesting is occurring, indirectly resulting in disruption of breeding and nesting or abandonment of active nests. USFWS has provided guidance in determining if project related noise and activities could result in the disturbance of a northern spotted owl nest and result in "take." Noise and visual disturbance may reach the level of take when at least one of the following conditions is met (USFWS, 2020):

- project-generated sound exceeds ambient nesting conditions by 20 to 25 decibels (dB).
- project-generated sound, when added to existing ambient conditions, exceeds 90 dB.
- human activities occur within a visual line-of-sight distance of 330 feet or less from a nest.

SPR BIO-10 requires focused surveys when working in habitats, which includes if working in spotted owl habitat near known nesting sites. SPR BIO-2 would require staff training prior to work. Impacts could still be significant. MM BIO-2a would apply to areas where habitat suitable for northern spotted owl was identified during reconnaissance surveys, pursuant to SPRs BIO-1 or BIO-10. MM BIO-2a requires that habitat function be maintained for northern spotted owl following guidance for species with specific requirements for high canopy cover. In tree canopy areas where existing suitable habitat is present, canopy would be retained at a percentage preferred by the species. In general, suitable habitat for northern spotted owl is characterized as old forests with large trees and a closed canopy (60 percent to 70 percent canopy cover) with multiple canopy layers (Lesmeister, 2018). Northern spotted owl prefers dense canopy closure of mature and old-growth trees with logs, standing snags, and live trees with broken tops. They also require open space in the understory to allow flight under the canopy to forage (USFWS, 2020b). In addition to forest structure, habitat suitability is influenced by the availability of prey, presence of competitor species, risk of predation, and availability of suitable nesting locations (Lesmeister, 2018). MM BIO-2b would also apply, requiring monitoring and coordination with CDFW as necessary to avoid injury or mortality to the species. The proposed treatments would likely have a beneficial effect to northern spotted owl in the long term if they reduce future losses of ecosystem structure from catastrophic wildfire and succession or better incorporate future disturbance events to improve overall forest ecosystem resilience to climate change (Ager, Finney, Kerns, & Maffei, 2007; Spies, et al., 2010).

**Impacts to Yellow Warbler**

Yellow warblers are a State species of special concern and breed in dense shrubs in forested areas, especially in areas bordering waterways and wetlands. Tree trimming, limbing, and removal of willow, alder, and similar moisture-loving vegetation could result in the direct loss of an active nest. Disturbance of active nests in nearby areas could occur, depending on the equipment to be used, anticipated amount of time for construction equipment to be at a given location, topography, vegetation community, sensitivity to disturbance of any nesting birds present, and other factors. SPR BIO-10 requires focused surveys when working in habitats, which includes if working in yellow warbler habitat. SPR BIO-2 would require staff training prior to work. Impacts could still be significant. MMs BIO-2a and BIO-2b would be implemented, as previously described, to avoid impacts to these species and to monitor during work, if found to occur. Impacts would be less than significant with mitigation, consistent with the PEIR.

**Impacts to Special-Status Bats**

Two bat species that are identified as State species of special concern are known to occur (pallid bat) or potentially occur (Townsend big-eared bat) in the proposed project area. Bat species such as Townsend big-eared bats that utilize caves, mines, tunnels, buildings, or bridges would not be impacted by manual vegetation removal. Loud mechanical equipment used in defensible spaces could impact bat species using buildings or structures in the area. Tree removal activities could impact colonial bat species such as the pallid bat, which select a variety of trees and roost features, including cavities, crevices, and deep fissures in the wood or bark of a tree and exfoliating bark. Smoke from pile burning could also impact roosting bats by disturbing them during sleep, breeding, or hibernation. Depending on the species present, the size of the roost, the type of roost (e.g., maternity, day, night, hibernation) and the season when tree removal would occur, the removal of trees could affect bats through removal of the roost and injury to bats. SPR BIO-10 requires focused surveys when working in habitats, which includes if working in potential habitat for roosting bats, during maternity roosting season (March 1 to July 31[5]). SPR BIO-2 would require staff training prior to work. Impacts could still be significant. MMs BIO-2a and BIO-2b would be implemented, as previously described, to avoid impacts to these species and to monitor during work, if found to occur. Impacts would be less than significant with mitigation, consistent with the PEIR.

**Impacts of the Project Outside the Treatable Landscape**

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape because the areas are all adjacent to each other, have similar vegetation, and would potentially impact the same types of sensitive wildlife. Therefore,

[5] SPR BIO-10 identifies the roosting season as April 15 to August 31. PDIF RB-1 identifies the period of time requiring surveys as March 1 to July 31. Because PDIF RB-1 is designed specifically for the bat species in Marin County, the PDIF dates would be used to meet the intent of SPR BIO-10.

the potential impact on special-status wildlife is also the same, as described above. This determination is consistent with the PEIR—less than significant with the SPRs and mitigation previously identified—and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to special-status wildlife species. If an aboveground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact special-status wildlife species or their habitat and would have similar impacts due to smoke as with pile burning with appropriate SPRs and mitigation measures. Impacts would be the same as described in the PEIR.

### Impact BIO-3

**Summary of Impacts and Relevant SPRs and MMs**

Manual and mechanical vegetation removal, pile burning, prescribed herbivory, and targeted herbicide application could result in direct or indirect adverse effects to riparian habitat or other sensitive natural communities, including designated sensitive natural communities and oak woodlands. The project areas contain several sensitive habitat types, but no statewide critically imperiled or imperiled (S1 or S2) communities were documented during the desktop or field review of the project area (Table 5). The potential for treatment activities to result in adverse effects to sensitive habitats was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, page 71). The potential for adverse effects to sensitive habitats is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and level of disturbance as a result of the treatment activities are consistent with those analyzed in the PEIR. The SPRs that apply to this impact are SPRs BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-9, and HYD-4 (Attachment D.4).

Applicable SPRs not already described in Impact BIO-1 and Impact BIO-2 include the following:

- Treatment will be implemented to minimize soil disturbance and prevent the spread of plant pathogens, including *Phytopthora* (SPR BIO-6).

SPR BIO-3 requires a survey for sensitive vegetation communities prior to treatment to ensure these are identified and treatment avoids these communities. Implementation of SPR BIO-1 and the survey required under SPR BIO-3 would ensure any riparian habitat, sensitive communities, or oak woodlands would be identified. If any riparian habitat occurs, SPR BIO-4 would ensure that treatment is designed to avoid or minimize impacts to these areas. SPR BIO-5 would ensure that treatment is designed to maintain or enhance habitat function of chaparral and coastal sage scrub communities; SPR BIO-6 requires that best management practices be employed to avoid spread of plant pathogens; and SPR BIO-9 prescribes actions to prevent the spread of invasive plants.

Review of the GGNPC habitat data demonstrated the presence of eight habitat types designated as sensitive by CDFW, all of which are types of native forest (GGNPC, 2021). They are *Acer*

*macrophyllum* – *Alnus rubra* Alliance, *Acer macrophyllum* Association, *Aesculus californica* Alliance, *Arbutus menziesii* Alliance, *Quercus garryana* Alliance, *Quercus lobata* Alliance, *Sequoia sempervirens* Alliance, and *Umbellularia californica* Alliance. These sensitive habitat types represent a total of approximately 57 percent of the project footprint. Review of the MCOSD VegCAMP data, which only was available for approximately 60 percent of the project footprint, resulted in the same major habitat type groups but also included four additional sensitive *Sequoia sempervirens* habitat-type Alliance sub-types: *Sequoia sempervirens – Arbutus menziesii/Vaccinium ovatum*, *Sequoia sempervirens – Notholithocarpus densiflorus/Vaccinium ovatum*, *Sequoia sempervirens – Pseudotsuga menziesii – Umbellularia californica*, *Sequoia sempervirens – Umbellularia californica* (CDFW, 2013). Chaparral habitat was found to be present in the project footprint, but none of the scrub Alliance groups identified are designated as sensitive natural communities by CDFW (CNPS, 2022). Effects to each of the sensitive habitat types are described in further detail below.

**Coastal Scrub and Chaparral**

The treatment area contains chaparral communities defined as Northern Mixed Chaparral in the Manual of California Vegetation (CNPS, 2022). No coastal scrub was identified in the project footprint. None of the chaparral Alliance habitat types mapped in the project are designated as sensitive by CDFW, and overall chaparral habitat comprises approximately 2.7 percent, or 51.9 acres, of the project footprint.

Of this 51.9 acres, 35.3 acres are characterized as either "*Artemisia californica* – (*Salvia leucophylla*) Alliance" or "*Baccharis pilularis* Alliance" habitat types. These habitats have a fire return interval with a mean of 76 years, with a 20- to 120-year mean minimum and maximum (Van de Water & Safford, 2011). An additional 10.5 acres of chaparral habitat is "*Adenostoma fasciculatum* Alliance" and "*Arctostaphylos glandulosa* Alliance." These habitats have a fire return interval average of 55 years, with a 30- to 90-year mean minimum and maximum (Van de Water & Safford, 2011). Approximately 0.7 acre of the project are characterized as "*Salix lasiolepis* Alliance" chaparral, which is designated in the Point Reyes National Seashore Draft Wildland Fire Resource Advisor Guide (NPS, 2007) as having a 55-year average fire return interval, with a 40- to 70-year average range. The final 5.4 acres of chaparral habitat are designated as "uncharacterized shrub fragment" in the GGNPC database. These areas could not be accessed during reconnaissance-level surveys to verify Alliance groups but are expected to reflect similar conditions as those observed in the nearby *Baccharis*-dominated shrub areas.

Chaparral is generally considered a fire-adapted community. In the absence of wildfires and grazing, *Baccharis pilularis*, readily invades grassland habitats on the California coast (Kidder, 2015). The lack of recent wildfires within the proposed project areas appears to have influenced gradual conversion of previously existing chaparral habitat into more heavily forested habitat types through the encroachment of *Umbellularia californica* (bay laurel) and *Quercus* (oak) species. The effects associated with a natural fire regime would not be immediately restored by this treatment, but characteristics of fire, predominantly the regenerative action following vegetation treatment and removal of small encroaching bay trees, would be conducted through hand and mechanical removal of understory vegetation, select live trees, and dead, dying, and

diseased trees to create a shaded fuel break that would promote the health and resiliency of the chaparral habitat.

Implementation of SPR BIO-5 ensures treatment in chaparral would be conducted to retain a minimum of 35 percent of the native vegetation cover. Treatment activities in chaparral would promote heterogeneity, resiliency, and health in the residual stand by creating different influences of sunlight to this vegetative type, adding to a mosaic of diversity. The mosaic pattern of vegetation would retain suitable habitat for wildlife and reduce the potential for erosion following treatments. SPR-9 would ensure no significant spread of invasive species. Impacts to this community would be less than significant, consistent with the PEIR.

**Oak Woodlands**
According to GGNPC and VegCAMP vegetation data (GGNPC, 2021; CDFW, 2013) in combination with data ground-truthed during reconnaissance-level surveys, there are approximately 486.7 acres of oak woodland present in the project footprint, representing 25.70 percent of the total project area. The dominant Alliance type is *Quercus agrifolia* Alliance, representing 367.5 acres, followed by *Quercus lobata*-, *Quercus garryana*-, *Quercus kelloggii*-, and *Quercus chrysolepis*-dominated woodlands. Approximately 10.3 total acres of oak woodland qualify as rank S3; these are characterized as *Quercus lobata* Alliance and *Quercus garryana* Alliance (Table 5, Attachment D.2 Figures 3 to 5).

The proposed treatments would occur within coastal oak woodlands where the natural fire regime has not occurred, defined as short-medium interval, or approximately 5 to 45 years. Observations during reconnaissance-level surveys confirmed that the oak woodland habitat throughout the site was far outside of the natural fire regime, likely due to years of fire suppression and subsequent understory growth. The natural fire regime has not been maintained in the project area, and effects associated with a natural fire would not be immediately restored by this treatment; however, characteristics of fire, predominantly regenerative action following vegetation treatments and ladder fuel alteration, would be emulated through vegetation removal of understory vegetation, select live trees, and dead, dying, and diseased trees to create a shaded fuel break that would promote the health and resiliency of the residual stand.

Due to the treatment areas containing coastal oak woodlands, or the coast live oak Alliance as defined in the Manual of California Vegetation, a significant impact could occur, depending on degree of treatments. MM BIO-3a applies to the proposed project (CNPS, 2022). Implementation of MM BIO-3a requires the determination of the fire-return interval for the specific natural community type or Alliance and the design of treatments to restore the natural fire regime and return vegetation compositions to their natural condition. MM BIO-3a also requires avoidance of fuel breaks in sensitive natural vegetation communities with rarity ranks S1 and S2 and that no more than 20 percent of the native vegetation cover be removed by fuel breaks in sensitive natural vegetation communities with rarity rank S3 or in oak woodlands.

Many areas in Marin County are affected by sudden oak death (SOD) and other forest diseases. Treatment would be implemented to minimize soil disturbance and prevent the spread of plant pathogens, including *Phytopthora*, in accordance with SPR BIO-6 to ensure less-than-significant effects to oak woodlands from spread of SOD. SPR BIO-9 would minimize impacts from the spread of invasive species.

With implementation of MM BIO-3a, oak woodland treatment would target understory vegetation, and at least 80 percent of the native-vegetation upper canopy cover would be maintained. In treatment areas where multiple age classes are represented, the proposed treatment would promote heterogeneity, resiliency, and health in the residual stand by creating different influences of sunlight through the canopy to the forest floor, adding to a mosaic of diversity in the understory. Although no S1 or S2 communities were documented during the desktop or field review of the project area; if these are discovered during the course of work, no treatment would occur within S1 or S2 communities. Treatment focus on vegetative understory would ensure retention of overall oak woodland habitat cover; therefore, loss of oak woodlands is not anticipated. Impacts would be less than significant with mitigation and consistent with the PEIR.

**Redwood Forest**

According to GGNPC vegetation data, in combination with data ground-truthed during reconnaissance-level surveys, there are approximately 232.6 acres of redwood forest habitat present in the project footprint, representing 12.3 percent of the total project area. Dominant Alliance groups identified in the redwood forest habitat include the following (CDFW, 2013; GGNPC, 2021):

- *Sequoia sempervirens*
- *Sequoia sempervirens – Arbutus menziesii/Vaccinium ovatum*
- *Sequoia sempervirens – Notholithocarpus densiflorus/Vaccinium ovatum*
- *Sequoia sempervirens – Pseudotsuga menziesii – Umbellularia californica*
- *Sequoia sempervirens – Umbellularia californica*

In the project area, the entire 232.6 total acres of redwood forest qualify as rank S3; these are characterized as *Sequoia sempervirens* Alliance (CNPS, 2022). The fire regime in the redwood forest observed in the proposed project area during reconnaissance-level surveys is far outside the natural fire intervals. The mean fire return interval for redwood forest is widely variable based on-site conditions and may be very different today from what was historically the case in pre-Western settlements. The ability of redwood forests to withstand fire increases with age, further complicating the fire-return interval question. Redwood stands observed on site generally appeared to be relatively young, and young redwood stands are thought to have a fire-return interval of 6 to 27 years (Stephens & Fry, 2005).

The natural fire regime has not been maintained in the project area, and it would not be immediately restored by this treatment, but characteristics of fire, predominantly regenerative action following vegetation treatments and ladder fuel alteration, would be emulated through vegetation removal of understory vegetation, select live trees, and dead, dying, and diseased

trees to create a shaded fuel break that would promote the health and resiliency of the residual stand.

SPR-9 would ensure no significant spread of invasive species that could impact this community. Due to the sensitivity of this community, impacts could still be significant, depending on intensity of treatments. With implementation of MM BIO-3a, redwood forest treatment would target understory vegetation, and approximately 80 percent of the native vegetation upper canopy cover would be maintained. In treatment areas where multiple age classes are represented, the proposed treatment would promote heterogeneity, resiliency, and health in the residual stand by creating different influences of sunlight through the canopy to the forest floor, adding to a mosaic of diversity in the understory. Treatment would generally focus on vegetative understory, removal of invasive species, dead and dying vegetation, and removal of smaller diameter, fire hazardous trees. Mature, healthy redwoods would not be removed, ensuring retention of redwood forest habitat cover; therefore, loss of redwood forest sensitive habitats is not anticipated. Impacts would be less than significant with mitigation, consistent with the PIER.

**Other Sensitive Natural Communities – Other Hardwood Forests**
An assessment of GGNPC and VegCAMP data, in combination with data ground-truthed during reconnaissance-level surveys, resulted in a total of 749.5 acres of "other" hardwood forests; the majority of these are characterized as *Umbellularia californica* Alliance and *Arbutus menziesii* Alliance (CDFW, 2013; GGNPC, 2021). *Acer macrophyllum – Alnus rubra* Alliance, *Acer macrophyllum* Association, and *Aesculus californica* Alliance also occur in the project footprint. These Alliance groups are associated with a variety of habitat conditions, but they all generally occur on the landscape in small patches within larger areas of oak or conifer forest. All of these hardwood habitat Alliances are characterized as rank S3 in the Manual of California Vegetation (CNPS, 2022). SPRs to minimize effects from forest diseases (SPR-7) and invasive species (SPR-9) would apply. Impacts could still be significant given the sensitivity of these communities. On this account, MM BIO-3a would apply to these areas to limit native vegetation cover removal to 20 percent or less. Impacts would be less than significant with mitigation, consistent with the PEIR.

**Impacts of the Project Outside the Treatable Landscape**
The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape because the areas are all adjacent to each other and the same sensitive habitats are found in both. Therefore, the potential impact on sensitive habitats is also the same, as described above, and would be less than significant with implementation of the previously identified SPRs and mitigation. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to sensitive habitats compared with the treatments identified in the PEIR. If an aboveground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact sensitive habitat. Impacts would be no greater than as described in the PEIR.

**Impact BIO-4**

Mechanical and hand treatments, pile burning, prescribed herbivory, and targeted herbicide application have the potential to adversely impact wetlands and state protected riparian habitats if work occurs in these areas. The treatment activities and their potential to impact wetlands was assessed in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, page 193). Given that the purpose of the proposed project to create a shaded fuel break and to promote ecological resiliency to wildfire, wetted areas tend to pose fewer risks during a wildfire, and, on this account, work is generally much lighter in these areas, focused predominantly on invasive species removal. Impacts to riparian communities as a sensitive natural community is described under Impact BIO-3. Wetland habitat and State protected riparian corridors were observed in the work area during reconnaissance surveys. Maps of wetland and stream areas based on the National Wetlands Inventory are shown in Attachment D. Removal of invasive species through mechanical and manual methods would be beneficial as it would allow revegetation by native wetland and riparian species. Vegetation removal (primarily invasive species removal) within riparian habitat may necessitate a 1602 permit from CDFW. No fill or discharge of fill material into waters of the U.S. would occur as part of the proposed project. Work can also generate erosion that can influence wetland and State protected riparian habitats. Implementation of water quality protections in accordance with SPR HYD-1, identification of Watercourse and Lake Protection Zones (WLPZs) in accordance with SPR HYD-4, and delineation and avoidance of State and federally protected wetlands, per MM BIO-4, would ensure no impacts to wetlands in the identified features. In addition, SPR BIO-1 would be implemented where reconnaissance surveys have not been conducted, and the above-mentioned measures would be implemented, as needed. SPR BIO-9 would minimize potential for invasive species spread in protected wetlands and riparian areas. With implementation of the SPRs and the mitigation measure described above, impacts to State and federally protected wetlands and riparian corridors from the treatment project would be less than significant with mitigation incorporated. The proposed treatment activities are therefore within the scope of the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape because the areas are all adjacent to each other and include the same types of wetlands and riparian habitat. Therefore, the potential impact on wetlands is also the same, and the same SPRs and mitigation would apply to ensure less-than-significant effects, as previously described above. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to wetlands compared with the treatments identified in the PEIR. If an aboveground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact wetlands and would have similar impacts due to smoke as with pile burning. Impacts would be the same as described in the PEIR.

**Impact BIO-5**

Mechanical and hand treatments could result in some limited direct or indirect adverse effects on wildlife corridors and nurseries. The treatment areas have the potential to provide essential connectivity areas for sensitive species. However, no known wildlife nursery sites or indications of nursery sites, such as deer-fawning habitat or potential rookery trees with whitewash, were identified within the project area during the reconnaissance survey. Habitat within the treatment area may be used for movement (e.g., mule deer migration) and protective cover for common wildlife species. Noise during work may impede some movement, but the treatment areas are generally within 200 feet, up to 300 feet of structures, where other human disturbances are typical. Tree removal with heavy equipment and ground-disturbing activities have the potential to impact nursery sites for native wildlife. Use of noise-generating equipment could disturb roosting birds and bats, impeding use of nursery sites. These impacts were found to be within the scope of the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, page 193), and treatment activities proposed are consistent with those analyzed in the PEIR.

The SPRs that apply to this impact are SPRs BIO-1, BIO-2, BIO-4, BIO-5, BIO-10, BIO-11, and HYD-5 and are described under Impact BIO-1 and Impact BIO-2. With implementation of the SPRs, areas of intact wildlife corridors would be retained. Existing habitat would remain to permit movement of wildlife species. Vegetation management activities would not block or obstruct streams or creeks. SPR BIO-10 would generally apply to many areas where special-status-species could occur. Wildlife nursery sites could still be significantly impacted if not avoided. If wildlife nursery sites are identified during surveys conducted pursuant to SPR BIO-10, MM BIO-5 would apply. This mitigation measure requires that nursery habitat be marked for avoidance during treatment activities and a non-disturbance buffer be installed around the nursery site if activities are required to occur while the site is active or occupied. Impacts to migratory corridors and nursery sites would be less than significant with implementation of mitigation, consistent with the PEIR.

Due to the history of fire suppression and dense understory vegetative growth throughout much of the project footprint, it is expected that wildlife corridors for some species would be improved by the treatment activities. By preventing wildfire, and thereby protecting the forest ecosystem, the wildlife corridors, while slightly degraded in the short term, would be protected from high-intensity wildfire in the future.

Implementation of the SPRs and mitigation measure listed above would minimize changes in habitat function within treatment areas that serve as wildlife-movement corridors. The proposed treatment activities are therefore within the scope of the PEIR because they are the same as those listed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape because the areas are all adjacent to each other, the vegetation is the same or similar, and the same wildlife species would use the areas as wildlife movement corridors. From the species' perspective, there would be no difference between the areas within and outside the treatable landscape. Therefore, the potential impact on wildlife movement corridors is also the same, as described above—less than significant with incorporation of the same SPRs and mitigation. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to wildlife corridors compared with the treatments identified in the PEIR. If an aboveground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact wildlife corridors. Impacts would be the same as described in the PEIR.

**Impact BIO-6**

The project could result in direct and indirect impacts to common wildlife, including nesting birds. The various habitats that occur within the project site support a variety of common wildlife, including nesting birds. Treatments could alter habitat for many common wildlife, such as nesting birds or woodrats, which could impact these species. Based on review and survey of project-specific biological resources (SPR BIO-1), suitable habitat for common wildlife species, including nesting birds, is present within the treatment area. In addition, suitable habitat in the project footprint was verified to be present for two listed bird species: northern spotted owl and yellow warbler (Table 6). Quality ground, shrub, and tree nesting habitat were observed throughout the project areas during reconnaissance-level surveys, and common nesting birds are expected to occur. All treatment activities, including manual treatment and limbing of oaks and pines, mechanical treatment, and pile burning, if conducted during the nesting bird season (approximately February 1 to July 31 in the region), could result in direct loss of active bird nests or in disturbance of nesting birds from noise and presence of personnel and equipment that could disrupt nesting activities and cause nest abandonment and failure. The potential for treatment activities to result in adverse effects to habitat and abundance of common wildlife was addressed in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3, page 3.6-197 – 3.6-198). The potential for adverse effects to common wildlife, including nesting birds, is within the scope of the activities and impacts addressed in the PEIR because the treatment activities and level of disturbance are consistent with those analyzed in the PEIR. The implementation of SPRs BIO-1, BIO-2, and BIO-12 would reduce the risk of this project, resulting in less than significant adverse effects to habitat and the abundance of common wildlife.

Applicable SPRs not described in Impact BIO-1 through Impact BIO-5 include the following:

- If active nesting season avoidance is not feasible, nesting bird surveys shall be conducted, and active nests shall be buffered and avoided (SPR BIO-12).

Extensive areas of similar habitats occur adjacent to the proposed fuel break and WUI areas, such that substantial similar habitats would remain in surrounding areas that are available to common wildlife species during and after treatment. In addition, implementation of SPR BIO-1, SPR BIO-2, SPR BIO-3, and SPR BIO-5 would limit the loss and degradation of high-quality habitat for common species within the project site. SPR BIO-2 would require worker training in sensitive biological resources. SPR BIO-3 would ensure mapping of sensitive habitats; SPR BIO-5 would result in avoidance of type-conversion in scrub habitats. Therefore, project treatment would remove vegetation and alter habitat structure locally but would not result in permanent habitat degradation or conversion. Vegetation would be retained in a mosaic pattern in forest and shrub communities, and quality of habitat may improve in the long term in some cases. Overall diversity and abundance of common birds and other wildlife would not substantially change in the long term. Per SPR BIO-12, treatment activities would be scheduled to avoid active nesting season of common nesting bird and raptor species. The active nesting season would be defined by a qualified RPF or biologist. If treatment activities cannot be scheduled to fully avoid the active nesting season, a survey for common nesting birds would be conducted by a qualified RPF or biologist, as described in SPR BIO-12. If an active nest is detected, disturbance to the nest would be avoided by establishing an appropriate buffer around the nest, modifying treatments to avoid disturbance to the nest, or deferring treatment until the nest is no longer active. The implementation of the SPRs listed above would ensure that any impact to nesting birds and common wildlife would be less than significant. The treatment activities are consistent with those analyzed in the PEIR and would therefore be within the scope of the PEIR. With the implementation of the applicable SPRs, any impact to the loss of habitat or abundance of wildlife, including nesting birds, would be less than significant, consistent with the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape because the areas are all adjacent to each other, the vegetation is the same or similar, and the same nesting bird species would use the areas. Therefore, the potential impact to common wildlife, including nesting birds, is also the same, as described above—less than significant with the implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the types of direct or indirect impacts to common wildlife compared with the treatments identified in the PEIR. If an aboveground structure is used for air curtain burning, the equipment would remain on already disturbed lands or pavement and would not impact common wildlife including their habitats. Impacts would be the same as described in the PEIR.

**Impact BIO-7**
Local policies or ordinances may apply to resources that occur within the proposed project area, particularly tree ordinances or noise ordinances. The potential for treatment activities to result in conflict with local policies or ordinances was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.6.3 page 3.6-199). The potential for the proposed project to conflict with local policies or ordinances is within the scope of the activities and impacts addressed in the PEIR because the treatment projects implemented under the CalVTP are required to comply with any applicable county, city, or other local policies, ordinances, and permitting procedures related to protection of biological resources. Additionally, SPR AD-3 (Consistency with Local Plans, Policies, and Ordinances) requires that the project proponent design and implement the treatment in a manner that is consistent with applicable local plans (e.g., general plans), policies, and ordinances to the extent the project is subject to them. See Section 3.11 for more information. Impacts would be less than significant and consistent with the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the treatment area, general habitat characteristics are essentially the same within and outside the treatable landscape, and the applicable county, city, and local policies are the same because the lands inside and outside the CalVTP treatable landscape are within the same jurisdictions. Therefore, the potential impact on applicable local plans, policies, and ordinances is also the same, with the same SPRs, as described above. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Including air curtain burning as a potential treatment would not change the analysis regarding conflicts with local policies or ordinances compared with the treatments identified in the PEIR. Use of air curtain burning would be substantially similar to pile burning and would require the same local policies to be considered. The impacts would be the same as described in the PEIR.

**Impact BIO-8**
The CalVTP recognized four Habitat Conservation Plans (HCPs) in the Northern California Coast Section (CalVTP Final PEIR Volume II Section 3.6, page 3.6-68). The proposed project, including the areas outside the treatable landscape, does not fall within the boundaries of any of the four HCPs. The proposed project does not fall under the jurisdiction of any known habitat conservation plans or natural community conservation plans (NCCP); therefore, this impact does not apply to the treatment areas.

**Cumulative Impacts**
As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this proposed project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope for biological resources includes the treatable landscape as

well as adjacent migration and movement corridors that are connected to the treatable landscape as well as the full geographic ranges of the special-status species and sensitive natural communities that occur within the treatable landscape (CalVTP Final PEIR Section 4.4.5, page 4-15 – 4-18). Because the proposed project lands outside the treatable landscape are proximate to the treatable landscape, they fall within the geographic scope identified within the PEIR. As noted in the PEIR cumulative section, SPRs would reduce the likelihood and magnitude of many potential adverse effects on biological resources; however, impacts would not be avoided entirely, and the cumulative impact analysis considers the residual cumulative impacts to biological resources. The PEIR recognizes a cumulative significant impact to special-status plants, special-status wildlife, sensitive natural communities, wetlands, wildlife movement corridors, and common native wildlife (CalVTP Final PEIR Section 4.4.5, page 4-15 to 4-18). The proposed project's contribution to these cumulative impacts, however, would be consistent with the analysis in the PEIR and, with implementation of SPRs and mitigation measures, the contribution of the proposed project would be less than cumulatively considerable since impacts would largely be temporary or avoided through implementation of these measures.

**New Biological Resource Impacts**

The proposed treatment is consistent with the treatment types and activities considered in the CalVTP PEIR. The site-specific characteristics of the proposed project have been considered and found to be consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.6.1 Environmental Setting and Section 3.6.2 Regulatory Setting in Volume II of the Final PEIR). The project proponent has also determined that the inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental and regulatory conditions pertinent to biological resources that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as described above. The use of an air curtain burner also constitutes a change in treatment type that is consistent with the types analyzed in the PEIR. Therefore, the impacts of the proposed treatment project are also consistent with those considered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. Therefore, no new impact related to biological resources would occur that is not covered in the PEIR.

# 3.6 Geology, Soils, Paleontology, and Mineral Resources

## 3.6.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact GEO-1: Result in Substantial Erosion or Loss of Topsoil | LTS | Impact GEO-1, pp. 3.7-26 – 3.7-29 | yes | AD-3, AQ-3, AQ-4, GEO-1 through GEO-8, HYD-3, and HYD-4. | NA | LTS | no | yes |
| Impact GEO-2: Increase Risk of Landslide | LTS | Impact GEO-2, pp. 3.7-29 – 3.7-30 | yes | AD-3, AQ-3, GEO-1 through GEO-8. | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New geology, soils, paleontology, and mineral resources impacts: Would the treatment result in other impacts to geology, soils, paleontology, and mineral resources that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.6.2 Discussion

### Impact GEO-1

The project area is located in Marin County, and within the geomorphic province of the Northern Coast Range, which is part of the Coastal Ranges, which extend more than 370 miles from the Transverse Ranges in the south to beyond the Oregon border to the north. The dominate rock type of this geomorphic province consists of partially metamorphosed and fractured volcanic and sedimentary rocks.

Soil conditions in California reflect a diversity of geologic, topographic, climatic, temporal, and vegetative conditions (CAL FIRE, 2019). Most of the project area is underlain by Tocaloma-McCullin Complex (32 percent of project area) and Tocaloma-Saurin association (26 percent of project area) soil types (NRCS, 2022). These soil units occur on steep to very steep hills and upland areas. The parent material for these soils consists of sandstone and shale, and the natural drainage class is well drained. Organic matter in the surface horizon of these soils is about 2 percent, and there is no zone of water saturation within 72 inches of the soil depth (NRCS, 2022).

The erosion factor of a soil indicates the susceptibility of a soil to sheet and rill erosion by water. Soil erosion factor (K) is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. The K factor for the two major soil types in the project area range from 0.28 to 0.32, indicating the soil is moderately susceptible to detachment, which can produce moderate runoff. (NRCS, 2022; Michigan State University, 2022).

Project treatments could potentially leave loose soil exposed to the erosive forces of rainfall and high winds, which would increase the potential for soil erosion and loss of topsoil. A Soils Report and Steep Slopes Analysis were completed for the project (Attachment E). Mechanical treatments using heavy machinery are the most likely to cause soil disturbance, which could lead to substantial erosion or loss of topsoil, especially in areas of steep slopes. Only a very small percentage of the proposed project would require the use of mechanical treatments (approximately 28 out of 1,379 acres). Hand pulling of broom can also cause soil disturbance. Pile burning, used for biomass disposal, can increase risk of water repellency under the pile as well as the breakdown of soil structure, which could lead to localized increases in erosion.

Based on the Soils Report (Attachment E), soils in the project area with slopes greater than 50 percent include Maymen–Maymen variant, Saurin–Bonnydoon complex, Tocaloma–McMullin complex, and the Tocaloma–Saurin association (extremely steep). The erosion hazard rating for each of these soil types ranges from high to severe (NRCS 1972).

The potential for these treatment activities to cause substantial erosion or loss of topsoil was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.7.3, pages 3.7-26–3.7-29) and was determined to be less than significant with implementation of SPRs. These impacts are consistent with those described in the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR. Implementation of SPR AD-3 requires that the treatment design be consistent with local plans, policies, and ordinances. Implementation of SPRs AQ-3 and AQ-4 require a burn plan to be designed and implemented and for dust minimization during treatments. SPRs GEO-1 through GEO-8 require the suspension of ground disturbance during heavy precipitation, limits on use of high-ground-pressure vehicles, stabilization of disturbed soil areas, erosion monitoring, use of water breaks where appropriate, minimization of burn-pile size, and treatments on slopes greater than 50 percent incline to be evaluated by an RPF or geologist to determine the necessary measures to minimize effects. Areas of slope above 50 percent constitute 804 acres of the proposed project area. These areas would not be treated with mechanical equipment, and any work performed here would only be performed at the discretion of fuel and vegetation management specialists and an RPF or geologist, as required under SPR GEO-8. SPRs HYD-3 and HYD-4 ensure water quality protections are in place for areas with prescribed herbivory and to establish watercourse protection zones. These SPRs would avoid and minimize the risk of substantial erosion and loss of topsoil and, thereby, ensure the impacts are less than significant, consistent with the PEIR findings.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. The impacts of erosion and loss of topsoil for the areas outside the treatable landscape are within the scope of the PEIR because the soil characteristics of the project area are essentially the same within and outside the CalVTP treatable landscape, and the use and type of equipment, extent of vegetation removal, and use of pile burning are consistent with those analyzed in the PEIR. The conditions of those areas are the same as those within the treatable landscape due to adjacency and similar soil and geology types; therefore, the potential impact related to soil erosion is also the same, as described above, and would be less than significant with implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of the air curtain burner would have fewer effects than similar methods of biomass disposal identified in the PEIR (e.g., pile burning.) Use of an air curtain burner would occur on already disturbed land, trails, roads, or paved areas so would not increase soil disturbance more than pile burning would. The impacts would fall within those analyzed in the PEIR and would not constitute a substantially more severe significant impact.

**Impact GEO-2**

A large portion of the project area is within a landslide area or is near landslide-prone areas, as shown in the Steep Slopes Analysis performed for the project (Attachment E). A "landslide" refers to the downslope movement of materials such as rock, soil, or fill under the direct influence of gravity. This downward movement can occur along a surface (e.g., glide plane, landslide plane, discrete slip surface) or without a distinct failure surface. The occurrence of landslides is due to several influences and factors related to slope stability, including slope angle, weathering, climate, water content, vegetation, overloading, erosion, earthquakes, and human-induced factors (Marin County Community Development Agency, Planning Division , 2005).

Project treatments would include vegetation removal in areas with steep slopes over of 50 percent incline; however, the proposed project prescriptions limit the use of mechanical equipment to slopes of less than a 35 percent incline, or for only limited distances on slopes of over 35 percent incline. The potential for treatment activities to increase landslide risk was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.7.3, page 3.7-29-3.7-30) and was found to be less than significant with implementation of SPRs. This impact is within the scope of the PEIR because the extent of vegetation removal and pile burning, and use of an air curtain burner require avoidance of steep slopes and areas of instability consistent with those analyzed in the PEIR. Implementation of SPRs AD-3 and AQ-3 require that the treatment design be consistent with local plans, policies, and ordinances, including the required burn plan. SPRs GEO-1 through GEO-8 require the suspension of ground disturbance during heavy precipitation, limits on use of high-ground-pressure vehicles, stabilization of disturbed soil areas, erosion monitoring, use of water breaks where appropriate, minimization of burn pile size, and for treatments on slopes of greater than 50 percent incline to be evaluated by an RPF or geologist to determine the necessary measures to minimize effects. Areas of slope greater than 50 percent incline constitute 804 acres of the proposed project area. These areas would not be treated with mechanical equipment, and any work performed here would only be performed at the discretion of fuel and vegetation management specialists and an RPF or geologist, as required under SPR GEO-8. These SPRs would avoid and minimize the risk of substantial erosion and loss of topsoil and, thereby, ensure the impacts are less than significant. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing environmental conditions are the same as those within the treatable landscape because of the proximity and shared slope conditions; therefore, the potential impact related to landslide risk is also the same, as previously described, and would be less than significant with the implementation of the same SPRs.

Air curtain burners would be used in already disturbed areas or paved areas and would not be used in areas with a 35 percent or greater incline. Air curtain burners enclose the fuels and have limited-to-no potential for erosion or slope instability. No new impacts or substantially more

severe significant impact than what was covered in the PEIR would occur from air curtain burning.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope for geology and soils is all areas where vegetation could be treated in California's geomorphic provinces (CalVTP Final PEIR Section 4.4.6, page 4-18). The inclusion of treatment outside the treatable landscape would expand the geographic scope for the cumulative analysis but, as with the vegetation treatment activities within the treatable landscape, potentially significant geology and soils effects would be avoided and minimized through the implementation of SPRs. As noted in the CalVTP PEIR, cumulative impacts associated with erosion and landslide related to wildfire are more significant in areas not managed with vegetation treatment programs. Therefore, the proposed project's contribution to soil erosion or an increased risk of landslide would not be cumulatively considerable and would be consistent with the analysis in the PEIR.

**New Geology, Soils, Paleontology, and Mineral Resource Impacts**

The proposed treatments are consistent with the treatment types and activities considered in the CalVTP PEIR. The project proponent has considered the site-specific characteristics of the proposed treatment project and determined that the areas are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.7.1 Environmental Setting and Section 3.7.2 Regulatory Setting in Volume II of the Final PEIR). However, within the boundary of the project area, the geology, and slopes of the areas outside of the treatable landscape are essentially the same as those in the treatable landscape, thus the impacts would be the same. There are no changed circumstances present, and the inclusion of air curtain burners or areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. Therefore, no new impact related to geology and soils would occur.

# 3.7 Greenhouse Gas Emissions

## 3.7.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact GHG-1: Conflict with applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs | LTS | Impact GHG-1, pp. 3.8-10 – 3.8-11 | yes | None | NA | LTS | no | yes |
| Impact GHG-2: Generate GHG emissions through treatment activities | PSU | Impact GHG-2, pp. 3.8-11 – 3.8-17 | yes | AQ-3 | GHG-2 | PSU | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New greenhouse gas impacts: Would the treatment result in other impacts to greenhouse gases that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

### 3.7.2 Discussion

**Impact GHG-1**

Vegetation treatments would involve manual and mechanical vegetation removal, and biomass disposal would include chipping, pile burning or, potentially, air curtain burning, all of which would generate some greenhouse gas (GHG) emissions. Consistency of treatments under the CalVTP with applicable plans, policies, and regulations aimed at reducing GHG emissions was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.8.3, pages 3.8-10–3.8-11). The project would be consistent with the applicable policies, plans, and regulations to reduce GHG emissions as described in California's 2017 Climate Change Scoping Plan (CARB 2017), the California Forest Carbon Plan (Forest Climate Action Team 2018), and the Draft California 2030 Natural and Working Lands Climate Change Implementation Plan (CARB 2019). It would also be consistent with the 2007 Marin Countywide Plan, which contains goals, policies, and programs relevant to GHG emission generation within the County; these aim to study the effects of climate change on fire ecology and fire hazards and use this information to prepare response strategies. Additionally, it would be consistent with the Marin County Climate Action Plan Update 2020, which references preparation for more wildfires, including home hardening and community wildfire protection plans in unincorporated communities. Impacts related to GHG emissions from these types of treatment activities are within the scope of the PEIR because the proposed activities, as well as the associated equipment, duration of use, and resultant GHG emissions are consistent with those analyzed in the PEIR, which were found to be less than significant. SPR GHG-1 is not applicable to the proposed project as the project is not subject to the requirement to provide information to inform reporting under the Board of Forestry and Fire Protection's Assembly Bill 1504 Carbon Inventory Process because this project is not a registered offset project. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The MWPA is also participating in a local effort, called the Marin Biomass Project, funded by the Governor's Office of Planning and Research, to study potential pathways for biomass utilization in Marin County in ways that minimize GHG emissions. Recommendations resulting from this 2-year study would inform future strategies for managing biomass resulting from this and other vegetation management projects.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the same plans, policies, and regulations adopted to reduce GHG emissions apply in the areas outside the treatable landscape as well as in areas within the treatable landscape; therefore, the GHG impact is also the same—less than significant—as described above.

Air curtain burners may instead be used for debris disposal, which would also emit GHGs, but fewer than hand-piled burning, and would eliminate the carbon emissions associated with chipping and hauling. Use of an air curtain burner would not conflict with any of the existing plans and policies related to GHG emissions reductions.

**Impact GHG-2**

Use of vehicles and mechanical equipment and prescribed (pile and air curtain) burning during initial and maintenance treatments would result in GHG emissions. However, vegetation treatment would have relatively low GHG emissions compared to GHG emissions from catastrophic wildfires. Wildfire hazards, including wildfire intensity and rate of spread could be somewhat reduced through implementation of the proposed project. The potential for treatments under the CalVTP to generate GHG emissions was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.8.3, page 11–17). This impact is within the scope of the PEIR because the proposed activities, as well as the associated equipment and duration of use, and the intent of the treatments to reduce wildfire risk and GHG emissions related to wildfire are consistent with those analyzed in the PEIR. MM GHG-2 would be implemented and would reduce GHG emissions associated with pile burning by burning when fuels have a higher fuel moisture content, reducing the total area burned by mosaic burning and isolating and leaving large fuels unburned and by scheduling burns before new fuels appear. Treatment activities would contribute to annual GHG emissions generated under the CalVTP, and this impact would fall within the finding of the PEIR of potentially significant and unavoidable. Methods for reducing GHG emissions from pile and air curtain burning would be integrated into SPR AQ-3 (Burn Plan) as described in MM GHG-2.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, greenhouse gas emissions and associated climate change impacts are global in nature and are not contained within the boundary of the treatable areas. Therefore, the GHG impact is also the same, as described above. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Air curtain burners may instead be used for debris disposal, which would also emit GHGs. Due to the higher combustion efficiency, air curtain burners can release slightly more $CO_2$ than pile burning since pile burning leaves more debris for further decomposition. An approximately 10-percent higher emissions factor was found by the study by Zahn (Zahn, 2005). This same study found that other GHGs, such as methane, were substantially lower when using an air curtain burner compared with pile burning, see Table 7 (Zahn, 2005). Additionally, air curtain burners only release biogenic $CO_2$, in the same amount that the tree while living has taken in from the surrounding air, releasing oxygen through photosynthesis, and is ultimately the same amount that would be released from the total decomposition of the wood matter over time. The estimated carbon dioxide equivalent emissions are similar to pile burning. Since the PEIR identifies GHG emission from prescribed burning (including pile burning) as significant and unavoidable, the use of an air curtain burner would fall within the findings and would not

result in new impacts or substantially more severe significant impact than what was covered in the PEIR.

**Table 7 Average Greenhouse Gas Emission Factors for Pile Burning versus Air Curtain Burning (Pounds of Emissions per Ton of Vegetation)**

| Type | $CO_2$ | $CH_4$ | Estimated $CO_2e$ |
|---|---|---|---|
| Pile burning – ponderosa pine | 3,268 | 13.9 | 3,657.2 |
| LLC air curtain burner | 3,616 | 1.4 | 3,655.2 |
| McPherson air curtain burner | 3,613 | 1.1 | 3,643.8 |

Notes:
$CO_2$ – carbon dioxide
$CH_4$ – methane
$CO_2e$ – carbon dioxide equivalent

*Source: (Zahn, 2005; IPCC, 2014)*

### Cumulative Impacts

As noted in CalVTP Final PEIR Section 4.4.7, because climate change is a global phenomenon, the cumulative context of this impact comprises all past, present, and reasonably foreseeable projects in the world, including GHG emission sources and carbon sinks. No single project alone would measurably contribute to an incremental change in the global average temperature or to the global climate, local climates, or microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative. Because of the global context of climate change, the inclusion of lands outside the treatable areas would be consistent with the analysis in the CalVTP and would not constitute a substantially more severe cumulative impact.

### New Impacts Related to GHG Emissions

The proposed treatment is consistent with the treatment types and activities considered in the CalVTP PEIR. The project proponent has considered the site-specific characteristics of the proposed treatments and determined they are consistent with the applicable regulatory and environmental conditions presented in the CalVTP PEIR (refer to Section 3.8.1 Regulatory Setting and Section 3.8.2 Environmental Setting in Volume II of the Final PEIR). The inclusion of land that is outside of the treatable landscapes constitutes a change to the geographic extent of the PEIR. However, the same plans, policies, and regulations adopted to reduce GHG emissions apply in the areas outside the treatable landscape as within it. Likewise, the climate conditions are the same within the treatable landscape as they are just outside of it for this project. Therefore, impacts of the proposed project are also consistent with those covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. No new impact related to GHG emissions would occur.

# 3.8 Energy Resources

## 3.8.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact ENG-1: result in wasteful, inefficient, or unnecessary consumption of energy | LTS | Impact ENG-1, pp. 3.9-7 – 3.9-8 | yes | NA | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New energy impacts: Would the treatment result in other impacts to energy that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.8.2 Discussion

### Impact ENG-1

While the use of electric equipment, such as chainsaws, is becoming increasingly common in Marin County, the use of work vehicles, hauling vehicles, and mechanical equipment (e.g., masticators, chain saws, chippers) to implement the proposed project would result in the consumption of energy in the form of fossil fuels. The use of fossil fuels for equipment and vehicles was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.9.3, pages 3.9-7–3.9-8) and was found to be a less-than-significant impact. The consumption of energy during implementation of the project treatments is within the scope of the PEIR because the types of activities, as well as the associated equipment and duration of proposed use, are consistent with those analyzed in the PEIR. Diesel and petroleum-based fuels, such as gasoline, would be consumed from the use of heavy-duty equipment and trucks, mechanical equipment, and the transport of personnel and equipment to and from and within the project site. The primary objective of the project is to reduce wildfire risk and decrease the intensity of fires. Wildfire response requires an immediate response from emergency personnel and mobilization of equipment from across the state and even across the nation, which often results in inefficient consumption of energy. Implementation of treatment activities would reduce wildfire risk and the intensity of fire responses. There are no SPRs applicable to this impact, and the impact would be less than significant, as consistent with the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing environmental and regulatory conditions are essentially the same within and outside the treatable landscape, and the types of treatment activities and associated use of energy are of the same scale and scope as analyzed in the PEIR; therefore, the energy impact is also the same. No SPRs are applicable to this impact. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

Air curtain burning requires little energy and would be consistent with the impacts described for pile burning in the PEIR. Impacts would be consistent with those analyzed in the PEIR, and no new impacts or substantially more severe significant impacts than what was covered in the PEIR would occur.

### Cumulative Impact

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000 allowable impact covered by the PEIR.

The geographic scope for energy is the 250,000 acres of treatable land annually (CalVTP Final PEIR Section 4.4.8, page 4-19). The inclusion of treatment outside the treatable landscape would expand the geographic scope for the cumulative analysis but as noted in the CalVTP PEIR, cumulative energy impacts are less than significant and would not produce additional electricity or natural gas demand that would trigger additional infrastructure. As noted in the CalVTP PEIR, wildfires themselves require substantial and inefficient energy consumption during response, and implementation of treatment activities under the CalVTP combined with other similar programs and plans would improve the efficiency of energy consumption during such events through improved planning. This remains accurate for the proposed project both inside and outside the treatable landscape. Therefore, the proposed project's contribution to energy use would not be cumulatively considerable and would be consistent with the analysis in the PEIR.

**New Energy Resource Impacts**

The project proponent has considered the site-specific characteristics of the proposed treatment project both inside and outside the treatable landscape and determined they are consistent with the applicable regulatory and environmental conditions presented in the CalVTP PEIR (refer to Section 3.9.1 Regulatory Setting and Section 3.9.2 Environmental Setting in Volume II of the Final PEIR). Therefore, the impacts of the proposed project are consistent with those considered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. Therefore, no new impact related to energy resources would occur.

# 3.9 Hazardous Materials, Public Health, and Safety

## 3.9.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact HAZ-1: Create a significant health hazard from the use of hazardous materials | LTS | Impact HAZ-1, pp. 3.10-14 – 3.10-15 | yes | HAZ-1, HAZ-2 | NA | LTS | no | yes |
| Impact HAZ-2: Create a significant health hazard from the use of herbicides | LTS | Impact HAZ-2, pp. 3.10-15 – 3.10-18 | yes | HAZ 5 through HAZ-9 | NA | LTS | no | yes |
| Impact HAZ-3: Expose the public or environment to significant hazards from disturbance to known hazardous material sites | PS | Impact HAZ-3, pp. 3.10-18 – 3.10-19 | yes | NA | HAZ-3 | LTSM | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New hazardous materials, public health, and safety Impacts: Would the treatment result in other impacts to hazardous materials, public health, and safety that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.9.2 Discussion

### Impact HAZ-1

Initial and maintenance treatments would include manual and mechanical treatments as well as pile and, potentially, air curtain burning, and targeted herbicide application, which may utilize hazardous materials, including fuels, oils, and lubricants as well as accelerant. The potential for treatment activities to cause a significant health hazard from the use of hazardous materials was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.10.3, pages 3.10-14–3.10-15). This impact is within the scope of the PEIR because the types of treatments and associated equipment (Dennis, 2002) and types of hazardous materials that would be used are consistent with those analyzed in the PEIR and would be less than significant. Equipment and vehicles used for treatment would require fuels and lubricants that could cause a health hazard if accidentally released into the environment. All equipment would comply with SPR HAZ-1 to minimize leakages and ensure proper equipment maintenance. In accordance with SPR HAZ-2, all mechanical hand tools would be equipped with spark arrestors to minimize any potential ignitions. Herbicide application impacts are discussed under Impact HAZ-2, below.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the exposure potential and regulatory conditions are essentially the same within and outside the treatable landscape because the equipment would be the same, the methods to minimize exposure would be the same, and the areas are adjacent to each other. Therefore, the hazard material impact is also the same, as described above. The project would result in a less-than-significant impact related to the use of hazardous materials, and the project would not result in impacts that would be more severe than those evaluated in the PEIR.

The same types of hazardous materials are used for the air curtain burner, limited to minor amounts of accelerant, which was addressed in the PEIR and would have less than significant impacts.

### Impact HAZ-2

Initial and maintenance treatments would include targeted stump and spot spray herbicide treatments as part of an integrated pest management approach to kill or prevent regrowth of invasive and non-native species. No aerial spraying of herbicides would occur. The potential for treatment activities to cause a significant health hazard from the use of herbicides was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.10.3, pages 3.10-15–3.10-18). This impact is within the scope of the PEIR because the types of herbicides and application methods that would be used, which are limited to ground-based applications, are consistent with those analyzed in the PEIR. Targeted herbicides would be applied by licensed applicators in

compliance with all laws, regulations, and herbicide label instructions, as consistent with herbicide use described in the PEIR. The herbicides proposed under the PEIR have low levels of toxicity for humans (CalVTP Final PEIR Volume II Section 3.10.3 Table 3.10-1, pages 3.10-16–3.10-17). Potential impacts associated with creating a health hazard would be less than significant. The proposed project incorporates SPRs HAZ-5 through HAZ-9, which require the following: preparation of a Spill Prevention and Response Plan (SPR HAZ-5), compliance with all herbicide applications (SPR HAZ-6), triple-rinsing herbicide containers and proper herbicide disposal (SPR HAZ-7), employing techniques during application to minimize drift (SPR HAZ-8), and placing signage within 500 feet of areas receiving herbicide treatment (SPR HAZ-9). This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the exposure potential is essentially the same within and outside the treatable landscape because the herbicide types, application methods, and licensed applicators would be the same as the locations are immediately adjacent to each other. Therefore, the hazardous materials impact is also the same, and less than significant, as described above, with implementation of the same SPRs and MM HAZ-3.

The potential use of an air curtain burner would not have any impacts associated with health hazards from use of herbicides.

**Impact HAZ-3**

The initial and maintenance treatments would include but not be limited to mechanical treatments, pulling of broom, and pile and, potentially, air curtain burning that would disturb soils and thus could expose workers, the public, or the environment to hazardous material if a contaminated site is present within the project area. The potential for workers participating in treatment activities to encounter contamination that could expose them or the environment to hazardous materials was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.10.3, pages 3.10-18–3.10-19). This impact was identified as potentially significant in the PEIR because hazardous materials sites could be present within treatment sites, and soil disturbance or burning in those areas could expose people or the environment to hazards. MM HAZ-3 requires review of the DTSC EnviroStor and Cortese List. No known contamination sites on the DTSC's Cortese List are located within the proposed project site (DTSC, 2022). With implementation of MM HAZ-3, the impact would be less than significant.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. Within the boundary of the proposed project area, the potential to encounter hazardous materials and the regulatory conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because neither included any hazards identified on EnviroStor or the Cortese List and the locations are adjacent to each other and similar in previous use and potential contaminants. Therefore, the hazardous materials impact is also the

same, as described above, and less than significant with implementation of HAZ-3. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The addition of air curtain burning would not result in any impacts associated with exposing the public or environment to known hazardous materials sites. The air curtain burner would be placed on disturbed ground within the fuel break area. No known hazardous materials are in these areas. Impacts would be consistent with the PEIR and would be less than significant.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000 allowable impact covered by the PEIR. The geographic scope for hazardous materials is the 250,000 acres of treatable land annually and the surrounding areas (CalVTP Final PEIR Section 4.4.9, page 4-20). The proposed project, both inside and outside the treatable landscape, would be within the geographic scope of the cumulative analysis. Because the treatment areas for the proposed project are within the same cumulative geographic scope inside the treatable landscape and outside the treatable landscape, and the treatment types and potential hazardous material use would be the same, the cumulative contribution of the proposed project would be the same inside and outside the treatable landscape and the impact conclusions from the PEIR would remain accurate. Contributions of the proposed project would be the same within the treatable landscape as outside the treatable landscape, and the cumulative hazardous materials impact analysis would remain the same as described in the PEIR—not cumulatively considerable for Impacts HAZ-1, HAZ-2, and HAZ-3.

**New Hazardous Materials, Public Health, and Safety Impacts**

The site-specific characteristics of the proposed treatment project both inside and outside the treatable landscape are consistent with the applicable regulatory and environmental conditions presented in the CalVTP PEIR (refer to Section 3.10.2 Regulatory Setting and Section 3.10.3 Environmental Setting in Volume II of the Final PEIR). The impacts of the proposed project are consistent with those considered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. Therefore, no new impact related to hazardous materials would occur.

# 3.10 Hydrology and Water Quality

## 3.10.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact HYD-1: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through the implementation of prescribed burning | LTS | Impact HYD-1, pp. 3.11-25 – 3.11-27 | yes | AD-3, AQ-3, GEO-4 through GEO-8 HYD-1, HYD-4, HYD-6 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact HYD-2: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through the implementation of manual or mechanical treatment activities | LTS | Impact HYD-2, pp. 3.11-27 – 3.11-29 | yes | AD-3, HYD-1, HYD-2, HYD-4, HYD-5, HYD-6, GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-7, GEO-8, BIO-1, BIO-4, BIO-5, HAZ-1 | NA | LTS | no | yes |
| Impact HYD-3: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through prescribed herbivory | LTS | Impact HYD-3, pp. 3.11-29 | yes | AD-3, BIO-1, BIO-3 BIO-4, BIO-5, GEO-1, GEO-4, GEO-7, HYD-1, HYD-2, HYD-3, HYD-4, HYD-5, HYD-6, and HAZ-1 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact HYD-4: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through the ground application of herbicides | LTS | Impact HYD-4, pp. 3.11-30 – 3.11-31 | yes | AD-3, BIO-1, BIO-4, BIO-5, GEO-1, GEO-7, HAZ-1, HAZ-5, HAZ-7, HYD-1, HYD-4, HYD-5, and HYD-6 | NA | LTS | no | yes |
| Impact HYD-5: Substantially alter the existing drainage pattern of a treatment site or area | LTS | Impact HYD-5, pp. 3.11-31 | yes | AD-3, BIO-4, GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, HYD-1, HYD-2, HYD-4, and HYD-6 | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New hydrology and water quality impacts: Would the treatment result in other impacts to hydrology and water quality that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.10.2 Discussion

### Impact HYD-1

The project area is within the northern portion of the San Francisco Bay hydrologic region, which receives an average of 20 to 25 inches of rain a year. The San Francisco Bay hydrologic region extends north from Southern Santa Clara County to Tomales Bay and encompasses over 4,500 square miles. (CAL FIRE, 2019). The climate in the project area typically consists of warm and dry summers followed by cool and wet winters. During the summer months, most of the rivers, creeks, and streams remain dry. Rainfall varies from season to season, with rain predominantly occurring between October and April. The project area is primarily within the Corte Madera Creek and Mill Valley watersheds, which drain into the San Francisco Bay (Marin County, 2020). Hydrographic features are shown in Figure 6 of Attachment D. Intermittent drainages occur throughout the project site that capture rainfall in winter and spring but are likely dry in the summer months. These drainages could eventually reach nearby surface waters or groundwater.

The proposed project would include manual and mechanical treatments and pile burning; no prescribed broadcast burning is proposed, but pile burning and the use of an air curtain burner would be implemented as a method of biomass disposal.

The potential for pile burning to cause ash and exposed soil from the burned areas that result in runoff and cause violations of water quality regulations or degrade water quality was examined in the PEIR and was found to be a less-than-significant impact (CalVTP Final PEIR Volume II Section 3.11.3, pages 3.11-25–3.11-27). This impact is within the scope of the PEIR, and the use of pile burns or air curtain burners and associated impacts on water quality are consistent with the impacts analyzed in the PEIR. Pile burning would entail burning cut vegetation material and would be conducted in areas depending upon access and site conditions. Suitable treatment areas for pile burning are typically flat or with gentle slopes and have open areas away from tree canopies and power lines. Areas selected would be those away from waterways, pursuant to SPR HYD-4. Pile burning would be conducted in compliance with CAL FIRE regulations and Bay Area Air Quality Management District (BAAQMD) Regulation 5 for open burning and burn-day restrictions. SPRs applicable to this treatment are AD-3, AQ-3, GEO-4 through GEO-8, HYD-1, HYD-4, and HYD-6. SPR AD-3 requires that the treatment design be consistent with local plans, policies, and ordinances, and SPR AQ-3 requires a burn plan. SPRs GEO-4 through GEO-8 require erosion monitoring, draining stormwater with water breaks where appropriate, minimizing burn pile size, and that all slopes greater than 50 percent slope be evaluated by an RPF or geologist. SPRs HYD-1, HYD-4, and HYD-6 ensure that the treatments comply with the water quality regulations, watercourses protection zones be identified, burn piles be located outside of watercourse and lake protection zones (WLPZ) ranging from 50 to 150 feet as

required around any waterways, and existing drainage systems be protected. These SPRs ensure avoidance and minimization of substantial water quality degradation. These SPRs would reduce the potential for pile burning to impact water quality and would preserve unburned streamside buffers to capture runoff from treatment areas. SPR GEO-4 requires implementation of erosion controls prior to the next rainy season and inspection for evidence of erosion after the first large storm or rainfall event. Any areas of erosion that would result in substantial sediment discharge would be remediated. Impacts would be consistent with the PEIR and less than significant with implementation of these SPRs.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing environment, regulatory conditions, and proximity to surface waters are essentially the same in the areas within and outside the treatable landscape. Therefore, the water quality impact from pile burning outside the treatable landscape is also the same, as described above, and would be less than significant with the implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

An air curtain burner places a high velocity curtain of air over a defined burn chamber, which can be a temporary pit in the ground or a well-conceived aboveground structure with refractory walls. It is anticipated that an air curtain burner would be used for this project rather than the pit method. The burner would be staged on parking lots or roads away from water courses, and impacts would generally be the same or less than those identified in the PEIR for pile burning with implementation of applicable SPRs.

**Impact HYD-2**

The proposed project treatments would include mechanical and manual treatments. Manual treatments would include use of hand tools and hand-operated power tools such as chainsaws, pole pruners, loppers, and string trimmers, which would be used to cut, clear, or prune herbaceous woody vegetation and remove dead wood vegetation. Mechanical treatments would include motorized equipment such as skidsteers or tractors with mounted masticators or mowers as well as ride mowers. The mechanical equipment would be used to cut, uproot, crush/compact, or chop existing vegetation on slopes with less than a 35 percent incline. No fill or discharge of fill material into waters of the U.S. would occur as part of the proposed project although use of equipment for vegetation removal along the banks of streams may necessitate a 1602 permit from CDFW. The potential for mechanical and manual treatment activities to violate water quality regulations or degrade water quality was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.11.3, pages 3.11-27–3.11-29) and was found to be less than significant with the incorporation of the SPRs. A water coarse and lake protection zone (WLPZ) ranging from 50 to 150 feet is required around any waterways that are within or adjacent to project treatment areas, pursuant to SPR HYD-4, and require limits to equipment within the WLPZ. SPRs applicable to these treatments are AD-3, HYD-1, HYD-2, HYD-4 through HYD-6, GEO-1 through GEO-8, BIO-1, BIO-4, BIO 5, and HAZ-1. SPRs AD-3, HYD-1, HYD-4, and GEO-4 through GEO-8 are described under Impact HYD-1. SPRs GEO-1 through GEO-3 require the

suspension of ground disturbance during heavy precipitation, limit high-ground-pressure vehicles, and require stabilizing disturbed-soil areas. SPRs HYD-2 and HYD-5 ensure that the construction of new roads would be avoided, and that equipment be fueled and serviced outside of WLPZs and wet areas. SPRs BIO-1, BIO-4, and BIO-5 require the review and survey of specified biological resources and that treatment design avoid loss of riparian habitat function and avoid the conversion of chaparral habitat (i.e., maintain the habitat function). SPR HAZ-1 requires that all equipment be maintained and regularly inspected for leaks. These SPRs would avoid and minimize the risk of substantial water quality degradation by implementation of mechanical treatment, thereby making the impacts less than significant, as consistent with the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. This impact is within the scope of the PEIR because the surface water conditions, and regulatory conditions are essentially the same within and outside the CalVTP treatable landscape and the use of heavy equipment and hand-held tools to remove vegetation and associated impacts on water quality are consistent with those analyzed in the PEIR. Impacts would be the same, and less than significant, with the implementation of the same SPRs.

If used, an air curtain burner would be staged on parking lots or roads away from water courses, and impacts would generally be the same or less than those identified in the PEIR for pile burning with implementation of applicable SPRs.

**Impact HYD-3**

Project treatments would include prescribed herbivory to reduce fuel loads in shrubland, forest understory, and grasslands and may be used as a pre-treatment before implementation of other methods. The prescribed herbivory livestock used as part of the proposed project would typically involve use of goats and sheep but, under the CalVTP, could also include horses and cattle and may require the installation of temporary fencing where natural barriers are not present. The use of temporary water facilities for the livestock and guard animals and/or shepherd, as well as other temporary infrastructure (e.g., tanks, corrals, fences), may be required with the use of prescribed herbivory as a treatment method. Site preparation could involve installation of a portable electric fence to contain the livestock. The herder for the prescribed herbivory would determine the area to be grazed based on site conditions, which would typically range from 1 to 2 acres at one time for goats. A broader area would be grazed by other larger livestock such as cattle and horses and would be determined based on-site conditions. The potential for prescribed herbivory treatment activities to violate water quality regulations or degrade water quality was examined in the PEIR and was found to be less than significant with the implementation of the SPRs (CalVTP Final PEIR Volume II Section 3.11.3, page 29). SPRs applicable to this treatment are AD-3, BIO-1, BIO-4, BIO-5, GEO-1, GEO-4, GEO-7, HYD-1, HYD-2, HYD-3, HYD-4, HYD-6, and HAZ-1. All applicable SPRs listed, except SPR HYD-3, are described in Impact HYD-1 and Impact HYD-2. SPR HYD-3 ensures that water quality protection be in place for prescribed herbivory. These SPRs avoid and minimize the risk

of substantial water quality degradation by implementation of prescribed herbivory treatment, making the impact less than significant.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. This impact is within the scope of the PEIR because the surface water conditions are essentially the same within and outside the CalVTP treatable landscape because they are adjacent to the treatable landscape, within the same watershed, and the use of prescribed herbivory to remove vegetation and associated impacts on water quality are consistent with those analyzed in the PEIR. The same SPRs would be applicable to ensure the less-than-significant impact. Therefore, the water quality impact from prescribed herbivory treatments is also the same. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

No prescribed herbivory is associated with use of the air curtain burner. No impacts related to prescribed herbivory would occur from its use.

**Impact HYD-4**

Project treatments could include targeted herbicide application, such as stump and spot spray treatments, to kill or prevent regrowth of invasive and non-native species. No aerial spraying of herbicides would occur. Herbicides would be applied in adherence with all United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (CalEPA) regulations and in such a way as to prevent overdrift. The use of herbicides has the potential to violate water quality standard regulations or degrade water quality, which was examined in the PEIR, with a finding that the impacts would be less than significant (CalVTP Final PEIR Volume II Section 3.11.3, pages 3.11-29–3.11-31). SPRs applicable to this treatment are AD-3, BIO-1, BIO-4, BIO-5, GEO-1, GEO-7, HAZ-1, HAZ-5, HAZ-7, HYD-1, HYD-4, HYD-5, and HYD-6. All applicable SPRs listed, except SPR HAZ-5 and HAZ-7, are described in Impact HYD-1 and Impact HYD-2. SPRs HAZ-5 and HAZ-7 ensure that a spill prevention and response plan is implemented and that herbicide containers be triple rinsed. These SPRs avoid and minimize the risk of substantial water quality degradation by implementation of herbicide treatment, thereby making the impacts less than significant.

The inclusion of land in the project that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. The existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are adjacent to the treatable landscape and have similar environmental conditions, including the same waterbodies, and the same regulatory setting. Potential impacts outside the treatable area are within the scope of the activities and impacts addressed in the PEIR because the methods of herbicide application, transportation, storage, and disposal are consistent with those analyzed in the PEIR with implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The addition of the air curtain burner would have no impacts associated with the use of herbicides.

**Impact HYD-5**

Some of the project treatments could cause ground disturbance and minor erosion, which could directly or indirectly modify existing drainage patterns. The potential for treatments to violate water quality standard regulations or degrade water quality was examined in the PEIR, and the impacts were found to be less than significant (CalVTP Final PEIR Volume II Section 3.11.3, page 31). As described in the PEIR, these activities would have minor impacts to on-site drainage with implementation of SPRs. The potential impacts are within the scope of the activities and impacts addressed in the PEIR because the use of equipment and treatment activities are consistent with those analyzed in the PEIR. SPRs applicable to this treatment are AD-3, BIO-4, GEO-1, GEO-2, GEO-3, GEO-4, GEO-5, GEO-6, GEO-7, HYD-1, HYD-2, HYD-4, and HYD-6. All applicable SPRs listed are described in Impact HYD-1 and HYD-2. These SPRs would avoid and minimize the risk of substantial altering of the existing drainage pattern, thereby making the impacts less than significant.

The inclusion of land that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, and existing drainage patterns pass through both areas. Therefore, the impact related to alteration of site drainage patterns is also the same. The potential for those treatments to substantially alter the existing drainage patterns of a project site was evaluated in the PEIR and was found to be less than significant with implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

If used, an air curtain burner would be staged on parking lots or roads away from water courses, and impacts would generally be the same or less than those identified in the PEIR for pile burning with implementation of applicable SPRs.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000 allowable impact covered by the PEIR. The geographic scope for hydrology and water quality is California's hydrologic regions and groundwater basins (CalVTP Final PEIR Section 4.4.10, page 4-21). The proposed project, both inside and outside the treatable landscape, would be within the geographic scope of the cumulative analysis. Because the treatment areas for the proposed project are within the same cumulative geographic scope inside the treatable landscape and outside the treatable landscape, and the treatment types and potential impacts to hydrology and water quality would be the same, the cumulative contribution of the proposed project would be the same inside and

outside the treatable landscape and the impact conclusions from the PEIR would remain accurate. Contributions of the proposed project would not be cumulatively considerable for Impacts HYD-1 through HYD-5.

**New Hydrology and Water Quality Impacts**

The proposed treatments are consistent with the treatment types and activities addressed in the PEIR. The site-specific characteristics of the proposed treatment project are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.11.1 Regulatory Setting and Section 3.11.2 Environmental Setting in Volume II of the Final PEIR). The inclusion of land that is outside of the treatable landscapes constitutes a change to the geographic extent presented in the PEIR. However, the hydrology, water quality, and treatment methods are consistent with those analyzed in the PEIR; thus, they are also within the scope of the PEIR. Additionally, the existing environmental and regulatory conditions pertinent to hydrology and water quality are also consistent within as well as outside of the treatable landscape included in this project area.

# 3.11 Land Use and Planning, Population and Housing

## 3.11.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact LU-1: Cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation | LTS | Impact LU-1, pp. 3.12-13 – 3.12-14 | yes | AD-3 | NA | LTS | no | yes |
| Impact LU-2: Induce substantial unplanned population growth | LTS | Impact LU-2, pp. 3.12-14 – 3.12-15 | yes | NA | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New land use and planning, population and housing impacts: Would the treatment result in other impacts to land use and planning, population and housing that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.11.2 Discussion

### Impact LU-1

The proposed project would involve development and maintenance of a fuel break and WUI fuel reduction areas through use of manual treatments, ground-based mechanical treatments, prescribed herbivory, and targeted herbicide application as well as biomass disposal, including pile burning and use of air burners. Treatments would occur on property owned by the MCOSD/Marin County Parks, public property managed by various cities and towns, and private property. The potential for vegetation treatment activities to cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.12.3, pages 3.12-13–3.12-14). The proposed project would comply with all applicable city and county general plans, policies, and ordinances (SPR AD-3). As noted in Section 3.12 Noise, treatment activities would take place during daytime hours consistent with the Marin County Noise Ordinance (Marin County 2022). The project would comply with Sections 4290 and 4291 of the California Resources Code, which requires property owners to establish defensible space around their properties. The project would also comply with the city-specific fire codes, such as Chapter 4.12 (Wildland-Urban Interface – Vegetation Management Standards) of the San Rafael Code of Ordinances and Chapter 8.06 (International Wildland-Urban Interface Code) of the Town of Fairfax Town Code. As part of this project, MWPA invited local agencies to a meeting in March 2022 to discuss the project and address any concerns.

The project would comply with applicable tree ordinances including the following:

- The Marin County Tree Removal Permit requirements, which allows trees to be removed without a permit if the tree is in poor health due to disease, damage, or age, or if the tree has been identified as a fire hazard by a fire inspector or would provide for the routine management and maintenance of public land or to construct a fuel break (Marin County No Date).
- For fire prone heritage trees in the City of Larkspur, an application would be made to the city that would be investigated and verified by the Fire Code Official, and a permit for removal would be granted (Larkspur Municipal Code Chapter 12.16.070).
- For the City of Mill Valley, for trees that are part of a vegetation management plan, the Planning Department would be contacted. As part of the PSA process, the project proponent has conducted outreach to the appropriate city and county agencies.

- The Town of Fairfax allows tree removal with a ministerial permit where the tree is dead or extremely diseased or when it is of an undesirable species and has been deemed a fire hazard (Municipal Code Chapter 8.36.040).
- The Town of Ross allows tree removal if the alteration or removal is due to fire hazard or represents good forestry practices (Ross Municipal Code Section 12.24.080).
- The Town of Corte Madera allows tree removal with a permit based on the condition of the tree with respect to disease, general health, and fire hazard (Tree Permit §15.50.060) and allows tree removal without a permit under certain conditions such as size, species, and emergencies (Tree Permit §15.50.050).
- The Town of San Anselmo requires a permit to remove heritage trees or trees of a specific height on undeveloped properties but does not require a permit for removal of nuisance trees such as acacia or eucalyptus.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent considered in the PEIR. However, land use in the project area is essentially the same within and outside the treatable landscape because the areas are within the same jurisdictions, are adjacent to each other, and include the same types of private and public uses. Therefore, the land use impact is also the same, as described above, and would be less than significant. No conflict would occur because the project proponent would adhere to SPR AD-3. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

Impacts to land use from air curtain burning would be similar to those of pile burning and, as with pile burning, consistency with plans, policies, and ordinances would be reviewed prior to use of air curtain burning. This impact is within the scope of the PEIR and would be less than significant because the treatment types and activities are consistent with those analyzed in the PEIR.

**Impact LU-2**

Contractor or volunteer crews and, potentially, crews from the Marin County Fire Tamalpais Crew or inmate/CAL FIRE crew would conduct treatments. A contractor crew typically consists of 3 to 7 workers per crew. The Marin County Fire Tamalpais Crew or inmate/CAL FIRE crew typically consist of 10 to 12 workers per crew. More crew members may be utilized, but crews are typically less than 25 workers. Multiple crews could operate at the same time. The potential for treatments to result in substantial population growth as a result of increases in demand for employees was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.12.3, pages 3.12-14–3.12-15). The CalVTP PEIR estimates the average crew size to consist of 20 to 25 workers. Impacts associated with short-term increases in the demand for workers during implementation of the treatment project are within the scope of the PEIR and would be less than significant. The number of workers required for implementation of the treatments is consistent with the crew size analyzed in the PEIR for the types of treatments proposed. The proposed project would not require the permanent hiring of new employees.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the population and housing characteristics of the project area are essentially the same within and outside the treatable landscape, they are within the same jurisdictions, and the crews who would perform the work would be the same. Therefore, the population and housing impact is also the same, as described above, and less than significant. No SPRs are applicable to this impact. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

Including air curtain burning as a potential treatment would not change the number of workers on the crews as the work required is substantially similar to pile burning. If an aboveground structure is used for air curtain burning, the equipment required for hauling it would be similar to other mechanical equipment and would not require substantially more crews, and impacts would be the same as described in the PEIR.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to the approximately up to 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the Addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope of the land use and planning, population, and housing impacts is the treatable landscape. The inclusion of treatment outside the treatable landscape would expand the geographic scope for the cumulative analysis, but the jurisdictions and the population and housing profile would remain the same as the lands outside the treatable landscape do not include any new jurisdictions. As noted in the CalVTP PEIR, because the project is assessed for its potential to conflict with land use plans, policies, or regulations and mitigate any potential impacts, as necessary, there is not an existing significant cumulative impact related to conflicts with land use plans, policies, and regulations that are developed for the purpose of avoiding or mitigating an environmental effect. Therefore, the cumulative land use impact analysis for the proposed project, including the areas outside the treatable landscape, is the same as described in the PEIR and is not cumulatively considerable for Impact LU-1.

The geographic scope for the population and employment cumulative analysis is the treatable landscape and surrounding areas, which encompasses the proposed project and includes lands surrounding the treatable landscape. The proposed project would not substantially increase the employment demand because the PEIR considered employment demand for up to 500,000 acres annually and found that the combination of employment demand for CalVTP and these cumulative projects would not be a substantial cumulative increase that would exceed planned population growth throughout the state or result in cumulative growth in some areas that would result in the need for new housing, roads, or infrastructure. The cumulative impact to population and housing for the proposed project, including the areas outside the treatable

landscape, is the same as described in the PEIR, and inducement of substantial population growth would not be cumulatively considerable.

**New Land Use and Planning, Population and Housing Impacts**

The proposed project is consistent with the treatment types and activities considered in the CalVTP PEIR. The site-specific characteristics of the proposed treatments are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.12.1 Environmental Setting and Section 3.12.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the proposed project area, the existing environmental conditions pertinent to land use and population that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as previously described. The use of an air curtain burner constitutes a change in treatment type, but the land use and population impact of the air curtain burner is consistent with the treatment types analyzed in the PEIR and would not have any new or greater types of land use impacts. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impact. Therefore, no new impact related to land use and population would occur.

# 3.12 Noise

## 3.12.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact NOI-1: Result in a substantial short-term increase in exterior ambient noise levels during treatment implementation | LTS | Impact NOI-1, pp. 3.13-9 – 3.13-12; Appendix NOI-1 | yes | AD-3, NOI-1, NOI-2, NOI-3, NOI-4, NOI-5, and NOI-6. | NA | LTS | no | yes |
| Impact NOI-2: Result in a substantial short-term increase in truck-generated SENLs during treatment activities | LTS | Impact NOI-2, pp. 3.13-12 | yes | AD-3, NOI-1, NOI-2, NOI-3, NOI-4, NOI-5, and NOI-6. | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New noise impacts: Would the treatment result in other impacts to noise that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.12.2 Discussion

### Impact NOI-1

The project treatment activities that have the potential for short-term increase in ambient noise level include manual treatments and ground-based mechanical treatments. Prescribed herbivory would potentially occur 24 hours a day but as noted in the PEIR (CalVTP Final PEIR Volume II Section 3.13.3, page3.13-9), prescribed herbivory would not require the use of heavy off-road equipment; noise generated by this treatment type would be negligible and it is not further discussed. The manual treatments for this project include hand-operated power tools, and the mechanical treatments, while very limited, include but are not limited to skid steers and ride mowers. Manual and mechanical treatments would occur during weekdays between 8:00 a.m. and 5:00 p.m., anticipated to begin in Fall 2022. Work would be conducted over several years, including maintenance for up to 10 years. Multiple crews may be working at the same time and using mechanical and manual methods that may generate varying noise levels, temporarily increasing ambient noise in the vicinity. Due to the nature of the proposed project, private residences and other noise sensitive land uses are adjacent to the work area and would temporarily be exposed to noise. The proposed project would fall within several city jurisdictions and Marin County. The potential for treatment activities to cause substantial short-term increases in exterior ambient noise level was addressed in the PEIR (CalVTP Final PEIR Volume II Section 3.13.3, page 3.13-9–3.13-12). This impact is within the scope of the PEIR because the types of treatments and associated equipment, and thus the noise generated, is consistent with those analyzed in the PEIR and would be less than significant. SPRs applicable to the proposed project include AD-3, which requires the treatments to be consistent with local plans, policies, and ordinances. Manual and mechanical treatments would be within the Marin County construction noise requirements, which limits construction to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and between the hours of 9:00 a.m. and 6:00 p.m. on Saturdays, provided that the noise level at any point outside of the property plane of the project shall not exceed ninety (90) dBA (Marin County , 2022). Table 8 identifies the noise ordinances of the local jurisdictions, demonstrating all work would be within the allowable limits, per SPR AD-3. Additional SPRs applicable to the proposed project include NOI-1, NOI-2, NOI-3, NOI-4, NOI-5, and NOI-6. SPRs NOI-1 through NOI6-6 would require that heavy equipment be used only during daytime hours, all equipment be properly maintained, engine shrouds be closed during mechanical equipment operation and idle time be restricted to 5 minutes, all staging areas be placed away from noise sensitive land types, and any noise sensitive receptors be notified ahead of work to ensure impacts to ambient noise levels would be less than significant.

**Table 8 Relevant Noise Ordinance Construction Noise Restrictions**

| Jurisdiction | Noise Restrictions |
|---|---|
| Marin County | Loud noise-generating construction equipment is limited to 8 a.m. to 5 p.m. Monday to Friday (Marin County Code Chapter 6.70) |
| City of Larkspur | Construction noise is allowed 7 a.m. to 6 p.m. Monday to Friday and 9 a.m. to 5 p.m. on Saturdays (Larkspur Municipal Code Chapter 9.54.060) |
| City of Mill Valley | Heavy equipment and power tools are restricted to weekdays between 8 a.m. and 5 p.m. (Mill Valley Municipal Code Chapter 7.16.080) |
| Town of Fairfax | Tools and equipment used in construction are limited to 8 a.m. to 6 p.m. Monday to Friday and 9 a.m. to 4 p.m. on weekends (Fairfax Municipal Code Chapter 8.20.070) |
| Town of Ross | Construction noise is limited to 8 a.m. to 5 p.m. Monday to Friday unless physically performed by the owner of the property in which case it can occur on Saturday between 10 a.m. and 4 p.m. (Town of Ross Municipal Code Chapter 9.20.035) |
| Town of Corte Madera | Construction is allowed 7 a.m. to 5 p.m. Monday to Friday and Saturday and Sunday from 10 a.m. to 5 p.m. (Corte Madera Code of Ordinances Chapter 9.36.030) |
| Town of San Anselmo | Construction is allowed 7 a.m. to 7 p.m. Monday to Friday, 9 a.m. to 5 p.m. on Saturdays, and 12 p.m. to 5 p.m. on Sundays (San Anselmo Municipal Code Chapter 4-7.203) |

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are adjacent to the treatable landscape and would be subject to the same noise ordinances and would have similar noise-sensitive receptors. Therefore, the noise impact is also the same, as described above. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of an air curtain burner would generate some noise, primarily from the fan. For previous work, a hearing protection area was established 50 feet around the engine and fan (Dennis, 2002). SPRs would require the air curtain burner to be placed away from sensitive receptors and adherence to the noise ordinance hours to limit any noise disturbances to nearby sensitive receptors. The noise generated by the air curtain burner would be comparable with other mechanical and manual equipment considered in the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

### Impact NOI-2

The project treatment activities would require large trucks to haul equipment and crews to the project site, including for use of air curtain burning if aboveground structures were used. While trucks would pass residential sensitive receptors, it is not anticipated that project traffic would result in a substantial increase in truck-generated noise along local roads. These large trucks have the potential for a substantial short-term increase in single event noise levels (SENL), but trucks would only be in use during work hours from 8:00 a.m. to 5:00 p.m. Monday through

Friday, in compliance with local noise ordinances (see Impact NOI-1). The SENL describes a receiver's cumulative noise exposure from a single impulsive noise event (e.g., an automobile passing by or an aircraft flying overhead), which is defined as an acoustical event of short duration and involves a change in sound pressure above some reference value (CAL FIRE, 2019). The impacts are within the scope of the PEIR because the treatment activities and methods are the same as those analyzed in the PEIR. SPRs applicable to this treatment are AD-3, NOI-1, NOI-2, NOI-3, NOI-4, NOI-5, and NOI-6, described under Impact NOI-1. The potential for a substantial short-term increase in SENL during the project treatments was evaluated in the PEIR and was found to be less than significant with the implementation of the aforementioned SPRs.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing roadway network and access road used by the worker vehicles and trucks for hauling would be the same to reach the treatable landscape inside the CalVTP as outside the CalVTP. Therefore, the noise impact is also the same as described above and would be less than significant with the application of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

Air curtain burning would not involve the use of extensive additional trucks. A truck may be used to deliver and remove the burner but would constitute generally one trip per project. Impacts would fall within those described in the PEIR, and no new or more severe significant impacts would occur.

**Cumulative Impacts**

As noted in the CalVTP EIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to the approximately up to 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the Addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope of the noise resource cumulative impact analysis from the CalVTP EIR is the treatable landscape and surrounding areas with public views of the treatable landscape. In addition to the lands treated under the CalVTP PEIR, there are several similar past, present, and reasonably foreseeable projects that could generate similar noise within and surrounding the treatable landscape (CalVTP Final PEIR Section 4.4.1 page 4-23). Based on review of the CalVTP PEIR cumulative analysis, the proposed project, including lands within and outside the CalVTP treatable landscape, would fall within the cumulative analysis for noise because they would be within the 250,000 acres assumed treated annually, would have similar conditions to the cumulative setting due to their proximity to the treatable landscape and similar vegetation conditions, and would have the same noise sensitive receptors due to their adjacency to the treatable landscape. As noted in the PEIR, it is not anticipated that temporary noise generated by vegetation treatment activities under the CalVTP and noise related to non-CalVTP projects would simultaneously impact the same noise-sensitive receptors

due to the size of the treatable landscape and duration of the vegetation treatments (CalVTP Final PEIR Section 4.4.12 page 4-23). For the proposed project, the noise sensitive receptors also include areas outside the treatable landscape. As with the treatments inside the treatable landscape, the noise impacts would occur during a limited duration and would be reduced through SPR NOI-1, SPR AD-3, SPR NOI-6, and SPR NOI-4. Therefore, the cumulative noise impact analysis for the proposed project, including the areas outside the treatable landscape, is the same as described in the PEIR and is not cumulatively considerable.

**New Noise Impacts**

The proposed treatment is consistent with the treatment types and activities discussed in the PEIR. The site-specific characteristics of the proposed treatments are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.13.1 Environmental Setting and Section 3.13.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing environmental and regulatory conditions pertinent to noise that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as previously described. Noise from an air curtain burner is limited to the small diesel engine that powers a fan and the blower fan itself. The use of an air curtain burner constitutes a change in treatment type, but the noise impacts of the air curtain burner are consistent with the types of treatment types analyzed in the PEIR (e.g., less noisy than a chipper) and would not have any new or greater types of noise impacts. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances would lead to new significant impacts not addressed in the PEIR. Therefore, no new impact related to noise would occur that is not analyzed in the PEIR.

# 3.13 Recreation

## 3.13.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact REC-1: Directly or indirectly disrupt recreational activities within designated recreation areas | LTS | Impact REC-1 pp. 3.14-6 – 3.14-7 | yes | AD-3, REC-1 | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New recreation impacts: Would the treatment result in other impacts to recreation that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.13.2 Discussion

### Impact REC-1

Approximately 387 acres of the treatment areas are located in recreational areas owned and managed by MCOSD/Marin County Parks and other local and county agencies. Recreational trails are located within and adjacent to the treatment areas. Trails adjacent to the work areas that are accessible to the public and residents may be closed for short durations during treatment activities. Any closures would be timed and coordinated with MCOSD/Marin County Parks. The potential for vegetation treatment and maintenance activities to disrupt recreation activities was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.14.3 pages 3.14-6–3.14-7). The proposed project would comply with SPR REC-1, which requires the notification of recreational users of any temporary closure that would result from treatment activities. The proposed project would also comply with all local plans, policies, and ordinances (SPR AD-3). The potential for the proposed treatment project to impact recreation is within the scope of the PEIR and would be less than significant because the treatment activities and intensity are consistent with those analyzed in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the availability of recreational resources within the project area is essentially the same as outside the treatable landscape because the areas are adjacent to each other, the recreational trails are located within and outside the treatable landscape, and the recreational users would be the same. Impacts to recreation would be the same as previously described and would be less than significant. Implementation of SPRs AD-3 and REC-1 would minimize disruption to recreational activities within the project area. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

If an air curtain burner were used, it would likely be staged in a disturbed area or parking lot. Effects to recreation would be highly localized and fall within those described in the PEIR in terms of temporary limitations to access to the facilities (such as limiting parking). SPR AD-3 and REC-1 would also minimize disruption to recreationalists. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

### Cumulative Impacts

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to the approximately up to 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact

covered by the PEIR. The geographic scope of the recreation cumulative impact analysis from the CalVTP PEIR is the recreational areas within the treatable landscape. As noted in the CalVTP PEIR, implementation of the CalVTP would treat vegetation within the treatable landscape and would not involve the development of residential communities or similar types of development or induce substantial population growth in an area that would require the construction of or expansion of recreational facilities (CalVTP Final PEIR Section 4.4.13, page 4-24). Proposed treatment activities, including air curtain burning, may temporarily restrict public access to surrounding areas for safety reasons or cause nuisance impacts related to dust, noise, safety, aesthetics, and traffic; this would disrupt the recreation experience both inside and outside the treatable landscape. These effects would be similar inside and outside the treatable landscape because the recreation features and trails are the same and the recreational users are the same. As noted in the PEIR, SPRs would minimize disruptions to recreational users. Impacts to recreation are not anticipated to be cumulatively considerable, and thus the proposed project would not make a significant contribution to disruption of recreational resources.

**New Recreation Impacts**

The proposed project is consistent with the treatment types and activities considered in the CalVTP PEIR. The site-specific characteristics of the proposed treatments are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.14.1 Environmental Setting and Section 3.14.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions pertinent to recreation that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as described previously. The use of an air curtain burner is consistent with the treatment types analyzed in the PEIR and would not have any new or greater types of recreational impacts. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impacts. Therefore, no new impact related to recreation would occur.

# 3.14 Transportation

## 3.14.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact TRAN-1: Result in temporary traffic operations impacts by conflicting with a program, plan, ordinance, or policy addressing roadway facilities or prolonged road closures | LTS | Section 3.15.2; Impact TRAN-1 pp. 3.15-9 – 3.15-10 | yes | AD-3, TRAN-1 | NA | LTS | no | yes |
| Impact TRAN-2: Substantially increase hazards due to a design feature or incompatible uses | LTS | Impact TRAN-2 pp. 3.15-10 – 3.15-11 | yes | AD-3, TRAN-1 | NA | LTS | no | yes |
| Impact TRAN-3: Result in a net increase in VMT for the proposed CALVTP | PSU | Impact TRAN-3 pp. 3.15-11 – 3.15-13 | yes | NA | AQ-1 | LTSM | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New transportation impacts: Would the treatment result in other impacts to transportation that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.14.2 Discussion

### Impact TRAN-1

The project would require limited vehicular traffic along public roadways used to access existing fire roads and trails leading to the specific treatment areas. Project-related traffic would include heavy-vehicle trips to haul equipment and materials, including an air curtain burner, and trips associated with the workers commuting to and from the treatment areas. Initial treatment would likely involve more heavy equipment than subsequent maintenance. A single contractor crew could typically consist of 3 to 7 workers at a single location, and a fire crew could typically consist of 10 to 12 workers. Crew sizes may vary but would not be more than 25. Work would occur during weekdays between 8:00 a.m. and 5:00 p.m.; therefore, the increase of vehicle traffic on the surrounding local roads would occur before 8:00 a.m. and after 5:00 p.m. The number of truck trips and worker vehicle trips to and from the project area would vary based on the size of the area being treated, the type of treatment being implemented, and the duration of the vegetation treatments. The potential for a temporary increase in vehicle traffic associated with the proposed project work to conflict with a program, plan, ordinance, or policy addressing roadway facilities, or for prolonged road closures, was examined in the PEIR (CalVTP Final PEIR Section 3.15.2, page 3.15-9 and 3.15-10) and found to be less than significant. The proposed temporary increases in traffic related to the proposed project is within the scope of the PEIR because the treatment duration and limited number of vehicles (i.e., fire engine, water tender, masticator transport, crew vehicles for crew members, and haul vehicle for an air curtain vehicle) associated with the proposed treatments are consistent with those analyzed in the PEIR. The proposed treatments would not all occur concurrently, and increases in vehicle trips associated with the treatments would be dispersed on multiple roads, including local roads. SPRs applicable to this treatment are AD-3 and TRAN-1. Implementing SPR AD-3 requires the treatments to be consistent with local plans, policies, and ordinances, and TRAN-1 would ensure that traffic control measures be placed on affected roadways during project treatment activities.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing transportation conditions (e.g., roadways, road use) present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they continue beyond the treatable landscape and are under the same jurisdictions and would be subject to the same program, plan, ordinance, or policy regarding roadway facilities and closures. Therefore, the transportation impact is also the same and would be less than significant with the implementation of the same SPRs. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The use of the air curtain burner may require an additional truck trip to deliver and remove the burner. Traffic impacts would be limited and the same as those described in the PEIR for the delivery of other equipment. The impacts fall within the scope of the PEIR and would not constitute a substantially more severe significant impact than was covered in the PEIR.

**Impact TRAN-2**

The project treatment activity that could potentially increase the transportation hazards during the project would be the use of pile burning, due to the smoke produced, which could temporarily affect visibility on nearby roadways. The potential for smoke to affect visibility along roadways during implementation pile burning was examined in the PEIR (CalVTP Final PEIR Section 3.15.2, page 3.15-10 and 3.15-11) and was found to be less than significant. Vegetation piles for burning would be approximately 4 feet in diameter and 4 feet in height and would be conducted in compliance with CAL FIRE and Bay Area Air Quality Management District (BAAQMD) Regulation 5 for open burning and burn day restrictions. SPRs applicable to this treatment are AD-3 and TRAN-1, described under Impact Tran-1. The project proponent would prepare and implement a traffic management plan (TMP) to avoid and minimize temporary transportation impacts under this SPR. Therefore, the project treatment activities would not substantially increase hazards due to a design feature or incompatible uses, and impacts would be less than significant. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The project area includes land that is outside the CalVTP treatable landscape. While this constitutes a change to the geographic area considered in the PEIR, the existing environmental conditions for the land outside the treatable landscape and on the land inside the treatable landscape are essentially the same. Further, the project would use the same access roads for land inside and outside the treatable landscape. Therefore, the potential to increase hazards is the same for project areas outside the CalVTP treatable landscape as for areas within the treatable landscape. As a result, the impact to increased hazards is also the same and within the scope of the PEIR. The project would result in a less-than-significant impact related to increasing road hazards and would not result in a more significant impact than covered in the PEIR.

Use of an air curtain burner would potentially increase the transportation hazards, as well, but less than with pile burning because the air curtain burner would create less smoke and associated visibility concerns. Use of an air curtain burner would also be conducted in compliance with CAL FIRE and BAAQMD Regulation 5 for open burning and burn-day restrictions. Because an air curtain burner results in less smoke than pile burning, it would also be less than significant. This impact is within the scope of the activities and impacts addressed in the PEIR because the burn duration is consistent with that analyzed in the PEIR.

**Impact TRAN-3**

The project treatments could temporarily increase vehicle miles travelled (VMT) above baseline conditions because the project access locations are in semi-remote locations along fire roads and

other small, local roadways, and thus vehicle trips would be required to access the treatment areas. Project-related traffic would include heavy-vehicle trips to haul equipment and materials as well as trips associated with the workers commuting to and from the treatment areas. The number of truck trips and worker vehicle trips to and from the project area would vary based on the size of the area being treated, the type of treatment being implemented, and the duration of the vegetation treatments. This impact was identified as potentially significant and unavoidable in the PEIR (CalVTP Final PEIR Section 3.15.2, page 3.15-11 to 3.15-13) because implementation of the CalVTP would result in a net increase in VMT. However, as stated in Impact TRAN-3 of the PEIR, individual projects under the CalVTP are likely to generate fewer than 110 trips per day, which is expected to cause a less-than-significant transportation impact for specific later activities, as described in the Technical Advisory on Evaluating Transportation Impacts published by the Governor's Office of Planning and Research (Governor's Office of Planning and Research 2018). Per the analysis methodologies presented in the PEIR, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact. As presented in the PEIR, this amount would allow for up to 50 vehicles bringing crews and equipment to and from the project site and hauling materials away in a single day. It is estimated that approximately 20 to 30 cubic yards of material could be disposed of each workday from a single treatment area, which would constitute 1 to 3 typical dump trucks. Because of the small sizes of the crews needed for the proposed project (likely in the range of under 12 people), the limited equipment needed and the limited materials to be hauled in any one day, the total VMT would not exceed 110 trips per day. Initial treatment would likely involve more vehicle trips than subsequent maintenance. Additionally, all vehicle trips would be dispersed across multiple roadways and would likely only utilize particular roadways a few times and for short durations. On this account, impacts related to a potential increase in VMT would be less than significant. Hiring local contractors would be encouraged where feasible to reduce the amount of VMT. MM AQ-1 would not apply to the impact because the impact is less than significant.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the existing transportation conditions (e.g., roadways, road use) present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are adjacent to the treatable landscape and a continuation of the same roads. Therefore, the transportation impact is also the same, as described above, and would be less than significant. The most VMT would occur at the beginning and end of the project to haul equipment in and out of the project area. Daily VMT would consist of crew transportation to and from the site and, potentially, hauling removed material. No SPRs apply to this impact, nor would MM AQ-1 as impacts would be less than significant.

Use of an air curtain burner would result in an increase in the VMT by only a margin amount (1 trip in two days). The impacts to VMT would remain less than significant and within the scope of the PEIR.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts for the proposed CalVTP would occur within and proximate to the approximately up to 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope of the transportation cumulative impact analysis from the CalVTP PEIR is the treatable landscape and the surrounding roadway network used to access individual vegetation treatment sites. In addition to the lands treated under the CalVTP PEIR, there are several similar past, present, and reasonably foreseeable projects that have affected and likely would affect transportation networks within and surrounding the treatable landscape (CalVTP Final PEIR Section 4.4.14, page 4-24). Based on review of the CalVTP PEIR cumulative analysis, the proposed project, including lands within and outside the CalVTP treatable landscape, would fall within the cumulative analysis for transportation because they would be within the 250,000 acres assumed treated annually and would have similar conditions to the cumulative setting due to their proximity to the treatable landscape and the use of the same roadways. As noted in the PEIR, the cumulative analysis would generally be based on the number of projects using the same roadways as the project. The PEIR found that, given the scattered locations of the vegetation projects and the limited duration of work at any one location, it is unlikely that cumulative impacts would occur (CalVTP Final PEIR Section 4.4.14, page 4-24). Implementation of SPRs also reduce the contribution of the project to any potentially cumulative impact, regardless of whether the use of the roadways is inside or outside the treatable landscape. Therefore, the cumulative transportation impact analysis for the proposed project, including the areas outside the treatable landscape, is the same as described in the PEIR and is not cumulatively considerable for Impact TRANS-1 and TRANS-2. The PEIR found that impacts are cumulatively considerable for Impact TRANS-3 and, while the VMT from the project would be minor, they would still contribute to the significant cumulative impact—in spite of the recognition that a net VMT reduction could be reasonably expected to occur in the long term and that impacts from individual vegetation treatments would likely be less than significant pursuant to the thresholds identified in OPR's Technical Advisory on Evaluating Transportation Impacts. The proposed project, however, given its limited duration and location, would not result in a cumulatively considerable contribution to an otherwise significant cumulative effect.

**New Transportation Impacts**

The proposed treatments are consistent with the treatment types and activities covered in the CalVTP PEIR. The site-specific characteristics of the proposed treatments are consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.15.1 Environmental Setting and Section 3.15.2 Regulatory Setting in Volume II of the Final PEIR).

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within

the boundary of the project area, the existing environmental conditions pertinent to transportation that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as previously described. The use of an air curtain burner constitutes a change in treatment type, but the transportation impacts of the air curtain burner are consistent with the treatment types analyzed in the PEIR and would not have any new or greater types of transportation impacts. The proposed project is consistent with the types of projects covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape would not give rise to any new significant impact. Therefore, no new impact related to transportation would occur.

# 3.15 Public Services, Utilities and Service Systems

## 3.15.1 Checklist

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact UTIL-1: Result in physical impacts associated with provision of sufficient water supplies, including related infrastructure needs | LTS | Section 3.16.1 pp. 3.16-2 – 3.16-3; Impact UTIL-1 p. 3.16-9 | yes | NA | NA | LTS | no | yes |
| Impact UTIL-2: Generate Solid Waste in Excess of State Standards or Exceed Local Infrastructure Capacity | PSU | Section 3.16.1 pp. 3.16-3 - 3.16-5; Impact UTIL-2 pp. 3.16-10 – 3.16-12 | yes | AD-3, UTIL-1 | NA | LTS | no | yes |

| Impact in the PEIR | | | Project specific checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Impact UTIL-3: Comply with federal, state, and local management and reduction goals, statutes, and regulations related to solid waste | LTS | Section 3.16.2 pp. 3.16-6 – 3.16-7; Impact UTIL-2 p. 3.16-12 | yes | AD-3, UTIL-1 | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New public services, utilities, and service systems impacts: Would the treatment result in other impacts to public services, utilities, and service systems that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.15.2 Discussion

### Impact UTIL-1

The proposed project would involve development and maintenance of a fuel break and WUI fuel reduction areas through use of manual treatments, ground-based mechanical treatments, prescribed herbivory, and targeted herbicide application as well as biomass disposal, including pile burning and use of air curtain burners. A minimal amount of water would be required for fire suppression during pile burning activities and for dust control during mechanical treatments. Depending on the location of the pile burning, air curtain burning, or mechanical treatments, water would be supplied via nearby fire hydrants or be transported via fire trucks. The potential increased demand for water was examined in the PEIR (CalVTP Final PEIR Section 3.16.3 page 3.16-9) and was found to be a less-than-significant impact. This impact is within the scope of the activities and impacts addressed in the PEIR because the amount of water needed for pile burning and the water source type are consistent with those analyzed in the PEIR. The water would be a minimal demand on local water providers. Implementation of the project treatments would not result in a physical impact associated with provision of sufficient water supplies, including related infrastructure needs, and this impact would be less than significant. No SPRs are applicable to this impact. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The proposed project includes land in the proposed treatment area that is outside the CalVTP treatable landscape, which constitutes a change to the geographic extent presented in the PEIR. Within the boundary of the project area, the existing conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because the water service providers would be the same. This impact would also be less than significant and within the scope of the PEIR because the water use and the water providers are essentially the same within and outside the treatable landscape. The treatment activities and intensity of the treatments would be consistent with those analyzed in the PEIR. Therefore, the impact to water providers is also the same and would be less than significant, as previously described. No SPRs are applicable to this impact. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than what was covered in the PEIR.

The inclusion of an air curtain burner as a biomass processing method constitutes a change to the treatment types presented in the PEIR but would not result in additional water because the use of an air curtain burner is comparable with the use of pile burning for biomass disposal and therefore would not result in additional use of water compared with the uses assumed in the PEIR. Use of an air curtain burner would be consistent with the discussion in the PEIR and

would not constitute a new or substantially more severe significant impact than what was included in the PEIR.

**Impact UTIL-2**

Manual and mechanical treatments would generate biomass as a result of vegetation removal within the project treatment areas. Biomass generated by mechanical and manual treatments would be processed by chipping and hauling, chipping and broadcasting, or pile burning and use of air curtain burning. The chipped biomass would be broadcast on site, with chipped materials cut to under 3 inches in size, and would be applied 2 to 4 inches in depth at most to minimize wildfire risk. The remaining biomass that could not be broadcast on site would be hauled off site to Marin Sanitary Transfer Station. It is estimated that approximately 20 to 30 cubic yards of material could be disposed of each workday from a single treatment area. The potential to generate solid waste in excess of state standards was examined in the PEIR (CalVTP Final PEIR Section 3.16.3 page 3.16-10 – 3.16-12) and was found to be a less than significant impact. SPRs AD-3 and UTIL-1 would apply to this this potential impact. AD-3 requires the project proponent to design and implement the project consistent with local plans and ordinances, and UTIL-1 requires the project proponent to prepare a Solid Organic Waste Disposition Plan to guide biomass disposal. The potential biomass impact is within the scope of the activities and impacts identified in the PEIR as the conditions for removing biomass are consistent with the analysis in the PEIR. This impact of generating solid waste in excess of state standards or exceeding local infrastructure capacity was identified as potentially significant and unavoidable in the PEIR due to the possibility of generating waste in excess of infrastructure capacity and reflects CEQA's mandate of good-faith disclosure of all potential effects.

Locally, Marin Sanitary facility indicates they have available capacity to receive the project's solid organic waste and also has the ability to transport it to composting facilities. Marin Sanitary Transfer Station has the permitted capacity to receive 2,640 tons per day of waste and a permitted traffic volume of 1,170 vehicles per day (Marin County Environmental Health Services, 2019). The composting facility that could process the organic solid waste is Redwood Landfill in Novato, California, and has a permitted capacity to accept 2,310 tons of material daily (Waste Management, 2022). Therefore, the impact on solid waste disposal is less than significant. This determination is consistent with the PEIR and would not constitute a substantially more severe impact than identified in the PEIR. The MWPA is participating in a local effort, called the Marin Biomass Project and funded by the Governor's Office of Planning and Research, to study potential pathways for biomass utilization in Marin County. Recommendations resulting from this two-year study could inform future strategies to manage solid organic waste from the GRVSFB and other projects.

The inclusion of land that is outside of the treatable landscapes constitutes a change to the geographic extent presented in the PEIR. However, the land included has essentially the same environmental conditions as those assessed within the treatable landscape so would result in a similar amount of biomass material for disposal and would use the same local facilities for disposal. The same SPRs would be implemented to ensure consistency with local plans and ordinances and ensure a disposition plan. Therefore, the impact generated from solid waste in

excess of State standards outside the treatable landscapes is less than significant. This proposed project reflects a lesser impact than the statewide program, and the determination is consistent with the PEIR and would not constitute a substantially more severe impact than identified in the PEIR.

The inclusion of an air curtain burner as a biomass processing method constitutes a change to the treatment types presented in the PEIR but would not result in any additional volume of solid waste. The use of an air curtain burner would be comparable with the treatment activities that are presented in the PEIR—namely, pile burning. Use of an air curtain burner would be consistent with the discussion in the PEIR and would not constitute a new or substantially more severe significant impact than what was included in the PEIR.

**Impact UTIL-3**

Project treatments, as a result of vegetation removal within the project site, would generate biomass, which would be disposed of by pile burning or air curtain burning, chipping and broadcasting, or chipping and hauling. The potential to conflict with federal, State, and local waste management requirements was examined in the PEIR (CalVTP Final PEIR Section 3.16.3 page 3.16-12) and was found to be a less-than-significant impact. Approximately 20 to 30 cubic yards of material could be disposed of each workday from a single treatment area. The biomass that remains after pile burning, air curtain burning, and broadcasting would be transported to Marin Sanitary Transfer Station. As discussed under Impact UTIL-2, Marin Sanitary Transfer Station has the permitting capacity to receive a total daily maximum of 2,640 tons per day of total waste and a permitted traffic volume of 1,170 vehicles per day (Marin County Environmental Health Services, 2019). The project was evaluated for compliance with the federal, State and local goals related to solid waste, as examined in the PEIR. The project would apply SPR UTIL-1 which requires a Solid Organic Waste Disposition Plan. In addition, SPR UTIL-1 would be applied to this project, which would ensure that the project proponent prepares an Organic Waste Disposition Plan prior to initiating treatment activities. The project is within the scope of activities and impacts identified in the PEIR.

The inclusion of land outside the treatable landscape constitutes a change to the geographic extent of the PEIR. However, the environmental conditions outside the treatable landscape are essentially the same as those within the treatable landscape because they are adjacent to the treatable landscape, would generate a similar amount of solid waste, and would use the same waste disposal facilities. Therefore, the impact related to compliance with federal, State and local goals and regulations regarding solid waste is less than significant. Although this project reflects a lesser impact than the statewide program, the determination is consistent with the PEIR and would not constitute a substantially more severe impact than identified in the PEIR.

The inclusion of an air curtain burner as a biomass processing method constitutes a change to the treatment types presented in the PEIR but would not result in any additional volume of solid waste and would comply with federal, State, and local management and reduction goals, statutes, and regulations. The use of an air curtain burner would be comparable with the treatment activities that are presented in the PEIR—namely, pile burning—and would reduce

the amount of solid waste substantially. Use of an air curtain burner would be consistent with the discussion in the PEIR and would not constitute a new or substantially more severe significant impact than what was included in the PEIR.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope for public services, utilities, and service systems is the treatable landscape (CalVTP Final PEIR Section 4.4.15, page 4-25). The inclusion of treatment areas outside the treatable landscape would expand the geographic scope for the cumulative analysis, but as with the vegetation treatment activities within the treatable landscape, it would not result in an impact to public services because it would result in a minimal amount of additional water use. Treatment activities would result in an increase in solid organic waste transported off site for processing but, as previously noted, the waste facilities would not exceed existing infrastructure capacities. Use of alternative disposal methods, such as transporting waste to composting sites or using pile burning and air curtain burning, would further reduce the waste transported to typical waste treatment facilities. The PEIR identifies potential for a cumulatively significant impact. The proposed project's contribution to cumulative impact to public service, utilities, and service systems, however, would not be cumulatively considerable and would be consistent with the analysis in the PEIR.

**New Impacts to Public Services, Utilities and Service Systems**

The proposed treatments are consistent with the treatment types and activities considered in the PEIR. The site-specific characteristics of the proposed treatments have been considered and found to be consistent with the applicable environmental and regulatory conditions presented in the CalVTP PEIR (refer to Section 3.16.1 Environmental Setting and Section 3.16.2 Regulatory Setting in Volume II of the Final PEIR). The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, the conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as described above. The use of an air curtain burner also constitutes a change in treatment type that is consistent with the types analyzed in the PEIR. Therefore, the impacts of the proposed treatment project are also consistent with those covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape as well as addition of the air curtain burner would not give rise to any new significant impacts not addressed in the PEIR. Therefore, no new impact related to public service, utilities, and service systems would occur that is not covered in the PEIR.

# 3.16 Wildfire

## 3.16.1 Checklist

| Impact in the PEIR | | | Project Specific Checklist | | | | | |
|---|---|---|---|---|---|---|---|---|
| Environmental impact covered in the PEIR | Identify impact significance in the PEIR | Identify location of impact analysis in the PEIR | Does the impact apply to the treatment project? | List SPRs applicable to the treatment project[a] | List MMs applicable to the treatment project[a] | Identify impact significance for treatment project | Would this be a substantially more severe significant impact than identified in the PEIR? | Is this impact within the scope of the PEIR? |
| Would the project: | | | | | | | | |
| Impact WIL-1: Substantially exacerbate fire risk and expose people to uncontrolled spread of a wildfire | LTS | Section 3.17.1; Impact WIL-1 pp. 3.17-14 – 3.17-15 | yes | HAZ-2, HAZ-3, HAZ-4 | NA | LTS | no | yes |
| Impact WIL-2: Expose people or structures to substantial risks related to post-fire flooding or landslides | LTS | Section 3.17.1; Impact WIL-2 pp. 3.17-15 – 3.17-16 | yes | AQ-3, GEO-2, GEO-3, GEO-4, GEO-5, GEO-8 | NA | LTS | no | yes |

Note:

[a] NA: not applicable; there are no SPRs and/or MMs identified in the PEIR for this impact. None: there are SPRs and/or MMs identified in the PEIR for this impact, but none are applicable to the treatment project.

| | | | |
|---|---|---|---|
| New wildfire impacts: Would the treatment result in other impacts to wildfire resources that are not evaluated in the CalVTP PEIR? | ☐ Yes | ☒ No | If yes, provide explanation in discussion. |

## 3.16.2 Discussion

### Impact WIL-1

The primary goal of the project is to create a fuel break and WUI fuel reduction areas in order to provide improved site access for firefighter and equipment staging in the event of a fire as well as to reduce the intensity of or slow down the spread of wildfires or to mitigate the threat of wildfires to surrounding communities. The project would also create ecological resiliency in these areas. Treatments would include prescribed pile burning, air curtain burning, and mechanical treatments, which could result in temporary risks associated with uncontrolled wildfire and accidental wildfire ignition. The potential increase in exposure to wildfire during implementation of treatments was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.17.3, pages 3.17-13–3.17-14). Increased wildfire risk associated with prescribed pile burning and use of heavy equipment in vegetated areas is within the scope of the PEIR. SPRs HAZ-2, HAZ-3, and HAZ-4 would be implemented to reduce the risk of exposure to wildfire by requiring spark arrestors on mechanical hand tools, smoking would be prohibited in vegetated areas, and crews would carry one fire extinguisher per chainsaw. This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental conditions present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape because they are immediately adjacent to each other and have a similar wildfire risk profile, and the type of equipment and treatment duration of the proposed project outside the treatable landscape are consistent with those analyzed in the PEIR. The same SPRs would be required to reduce the risk of wildfire. Therefore, the wildfire impact is also the same and less than significant, as previously described.

If an air curtain burner were used, the impacts of wildfire risk would be similar to, but less than, the use of pile burning for biomass processing. If an air curtain burner were an aboveground structure, this would reduce the wildfire risk because the burning would be contained. Additionally, any air curtain burner is a defined burn chamber where the fire is contained and can be quickly extinguished if necessary (Shapiro, 2002). This determination is consistent with the PEIR and would not constitute a substantially more severe significant impact than covered in the PEIR.

### Impact WIL-2

Initial and maintenance treatments would include prescribed pile burning, mechanical treatment using heavy equipment, and prescribed herbivory. The potential for post-fire

flooding and landslides was examined in the PEIR (CalVTP Final PEIR Volume II Section 3.17.3, pages 3.17-14–3.17-15). Treatment would generally occur on slopes with an incline of less than 35 percent but may occur on slopes with an incline of over 35 percent for limited distances or using special equipment. The proposed project would comply with SPR GEO-8, which requires an RPF or geologist to evaluate treatment areas with slopes with an incline of greater than 50 percent for unstable areas and soils. Implementation of SPRs GEO-3 and GEO-5 would stabilize soil disturbed during mechanical and prescribed herbivory treatments and drain compacted and/or bare linear-treatment areas capable of generating storm runoff via water breaks. The project proponent would also inspect all treatment areas for the proper implementation of erosion control SPRs and mitigations (SPR GEO-4) to minimize potential for landslides. The proposed project treatments would retain up to 50 percent of existing vegetation, which would help to maintain stability of the soil, ensuring impacts would be less than significant and within the scope of the PEIR.

The inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the post-fire landslide risk of the project area is essentially the same within and outside the treatable landscape because they are immediately adjacent to each other, and the slopes and risk of post-fire flooding or landslides would be similar. Therefore, the wildfire impact outside the treatable landscape is also the same and less than significant, as described above, with implementation of the same SPRs. The impact outside the treatable landscapes would be consistent with the lands analyzed in the PEIR.

The inclusion of an air burner as a biomass disposal method constitutes a change to the treatment types presented in the PEIR but would result in similar impacts as pile burning. If air curtain burning included an aboveground structure, it would not result in an increased risk of post-fire flooding or landslide because the burning would occur within the chamber on disturbed land or pavement. Therefore, the impact would be consistent with the treatments analyzed in the PEIR.

**Cumulative Impacts**

As noted in the CalVTP PEIR (CalVTP Final PEIR Section 4.1.1, page 4-1), impacts of the proposed CalVTP would occur within and proximate to approximately 250,000 annually treated acres that are located within the approximately 20.3-million-acre treatable landscape. While the addendum for this project would add an additional 939 acres outside the treatable landscape, the acreage is expected to fall within the total 250,000-acre allowable impact covered by the PEIR. The geographic scope for wildfire is the treatable landscape and adjacent areas because impacts related to wildfire (i.e., uncontrolled spread of wildfire or post-fire flooding or landslides) are location specific, and only projects within or adjacent to CalVTP treatment areas could combine to result in cumulative wildfire impacts (CalVTP Final PEIR Section 4.4.16, page 4-26). Because the lands outside the treatable landscape are proximate to the treatable landscape, they fall within the geographic scope identified within the PEIR. As noted in the PEIR, while the treatments could result in short-term increase in fire risk from pile burning, in this case—limited to pile burning and air curtain burning—the treatments reduce overall

wildfire risk and would have a beneficial effect related to wildfire. The PEIR does not identify potentially cumulatively significant impacts to wildfire, and the proposed project's contribution to wildfire risk would be consistent with the analysis in the PEIR and would not be cumulatively considerable. Use of pile or air curtain burning would be low severity and retain significant vegetation, thereby maintaining stability of the burned area. Therefore, pile or air curtain burning under the proposed project would be consisted with the CalVTP PEIR and would not expose people or structures to substantial risks from post-prescribed-burning landslides or flooding, and the project's contribution to impacts related to post-fire flooding or landslides from implementation of treatment activities would not be cumulatively considerable.

**New Impacts to Wildfire**

The proposed project is consistent with the treatment types and activities covered in the CalVTP PEIR. The site-specific characteristics of the proposed treatment project have been considered and found to be consistent with the applicable regulatory and environmental conditions presented in the CalVTP PEIR (refer to Section 3.17.1 Regulatory Setting and Section 3.17.2 Environmental Setting in Volume II of the Final PEIR). The project proponent has also determined that the inclusion of land in the proposed treatment area that is outside the CalVTP treatable landscape constitutes a change to the geographic extent presented in the PEIR. However, within the boundary of the project area, the existing environmental and regulatory conditions pertinent to wildfire that are present in the areas outside the treatable landscape are essentially the same as those within the treatable landscape, as described above. The use of an air curtain burner also constitutes a change in treatment type that is consistent with the types analyzed in the PEIR. Therefore, the impacts of the proposed treatment project are also consistent with those covered in the PEIR. No changed circumstances are present, and the inclusion of areas outside of the CalVTP treatable landscape, as well as addition of the air curtain burner, would not give rise to any new significant impacts not addressed in the PEIR. Therefore, no new impact related to wildfire risk would occur that is not covered in the PEIR.

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# Attachment A: Project Definition Report



Marin Wildfire Prevention Authority and Central Marin Fire

# Greater Ross Valley Shaded Fuel Break

# Project Definition Report

**May 2022**

PANORAMA ENVIRONMENTAL, INC.

vibrant planet

Marin Wildfire Prevention Authority and Central Marin Fire

# Greater Ross Valley Shaded Fuel Break

# Project Definition Report

**May 2022**

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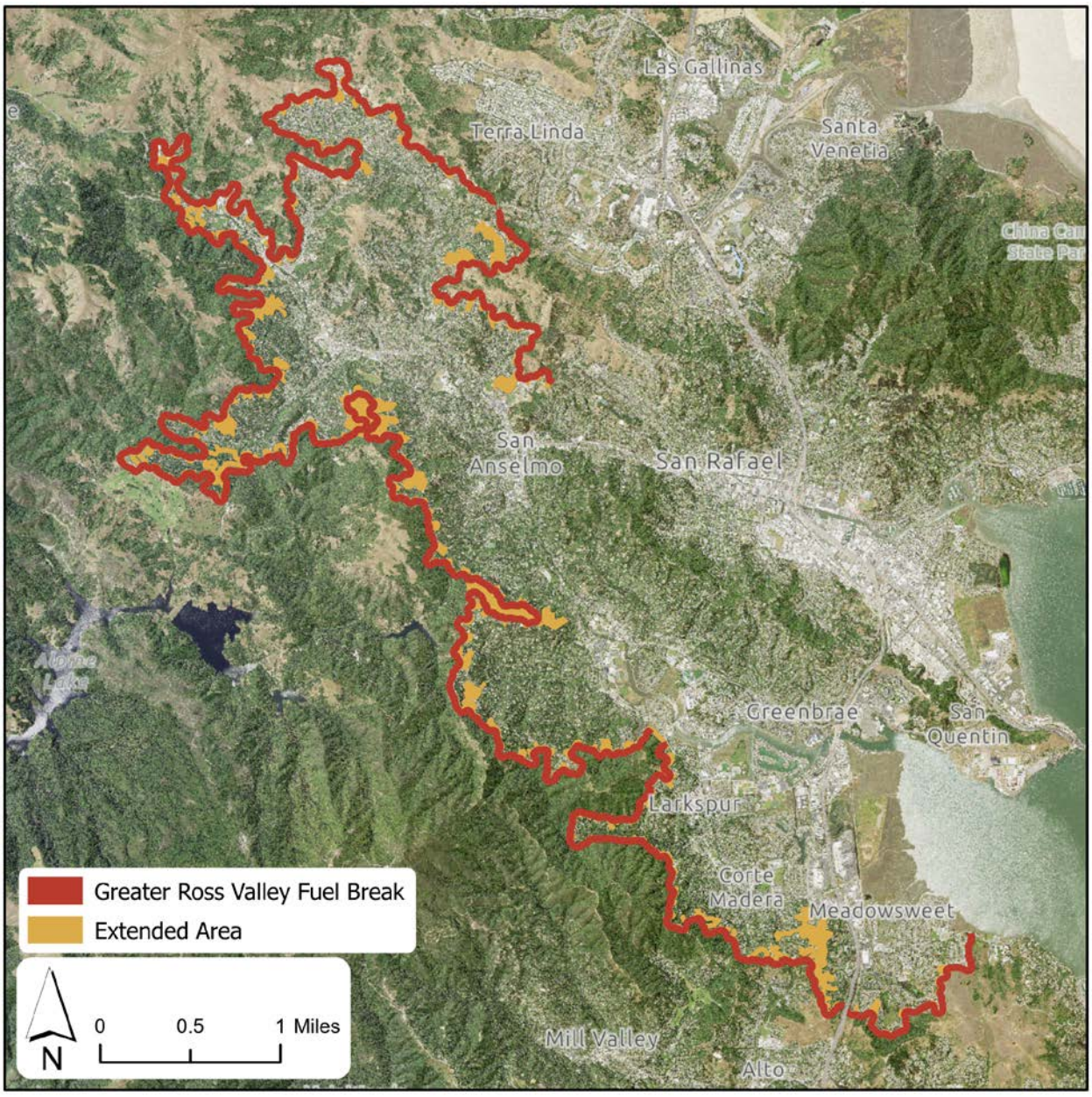
# Summary

This report details Vibrant Planet's contributions to the work that Panorama Environmental, Inc., is performing for Marin Wildfire Prevention Authority (MWPA). Part of this work involves a planning effort to develop a comprehensive vegetation treatment approach within an identified shaded fuel break (Greater Ross Valley Fuelbreak [GRVSFB]) for fuel reduction and improving ecological health along a 38-mile fuel break around several communities in Central Marin (Figure 1).

This report identifies the processes, methods, and some general results specific to each step in developing the fuel break treatment plan as well as describing how implementation will be undertaken, including the process for refinement of treatment units closer to the time of work. We identified/refined the GRVSFB project area, segmented it to produce operable treatment units, and then attributed segments (polygons) with information regarding forest structure, fire hazard, and potential treatments. Optimal project areas were generated based on a combination of fire-threat rating and community exposure, and then potential treatment effects were modeled to demonstrate the effect of the treatment on reducing fire behavior. Maps present 11 sequenced project segments along with information associated with treatment opportunities and how treatment will reduce fire hazard. Recent and best available data was utilized to perform the assessment and develop the treatments. Fire Safe Marin prepared the 2020 Marin Community Wildfire Protection Plan (CWPP), which involved development of a Lidar-derived Fine Scale Vegetation Map, surface fuel model, fire modeling, and parcel-level risk assessment (among other datasets), which was used in this assessment.

The key outputs accompanying this report include the fuel break segmented into prioritized treatment units along with associated attributes. This associated data can be used on the ground to further plan segments.

**Figure 1 Greater Ross Valley Shaded Fuel Break Project**



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# 1 Greater Ross Valley Shaded Fuel Break Methods and Outputs

## 1.1 Overview

The Central Marin Fire Department (Central Marin Fire) has collaborated with the Ross Valley Fire Department, Kentfield Fire Protection District, and Marin County Fire Department, and is proposing a Marin Wildfire Prevention Authority (MWPA) Core Project, referred to as the Greater Ross Valley Shaded Fuel Break (GRVSFB) project. The goal of the GRVSFB project is to create and maintain a continuous reduced-fuel and forest-health-restoration zone around the communities in Central Marin. The proposed project would involve conducting vegetation management activities to create an approximately 38-mile-long continuous shaded fuel break within a 1,379-acre area. Wildland Urban Interface (WUI) fuel reduction areas up to 497 acres adjacent to the fuelbreak may also be treated.

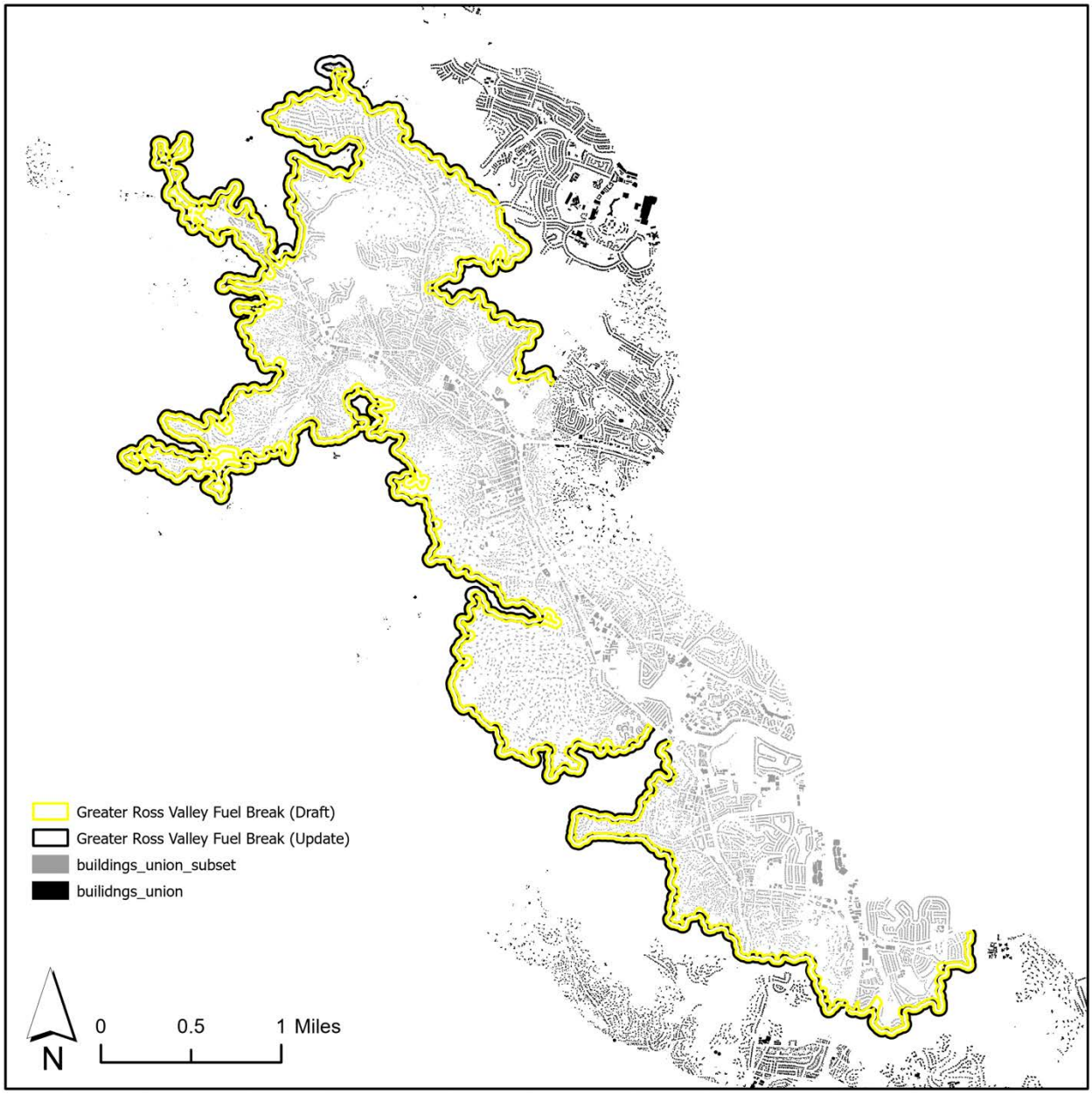
The proposed project represents a new approach to landscape-scale fuel management methods. A bibliography of literature is currently being prepared by the MWPA that addresses the effectiveness of shaded fuel breaks based on their functions. To create an effective project based in the latest wildfire science and data, a modeling approach was undertaken for the purpose of designing the fuel break and fuel reduction areas so as to optimize the level of effort and methods used as well as to prioritize the areas where the greatest impact would be seen. Vibrant Planet undertook several steps to define the project areas, which are presented in Section 1.2.1 below.

## 1.2 Steps in Development of Fuel Break Treatments

### 1.2.1 Step 1: Develop Core Fuel Break Area

After reviewing the project area, Vibrant Planet realized that the GRVSFB was misaligned with some of the aerial imagery of where an expected fuel break would occur. Vibrant Planet updated the project area based on the best available data and communications with Panorama, Central Marin Fire, and Marin County Fire. The GRVSFB area was updated after speaking with Todd Lando (Central Marin Fire) and Jordan Reeser (Marin County Fire) regarding the objectives and goals of the project and the processing that was completed to produce the draft fuel break shapefile (Figure 2). This update accounted for buildings that were not in the original parcels layer, stayed more on the periphery of the community, and widened the analysis area (although not necessarily the fuel break) to 300 feet from the original 200 feet.

**Figure 2 GRVSFB Area Development**




*GRVSFB with original DRAFT outline (yellow) and updated outline (black)*

The updated GRVSFB was approximately 7 miles shorter (approximately 38 miles, compared to 45 miles) and about 272 acres larger (approximately 1,379 acres, compared to 1,108 acres).

### 1.2.2 Step 2: GRVSFB Segmentation and Attribution

This task involved disaggregating the GRVSFB into segments (polygons) that represent a potential forest health treatment unit based on vegetation and fuel conditions. Segments were developed using spatial data including the Forest Lifeform feature in the fine scale vegetation map and the Marin Valley 5m fuel model (Figure 3). A minimum mapping unit of 0.25 acres was used. The GRVSFB fuelbreak has 802 segments ranging from 0.25 to 27.13 acres, with an average size of 1.72 acres.

Each segment was then attributed with data about property ownership, structural vegetation characteristics, fire risk from existing modeling, and estimated vegetation health condition. These attributes were used to identify treatment opportunities and priority segments. This data can be used for project analysis and refinement, depending on the individual project.

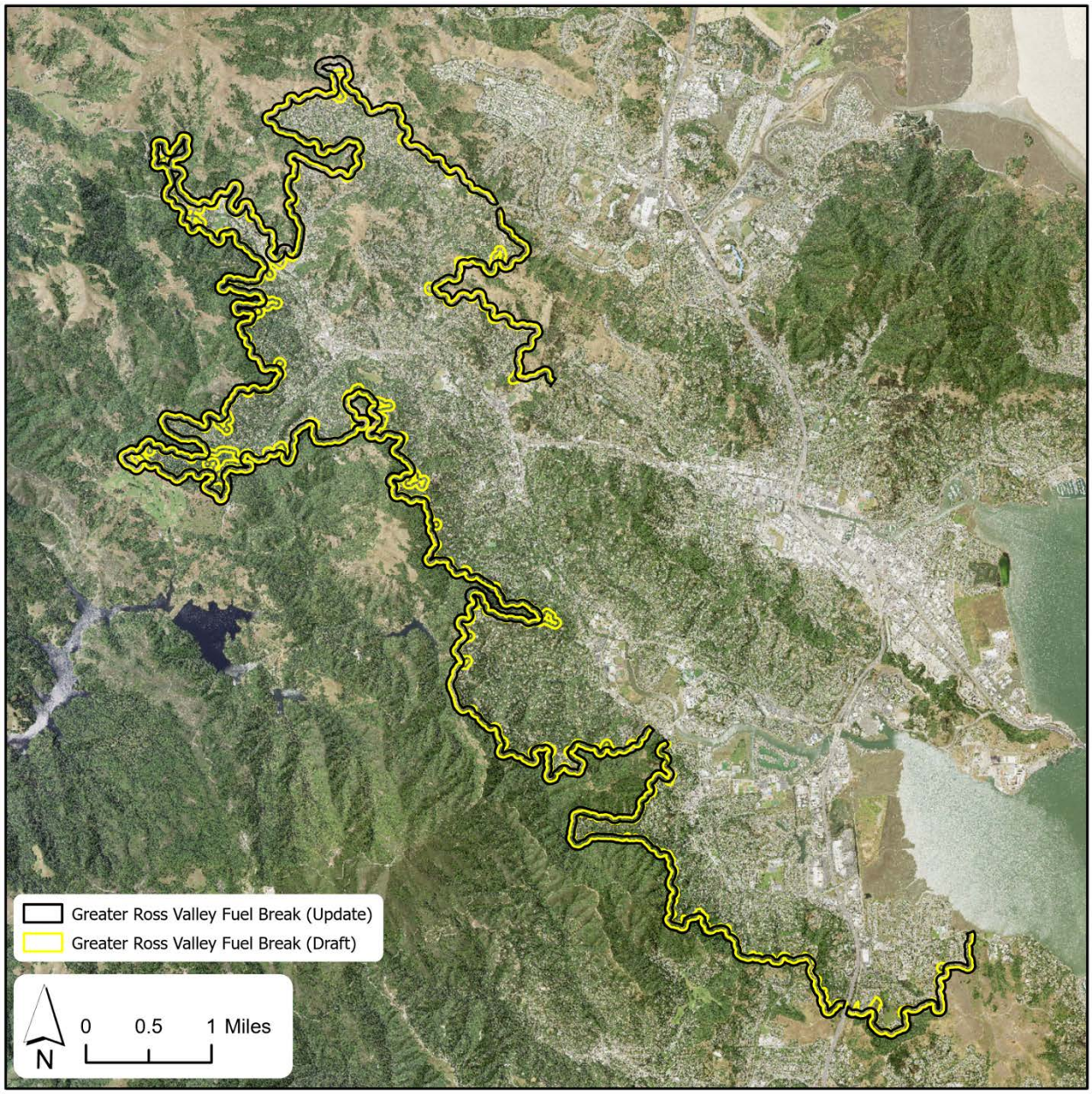
### 1.2.3 Step 3: Development of Forest Health Restoration Treatments

This task involved developing a ruleset relating vegetation treatments suitable to given conditions related to parcel ownership, slope, vegetation characteristics, and other attributes from the GRVSFB segments. Treatments available to develop and maintain the GRVSFB were directly tied to those approved for implementation in the California Department of Forestry and Fire Prevention (CAL FIRE) Vegetation Treatment Plan (CalVTP) for ease of hand-off from the planning phase to environmental review and implementation. Treatments that would reduce invasive species cover, maintain native tree canopy, reduce the likelihood of crown fire, and reduce potential tree mortality following a wildfire were identified as providing forest health benefits.

The impact of treatment on fire behavior layers (i.e., burn probability, flame length, and rate of spread) were assessed to understand the efficacy of treatments. Recommended primary and secondary treatments were assigned to each GRVSFB segment along with estimated cost of treatments. Field verification of treatment units and treatment types were conducted to ensure appropriateness of the developed GRVSFB dataset.

Eighteen treatment methods were evaluated (Table 2). Within each polygon, all feasible treatments available were identified (Figure 4). For some polygons, several different treatment methods could be implemented. For each polygon, a priority treatment method among the various feasible methods was assigned. The order of priority for assigning the primary treatment method was as follows: ground-based mechanical, hand thinning, rearrangement, herbivory, and, finally, invasive species treatments (Table 2). For all polygons that had a feasible treatment method, five treatment methods were identified as the priority treatments (Table 2, bolded, gray lines). A selection of polygons were identified as having no suitable treatment because the polygons were either too steep (> 65% slope) or had low canopy cover (≤ 30%), based on available data (Table 1).

**Figure 3 GRVSFB Segmentation Output**




*GRVSFB with segmentation for forest health treatment assignment and prioritization. Black lines indicate segment (polygon) boundaries.*

While these polygons do not have specific treatment opportunities identified, these polygons may still be identified as having high fire hazard relative to other polygons. Some treatments could occur within these polygons after on-the-ground investigation although the modeling identified the area as not suitable for treatment.

Polygons identified as "too steep" ranged in canopy cover from 13 percent to 99 percent; polygons identified as "low canopy cover" had canopy cover over 6.6 feet (2 meters) that ranged from 5 percent to 30 percent. While these areas are shown in the modeling as "No Treatment Identified," treatments may still be implemented in these areas at the time of implementation, depending on ground truthing.

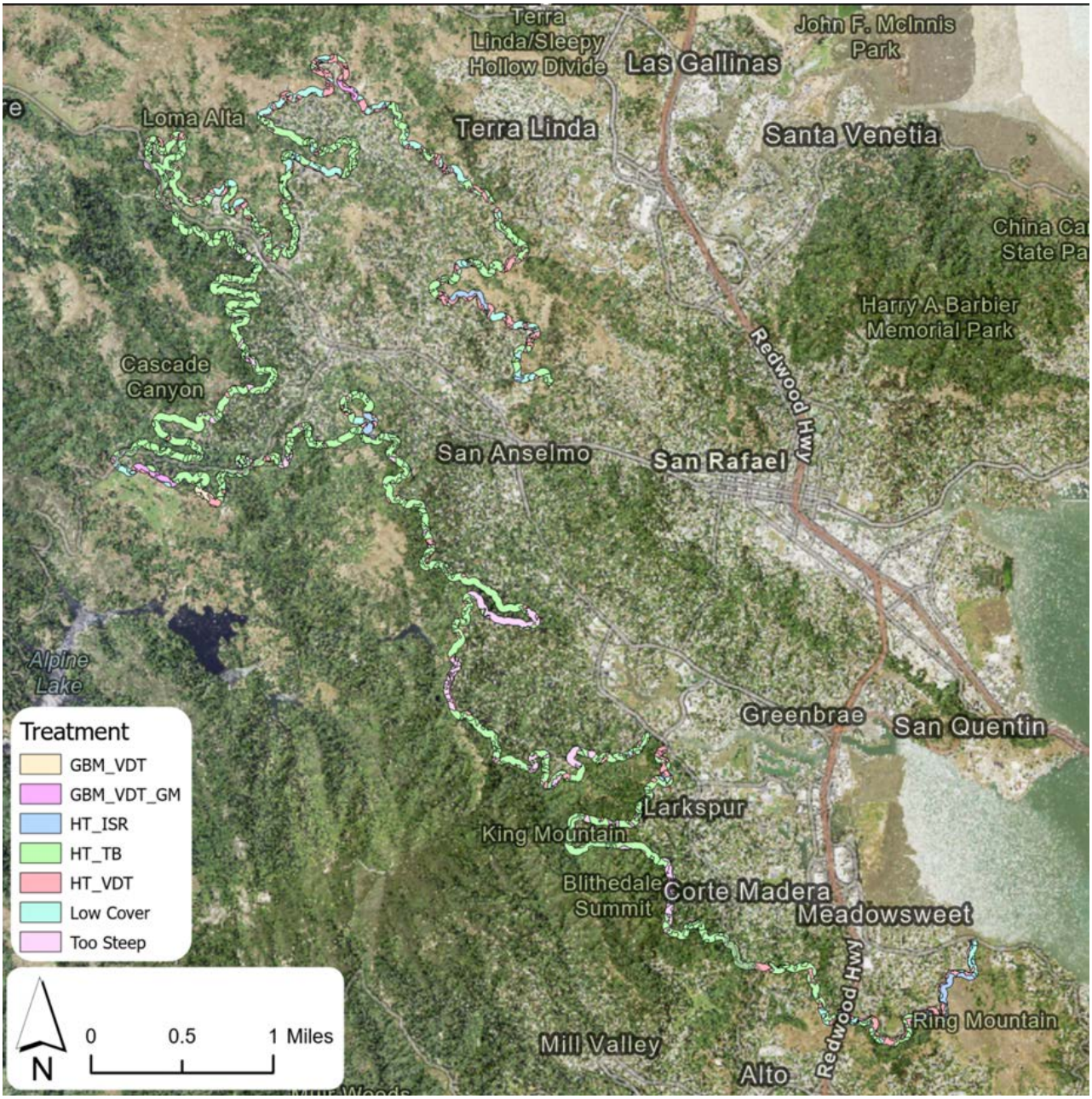
**Table 1 Priority Treatment Methods, Including Number of Segments and Areas to be Treated by Each Method**

| Treatment method | Abbreviation | Number of segments | Acres |
|---|---|---|---|
| **Priority treatment methods** | | | |
| Ground-based mechanical – variable density thin, no large openings | GBM_VDT | 3 | 5.3 |
| Ground-based mechanical – variable density thin, no large openings; biomass removal | GBM_VDT_GM | 3 | 15.2 |
| Hand thinning – invasive species removal | HT_ISR | 11 | 33.6 |
| Hand thinning – thin from below | HT_TB | 410 | 896.3 |
| Hand thinning – variable density thin, no large openings | HT_VDT | 223 | 197.1 |
| **No treatments identified** | | | |
| Low canopy cover | Low canopy cover | 75 | 125.4 |
| Too steep | Too steep | 77 | 106.4 |

**Table 2 Potential Treatments Considered for Assignment**

| Abbreviation | Treatment method | Minimum acres | Average % slope | Canopy height | Canopy cover | Ladder fuel | Invasive Species | Priority |
|---|---|---|---|---|---|---|---|---|
| **GBM_VDT_GM** | **Ground-based mechanical – variable density thin, no large openings; biomass removal** | **5** | **≤ 35** | **N/A** | **> 50** | **≥ 50** | **Y or N** | **1** |
| GBM_VDT | Ground-based mechanical – variable density thin, no large openings | 5 | ≤ 35 | N/A | > 50 | ≤ 50 | Y or N | 2 |
| **GBM_TB_GM** | **Ground-based mechanical – thin from below; biomass removal** | **5** | **≤ 35** | N/A | **> 50** | **≥ 50** | **Y or N** | **3** |
| GBM_BR | Ground-based mechanical – biomass removal | 5 | ≤ 35 | N/A | > 50 | ≥ 50 | Y or N | 4 |
| GBM_TB | Ground-based mechanical – thin from below | 5 | ≤ 35 | N/A | > 50 | 0 | Y or N | 5 |
| GBM_OR_GM | Ground-based mechanical – overstory removal; biomass removal | 5 | ≤ 35 | N/A | > 50 | ≥ 50 | Y or N | 6 |
| GBM_OR | Ground-based mechanical – overstory removal | 5 | ≤ 35 | N/A | > 50 | 0 | Y or N | 7 |
| **HT_VDT** | **Hand thinning – variable density thin, no large openings** | **0** | **≤ 65** | **< 150 ft** | **≥ 30** | **≤ 50, > 10** | **Y or N** | **8** |
| **HT_TB** | **Hand thinning – thin from below** | **0** | **≤ 65** | **< 150 ft** | **≥ 30** | **≥ 20** | **Y or N** | **9** |
| R_TB | Rearrangement – thin from below | 5 | ≤ 35 | < 150 ft | ≥ 30 | N/A | Y or N | 10 |
| R_GMP | Rearrangement – grapple/machine piling | 5 | ≤ 35 | < 150 ft | ≥ 30 | N/A | Y or N | 11 |
| R_TFF | Rearrangement – target fine fuel | 5 | ≤ 35 | < 150 ft | ≥ 30, < 90 | N/A | Y or N | 12 |
| R_ST | Rearrangement – shallow tillage | 5 | ≤ 35 | < 150 ft | ≥ 30 | N/A | Y or N | 13 |
| H_TF_HTVDT | Herbivory – targeted-fuels focused; hand thinning – variable density thin, no large openings | 0 | ≤ 65 | N/A | ≥ 30 | ≥ 20 | Y or N | 14 |
| H_TF_HT | Herbivory – targeted-fuels focused; hand thinning – thin from below | 0 | ≤ 65 | N/A | ≥ 30 | ≥ 20 | Y or N | 15 |
| H_TF | Herbivory – targeted-fuels focused | 0 | ≤ 65 | N/A | ≥ 30 | ≥ 20 | Y or N | 16 |
| **HT_ISR** | **Hand thinning – invasive species removal** | **0** | **≤ 65** | **N/A** | **N/A** | **N/A** | **Y** | **17** |
| H_TA | Herbicides – targeted application | 0 | ≤ 65 | N/A | N/A | N/A | Y | 18 |

**Figure 4 Map of Treatments Assigned Within the GRVSFB**




*Map of treatments assigned within the Greater Ross Valley Fuel Break for analysis of impacts on reducing fire behavior. Treatments included ground-Based management (GBM) and hand thinning (HT). See treatment guide for more detail on treatment abbreviations and descriptions.*

### 1.2.4 Step 4: Prioritization of GRVSFB Areas for Forest Health Restoration Treatments Based on Current Fire Hazard

Fire hazards for each GRVSFB segment were identified using a combination of fire threat and community exposure, where high fire threat and high community exposure would be identified as high priority segments to treat (Figure 5). "Fire threat rating" was based on CWPP methods, modified by eliminating parcel-based parameters and using only flame length, rate of spread, and burn probability (Table 3) (see Marin CWPP, page 74 [December 2020]). The class for each input variable for fire threat was identified, and then fire threat was calculated as the average of the three input variables, ranging from 1 (low expected fire behavior and likelihood of burning) to 4 (high expected fire behavior and likelihood of ignition). Community wildfire exposure data was taken from Ager et al. 2019 (Ager A. A., 2019). This data identifies sources of exposure, where high values indicate that a high number of buildings that would be exposed by wildfires igniting in that pixel and spreading to adjacent developed areas. Fire threat and community wildfire exposure were normalized to a scale of 0 to 1 and then multiplied by each other for a final fire hazard (Figure 8). Fire hazard ranged from a low of 0.17 to a high of 0.83, with an average hazard rating on 0.47 (Figure 6). This final hazard rating was used to identify priority segments (Figure 7). The workflow is presented in Figure 8.

**Figure 5 Conceptual Model of Fire Hazard Based on the Fire Threat Rating and Community Exposure**

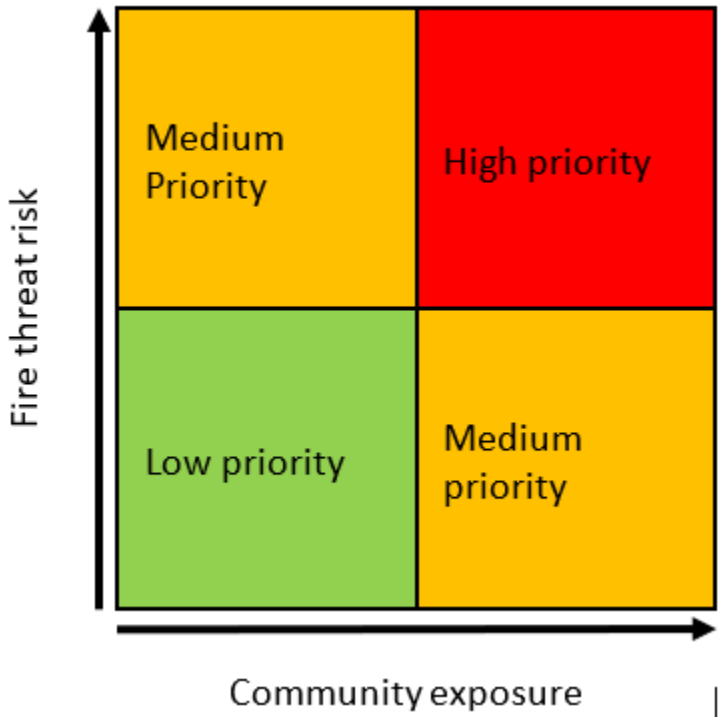
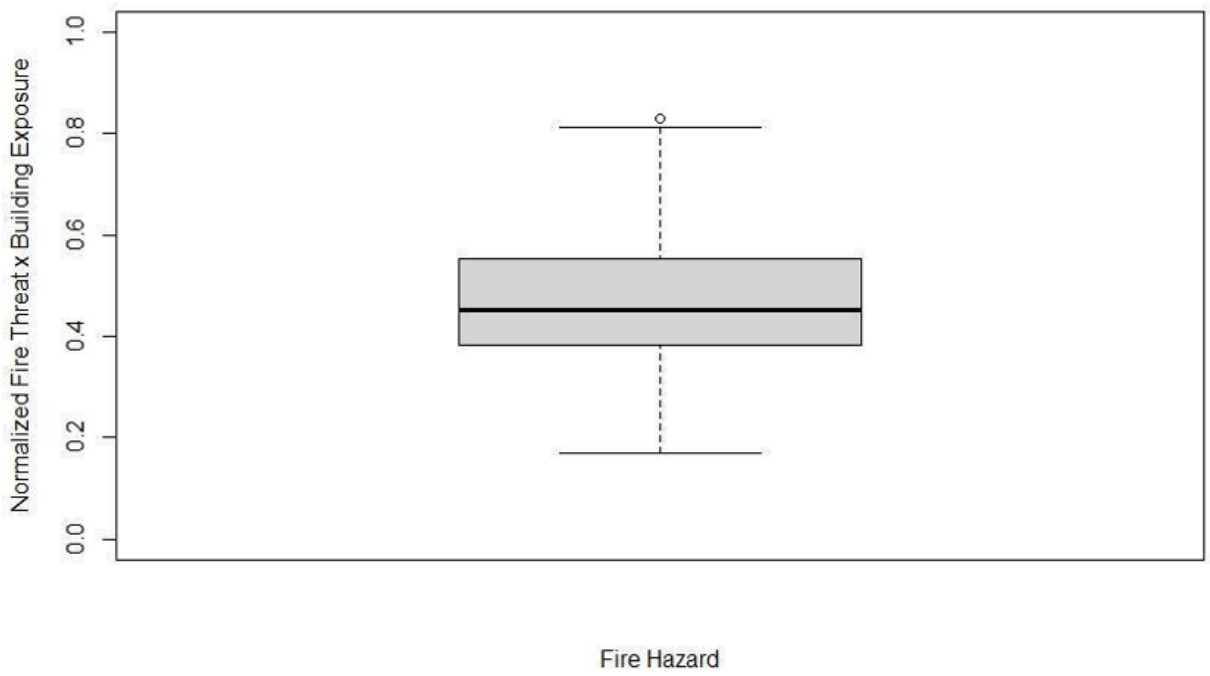


**Table 3 Reclassification Scheme Used for Fire Threat Rating Input Layers in Marin County CWPP**

| Class | Flame length (ft) | Rate of spread (chains/hour) | Randig burn probability |
|---|---|---|---|
| 1 | ≤4 | ≤5 | ≤0.0001 |
| 2 | >4, ≤8 | >5, ≤10 | >0.0001, ≤0.0005 |
| 3 | >8, ≤12 | >10, ≤30 | >0.0005, ≤0.001 |
| 4 | >12 | >30 | >0.001 |

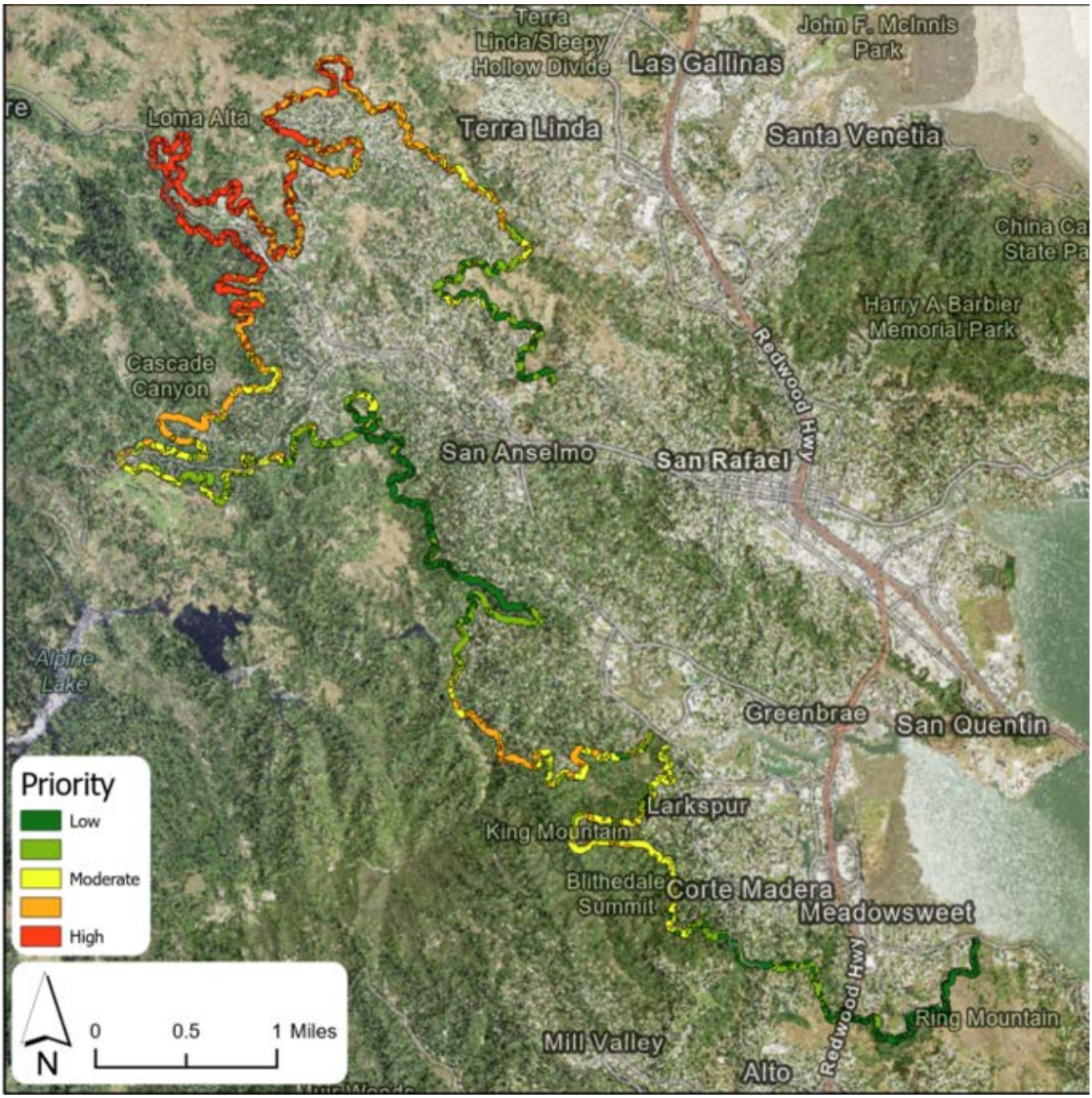
*Fire behavior inputs (flame length, rate of spread, and burn probability) were used in this analysis.*

**Figure 6 Summary of Fire Hazard Based on Fire Threat Rating and Community Exposure**



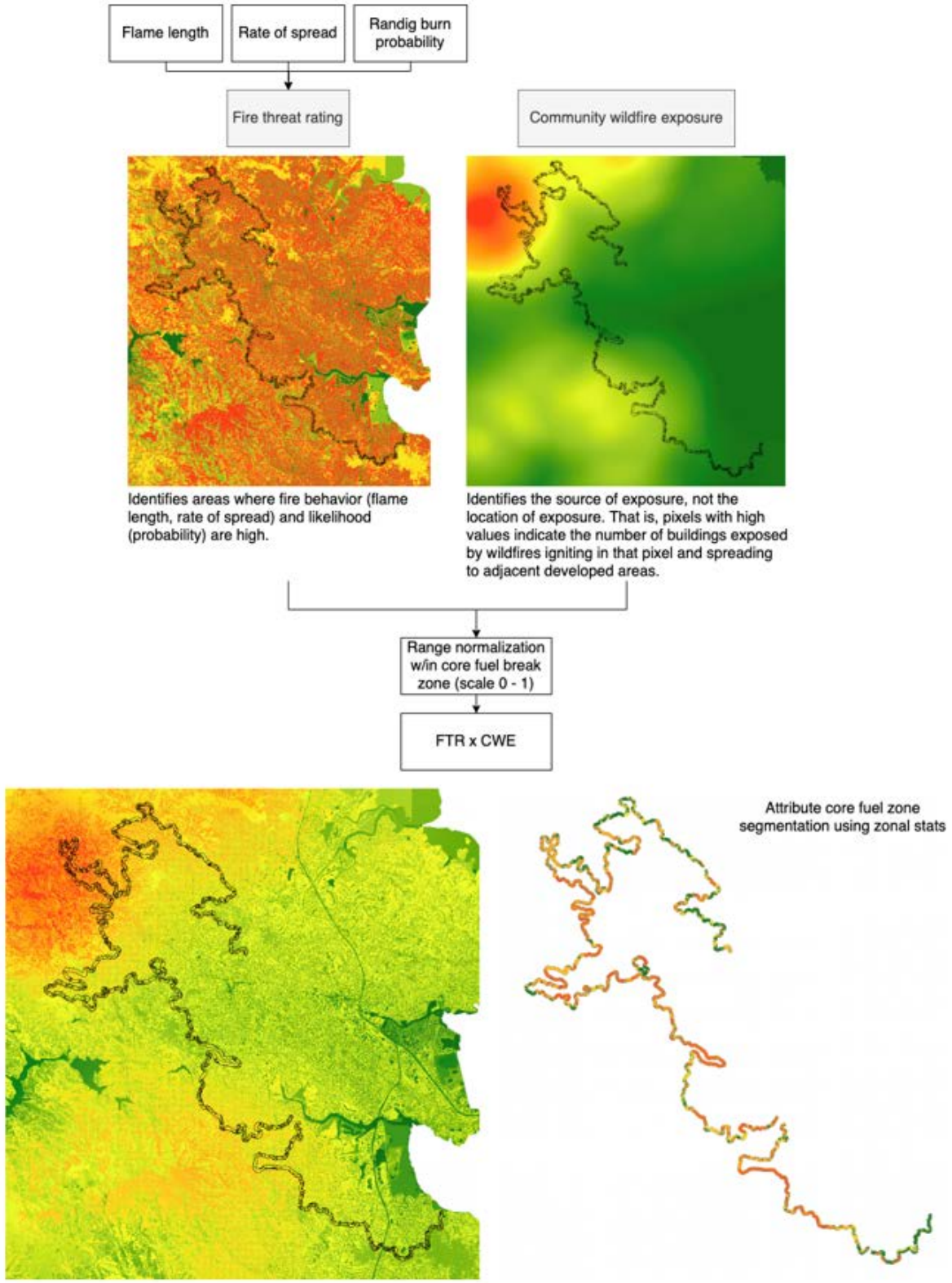

*The grey box shows the interquartile range (Q1 to Q3), and the black line in the middle shows the median. The dashed line shows the minimum ($Q1 - 1.5 * IQR$) and the maximum ($Q3 + 1.5 * IQR$) while the points show the outliers.*

**Figure 7 Initial Prioritization**




*Initial prioritization of the GRVSFB segments based on fire threat rating and community exposure. For mapping purposes, fire hazard was ranked from low to high relative to hazard within the project areas using five equal breaks.*

**Figure 8 Workflow to Incorporate Fire Threat Rating and Community Exposure Dataset**



### 1.2.5 Step 5a: Project Sequencing Opportunities

This task involved sequencing areas of the GRVSFB for treatment over a multi-year period. Each sequence of segments was identified using the scenario modeling platform ForSys (the Scenario Investment Planning Platform (Ager A. , No Date). Segments of work were generated using an initial prioritization of fire hazard that combined fire threat rating and community exposure. Each project was allowed to grow to 150 acres, with a total of 10 segments generated. After running ForSys, polygons not assigned to a project were then either grouped into the existing project that they were closest to or assigned to an 11th project (Figure 9). In total, 19 segments were not assigned a project in ForSys. Of those, two were assigned to Project 2, nine were assigned to Project 5, one was assigned to Project 9, and seven were assigned to Project 11 (Figure 7).

Costs were estimated for each project based on the priority project and the following base costs:

- Ground-based mechanical: $5,000/acre
- Hand thinning (excluding burning of piles): $2,500/acre
- Herbicides, targeted/hand thinning, invasive species removal: $250/acre
- Herbivory: $500/acre
- Rearrangement: $1,500/acre

Segments contained from 7 to 104 segments and ranged from 28 to 168 acres after manual adjustments (Table 4). Ownership and treatment opportunities are summarized for each project (Table 4 and Table 5). Treatment opportunity is presented for priority treatments as identified in Table 2. If, after site visits, the priority treatment identified is deemed not suitable, a list of alternative treatments for each segment can be found in the spatial dataset. Additionally, there is an opportunity to improve overall ecological health when visiting units for fire hazard reduction by implementing invasive species removal work simultaneously (segments 4, 6, 7, 8, 9, at a minimum, have invasive species present per the data available; see Appendix A). The breakdown of vegetation class within each project is included in Appendix A. Regarding ownership, a dataset that maps public lands was used and, therefore, private ownership was assumed when segments fell outside of the mapped categories.

**Figure 9** **Potential Project Sequencing Based on a Combination of Fire Threat Risk and Community Exposure**

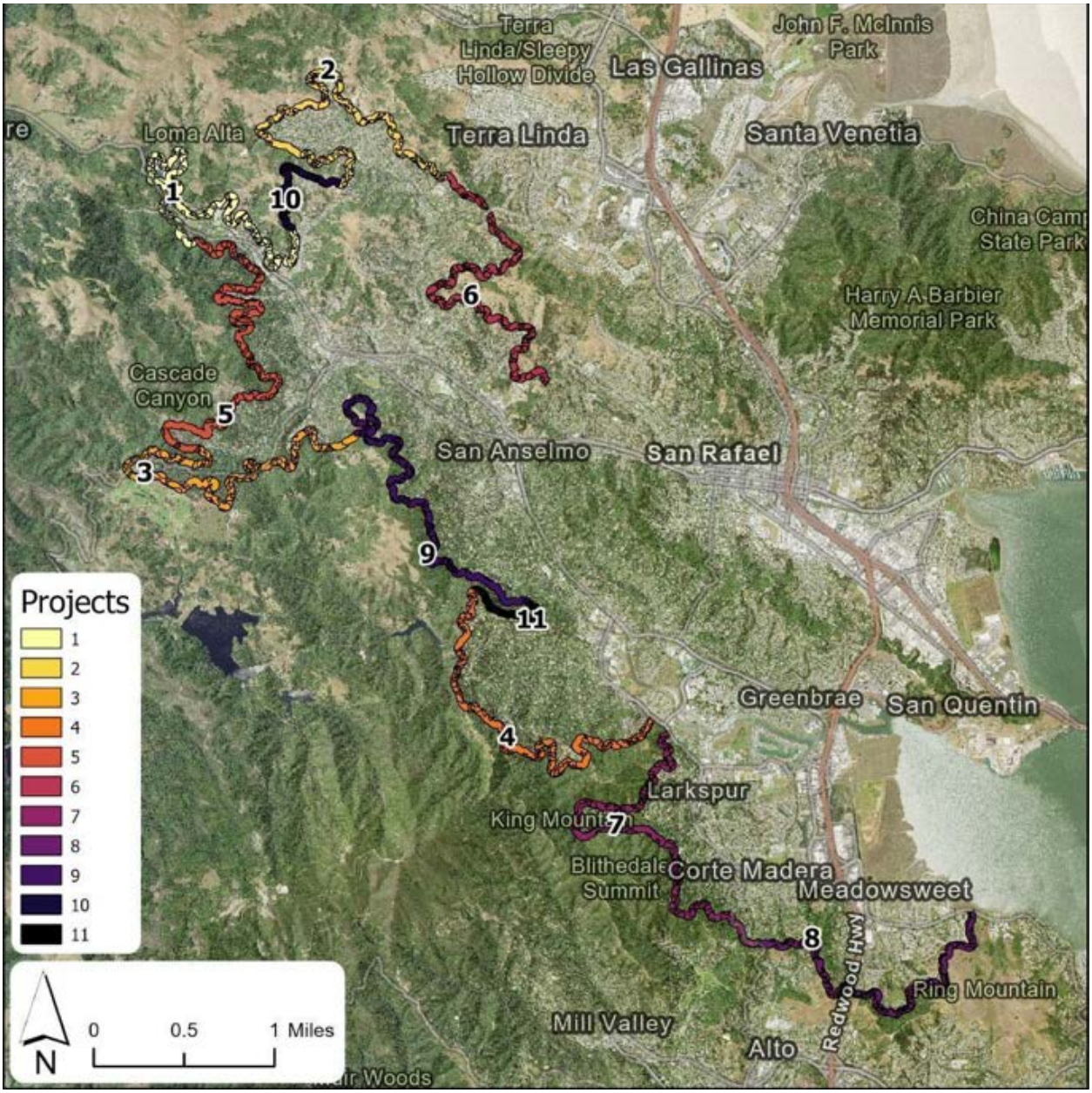


**Table 4 Number of Segments, Acres by Land Manager, and Estimated Costs for Each Project**

| Project | Number of segments | Land manager | Acres | Total acres | Estimated costs |
|---|---|---|---|---|---|
| 1 | 86 | private | 102.3 | 150 | $342,428.25 |
| | | Marin County Open Space District | 47.7 | | |
| 2 | 104 | private | 132.5 | 149 | $303,020.20 |
| | | Marin County Open Space District | 16.5 | | |
| 3 | 101 | private | 103 | 151 | $379,740.65 |
| | | Marin Municipal Water District | 43 | | |
| | | Marin County Open Space District | 5.1 | | |
| 4 | 83 | private | 64.9 | 143 | $268,262.50 |
| | | Marin County Open Space District | 68.0 | | |
| | | Marin Municipal Water District | 52.4 | | |
| | | Ross, Town of | 0.9 | | |
| 5 | 72 | private | 141.9 | 169 | $396,779.75 |
| | | Marin County Open Space District | 26.1 | | |
| 6 | 90 | private | 107 | 143 | $261,146.85 |
| | | Marin County Open Space District | 26.0 | | |
| | | San Anselmo, City of | 8.6 | | |
| | | Marin County Parks Department, County of | 0.4 | | |
| 7 | 84 | Marin County Open Space District | 87.1 | 150 | $311,672.80 |
| | | private | 58.2 | | |
| | | Larkspur, City of | 4.7 | | |
| 8 | 83 | Marin County Open Space District | 49.2 | 117 | $204,487.27 |
| | | The Nature Conservancy | 28.8 | | |
| | | Private | 24.3 | | |
| | | Corte Madera, Town of | 9.5 | | |
| | | Tiburon, Town of | 4.2 | | |
| 9 | 73 | private | 121 | 140 | $319,601.78 |
| | | Marin County Open Space District | 14.2 | | |
| | | Ross, Town of | 4.1 | | |
| | | Marin Municipal Water District | 0.7 | | |

| Project | Number of segments | Land manager | Acres | Total acres | Estimated costs |
|---|---|---|---|---|---|
| 10 | 19 | private | 38.4 | 40 | $65,052.75 |
| | | Marin County Open Space District | 1.6 | | |
| 11 | 7 | private | 28 | 28 | $7,487.25 |
| Total | 802 | private | 927 | 1,379 | $2,859,680.05 |
| | | public | 387 | | |

*Note that portions of segments totaling 70 acres cross Marin Municipal Water District Lands, however, work on their lands is managed by Marin Municipal Water District under existing program and is not part of the PSA. Numbers may not add up due to rounding.*

**Table 5 Summary of Priority Treatments by Project**

| Project | Treatment | Acres |
|---|---|---|
| 1 | Hand thinning – thin from below | 114.84 |
| | Ground-based mechanical – variable density thin, no large openings | 22.14 |
| | Low canopy cover | 10.62 |
| | Too steep | 2.38 |
| 2 | Hand thinning – thin from below | 62.01 |
| | Hand thinning – variable density thin, no large openings | 45.95 |
| | Low canopy cover | 35.67 |
| | Ground-based mechanical – variable density thin, no large openings; biomass removal | 5.52 |
| 3 | Hand thinning – thin from below | 107.97 |
| | Hand thinning – variable density thin, no large openings | 10.15 |
| | Ground-based mechanical – variable density thin, no large openings; biomass removal | 9.63 |
| | Low canopy cover | 9.59 |
| | Too steep | 8.04 |
| | Ground-based mechanical – variable density thin, no large openings | 5.33 |
| 4 | Hand thinning – thin from below | 96.67 |
| | Too steep | 34.46 |
| | Hand thinning – variable density thin, no large openings | 10.62 |
| | Low canopy cover | 0.83 |
| 5 | Hand thinning – thin from below | 157.33 |
| | Too steep | 9.77 |
| | Hand thinning – variable density thin, no large openings | 1.38 |
| 6 | Hand thinning – thin from below | 62.62 |
| | Hand thinning – variable density thin, no large openings | 40.76 |

| Project | Treatment | Acres |
|---|---|---|
| | Low canopy cover | 28.53 |
| | Hand thinning – invasive species removal | 10.79 |
| | Too steep | 0.36 |
| 7 | Hand thinning – thin from below | 113.76 |
| | Too steep | 23.12 |
| | Hand thinning – variable density thin, no large openings | 10.80 |
| | Low canopy cover | 1.10 |
| | Hand thinning – invasive species removal | 1.03 |
| 8 | Hand thinning – thin from below | 40.26 |
| | Hand thinning – variable density thin, no large openings | 40.08 |
| | Low canopy cover | 21.13 |
| | Hand thinning – invasive species removal | 14.50 |
| | Too steep | 0.52 |
| 9 | Hand thinning – thin from below | 115.61 |
| | Hand thinning – variable density, thin no large openings | 11.51 |
| | Hand thinning – invasive species removal | 7.24 |
| | Low canopy cover | 3.40 |
| | Too steep | 2.64 |
| 10 | Hand thinning – thin from below | 22.82 |
| | Low canopy cover | 14.55 |
| | Hand thinning – variable density thin, no large openings | 3.20 |
| 11 | Too steep | 25.14 |
| | Hand thinning – thin from below | 2.43 |
| | Hand thinning – variable density thin, no large openings | 0.56 |

### 1.2.6 Step 5b: Prioritization of GRVSFB Project Areas for Forest Health Restoration Treatments Based on Treatments Reducing Fire Behavior

After treatments were assigned for each project, fire behavior models were re-run in FlamMap to further determine whether potential treatments (from Step 3: Development of Forest Health Restoration Treatments) would reduce fire-threat ratings at the segment level. Fire behavior was modeled using the extreme weather scenario (provided in the CWPP, see Table 6) for both pre-treatment and post-treatment, with the latter assuming that the priority treatment was completed in each segment. FlamMap was run using the same parameters that were run for the CWPP outputs as verified in communications with Sonoma Technology (Table 7). For each

segment where a priority treatment was identified, post-treatment fuel models and canopy characteristics were updated using crosswalks (See Appendix B, Table 12 and Table 14).

The change in fire-threat rating was then determined by calculating the new, post-treatment fire-threat rating using burn probability, flame length, and rate of spread, as described in Table 4. We then subtracted the post-treatment value from pre-treatment value and computed zonal statistics using an average for each segment. The changes in values were normalized so that they ranged from 0 to 100, with 0 indicating no reduction in fire-threat rating and 100 indicating the maximum reduction (Figure 9).

The treatment effect modeling provides a data-driven method for prioritization of segments within each project area identified in Figure 8. Treatments reduce fire threat for all segments; however, there is variability in each project regarding where threat is reduced (Figure 9 and Figure 10). Therefore, this attribute is intended to allow further sequencing.

**Table 6 Fuel Moisture and Weather Values used in Extreme Diablo Wind Conditions Modeling Scenario**

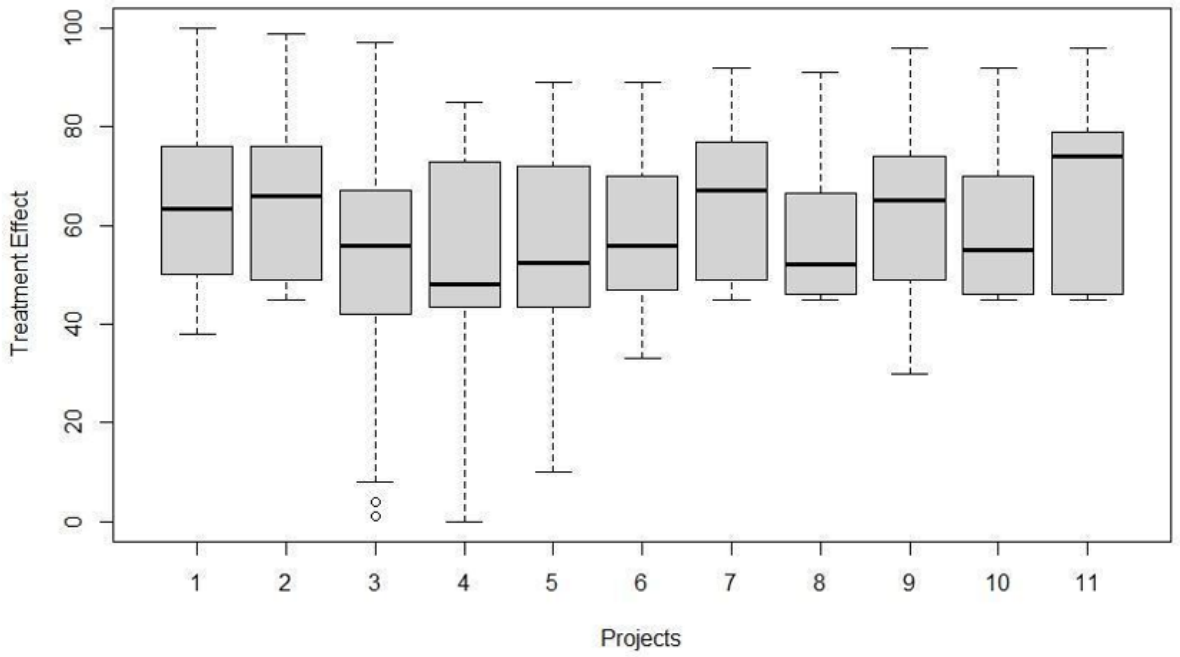
| Parameter (units) | Extreme Diablo Wind conditions scenario |
|---|---|
| 1-hour fuel moisture | 3% |
| 10-hour fuel moisture | 4% |
| 100-hour fuel moisture | 6% |
| Herbaceous fuel moisture | 3% |
| Live wood fuel moisture | 67% |
| Wind speed | 30 miles per hour |
| Wind direction | 45° (from the northeast) |

**Table 7 FlamMap Parameters Used for Scenario Runs**

| FlamMap parameter | Value[a] |
|---|---|
| Crown fire calculation method | (Scott & Reinhardt, 2001) |
| Resolution of calculations | 10 *m* |
| Maximum simulation time | 480 min. |
| Interval for minimum travel paths | 500 |
| Spot probability | 0.01 |
| Spotting delay | 0 min. |
| Lateral search depth | 4 |
| Vertical search depth | 6 |

[a] Parameter values were duplicated from those that were run for the CWPP outputs as verified in communications with Sonoma Technology.

**Figure 10 Modeled Treatment Effects by Project**




*Modeled treatment effect by project, where values closer to 100 indicate a greater potential to reduce fire-threat rating (burn probability, rate of spread, flame length). Boxplot summaries include all segments within each project. The gray box shows interquartile range (Q1 to Q3) and the black line in the middle shows the median. The dashed lines show the minimums ($Q1 - 1.5 * IQR$) and the maximums ($Q3 + 1.5 * IQR$) while the points show the outliers.*

## 1.3 Extended Areas

The primary focus of the project was on the shaded fuel break, comprising the 300-foot swath adjacent to buildings and structures at the WUI. However, in developing the fuel break during Step 1, several additional areas of open space and undeveloped private parcels of land were found extending into the community areas. The treatment of these areas, if feasible, would provide added protection between the overall fuel break and community structures. These areas were identified as the "extended zone."

An analysis was performed to segment the extended zone (referred to as "WUI fuel reduction" in the CalVTP) adjacent to the GRVSFB and to assign potential treatments. Segmentation in the extended zone was performed following the same procedure described for the shaded fuel break, using a combination of fuel modeling and fine scale vegetation forest lifeform. The assignment of treatments similarly followed the methods from the shaded fuel break but were ultimately grouped into three categories: ground-based management (GBM), hand thinning (HT), and invasive species removal (ISR). Areas not assigned treatment included those that were too steep or had very low canopy cover. Treatment costs per acre were estimated based on these grouped methods ($6,000 for GBM, $2,600 for HT, and $250 for ISR) (Table 8). Ground-based management was considered a likely treatment only for areas that exceeded 5 acres

(when adjacent segments were combined); however, areas in the original shaded fuel break were also allowed into the sum. The extended zone treatments are shown in Table 8.

The extended zone consists of approximately 497 acres across 409 segments, with the average segment size being 1.2 ± 1.7 acres. Most of the extended zone is on private land (approximately 478 of 497 acres), mainly as a result of the delineation of this area being intended to run right up to the border of structures and the undeveloped area outside of the communities. However, there were also portions of the extended area managed by the Marin County Open Space District (about 9 acres), City of San Anselmo (about 5 acres), and Marin Municipal Water District (about 5 acres). Treatments were dominated by hand thinning (about 85 percent of the extended zone), which also comprised most of the estimated costs (Table 9). Map class acreages within the extended zone are shown in Table 10.

**Table 8 Extended Zones by Treatment Type and Costs**

| Treatment method | Treatment | Acreage | Cost |
|---|---|---|---|
| Hand thinning | HT | 425.79 | $1,064,237 |
| Too steep | Too steep | 42.76 | 0 |
| Low canopy cover | Low canopy cover | 15.15 | 0 |
| Ground-based mechanical | GBM | 8.09 | $48,499 |
| Hand thinning – invasive species removal | ISR | 5.38 | $1,341 |
| **Total** | | **497.17** | **$1,114,077** |

**Table 9 Ownership Acreages within the Extended Zone**

| Ownership | Acres |
|---|---|
| Private | 478.11 |
| Marin County Open Space District | 9.45 |
| San Anselmo, City of | 4.78 |
| Marin Municipal Water District | 4.78 |
| Corte Madera, Town of | 0.05 |
| **Total** | **497.17** |

*Note that portions of segments totaling 70 acres cross Marin Municipal Water District lands including 4.78 acres in the extended zone, however, work on their lands is managed by Marin Municipal Water District under existing program and is not part of the PSA. Numbers may not add up due to rounding.*

**Figure 11 Map of Treatments Assigned to Extended Zone Segments**

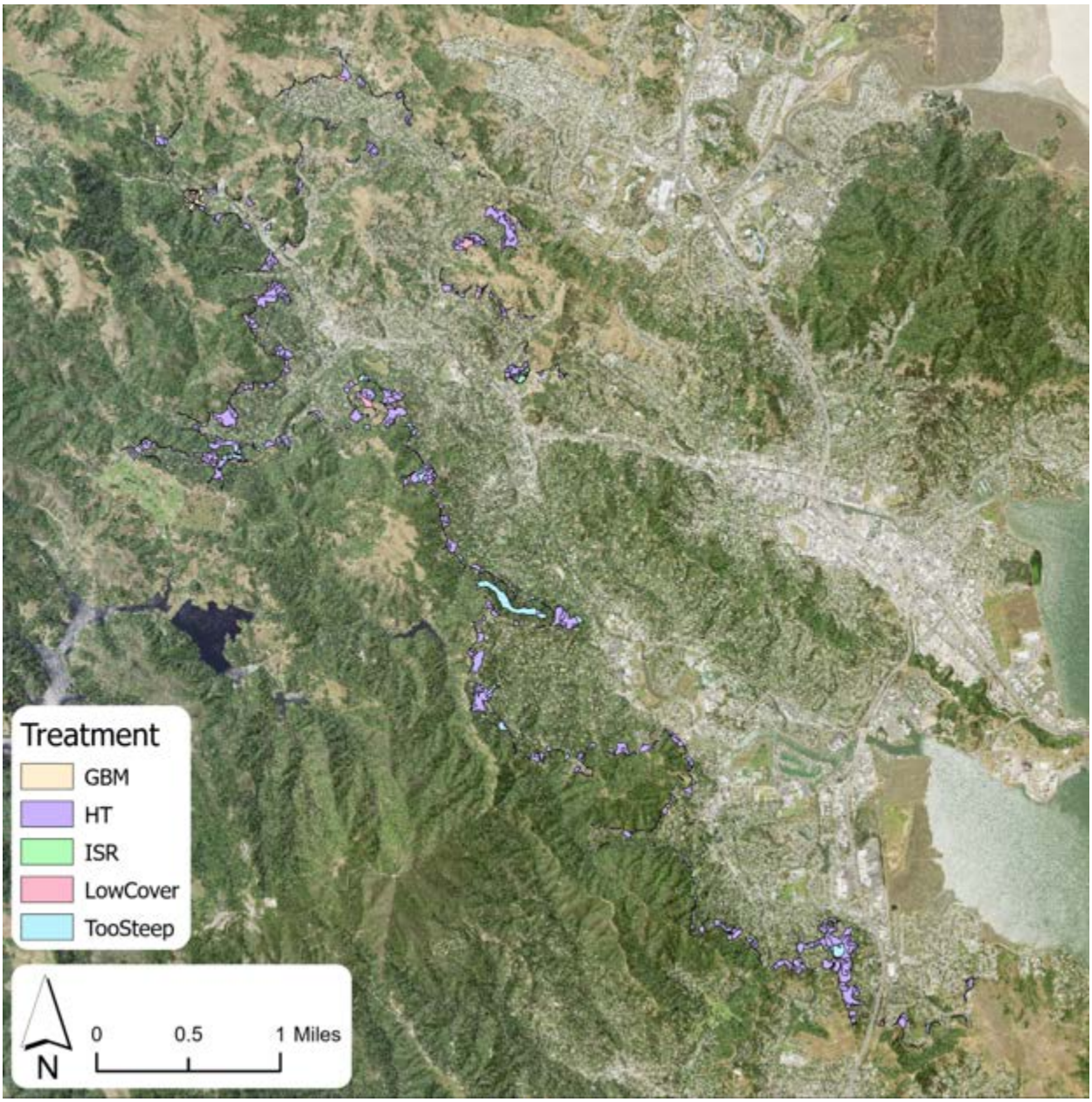



**Table 10 Map Class Acreages within the Extended Zone**

| Map Class | Acres |
|---|---|
| *Umbellularia californica* Alliance | 189.11 |
| *Quercus agrifolia* Alliance | 103.5 |
| *Sequoia sempervirens* Alliance | 79.22 |
| Developed | 34.57 |
| Californian Annual & Perennial Grassland Mapping Unit | 30.83 |

| Map Class | Acres |
|---|---|
| *Arbutus menziesii* Alliance | 15.7 |
| *Quercus lobata* Alliance | 10.55 |
| *Quercus garryana* Alliance | 10.52 |
| *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 4.99 |
| *Genista monspessulana* Semi-Natural Association | 4.57 |
| *Quercus kelloggii* Alliance | 3.72 |
| *Baccharis pilularis* Alliance | 3.45 |
| Non-native forest | 2.06 |
| *Pinus radiata* plantation Provisional Semi-Natural Association | 1.27 |
| *Adenostoma fasciculatum* Alliance | 0.93 |
| Major road | 0.79 |
| Forest fragment | 0.39 |
| *Acer macrophyllum* Association | 0.36 |
| *Acacia* spp., *Äì Grevillea* spp., *Äì Leptospermum laevigatum* Semi-Natural Alliance | 0.25 |
| *Cortaderia* (*jubata, selloana*) Semi-Natural Alliance | 0.15 |
| *Acer macrophyllum*, *Äì Alnus rubra* Alliance | 0.14 |
| Deciduous hardwood (urban window) | 0.04 |
| Vineyard | 0.03 |
| Shrub fragment | 0.02 |
| **Total** | **497.17** |

# 2 Treatment Method Definitions

## 2.1 Introduction

This section provides detailed descriptions of treatment methods. Treatment method descriptions in this document are intended to describe the recommended treatment types that may occur within the entirety of any particular treatment polygon. On-site ground verification will occur prior to any implementation (see Section 3), but these descriptions provide a baseline for the prescriptions that will be used in the field. While treatment types are assigned on a polygon basis, the intensity of the treatment may vary depending on vegetation density and other factors. Generally, where treatment units abut structure, treatment intensity will be higher near structures and lessen in intensity as work progresses away from structures.

Treatments are presented here based on the modeling, but the relevant CalVTP treatment types are also discussed.

## 2.2 Prescription Intensities within the Fuel Break

It is expected that treatment prescriptions will vary in intensity depending on several factors as well as distance from structures. In accordance with State and local defensible space regulations, treatments would be more intensive within 30 feet of a structure, becoming less intensive at distances between 30 feet, 100 feet, or 150 feet from structures, and even less intensive at distances beyond 100 feet to 150 feet from structures.

## 2.3 Modeled Treatment Types

### 2.3.1 Introduction

Several assumptions were made when defining the treatment types in order to run the response function. The definitions are provided below; however, it should be noted that the definitions include the maximum disturbance or effects (e.g., up to 40 percent canopy removal) and not the average or norm. The vast majority of treatment types (approximately 98 percent) will be hand-thinning and manual removal based on the modeling.

### 2.3.2 Hand (Manual) Thinning or Removal

Hand thinning generally only affects woody vegetation. Herbaceous vegetation such as grass and forbs are generally unaffected except in target-invasive-species treatment.

Hand thinning is a part of the following treatment types of work that could be implemented. Hand thinning and removal is always complimented with some type of woody debris removal or processing. It could include piling and burning, chipping and leaving on-site (limited in use and chip depth), chipping or dragging and hauling off-site, and lop and scatter.

| | |
|---|---|
| Variable density thin, no large openings | Treatment is generally variable and is applied so as to mimic vegetation structure patterns that would exist in the area's intact disturbance regime. Dominant woody vegetation is affected by as much as 25 percent over the total treatment area but can be as high as 90 percent in some areas and as low as 10 percent in others. Co-dominant woody vegetation is affected by as much as 50 percent, but effects are also variably distributed. Overall canopy cover may be reduced by as much as 40 percent. As much as 75 percent of subdominant woody vegetation is cut and removed but may also be left in concentrations. Herbaceous vegetation is disturbed by as much as 40 percent through foot traffic and the dragging or piling of cut woody debris. Soil disturbance is insignificant. |
| Thin from below | Treatment is generally consistently and equally applied across an area and is focused on significantly reducing the effects of high-intensity fire. Dominant woody vegetation is generally unaffected. Co-dominant woody vegetation is affected by as much as 25 percent; however, overall canopy cover remains intact. As much as 90 percent of subdominant woody vegetation is cut and removed. Herbaceous vegetation is disturbed by as much as 25 percent through foot traffic and the dragging or piling of cut woody debris. Soil disturbance is insignificant. |
| Pile burn | In some cases, pile burning may be necessary following thinning. While pile burning is not specifically identified, it is used when prescribed fire is used to ignite piles of cut vegetation. Piles are generally burned during the wet season to confine burning to the pile footprint. No more than 100 piles per acre will be created. Dominant and co-dominant vegetation may experience some scorching when piles are close but are overall affected by less than 10 percent. Herbaceous vegetation and soil are affected within the footprint of the pile, but vegetation and soil cover often recovers to pre-treatment conditions within three years. |
| Hand removal of invasive species | Hand removal of invasive species can include removal of trees, shrubs, or herbaceous forbs and graminoids. Removal may use tools such as saws, shovels, and hands. Only target species are removed; however, depending on species and cover of target species. |

### 2.3.3 Ground-Based Mechanical – Thinning

Prescriptions may be applied to achieve one or many goals. Goals include, but are not limited to, reducing severities of planned or unplanned fire, increasing forest resilience to drought, improving ecological function, or a site change for development. Ground-based mechanical treatments generally only target woody vegetation. Herbaceous vegetation such as grass and forbs are generally not targeted but can be affected.

Ground-based mechanical treatments are a part of the following types of work that could be implemented, as described below, but a very small portion of the fuel break would utilize ground-based mechanical treatments (approximately 2 percent).

| | |
|---|---|
| Variable density thin, no large openings | Treatment is generally variable and is applied so as to mimic vegetation structure patterns that would exist in the area's intact disturbance regime and includes some smaller openings of less than 1 acre. Dominant woody vegetation is affected by as much as 25 percent over the total treatment area but can be as high as 90 percent in some areas and as low as 10 percent in others. Co-dominant woody vegetation is affected by as much as 50 percent, but effects are also variably distributed. Overall canopy cover may be reduced by as much as 40 percent. As much as 75 percent of subdominant woody vegetation is cut and removed but may also be left in concentrations. Herbaceous vegetation is disturbed by as much as 40 percent. |
| Thin from below | Treatment is generally consistently and equally applied across an area and is focused on significantly reducing the effects of high-intensity fire. Dominant woody vegetation is generally unaffected. Co-dominant woody vegetation is affected by as much as 25 percent; however, overall canopy cover remains intact. Dominant woody vegetation is generally unaffected, while as much as 90 percent of subdominant woody vegetation is cut and removed. Herbaceous vegetation is disturbed by as much as 40 percent. |
| Biomass processing | Biomass includes materials from trees. This may occur pre or post fuel removal or concurrently with fuel removal activities and includes both byproducts of trees removed (e.g., limbs, tips) and small trees up to 9.9 inches dbh. Treatment can remove up to 90 percent of small trees. Overstory vegetation is generally unaffected. |

### 2.3.4 Ground-Based Mechanical – Rearrangement

Rearrangement methodologies are intended to remove air from the combustible triangle equation by rearranging fuels and distributing them relatively evenly across the treated ground. Treatment intensity is determined by the need to reduce the effects of unplanned disturbance, existing vegetation management plans, and operational or social limitations. Different

prescriptions target either woody or herbaceous vegetation, rarely altering the structure of both significantly at the same time.

| | |
|---|---|
| Thin from below | Predominantly achieved by mastication using wheeled or tracked machines. Treatment is generally consistently and equally applied across an area and is focused on significantly reducing fine fuels and ladder fuels as well as reducing a canopy bulk density, which decrease a fire's rate of spread, the potential for crown initiation, and the ability for sustained crown fire. Dominant woody vegetation is generally unaffected. Co-dominant woody vegetation is affected by as much as 25 percent. Overall canopy cover may be reduced by as much as 25 percent. As much as 90 percent of subdominant woody vegetation is affected through rearrangement. Herbaceous vegetation is disturbed by as much as 50 percent. Rearranged material is left on site. |
| Grapple/machine piling | When there is a lot of down, dead, or lopped material, grapple piling can be used to pile residue higher than by using tractor or hang piles. Treatment is generally consistently and equally applied across an area and is focused on significantly reducing fine fuels and a fire's rate of spread. Woody vegetation is generally unaffected. Herbaceous vegetation is significantly affected by 90 percent to 100 percent. Rearranged material is left on site. |
| Target fine fuel | Predominantly achieved by mowers. Treatment is generally consistently and equally applied across an area and is focused on significantly reducing fine fuels and a fire's rate of spread. Woody vegetation is generally unaffected. Herbaceous vegetation is significantly affected by 90 percent to 100 percent. Rearranged material is left on site. |

### 2.3.5 Prescribed Herbivory

Herbivory may be used prior to or after other treatment methods or may be used in isolation for fuels reduction. Prescribed herbivory would occur as described below. As previously noted, the limits are the maximum envelope and not necessarily typical.

| | |
|---|---|
| Targeted fuels focused | Predominantly achieved by goats, which are used for fuel reduction and are confined to a specific area (less than 5 acres) for a considerable amount of time. Goat grazing helps reduce fine fuels and a fire's rate of spread as well as providing some reduction in ladder fuel, which reduces flame lengths. Shorter woody vegetation can be affected by as much as 50 percent. Palatable herbaceous vegetation is significantly affected by 90 percent to 100 percent while other types not preferred for grazing are affected at rates closer to 75 percent. |

| | |
|---|---|
| Non-targeted | Achieved by cattle, horses, or goats grazing over a large range (at least 5 acres). Grazing helps reduce fine fuels and therefore a fire's rate of spread as well as providing some reduction in ladder fuel, which reduces flame lengths. Woody vegetation is generally unaffected. Herbaceous vegetation is affected on average by 40 percent but, depending on species and palatability, can be affected by 20 percent to 100 percent. |

### 2.3.6 Invasive Species Removal

Invasive species removal may be used prior to or after other treatment methods or may be used in isolation for a particular area.

| | |
|---|---|
| Targeted herbicide application | Project treatments could include targeted herbicide application, such as stump and spot spray treatments, to kill or prevent regrowth of invasive and non-native species. No aerial spraying of herbicides would occur. Targeted herbicide application is limited to a defined operational area, and methods are established to prevent drift outside of the area. All herbicides are regulated by the EPA, and all applicable rules and guidelines are followed. Only target plant species will be impacted. There will be limited to no impacts to other plant species, soil, or SARAs. |

## 2.4 CalVTP Treatment Types

Treatment types from the modeling effort were cross walked to the CalVTP treatment types. The following table summarizes the treatment types as they are described in the CalVTP.

**Table 11 Proposed CalVTP Project Initial Treatments**

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| Shaded fuelbreak | creation of a continuous fuelbreak approximately 200 feet, but up to 300 feet, in width, including thinning of understory and invasive species removal | manual treatments | 1,083, up to 1,299[a] | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring outside the nesting season, from August through January each year |
| | | ground-based mechanical treatments | 15 | skid steers or tractors with mounted masticators, or mowers, ride mowers | |
| | | prescribed herbivory | an estimated up to 325 acres may also be treated with prescribed herbivory | livestock; goats, sheep, cattle, horses | as needed |
| | | herbicide | targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 1,314 acres) | herbicide and applicator materials | as needed |
| | | pile burn | as needed with material removed within the entire fuel break area (up to 1,314 acres) | drip torch | as needed |

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| Wildland-urban interface (WUI) fuel reduction area | fuel reduction in open spaces to reduce wildfire hazards | manual treatments | 426, up to 484 | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring outside the nesting season, from August through January each year |
| | | ground-based mechanical treatments | 8 | skid steers or tractors with mounted masticators, or mowers, ride mowers | |
| | | prescribed herbivory | an estimated up to 121 acres may also be treated with prescribed herbivory | livestock: goats, sheep, cattle, horses | as needed |
| | | herbicide | targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 492 acres) | herbicide and applicator materials | as needed |
| | | pile burn | as needed with material removed within the entire fuel break area (up to 492 acres) | drip torch | as needed |
| **Total acres** | | | **1,587, up to 1,806** | | |

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|

Notes:

[a] Includes 232 acres of areas that were determined through modeling to be too steep or have too low of canopy cover. Treatment in these areas, however, is not precluded if the fire agency determines through site inspections that treatment is necessary and possible.

# 3 Implementation Plan

## 3.1 Overview

Planning and implementation activities for the GRVSFB will likely occur year-round. Treatment activities on the ground typically occur outside the nesting season, from roughly August through January, but can occur at other times with the appropriate protection measures incorporated. As previously described, the GRVSFB is being approved through the CalVTP process under the Program EIR, pursuant to CEQA. Once the CEQA process is completed for the project, each year, additional field studies (e.g., biological surveys, cultural resource surveys) and planning of treatment-area units will be needed. This section describes the implementation steps, from pre-season planning through completion of work.

## 3.2 Land Ownership

### 3.2.1 Overview

A major factor in the planning and implementation of the work will be coordinating with the landowners and land managers for the various segments of the GRVSFB. Ultimately, these entities will have a role in defining and implementing the treatments on their lands. The various types of landowners are summarized below.

### 3.2.2 Marin Municipal Water District Lands

The proposed GRVSFB crosses 70.2 acres of MMWD's lands, as shown in Table 9. This map, along with the ownership by project summary (Table 4), highlights the potential for overlapping and/or coincident work that is being prioritized by this analysis. The areas on MMWD lands are not part of the project that will be covered by the CalVTP process; however, the areas are shown in this Project Definition Report to demonstrate the continuity of the fuel break and the ideal conditions. MMWD will be responsible for implementing work on their lands under their existing management processes, including the Biodiversity, Fire, and Fuel Integrated Plan (BFFIP) and EIR.

### 3.2.3 Marin County Open Space District

Many project segments overlap lands owned by MCOSD, as shown in Figure 12. Approximately 17 percent of the project areas fall within MCOSD lands, including the following preserves:

- Terra Linda/Sleepy Hollow Divide Open Space Preserve
- Loma Alta Open Space Preserve

- White Hill Open Space Preserve
- Cascade Canyon Open Space Preserve
- Bald Hill Open Space Preserve
- Baltimore Canyon Open Space Preserve
- King Mountain Open Space Preserve
- Blithedale Summit Open Space Preserve
- Alta Bowl Open Space Preserve
- Tiburon Ridge Open Space Preserve
- Ring Mountain Open Space Preserve

Central Marin Fire District and MWPA will work with MCOSD to refine and implement the treatments on their lands. Treatments may be modified to meet the goals and objectives of the MCOSD, who holds ultimate responsibility for their lands, particularly in cases where sensitive resources are present.

### 3.2.4 Private Lands

The GRVSFB also overlaps with multiple private parcels. Map books have been prepared that show land ownership and parcel information. Approximately 1,405 acres of the project are on private parcels. Responsibility for completion of fuel break work on private lands may fall on homeowners as part of required defensible space treatments, up to 100 feet, and through assistance by the Central Marin Fire District for areas on private land beyond 100 feet. Coordination will be required for access and to treat these areas, which means treatments may not always be completed as modeled.

## 3.3 Implementation Steps

### 3.3.1 Planning Work

#### Determining Annual Treatment Units and Landowner Coordination

Before each fire season and during the development of the MWPA Work Plan (March), planning for the upcoming work should commence. The planning phase should include a desktop review of this report and supporting prioritization data to determine the priority areas to treat for the upcoming treatment season.

During the initial planning phase each year, the priority areas should be identified for that year and then crosswalked with the treatment methods modeled for the area to define the specific prescriptions per unit (e.g., hand thinning, mowing) and intensity of prescription. The treatment units should then be mapped and summarized in a specification (a short document that provides the refined treatment locations and methods).

**Figure 12** **GRVSFB Overlap with MMWD Lands with 2020 and 2021 Vegetation Work Carried Out by MMWD Shown in Green**

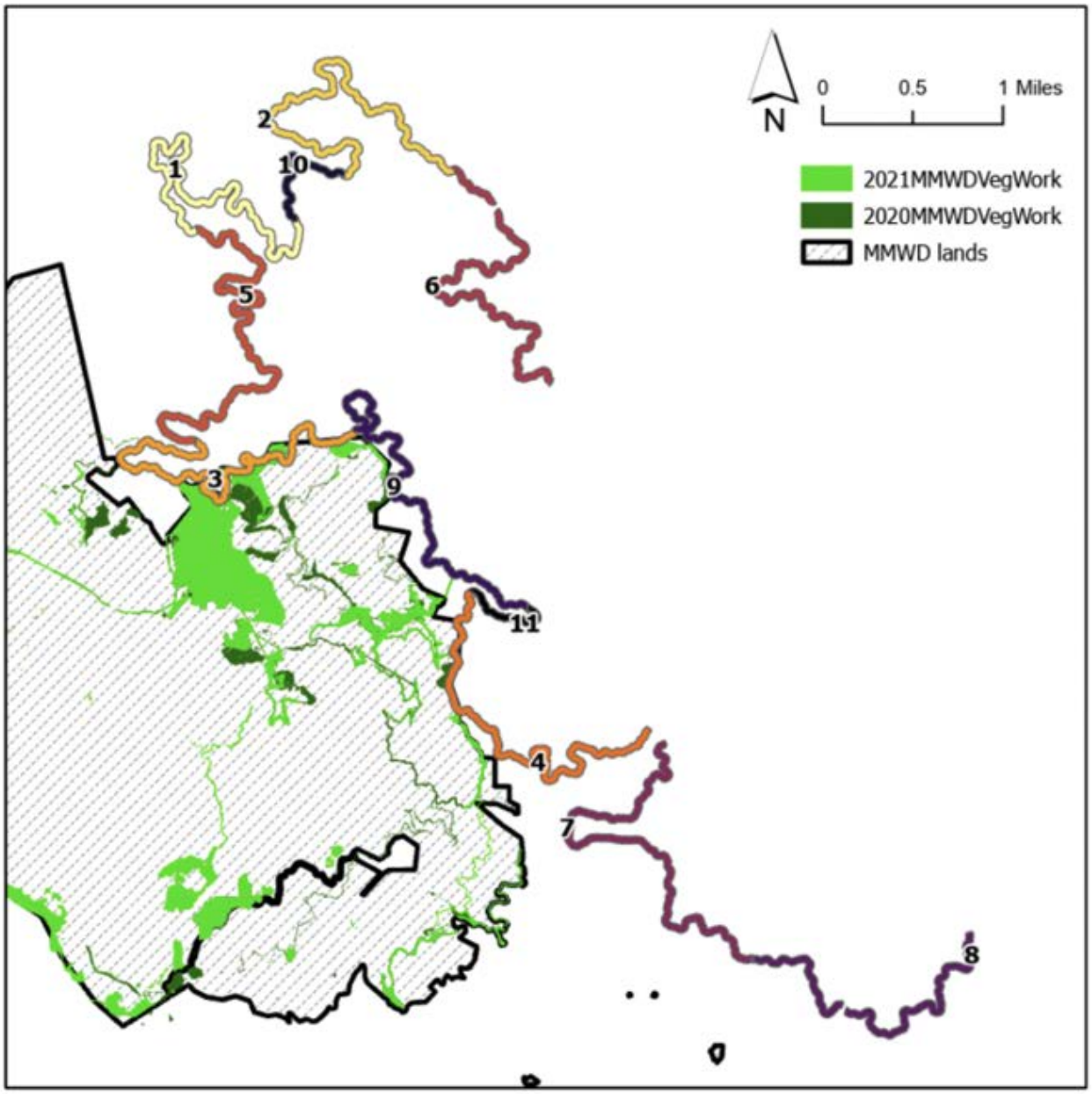
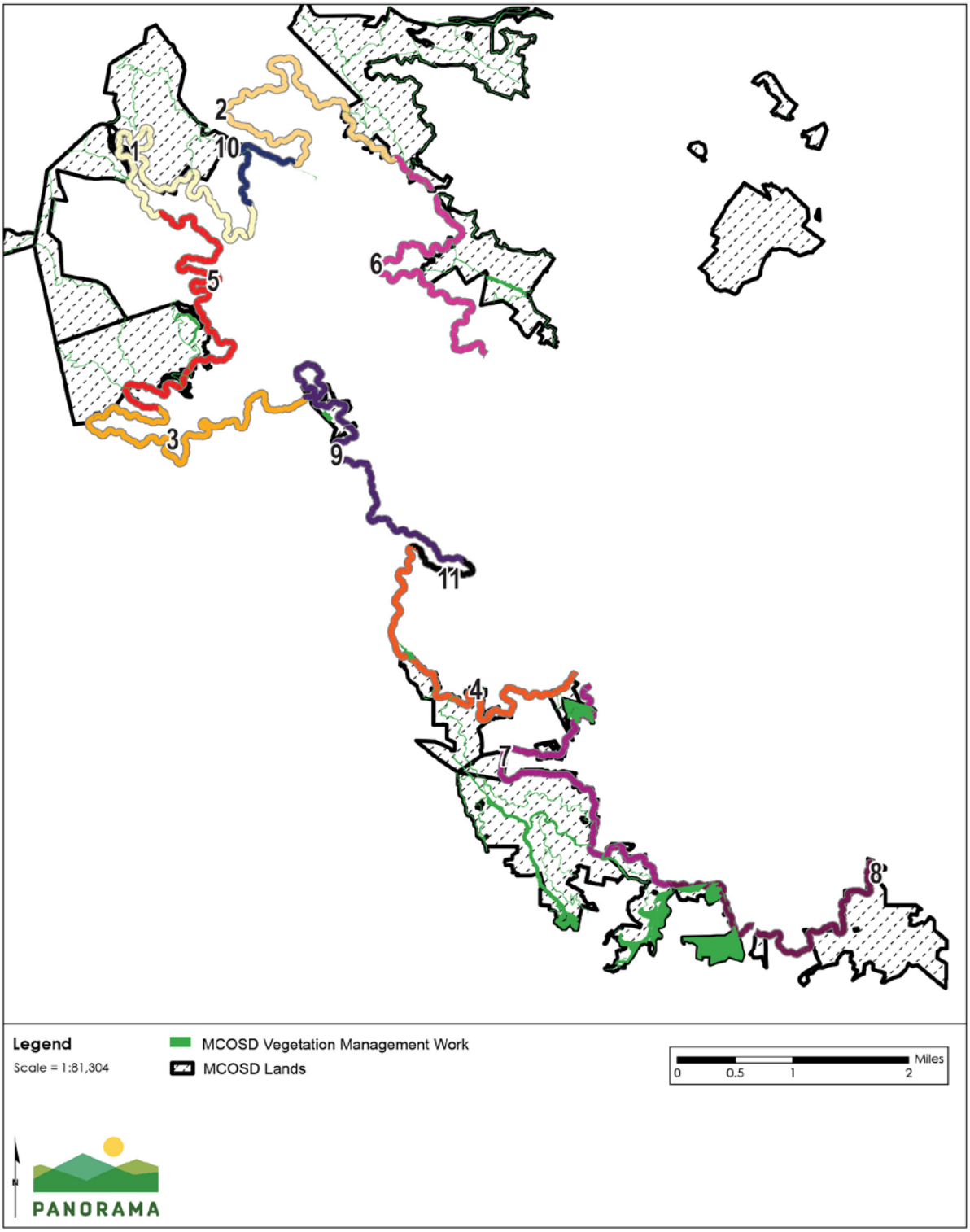


**Figure 13 GRVSFB Overlap with MCOSD Lands**




*Proposed Greater Ross Valley Fuel Break overlaid on Marin County Open Space District lands, with vegetation management zones work being carried out by MCOSD shown in green.*

Once the areas for treatment for the upcoming year are determined, the landowners or land managers will be contacted to plan the work and secure access. If the work is on private lands, outreach will include direct contact via phone, email, or flyers and even door-to-door. Agreements to perform work on private lands may be needed. Access to the site may need to be secured if access is through private homeowner properties.

### Regulatory Review

A regulatory review should also occur. The process includes review of the work areas against the CalVTP-approved Project Specific Analysis (PSA) requirements and any other permitting requirements (e.g., Section 1600 Stream and Lakebed Alteration Agreement if working in a riparian zone). A key component of this step will be to identify the areas and types of surveys that need to be performed, including botanical, special status species, wetland, riparian, and cultural resources. Many of these studies are time sensitive, and so even if work is not to commence until the fall, the surveys will need to be performed in the spring. Based on the assessment of resources, the list of Standard Project Requirements and Mitigation Measures will be created to ensure that any constraints are included in the planning of the work for the year and to ensure that crews performing the work are also aware of the requirements.

Other permits and approvals to consider based on the treatment area and type include the following:

- **Tree ordinances and herbicide ordinances for the local jurisdiction:** The specifications should be modified to exclude any trees that may be protected by a local ordinance, or to ensure compliance with local ordinances for use of herbicides. If protected trees must be removed, tree removal permits will be obtained.
- **Encroachment permits for roads:** Staging of equipment, chippers, and vegetation management along roadways may require the need for an encroachment permit from the local jurisdiction. Any permits should be identified and obtained early.
- **Work in riparian corridors:** Work that could occur within a riparian corridor could trigger the need for a permit from the California Department of Fish and Wildlife under Section 1600 for a Lake and Streambed Alteration Agreement.

### Field Assessment and Preparing the Treatment Specification

Field assessments will be performed to ground-truth and refine the prescriptions. Ground-truthing is needed to ensure the specification is appropriate and to verify access and staging. Each project segment is approximately 150 acres, within which a variety of treatment methods may be identified as the most effective based on modeling. Treatment methods and treatment prescriptions within these 11 project areas may vary depending on equipment or personnel access, vegetation density, or other factors. After the field visit, detailed mapping of the units to be treated will also be provided with the specification.

It is expected that treatment prescriptions will vary in intensity depending on several factors as well as distance from structures. In accordance with State and local defensible space regulations, treatments would be more intensive within 30 feet of a structure, becoming less

intensive at distances between 30 feet to 100 feet or 150 feet from a structure, and even less intensive at distances beyond 100 feet to 150 feet from a structure. Treatments may be modified based on various regulatory requirements for work in riparian areas, wetlands, and sensitive habitats and near cultural sites, in accordance with the CalVTP and PEIR requirements.

The specification will include the following components:

- Scope of the work
- Project location and description
- Maps
- Estimated start date and time
- Restrictions on work
- Licenses and insurance requirements (if performed by contractors)
- Technical requirements
  - Definitions
  - Specifications
  - Contractor furnished equipment (if performed by contractors)
  - Furnished property
  - Public safety
  - Special contract provisions (e.g., environmental)

#### Contracting

If contractors are to be used, contracting procedures will be undertaken.

### 3.3.2 Pre-Work Surveys and Unit Layout

#### Layout of Units

A forester, fire professional, or field oversight manager with understanding of the forestry practices in the plan will conduct in-field layout and marking of units with flagging for treatment, marking/flagging of avoided resources, marking/flagging of access routes, marking/flagging of trees and shrubs or sensitive plant species to leave in place or avoid, and areas of refugia. A flagging method will be clearly articulated to the crews in the environmental awareness training.

#### Environmental Resource Surveys and Reports

Surveys for nesting birds or other biological and cultural resources identified during the planning work phase will be carried out. A short report of the findings of surveys will be prepared, in accordance with CalVTP PEIR SPRs and Mitigation Measures. Results of the surveys will be articulated to the project manager and field oversight manager to ensure that any additional protection measures (such as nest avoidance buffers) are implemented.

### 3.3.3 Implementation of Vegetation Management Treatment Activities

#### Environmental Awareness Training

An environmental awareness tailgate training will be performed and can be led by the field oversight manager, a biologist, or other qualified staff knowledgeable of resource protection particular to the site. The environmental training will consist of a review of the specification, access, allowable actions, trees, and other resources to protect or avoid, spill prevention and control, smoking, and other provisions to ensure successful work with minimal effects to the community and environment.

#### Oversight of Work

Each project will be overseen by someone with expertise in vegetation management who will serve as the field oversight manager for the project. This person will direct work, make decisions as they come up regarding treatments and disposal, address any emergency situations or complaints, and report on the progress of the work.

#### Biological/Cultural or Other Environmental Monitors

In some situations, biological or cultural resource monitors will need to be on site during the implementation of the work to ensure no damage to sensitive resources. The monitors will be on site when work is occurring in proximity of the resource and will have the authority to direct or stop work as needed to ensure the protection of the resource. Monitors will report on their monitoring at the end of each phase of the project (or annually); however, issues that arise will be addressed immediately in the field.

### 3.3.4 Post-Field Reporting, Adaptive Management and Planning, and Funding Planning

#### Annual Reporting and Adaptive Management

Throughout each year, Central Marin Fire should document treatment efforts including acres, methods, and cost. A short analysis of work completed in the previous year should be prepared and should utilize graphs and figures/images to portray information. The summary should include evaluation of the effectiveness of the treatments, including any new tools or technology, to identify whether the activities undertaken are meeting the overall objectives of the work and should make recommendations to modify methods in the planning of future activities. This annual analysis process should aid in decision-making on future treatment areas, methods, and scale. The analysis of the previous year should be prepared in January through March of the following year, in time for the planning of MWPA's subsequent year's work plan.

As part of the post-work efforts, areas of previous treatment should also be monitored to better understand effectiveness of the treatment over time to adapt treatments in the future and to further characterize and refine maintenance intervals (i.e., adaptive management). Lessons learned in the analysis should also be carried forward into the subsequent year's planning efforts as part of an adaptive management approach.

**Updates to Plan and GIS/Modeling and Database Management**

The plan will be updated annually to the extent appropriate within the framework of the PSA-Addendum, including adding GIS layer files from surveys and treatments to create a database.

Updates can include revisions to methods, revisions to priorities, and updates to the modeling effort as new tools and technology become available. The wildfire modeling may also be updated based on completed treatments, if appropriate.

### 3.3.5 Grant Funding and Budget Planning

Budget planning should occur during the post-work period from the previous year and the planning period for upcoming work (January through April). Throughout the year, grant opportunities may also arise that should be considered.

# 4 References

Ager, A. A. (2019). *Cross-Boundary Wildfire and Community Exposure: A Framework and Application in the Western U.S.* Retrieved from https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr392.pdf

Ager, A. (No Date). *Scenario Planning*. Retrieved from USDA Forest Service: https://www.firelab.org/project/national-scenario-planning-platform

Scott, J. H., & Reinhardt, E. D. (2001). Assessing crown fire potential by linking models of surface and crown fire behavior. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

# Appendix A: Fine Scale Mapping Vegetation Classes by Project

The following table was generated to summarize the fine scale vegetation map classes by segment. Invasive species that were considered for invasive project work are identified in grey, but the list is neither exclusive nor comprehensive.

**Table 12 Map Classes by Segment**

| Segment | Map Class | Acres |
|---|---|---|
| 1 | *Umbellularia californica* Alliance | 73.8 |
| | *Quercus agrifolia* Alliance | 29.9 |
| | Californian Annual & Perennial Grassland mapping unit | 20.6 |
| | *Arbutus menziesii* Alliance | 8.8 |
| | Developed | 7.4 |
| | Major road | 3.3 |
| | *Quercus lobata* Alliance | 2.8 |
| | *Baccharis pilularis* Alliance | 1.3 |
| | *Artemisia californica* – (*Salvia leucophylla*) Alliance | 1.1 |
| | Shrub fragment | 0.4 |
| | *Acer macrophyllum* Association | 0.3 |
| | *Salix lasiolepis* Alliance | 0.2 |
| | Forest fragment | 0.1 |
| 2 | *Umbellularia californica* Alliance | 40.8 |
| | Californian Annual & Perennial Grassland mapping unit | 39.8 |
| | *Quercus lobata* Alliance | 29.6 |
| | Developed | 16.8 |
| | *Quercus agrifolia* Alliance | 14.3 |
| | *Baccharis pilularis* Alliance | 2.8 |
| | *Sequoia sempervirens* Alliance | 2.7 |
| | Forest fragment | 0.8 |
| | *Quercus garryana* Alliance | 0.8 |
| | Deciduous hardwood (urban window) | 0.6 |
| 3 | *Umbellularia californica* Alliance | 45.2 |
| | *Quercus agrifolia* Alliance | 28.3 |
| | *Quercus garryana* Alliance | 22 |
| | *Sequoia sempervirens* Alliance | 20 |
| | *Quercus kelloggii* Alliance | 11.5 |

# APPENDIX A

| Segment | Map Class | Acres |
|---|---|---|
| | Californian Annual & Perennial Grassland mapping unit | 11.1 |
| | Developed | 7.9 |
| | *Arbutus menziesii* Alliance | 3 |
| | *Quercus lobata* Alliance | 1 |
| | Shrub fragment | 0.7 |
| 4 | *Umbellularia californica* Alliance | 49.7 |
| | *Quercus agrifolia* Alliance | 40.4 |
| | *Sequoia sempervirens* Alliance | 28.3 |
| | *Adenostoma fas*ciculatum Alliance | 6.4 |
| | Developed | 4.4 |
| | *Aesculus californica* Alliance | 4.1 |
| | *Pseudotsuga menziesii* mapping unit | 2.2 |
| | *Arbutus menziesii* Alliance | 1.7 |
| | Californian Annual & Perennial Grassland mapping unit | 1.6 |
| | Shrub fragment | 1.6 |
| | *Baccharis pilula*ris Alliance | 0.8 |
| | Forest fragment | 0.7 |
| | *Genista monspessulana* Semi-Natural Association | 0.5 |
| | Non-native forest | 0.2 |
| 5 | *Umbellularia californica* Alliance | 69.2 |
| | *Quercus agrifolia* Alliance | 39.5 |
| | *Arbutus* menziesii Alliance | 36.7 |
| | *Quercus garryana* Alliance | 11 |
| | *Sequoia sempervirens* Alliance | 5.2 |
| | Californian Annual & Perennial Grassland mapping unit | 3.2 |
| | *Quercus lobata* Alliance | 1.7 |
| | Developed | 1.4 |
| | *Adenostoma fascic*ulatum Alliance | 0.5 |
| 6 | Californian Annual & Perennial Grassland mapping unit | 49.5 |
| | *Quercus agrifolia* Alliance | 33.7 |
| | *Umbellularia californica* Alliance | 31.9 |
| | *Baccharis pilularis* Alliance | 7.1 |
| | Developed | 6.1 |
| | *Quercus lobata* Alliance | 5.2 |
| | *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 4.7 |
| | *Genista monspessulana* Semi-Natural Association | 2.6 |
| | Non-native shrub | 0.8 |

| Segment | Map Class | Acres |
|---|---|---|
| | Shrub fragment | 0.7 |
| | Forest fragment | 0.5 |
| | Vineyard | 0.3 |
| 7 | *Umbellularia californica* Alliance | 54.9 |
| | *Sequoia sempervirens* Alliance | 43.7 |
| | *Quercus agrifolia* Alliance | 22.4 |
| | *Arbutus* menziesii Alliance | 12.5 |
| | Californian Annual & Perennial Grassland mapping unit | 3.4 |
| | *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 3.4 |
| | *Acacia* spp. – *Grevillea* spp. – *Leptospermum laevigatum* Semi-Natural Alliance | 3.3 |
| | Developed | 1.8 |
| | *Arctostaphylos glandulosa* Alliance | 1.6 |
| | *Quercus chrysolepis* Alliance | 1.2 |
| | *Adenostoma fasciculatum* Alliance | 0.9 |
| | *Baccharis pilularis* Alliance | 0.6 |
| | *Acer macrophyllum* Association | 0.1 |
| 8 | Californian Annual & Perennial Grassland mapping unit | 30.6 |
| | *Quercus agrifolia* Alliance | 28.9 |
| | *Baccharis pilularis* Alliance | 17.1 |
| | *Umbellularia californica* Alliance | 14.5 |
| | *Eucalyptus* (*globulus, camaldulensis*) Provisional Semi-Natural Association | 6.6 |
| | Developed | 6.3 |
| | *Genista monspessulana* Semi-Natural Association | 5.8 |
| | *Quercus lobata* Alliance | 2.5 |
| | *Pseudotsuga menziesii* mapping unit | 1.1 |
| | Shrub fragment | 0.9 |
| | Californian Cliff, Scree & Rock vegetation group | 0.7 |
| | *Salix lasiolepis* Alliance | 0.5 |
| | *Pinus radiata* Plantation Provisional Semi-Natural Association | 0.4 |
| | Non-native forest | 0.3 |
| | *Adenostoma fasciculatum* Alliance | 0.1 |
| | Forest fragment | 0.1 |
| 9 | *Umbellularia californica* Alliance | 65.5 |
| | *Sequoia sempervirens* Alliance | 27.9 |
| | *Quercus agrifolia* Alliance | 14 |
| | Californian Annual & Perennial Grassland mapping unit | 13.2 |
| | *Arbutus menziesii* Alliance | 8.9 |

| Segment | Map Class | Acres |
|---|---|---|
| | Developed | 4.2 |
| | *Quercus lobata* Alliance | 2.4 |
| | *Genista monspessulana* Semi-Natural Association | 2 |
| | *Quercus garryana* Alliance | 1.6 |
| | *Baccharis pilularis* Alliance | 0.6 |
| | *Quercus kelloggii* Alliance | 0.1 |
| 10 | *Umbellularia californica* Alliance | 15.3 |
| | Californian Annual & Perennial Grassland mapping unit | 14.2 |
| | *Quercus agrifolia* Alliance | 7.5 |
| | Developed | 1.9 |
| | Shrub fragment | 1.2 |
| | *Baccharis pilularis* Alliance | 0.3 |
| | *Quercus lobata* Alliance | 0.1 |
| 11 | *Sequoia sempervirens* Alliance | 23.8 |
| | *Umbellularia californica* Alliance | 2.2 |
| | *Quercus agrifolia* Alliance | 1.3 |
| | Developed | 0.8 |

Note:

[b] Gray highlighted vegetation classes are not native vegetation classes.

# Appendix B: Greater Ross Valley Shaded Fuel Break Geoprocessing Steps

## Step 1: Develop Core Fuel Break Area

1. Two data sources were used to evaluate where buildings occurred and thus where the GRVSFB project boundary should be. These included the Microsoft buildings layer and Marin County buildings layer. These datasets were merged using a Union.
2. A selected set of individual/isolated buildings that occurred outside the main community were removed to match the original fuel break zone (Figure 14).
3. The remaining buildings layer was buffered by 300 feet, then reverse buffer was completed and erased.
4. Manual cleanup was completed to remove outputs that crossed the freeway and to end the fuel break at the original GRVSFB locations.

## Step 2: GRVSFB Segmentation and Attribution

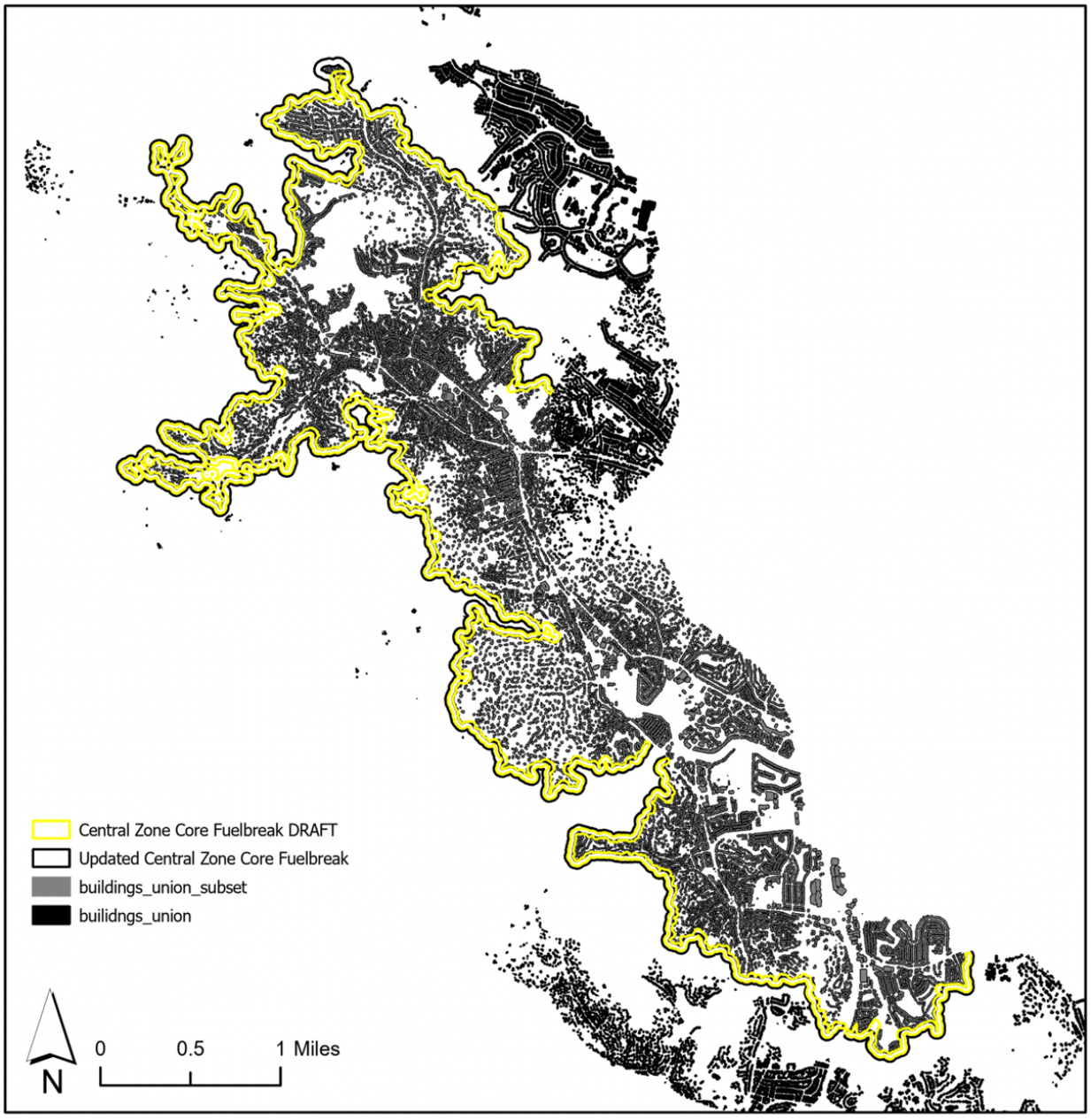
### Segmentation

1. Used GRVSFB layer, fine scale vegetation map, and Marin Valley 5m fuel models.
2. Prepared fine scale vegetation layer and dissolved it over the Forest_LIF attribute.
3. Prepared fuel model (set null, dissolve tool) then converted to integer; ran boundary clean tool, converted raster to polygon.
4. Intersected fine scale vegetation layer and fuel model layers with core zone fuel break area.
5. Applied minimum mapping unit (0.25 acre) using eliminate tool in ArcGIS.

### Attribution

1. Data characterized at the segment level for the GRVSFB included both continuous and categorical information (Table 1).
2. Data were summarized at the segment level using a combination of zonal statistics and basic summary statistics. Results were used in prioritization and treatment assignment. See Task 2: Development of Forest Health Restoration Treatments for more information on inputs and methods used in treatment assignment and Task 3: Prioritization of GRVSFB Areas for Forest Health Restoration Treatments for more information on inputs and methods used in prioritization.

**Figure 14** **Map of GRVSFB DRAFT Layer, Updated Layer, and Subset of Buildings used in Geospatial Workflow**




Scripts used in analysis: GRVSFB_attribution.py, merge_attributes.R, tree_tops.R

Final output: GRVSFB_20220104.shp

## Step 3: Development of Forest Health Restoration Treatments

Attribute queries were generated using the logic described in the Product Guide (refer to Appendix D) to assign potential treatments to each segment. The fuel break was segmented into meaningful project areas and then each segment (polygon) was attributed with data about property ownership, structural vegetation characteristics, fire risk from existing modeling, and estimated vegetation health condition.

These attributes were used to identify treatment opportunities and priority projects. The product guide document contains a detailed description of the attributes used to assign potential treatments and is included as part of this report.

## Step 4: Prioritization of GRVSFB Areas for Forest Health Restoration Treatments Based on Current Fire Hazard

1. We developed a new "fire threat rating" based on CWPP methodology but eliminating parcel-based parameters (Table 3). See Marin CWPP page 74 (December 2020). The workflow is described in Figure 8.
2. Each input raster (flame length, rate of spread, Randig burn probability) was individually reclassified from continuous values to integer values according to the following table. After reclassification, the three rasters were then averaged to get a continuous output that ranged from 1 to 4. In the output raster, pixels with low values represent areas where each of the three inputs were coincidently under their respective class 1 threshold (i.e., low expected fire behavior and likelihood of burning), and pixels with high values represent areas where the inputs were coincidently above their respective class 4 threshold (i.e., high expected fire behavior and likelihood of ignition). Pixels with values in the middle of the range represent areas where there is coincidently some combination of high classes in one or two categories and low in the remaining, or middling, classes among all three inputs.
3. Incorporated community wildfire exposure dataset from Ager et al. 2019 (Ager A. A., 2019). This identifies sources of exposure, where high values indicate a high number of buildings exposed by wildfires igniting in that pixel and spreading to adjacent developed areas.
4. Range-normalized fire-threat rating and community exposure based on values in core fuel break area (Equation 1). The output from this step is two rasters, each containing continuous values ranging from 0 to 1, where values close to 0 represent low initial inputs and values close to 1 represent high initial input values, relative to the original scale of each input dataset.

**Equation 1.** Range normalization equation.

$$x_{normalized} = \frac{(x - x_{min})}{(x_{max} - x_{min})}$$

5. Multiply range-normalized fire threat rating and community exposure datasets. This generates a continuous output where low values occupy areas where each of the two inputs were coincidently low, and high values occupy areas where each of the two inputs were coincidently high.
6. Attributed segmentation using zonal statistics. Each segment of the core fuel break was attributed based on a zonal statistics calculation using the mean of the raster within each polygon (Figure 6).

## Step 5a: Project Sequencing Opportunities

1. Generated segment adjacency table in ForSys. Manually edited table to allow adjacency over disconnected segments where fuel break stops and starts across roads, etc.
2. Ran ForSys using combined fire-threat rating and community exposure metric. Constrained project growth using 150-acre size limit.
3. Amended output such that every polygon is assigned to a project.

## Step 5b: Prioritization of GRVSFB Areas for Forest Health Restoration Treatments Based on Treatments Reducing Fire Behavior

1. Using the treatments assigned at the segment level, we adjusted the FlamMap Landscape file (as provided in the CWPP archive) in treatment locations in order to re-run fire modeling (Table 13 and Table 14).
2. Fire modeling was re-run in FlamMap using the Extreme Weather scenario provided in the CWPP. A portion of the Marin County LCP file was extracted to cover the Greater Ross Valley Fuel Break as well as to provide some buffer area to reduce edge effects.
3. Both pre-treatment and post-treatment landscapes were modeled to produce burn probability, flame length, and rate of spread, for comparison. 10,000 ignitions were run, with ignition locations saved and reused in the post-treatment runs so that we could eliminate any potential effect of varying the random ignition pattern.
4. Additionally, canopy characteristics in fuel model NB8 (open water) were set to NA prior to modeling.

**Table 13 Fuel Model Crosswalk**

| Abbreviation | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 5 | SH 7 | TU 1 | TU 3 | TU 4 | TU 5 | TL 1 | TL 2 | TL 6 | TL 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBM_VDT | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 5 | SH 5 | TU 1 | TU 3 | TL 2 | TU 1 | TL 1 | TL 2 | TL 2 | TL 2 |
| GBM_VDT_GM | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 5 | SH 5 | TU 1 | TU 1 | TL 2 | TU 1 | TL 1 | TL 2 | TL 2 | TL 2 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HT_TB | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 2 | SH 2 | TU 1 | TU 1 | TL 2 | TL 2 | TL 1 | TL 2 | TL 2 | TL 6 |
| HT_VDT | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 2 | SH 5 | TU 1 | TU 1 | TL 2 | TL 2 | TL 1 | TL 2 | TL 2 | TL 6 |
| HT_ISR | NB 1 | NB 8 | NB 9 | GR 1 | GR 2 | GR 4 | GR 7 | SH 1 | SH 2 | SH 5 | SH 7 | TU 1 | TU 3 | TU 4 | TU 5 | TL 1 | TL 2 | TL 6 | TL 9 |

*Fuel model crosswalk used to update FlamMap landscape file. Treatments assessed included ground-based management (GBM) and hand thinning (HT). See treatment guide for more detail on treatment abbreviations and descriptions. Fuel model numbers are Scott & Burgan model descriptions (GTR-153).*

**Table 14 Changes to Canopy Characteristics in FlamMap**

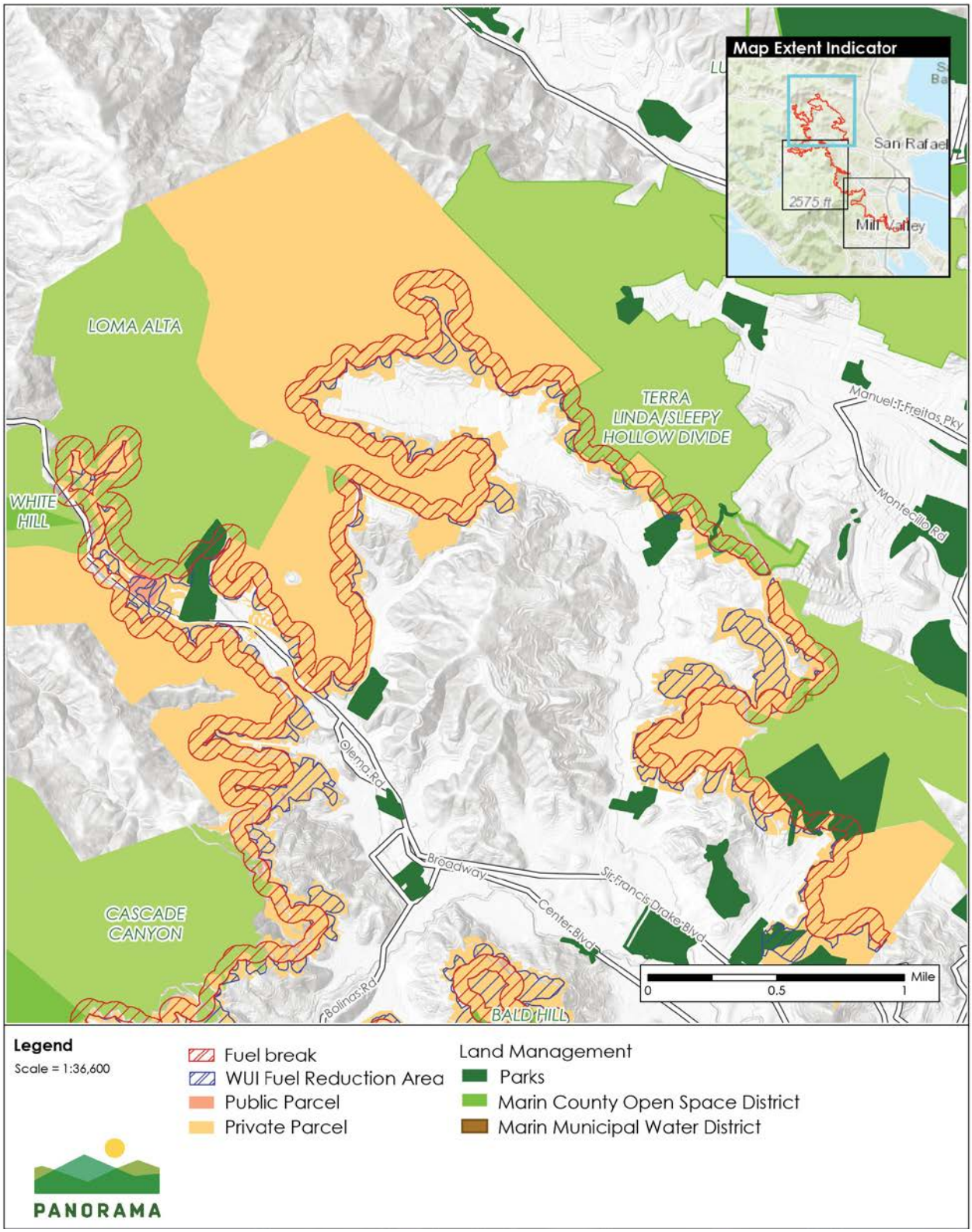
| Abbreviation | Canopy cover target (% cover) | Bulk density (% change reduction) | Canopy base height target (ft) | Canopy height (% change increase) |
|---|---|---|---|---|
| GBM_VDT | 40 | 15 | 8 | 10 |
| GBM_VDT_GM | 40 | 15 | 8 | 10 |
| HT_TB | 40 | 20 | 8 | 5 |
| HT_VDT | 40 | 20 | 8 | 5 |
| HT_ISR | -- | -- | -- | 0 |

*Changes to canopy characteristics in FlamMap Landscape files used to assess treatment impacts on fire behavior. Changes were based on expert opinion relative to the specific treatment.*

# Appendix C: Detailed Map Books

# APPENDIX C

## *Land Management Map Book*



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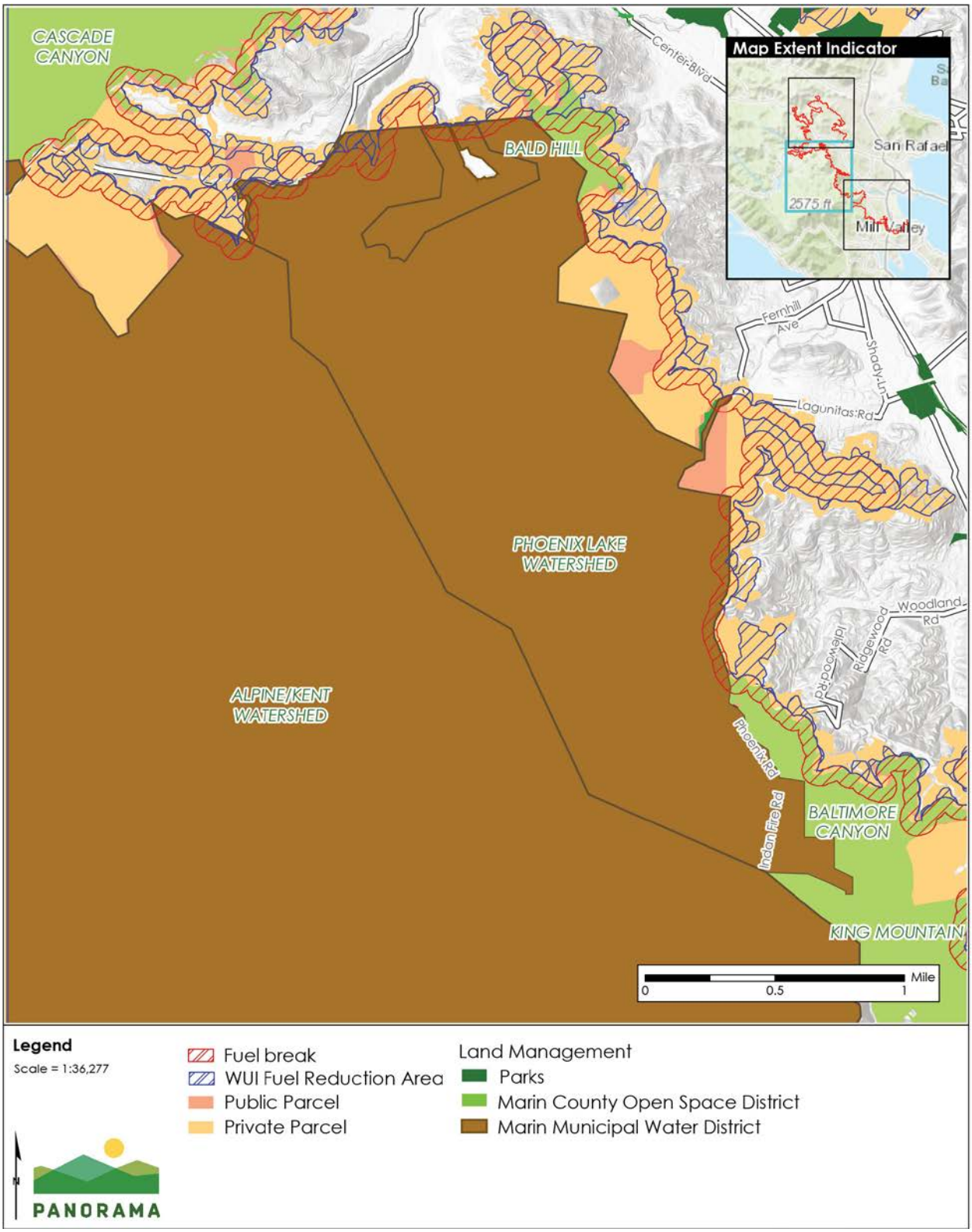
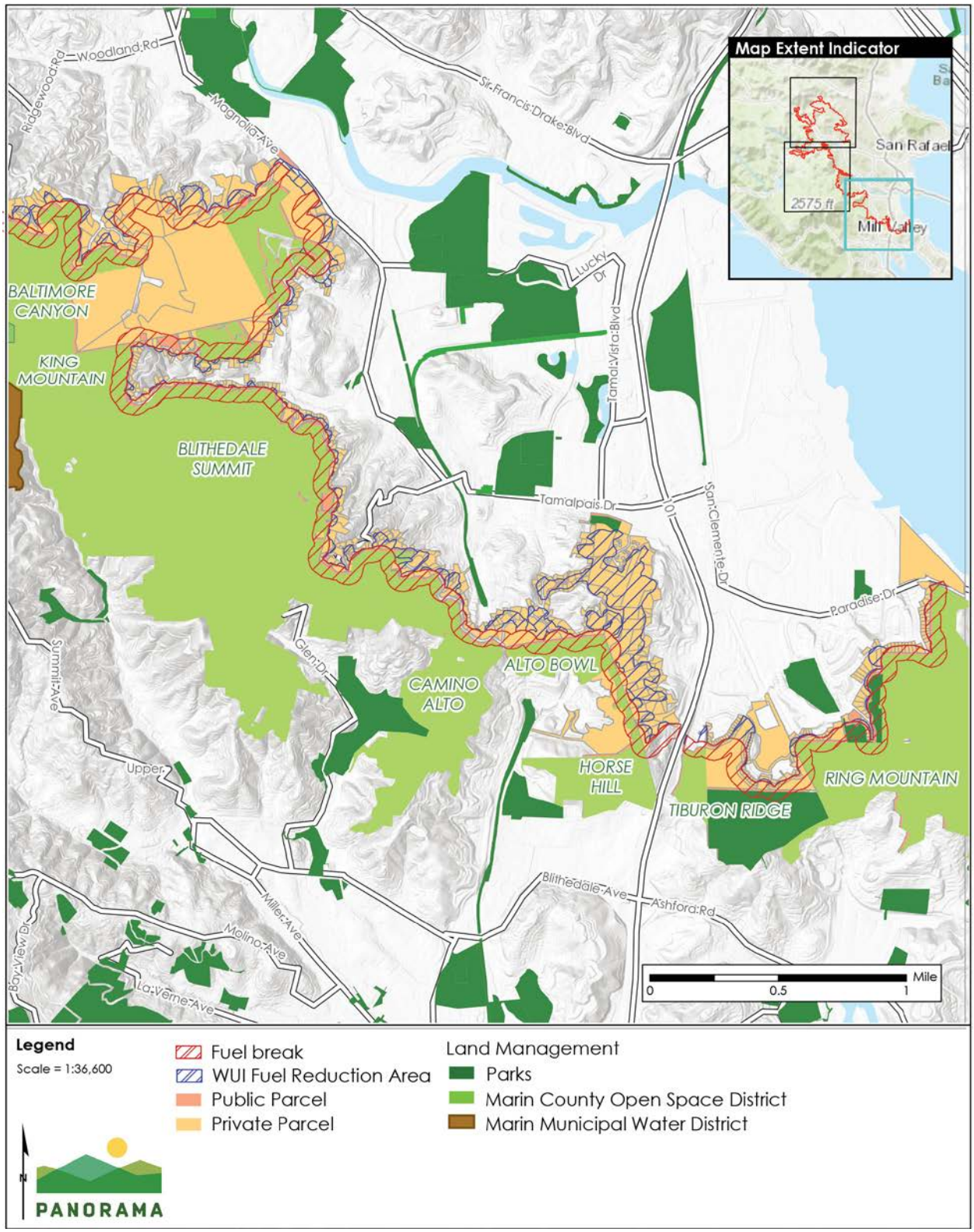
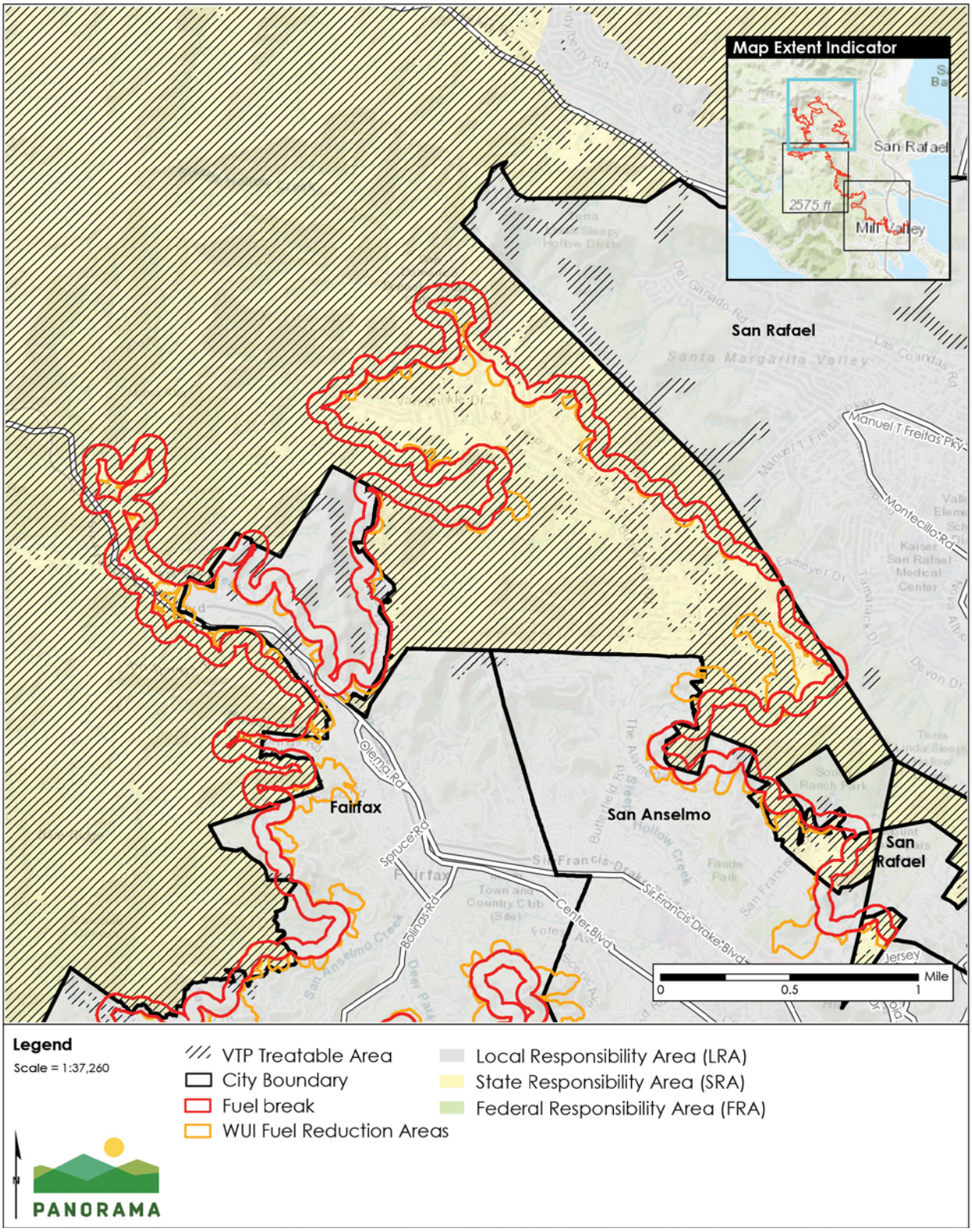

CASCADE CANYON
BALD HILL
PHOENIX LAKE WATERSHED
ALPINE/KENT WATERSHED
BALTIMORE CANYON
KING MOUNTAIN
Center Blvd
Fernhill Ave
Shady Ln
Lagunitas Rd
Woodland Rd
Ridgewood Rd
Phoenix Rd
Indian Fire Rd
Map Extent Indicator
San Rafael
2575 ft
Mill Valley
0
0.5
1
Mile
Legend
Scale = 1:36,277
Fuel break
WUI Fuel Reduction Area
Public Parcel
Private Parcel
Land Management
Parks
Marin County Open Space District
Marin Municipal Water District
PANORAMA

# APPENDIX C

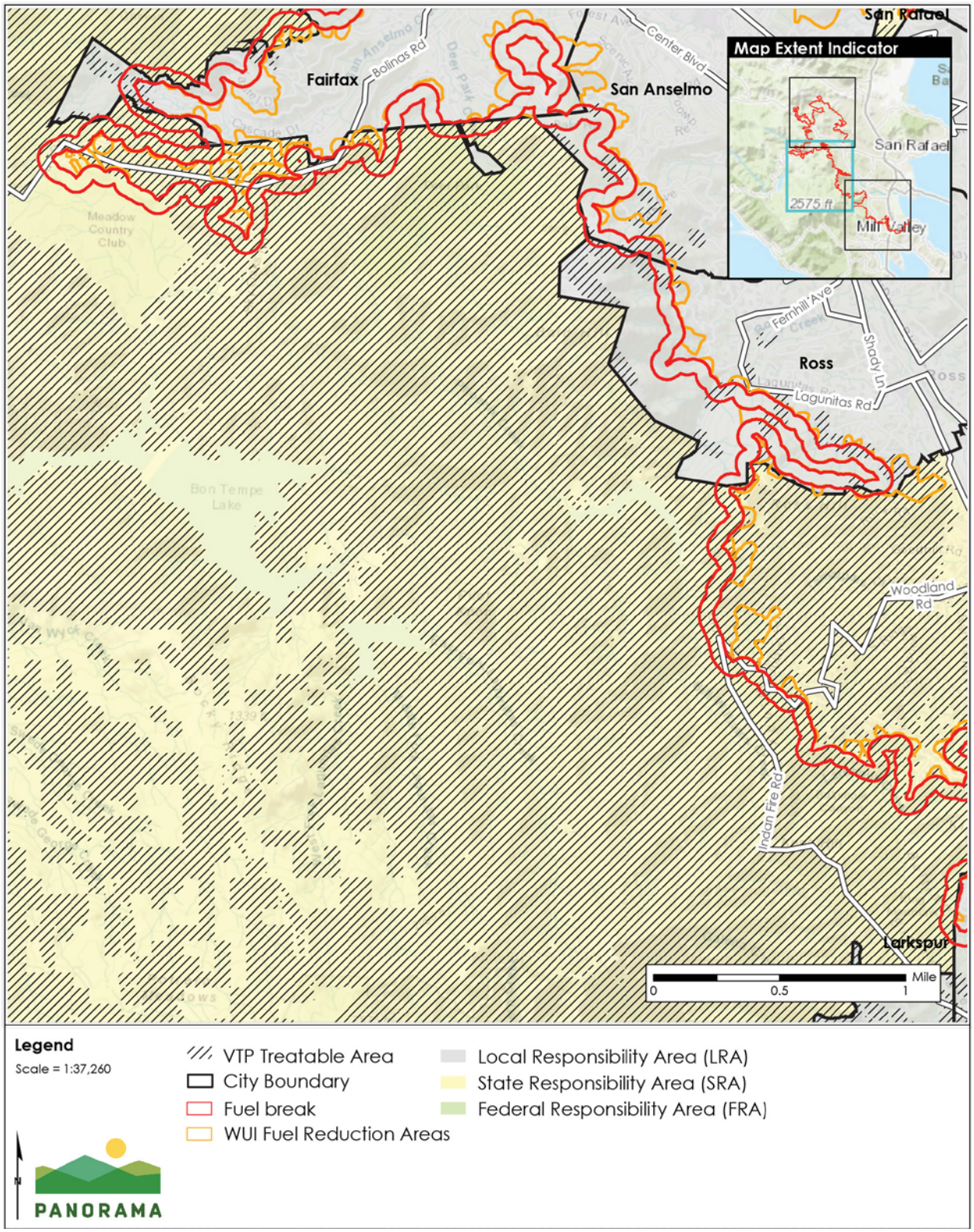

Map Extent Indicator
San Rafael
2575 ft
Mill Valley
Ridgewood Rd
Woodland Rd
Magnolia Ave
Sir Francis Drake Blvd
Lucky Dr
Tamal Vista Blvd
BALTIMORE CANYON
KING MOUNTAIN
BLITHEDALE SUMMIT
Tamalpais Dr
San Clemente Dr
Paradise Dr
Summit Ave
Glen Dr
CAMINO ALTO
ALTO BOWL
HORSE HILL
RING MOUNTAIN
TIBURON RIDGE
Upper
Miller Ave
Blithedale Ave
Ashford Rd
Molino Ave
La Verne Ave
Bay View Dr
Mile
0
0.5
1
Legend
Scale = 1:36,600
Fuel break
WUI Fuel Reduction Area
Public Parcel
Private Parcel
Land Management
Parks
Marin County Open Space District
Marin Municipal Water District
PANORAMA

# APPENDIX C

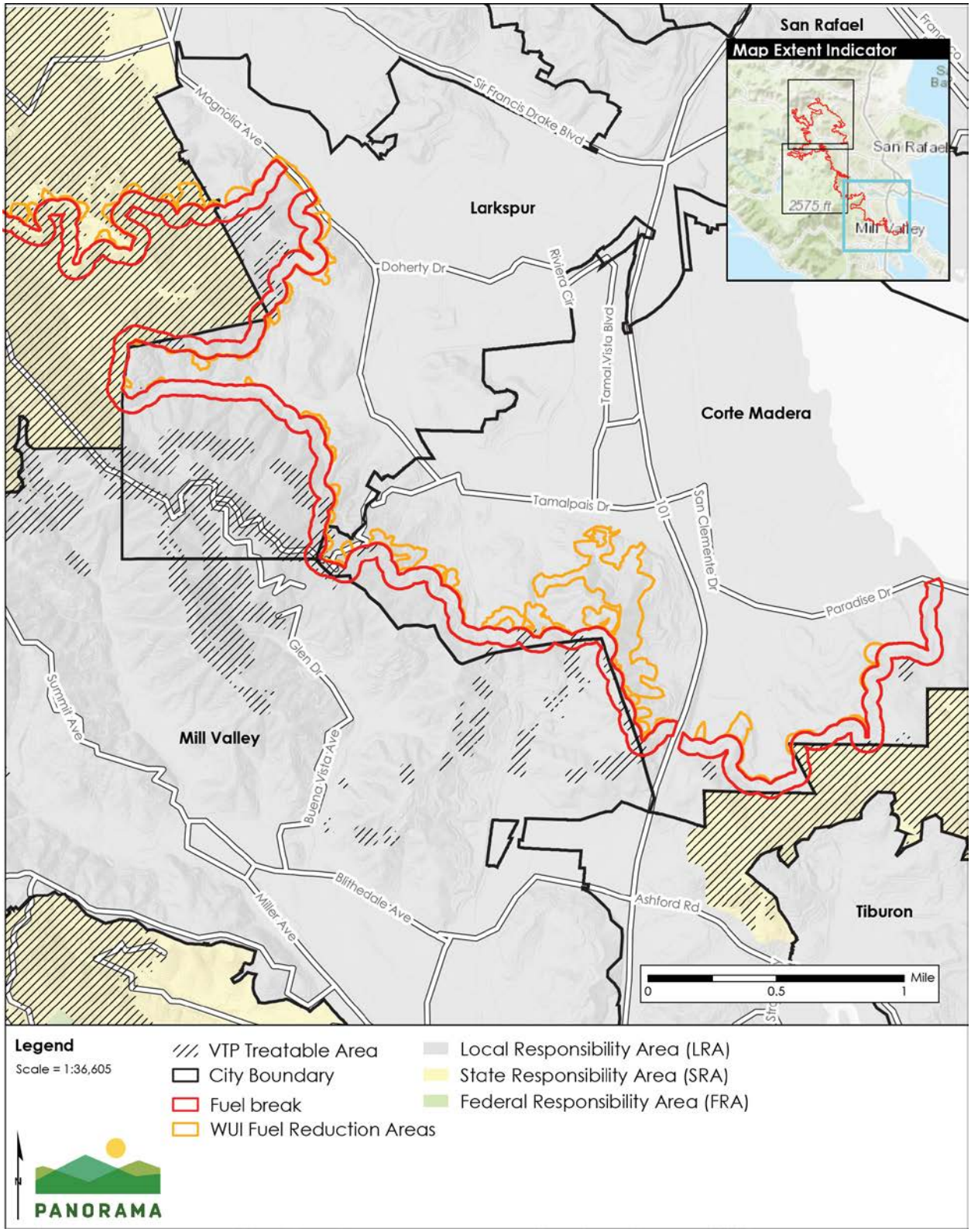
## *State Responsibility Area vs. Local Responsibility Area Map Book*



# APPENDIX C

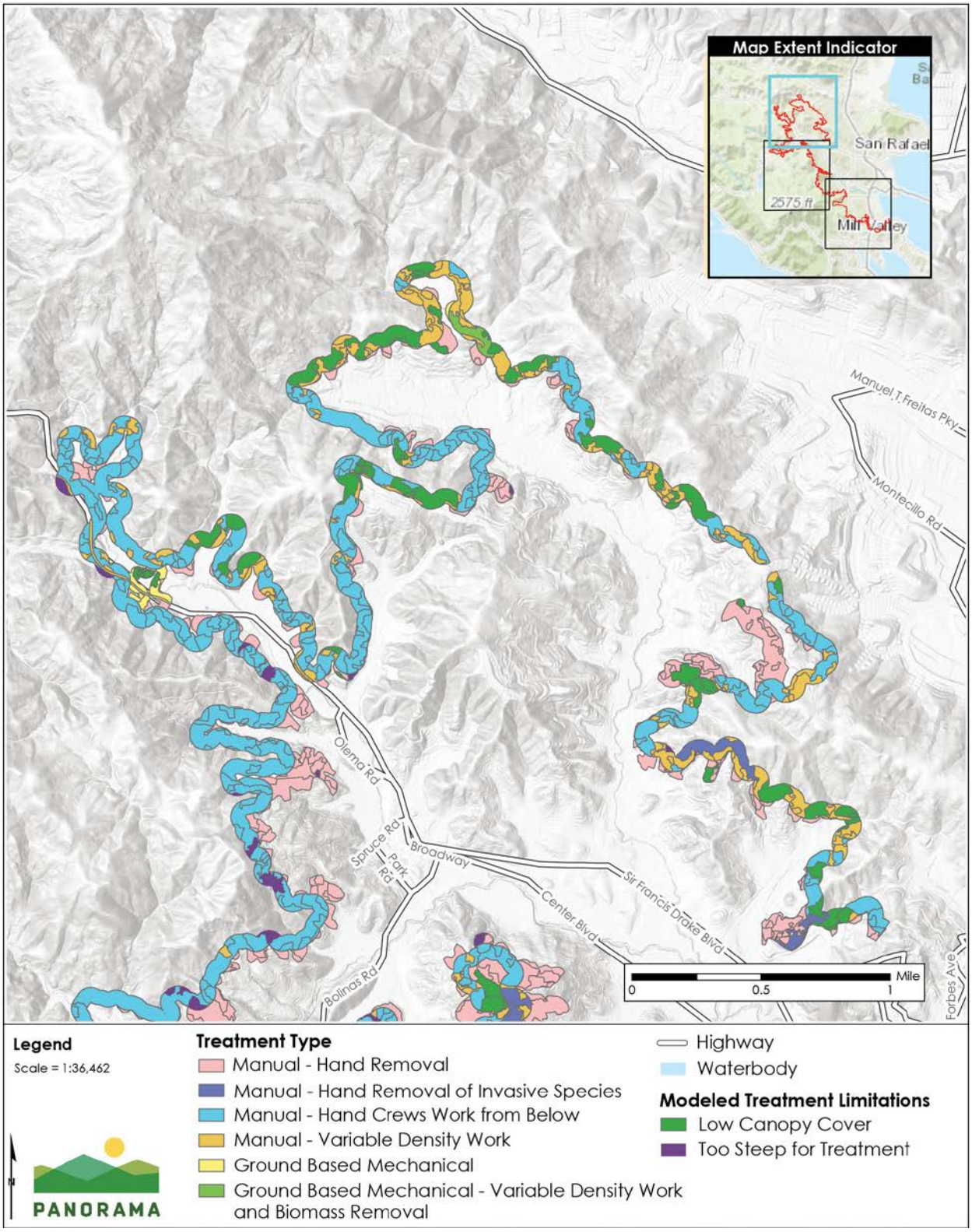

Map Extent Indicator
San Rafael
Fairfax
San Anselmo
Ross
Larkspur
Bolinas Rd
Center Blvd
Fernhill Ave
Shady Ln
Lagunitas Rd
Woodland Rd
Indian Fire Rd
Meadow Country Club
Bon Tempe Lake
2575 ft
Mill Valley
0
0.5
1
Mile
Legend
Scale = 1:37,260
VTP Treatable Area
City Boundary
Fuel break
WUI Fuel Reduction Areas
Local Responsibility Area (LRA)
State Responsibility Area (SRA)
Federal Responsibility Area (FRA)
PANORAMA

# APPENDIX C

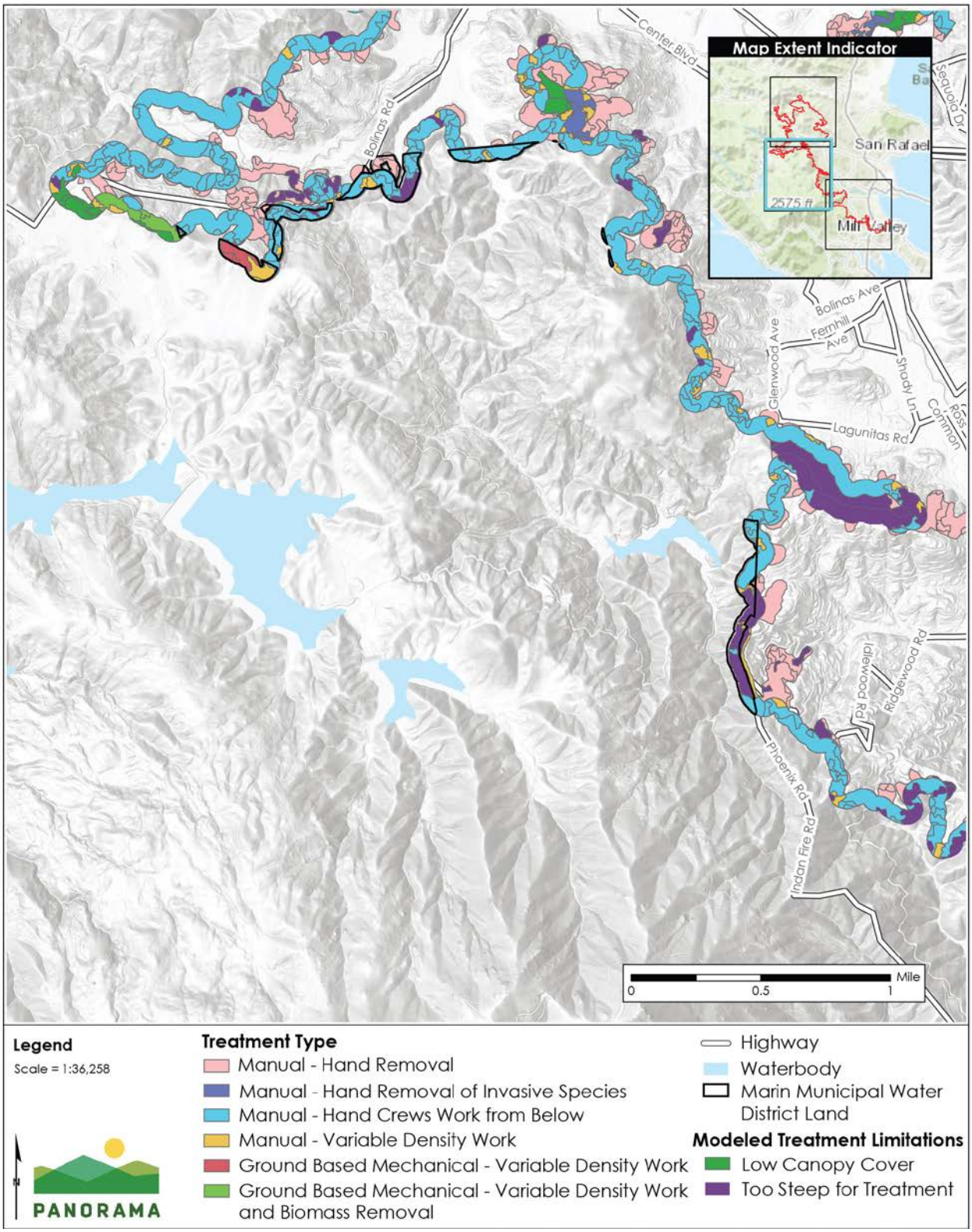

San Rafael
Map Extent Indicator
San Rafael
2575 ft
Mill Valley
Larkspur
Corte Madera
Mill Valley
Tiburon
Sir Francis Drake Blvd
Magnolia Ave
Doherty Dr
Riviera Cir
Tamal Vista Blvd
Tamalpais Dr
101
San Clemente Dr
Paradise Dr
Glen Dr
Summit Ave
Buena Vista Ave
Blithedale Ave
Miller Ave
Ashford Rd
Mile
0
0.5
1
Legend
Scale = 1:36,605
VTP Treatable Area
City Boundary
Fuel break
WUI Fuel Reduction Areas
Local Responsibility Area (LRA)
State Responsibility Area (SRA)
Federal Responsibility Area (FRA)
PANORAMA

# APPENDIX C

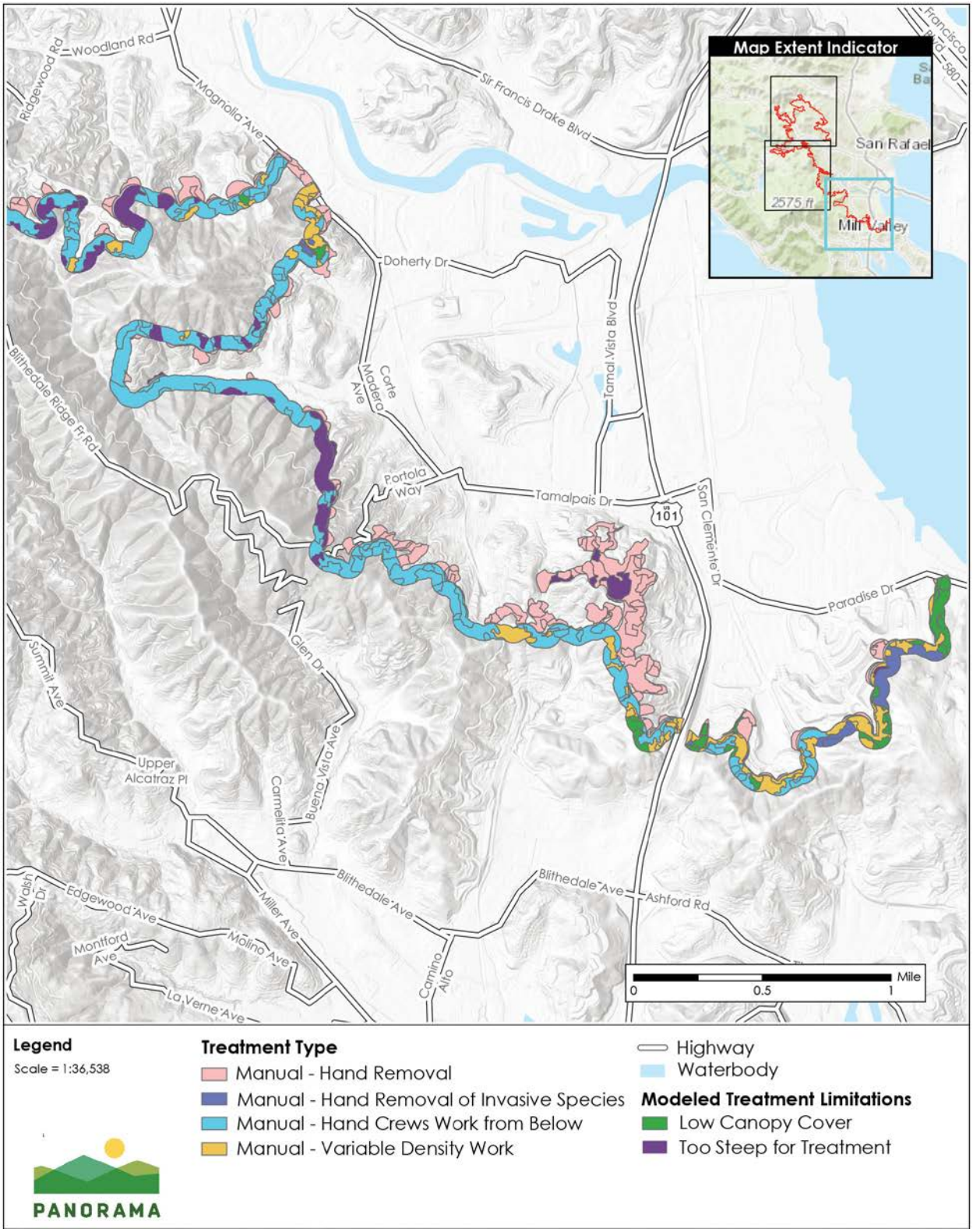
## *Treatment Activities Map Book*



# APPENDIX C


Map Extent Indicator
San Rafael
Mill Valley
2575 ft
Center Blvd
Bolinas Rd
Bolinas Ave
Fernhill Ave
Glenwood Ave
Shady Ln
Lagunitas Rd
Ross Common
Idlewood Rd
Ridgewood Rd
Phoenix Rd
Indian Fire Rd
0
0.5
1
Mile
Legend
Scale = 1:36,258
PANORAMA
Treatment Type
Manual - Hand Removal
Manual - Hand Removal of Invasive Species
Manual - Hand Crews Work from Below
Manual - Variable Density Work
Ground Based Mechanical - Variable Density Work
Ground Based Mechanical - Variable Density Work and Biomass Removal
Highway
Waterbody
Marin Municipal Water District Land
Modeled Treatment Limitations
Low Canopy Cover
Too Steep for Treatment

# APPENDIX C


Map Extent Indicator
San Rafael
2575 ft
Mill Valley
Woodland Rd
Ridgewood Rd
Magnolia Ave
Sir Francis Drake Blvd
Doherty Dr
Corte Madera Ave
Tamal Vista Blvd
Blithedale Ridge Fr Rd
Portola Way
Tamalpais Dr
US 101
San Clemente Dr
Paradise Dr
Summit Ave
Glen Dr
Upper Alcatraz Pl
Buena Vista Ave
Carmelita Ave
Blithedale Ave
Walsh Dr
Edgewood Ave
Miller Ave
Montford Ave
Molino Ave
La Verne Ave
Camino Alto
Ashford Rd
Mile
0
0.5
1
Legend
Scale = 1:36,538
Treatment Type
Manual - Hand Removal
Manual - Hand Removal of Invasive Species
Manual - Hand Crews Work from Below
Manual - Variable Density Work
Highway
Waterbody
Modeled Treatment Limitations
Low Canopy Cover
Too Steep for Treatment
PANORAMA

# Appendix D: Product Guide

# Greater Ross Valley Shaded Fuelbreak v1.0 Product Guide

Marin Wildfire Prevention Authority (MWPA)

February 2022

The Greater Ross Valley Shaded Fuelbreak was segmented into meaningful project areas and then each segment (polygon) was attributed with data about property ownership, structural vegetation characteristics, fire risk from existing modeling, and estimated vegetation health condition. These attributes were used to identify treatment opportunities and priority projects. In this guide fields are presented in the order that they appear in the shapefile. Information is provided on the field name (as it appears in the shapefile), field description, value (includes range of values occur for each field), value description (for text values description of what abbreviation stands for), and comments (includes information on where the data came from).



## 1. Primary Fuelbreak Project Planning Attributes

| Field Name | Field Description | Values | Value Description | Comments |
|---|---|---|---|---|
| Unit_ID | Unit (segment) identification number | 0-801 | | Unique segment number |
| Acres | Area of polygon in acres | 0.25-27.13 | | Precise calculation of the polygon area |

| Field Name | Field Description | Values | Value Description | Comments |
|---|---|---|---|---|
| Slope | Average slope in percentage | 2.60-85.73 | | Derived from a LiDAR bare earth Digital Elevation Model (DEM) at 4 meter resolution. The DEM was obtained from ONE TAM: https://gis.marinpublic.com/arcgis/rest/services/LIDAR/Slope/ImageServer |
| Hazard | Fire hazard | 0.1706-0.8311 | | Average of fire threat rating (range normalized) and buildings affected (range normalized) |
| Treatment | Prioritized treatment for treatment effects | GBM_VDT_GM | Ground Based Mechanical-Variable Density Thin no large openings & Biomass removal | Identifies preferred treatment for the segment (see project report for description of methods). |
| | | GBM_VDT | Ground Based Mechanical-Variable Density Thin no large openings | |
| | | HT_VDT | Hand Thinning-Variable Density | |
| | | HT_TB | Hand Thinning-Thin From Below | |
| | | HT_ISR | Hand Thinning-Invasive species removal | |
| | | LowCover | <30% cover | |
| | | TooSteep | >65% slope | |
| Project | Manually adjusted project sequence | 1 to 11 | | Manually adjusted project sequence (see project report for description of methods) |
| Trt_effect | Treatment effect | 0-100 | | Change in fire threat rating for preferred treatment (see project report for description of methods) |
| Trt_cst | Total cost of treatment | 0-$67,824.50 | | Total cost of treatment (Cost per acre of preferred treatment * Acres) (see project report for description of methods). |
| Cost_ac | Cost per acre of treatment | 0-$6,000 | | Cost per acre of preferred treatment (see project report for description of methods). |

## 2. Vegetation Attributes

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| FSV_FLF | Forest Lifeform | Conifer<br>Deciduous Hardwood<br>Developed<br>Evergreen Hardwood<br>Forest Fragment<br>Herbaceous<br>Major Road<br>Native Shrub<br>Non-native Forest<br>Non-native Shrub<br>Riparian Shrub<br>Shrub Fragment | Dominant Forest Life Form based on the 2021 Marin County Fine Scale Vegetation Map (Forest Lifeform in '18). Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |
| Cvr_MAJ | Identifies the dominant canopy (woody or not woody) | Woody canopy > 15 feet<br>Not woody canopy > 15 feet | Identifies if woody canopy greater than 15 ft tall is >50% (woody) or <=50 % (not woody). Data is based on 2021 Marin County Fine Scale Vegetation Map (Canopy Closure) https://parksconservancy.maps.arcgis.com/home/item.html?id=61d3dffe1e18476db3cb810af76267df |
| Woody | Percent cover of woody canopy > 15 ft | 0-100 | Percent cover of woody canopy > 15 feet tall. Data is based on 2021 Marin County Fine Scale Vegetation Map (Canopy Closure) https://parksconservancy.maps.arcgis.com/home/item.html?id=61d3dffe1e18476db3cb810af76267df |
| NotWoody | Percent cover of not woody canopy > 15 ft | 0-100 | Percent cover of areas without woody canopy cover > 15 feet tall. Data is based on 2021 Marin County Fine Scale Vegetation Map (Canopy Closure) https://parksconservancy.maps.arcgis.com/home/item.html?id=61d3dffe1e18476db3cb810af76267df |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| Can_cov | Canopy cover over 2 m | 5.38-98.99 | Raw LiDar data from Golden Gates Parks Conservancy was used to estimate canopy cover > 2 meters using first return only. Canopy cover can be calculated below 2 meters, however the certainty that LiDAR returns have been intercepted by vegetation and not rocks/down logs decreases precipitously below that height. |
| Can_cov2_8 | Canopy cover 2-8 m | 1.8-89.89 | Raw LiDar data from Golden Gates Parks Conservancy was used to estimate canopy cover between 2-8 meters using first return only. This information can be used as a proxy for ladder fuel. Although the accuracy of this measurement decreases as the cover above 8 meters increases, it serves as a good proxy for understory vegetation densities and may be more indicative of small tree densities than smaller size class tree counts |
| N_Trees | Total number of trees within the segment | 2 to 4995 | Raw LiDar data from Golden Gates Parks Conservancy was used to estimate total number of trees based on lidar derived TAOs. Higher canopy cover estimates with higher understory tree densities will yield greater omission errors for detecting trees. |
| TPA | Trees per acre | 1.85-1340.95 | Calculated by dividing N_Trees with polygon acres |
| Tree_ht | Average tree height (feet) | 3.67-110.19 | Raw LiDar data from Golden Gates Parks Conservancy was used to estimate average tree dominant height based on lidar derived TAOs |
| TreeCov | Absolute % Tree Canopy Cover in ‘19 | 0-100 | Absolute cover of trees greater than 15 feet in height based on the 2021 Marin County Fine Scale Vegetation Map using LiDar. Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| ShrubCov | Absolute % Shrub Cover in '18 | 1 to 97 | Absolute shrub cover for herbaceous and shrub stands based on the 2021 Marin County Fine Scale Vegetation Map manual image interpretation of '18 imagery. Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |
| StandDead | Percent of standing dead vegetation 2019 | 0-3.71 | Estimate of percent standing dead vegetation in forested stands. Estimates the percent of the woody canopy > 7 feet tall that did not have a living crown in late 2018/early 2019. Data from the 2021 Marin County Fine Scale Vegetation Map using LiDar. Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |
| MC_MAJ | Map class with the highest proportional cover | Acacia spp. ? Grevillea spp. ? Leptospermum laevigatum Semi-Natural Alliance | National Vegetation Classification (NVCS) map class label for all stands. 2021 Marin County Fine Scale Vegetation Map (Fine Scale Map Class in '18). Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |
| | | Acer macrophyllum Association | |
| | | Adenostoma fasciculatum Alliance | |
| | | Aesculus californica Alliance | |
| | | Arbutus menziesii Alliance | |
| | | Arctostaphylos glandulosa Alliance | |
| | | Artemisia californica ? (Salvia leucophylla) Alliance | |
| | | Baccharis pilularis Alliance | |
| | | Californian Annual & Perennial Grassland Mapping Unit | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| | | Californian Cliff, Scree & Rock Vegetation Group | |
| | | Deciduous Hardwood (Urban Window) | |
| | | Developed | |
| | | Eucalyptus (globulus, camaldulensis) Provisional Semi-Natural Assocation | |
| | | Forest Fragment | |
| | | Genista monspessulana Semi-Natural Association | |
| | | Major Road | |
| | | Non-native Forest | |
| | | Non-native Shrub | |
| | | Pinus radiata Plantation Provisional Semi-Natural Association | |
| | | Pseudotsuga menziesii Mapping Unit | |
| | | Quercus agrifolia Alliance | |
| | | Quercus chrysolepis Alliance | |
| | | Quercus garryana Alliance | |
| | | Quercus kelloggii Alliance | |
| | | Quercus lobata Alliance | |
| | | Salix lasiolepis Alliance | |
| | | Sequoia sempervirens Alliance | |
| | | Shrub Fragment | |
| | | Umbellularia californica Alliance | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| Herb | Precent cover of Californian Annual & Perennial Grassland Mapping Unit | 0-100 | Percent cover for National Vegetation Classification (NVCS) map class label for segment. 2021 Marin County Fine Scale Vegetation Map (Fine Scale Map Class in '18). Data was obtained from ONE TAM: https://parksconservancy.maps.arcgis.com/home/item.html?id=14b57b6d94cc4516841a6f753326848d |
| GeMo | Precent cover of Genista monspessulana Semi-Natural Association | 0-100 | |
| Bapi | Precent cover of Baccharis pilularis Alliance | 0-100 | |
| NNS | Precent cover of Non-native Shrub | 0-89.4 | |
| Vin | Precent cover of Vineyard | 0-6.1 | |
| ForFrag | Precent cover of Forest Fragment | 0-96.6 | |
| ArCa | Precent cover of Artemisia californica – (Salvia leucophylla) Alliance | 0-93.3 | |
| AdFa | Precent cover of Adenostoma fasciculatum Alliance | 0-100 | |
| SaLa | Precent cover of Salix lasiolepis Alliance | 0-100 | |
| PsMe | Precent cover of Pseudotsuga menziesii – (Notholithocarpus densiflorus – Arbutus menziesii) Alliance | 0-98.4 | |
| ArGl | Precent cover of Arctostaphylos glandulosa Alliance | 0-100 | |
| Dev | Precent cover of Developed | 0-100 | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| Road | Precent cover of Major Road | 0-100 | |
| NNF | Precent cover of Non-native Forest | 0-85 | |
| UmCa | Precent cover of Umbellularia californica Alliance | 0-100 | |
| EvrHdwd | Precent cover of Evergreen Hardwood (Urban Window) | 0-1.6 | |
| QuAg | Precent cover of Quercus agrifolia Alliance | 0-100 | |
| AeCa | Precent cover of Aesculus californica Alliance | 0-100 | |
| Acac | Precent cover of Acacia spp. – Grevillea spp. – Leptospermum laevigatum Semi-Natural Alliance | 0-100 | |
| QuLo | Precent cover of Quercus lobata Alliance | 0-100 | |
| DecHdwd | Precent cover of Deciduous Hardwood (Urban Window) | 0-97.8 | |
| Euc | Precent cover of Eucalyptus (globulus, camaldulensis) Provisional Semi-Natural Assocation | 0-100 | |
| SeSe | Precent cover of Sequoia sempervirens Alliance | 0-100 | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| PiRa | Precent cover of Pinus radiata Plantation Provisional Semi-Natural Association | 0-91.8 | |
| Cliff | Precent cover of Californian Cliff, Scree & Rock Vegetation Group | 0-100 | |
| QuGa | Precent cover of Quercus garryana Alliance | 0-100 | |
| AcMa | Precent cover of Acer macrophyllum Association | 0-100 | |
| QuKe | Precent cover of Quercus kelloggii Alliance | 0-100 | |
| ArMe | Precent cover of Arbutus menziesii Alliance | 0-100 | |
| QuCh | Precent cover of Quercus chrysolepis Alliance | 0-53.6 | |
| ShrubFrag | Precent cover of Shrub Fragment | 0-100 | |
| NNH | Precent cover of Non-native Herbaceous | 0-0.2 | |
| VanMarsh | Precent cover of Vancouverian Freshwater Wet Meadow & Marsh Group | 0-0.4 | |

## 3. Ownership Attributes

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| Owner_MAJ | Ownership with the highest proportional cover | Corte Madera, Town of<br>Larkspur, City of | Derived from 2013 Protected Areas Database of the United |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| | | Marin County Open Space District | States Dataset. Data from: U.S. Geological Survey (USGS) Gap Analysis Project (GAP), 2020, Protected Areas Database of the United States (PAD-US) 2.1: U.S. Geological Survey data release, https://doi.org/10.5066/P92QM3NT. |
| | | Marin Municipal Water District | |
| | | Private | |
| | | Ross, Town of | |
| | | San Anselmo, City of | |
| | | Tiburon, Town of | |
| Private | Precent cover of Private | 0-11 | Derived from 2013 Protected Areas Database of the United States Dataset. Data from: U.S. Geological Survey (USGS) Gap Analysis Project (GAP), 2020, Protected Areas Database of the United States (PAD-US) 2.1: U.S. Geological Survey data release, https://doi.org/10.5066/P92QM3NT. |
| CorMad | Precent cover of Corte Madera, Town of | 0-94.4 | |
| Larkspur | Precent cover of Larkspur, City of | 0-83.8 | |
| Ross | Precent cover of Ross, Town of | 0-75.5 | |
| SanAns | Precent cover of San Anselmo, City of | 0-100 | |
| Tiburon | Precent cover of Tiburon, Town of | 0-67.2 | |
| MCPD | Precent cover of Marin County Parks Department, County of | 0-8.2 | |
| MCOSD | Precent cover of Marin County Open Space District | 0-100 | |
| MMWD | Precent cover of Marin Municipal Water District | 0-100 | |
| CaDOT | Precent cover of California Department of Transportation | 0-3.6 | |

## 4. Fire/Fuel Attributes

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| LadderFl | Percent cover between 1 and 4 meters | 1.15-66.74 | Provides information about the density of living and dead vegetation in the vertical stratum between 1 and 4 meters above the ground (i.e. represents the density of lidar returns between 1-4 m). Integrated from the 2019 lidar derived ladder fuels raster using the zonal statistics function. The ladder fuel metric is a 0-1 metric; 0 is lowest, 1 is highest. The fuel metric was then multiplied by 100/ Raw ladder fuel data was used from: |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| | | | https://parksconservancy.maps.arcgis.com/home/item.html?id=629155a9a3d14721b9c477e65f429da8 |
| FM_MAJ | Fuel model with the highest proportional cover | 91: Urban/Developed | Derived from 2020 Marin County Fuel Model provided by Sonoma Tech |
| | | 99: Bare Ground | |
| | | 101: Short, Sparse Dry Climate Grass | |
| | | 102: Low Load, Dry Climate Grass | |
| | | 104: Moderate Load, Dry Climate Grass | |
| | | 107: High Load, Dry Climate Grass | |
| | | 142: Moderate Load Dry Climate Shrub | |
| | | 145: High Load, Dry Climate Shrub | |
| | | 147: Very High Load, Dry Climate Shrub | |
| | | 165: Very High Load, Dry Climate Timber-Shrub | |
| | | 182: Low Load Broadleaf Litter | |
| | | 186: Moderate Load Broadleaf Litter | |
| FM_MAJ | Fuel model with the highest proportional cover | 189: Very High Load Broadleaf Litter | Derived from 2020 Marin County Fuel Model provided by Sonoma Tech |
| FM40_NB1 | Percentage of cover of fuel model 91: Urban/Developed | 0-65.2 | Derived from 2020 Marin County Fuel Model provided by Sonoma Tech |
| FM40_NB8 | Percentage of cover of fuel model 98: Open water | 0-0.4 | |
| FM40_NB9 | Percentage of cover of fuel model 99: Bare Ground | 0-97.6 | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| FM40_GR1 | Percentage of cover of fuel model 101: Short, Sparse Dry Climate Grass | 0-98.3 | |
| FM40_GR2 | Percentage of cover of fuel model 102: Low Load, Dry Climate Grass | 0-37.7 | |
| FM40_GR4 | Percentage of cover of fuel model 104: Moderate Load, Dry Climate Grass | 0-92.3 | |
| FM40_GR7 | Percentage of cover of fuel model 107: High Load, Dry Climate Grass | 0-58.6 | |
| FM40_SH1 | Percentage of cover of fuel model 141: Low Load Dry Climate Shrub | 0-9.2 | |
| FM40_SH2 | Percentage of cover of fuel model 142: Moderate Load Dry Climate Shrub | 0-97.4 | |
| FM40_SH5 | Percentage of cover of fuel model 145: High Load, Dry Climate Shrub | 0-81.2 | |
| FM40_SH7 | Percentage of cover of fuel model 147: Very High Load, Dry Climate Shrub | 0-86.2 | |
| FM40_TU3 | Percentage of cover of fuel model 163: Moderate Load, Humid Climate Timber-Grass-Shrub | 0-7.1 | |
| FM40_TU4 | Percentage of cover of fuel model 164: Dwarf Conifer With Understory | 0-7 | |

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| FM40_TU5 | Percentage of cover of fuel model 165: Very High Load, Dry Climate Timber-Shrub | 0-85.3 | |
| FM40_TL1 | Percentage of cover of fuel model 181: Low Load Compact Conifer Litter | 0-20.6 | |
| FM40_TL2 | Percentage of cover of fuel model 182: Low Load Broadleaf Litter | 0-77.1 | |
| FM40_TL6 | Percentage of cover of fuel model 186: Moderate Load Broadleaf Litter | 0-92.7 | |
| FM40_TL9 | Percentage of cover of fuel model 189: Very High Load Broadleaf Litter | 0-99 | |
| BurnProb | Burn probability | 0.001-0.0095 | Burn probability provided by Sonoma Tech |
| FL_DIA | Conditional flame length modeled under extreme Diablo wind conditions scenario | 1.45-116.67 | Conditional flame length (Extreme Diablo wind conditions) provided by Sonoma Tech |
| ROS_DIA | Rate of spread modeled under extreme Diablo wind conditions scenario | 3.27-323.38 | Rate of spread (Extreme Diablo wind conditions) provided by Sonoma Tech |
| Exposure | Buildings affected | 0-0.0006 | Estimate of the annual number of structures exposed to wildfire. Data provided by Ager, methods found here: https://www.fs.fed.us/rm/pubs_series/rmrs/gtr/rmrs_gtr392.pdf |
| Expos_RN | Exposure normalized | 0.002-0.9975 | Exposure range normalized 0-1 |
| FTR | Fire Threat Rating | 1.95-4.00 | Weighted overlay using updated fire modeling based on burn probability, conditional flame length, and rate of spread (Extreme Diable wind conditions). Rate of spread data provided by Panorama |
| FTR_RN | Fire Threat Rating normalized | 0.2709-1 | Fire threat rating range normalized 0-1 |

## 5. Treatment Attributes

| Field Name | Field Description | Values | Comments |
|---|---|---|---|
| GBM_VDT_GM | Ground Based Mechanical _Variable Density Thin no large openings-Ground Based Mechanical _biomass removal | 0,1 | A ruleset relating vegetation treatments suitable given conditions related to ownership, slope, vegetation characteristics, and other attributes from the CZCF segments was used to identify if treatments were suitable or not (see project report and appendix 1). 0 = Did not meet treatment logic or 1=Did meet treatment logic |
| GBM_VDT | Ground Based Mechanical _Variable Density Thin no large openings-_ | 0,1 | |
| GBM_TB_GM | Ground Based Mechanical _Thin From Below -Ground Based Mechanical _biomass removal | 0,1 | |
| GBM_BR | Ground Based Mechanical _Biomass removal-_ | 0,1 | |
| GBM_TB | Ground Based Mechanical _Thin From Below -_ | 0,1 | |
| GBM_OR_GM | Ground Based Mechanical _Overstory Removal-Ground Based Mechanical _biomass removal | 0,1 | |
| GBM_OR | Ground Based Mechanical _Overstory Removal-_ | 0,1 | |
| HT_VDT | Hand Thinning_Variable Density Thin no large openings-_ | 0,1 | |
| HT_TB | Hand Thinning_Thin From Below -_ | 0,1 | |
| R_TB | Rearrangement_Thin From Below -_ | 0,1 | |
| R_GMP | Rearrangement_Grapple/Machine Piling-_ | 0,1 | |
| R_TFF | Rearrangement_Target Fine Fuel-_ | 0,1 | |
| R_ST | Rearrangement_Shallow Tillage-_ | 0,1 | |
| H_TF_HTVDT | Herbivory _targeted fuels focused-Hand Thinning_Variable Density Thin no large openings | 0,1 | |
| H_TF_HT | Herbivory _targeted fuels focused-Hand Thinning_Thin From Below | 0,1 | |
| H_TF | Herbivory _targeted fuels focused-_ | 0,1 | |
| HT_ISR | Hand Thinning_Invasive species removal- | 0,1 | |
| H_TA | Herbicides_Targeted Application-_ | 0,1 | |
| TooSteep | Too Steep | 0,1 | |
| ForSysProj | ForSys identified project sequence | 1 to 10 | Project sequence ouput from ForSys optimization |

## Appendix 1: Treatment Ruleset

*Potential treatments considered for assignment in the Central Zone Core Fuel break segments, based on a set of biophysical conditions. Treatments in bold are the treatments that were tagged as priority treatments for polygons and are identified in the Treatment field.*

| Abbreviation | Treatment Method | Minimum acres | Average % slope | Canopy height | Canopy cover | Ladder fuel | Invasive Species | Priority |
|---|---|---|---|---|---|---|---|---|
| **GBM_VDT_GM** | **Ground Based Mechanical-Variable Density Thin no large openings & Biomass removal** | **5** | **<=35** | | **>50** | **>=50** | **Y or N** | **1** |
| **GBM_VDT** | **Ground Based Mechanical-Variable Density Thin no large openings** | **5** | **<=35** | | **>50** | **<=50** | **Y or N** | **2** |
| GBM_TB_GM | Ground Based Mechanical-Thin From Below & Biomass removal | 5 | <=35 | | >50 | >=50 | Y or N | 3 |
| GBM_BR | Ground Based Mechanical-Biomass removal | 5 | <=35 | | >50 | >=50 | Y or N | 4 |
| GBM_TB | Ground Based Mechanical-Thin From Below | 5 | <= 35 | | >50 | 0 | Y or N | 5 |
| GBM_OR_GM | Ground Based Mechanical-Overstory Removal & Biomass removal | 5 | <=35 | | >50 | >=50 | Y or N | 6 |
| GBM_OR | Ground Based Mechanical-Overstory Removal | 5 | <=35 | | >50 | 0 | Y or N | 7 |
| **HT_VDT** | **Hand Thinning-Variable Density Thin no large openings** | **0** | **<=65** | **<150 ft** | **>=30** | **<=50; >10** | **Y or N** | **8** |
| **HT_TB** | **Hand Thinning-Thin From Below** | **0** | **<=65** | **<150 ft** | **>=30** | **>=20** | **Y or N** | **9** |
| R_TB | Rearrangement-Thin From Below | 5 | <=35 | <150 ft | >=30 | | Y or N | 10 |
| R_GMP | Rearrangement-Grapple/Machine Piling | 5 | <=35 | <150 ft | >=30 | | Y or N | 11 |
| R_TFF | Rearrangement-Target Fine Fuel | 5 | <=35 | <150 ft | >=30, <90 | | Y or N | 12 |
| R_ST | Rearrangement-Shallow Tillage | 5 | <=35 | <150 ft | >=30 | | Y or N | 13 |
| H_TF_HTVDT | Herbivory-Targeted fuels focused & Hand Thinning-Variable Density Thin no large openings | 0 | <=65 | | >=30 | >=20 | Y or N | 14 |
| H_TF_HT | Herbivory-targeted fuels focused & Hand Thinning-Thin From Below | 0 | <=65 | | >=30 | >=20 | Y or N | 15 |
| H_TF | Herbivory-Targeted fuels focused | 0 | <=65 | | >=30 | >=20 | Y or N | 16 |
| **HT_ISR** | **Hand Thinning-Invasive species removal** | **0** | **<=65** | | | | **Y** | **17** |

| Abbreviation | Treatment Method | Minimum acres | Average % slope | Canopy height | Canopy cover | Ladder fuel | Invasive Species | Priority |
|---|---|---|---|---|---|---|---|---|
| H_TA | Herbicides-Targeted Application | 0 | <=65 | | | | Y | 18 |

# Attachment B: Standard Project Requirements, Mitigation Measures, and Project Design and Implementation Features

# Attachment B – Standard Project Requirements Checklist and Mitigation Measures Checklist, and Project Design and Implementation Feature and Standard Project Requirement Comparison Table

## SPRs Checklist and MMs Checklist Overview

**Applicable.** The standard project requirements (SPRs) or mitigation measures (MMs) from the California Vegetation Treatment Program (CalVTP) Program Environmental Impact Report (PEIR) and listed below in Table 1 and Table 2 are applicable to the initial treatment and/or maintenance of the proposed project. A yes/no (Y/N) is placed next to the initial treatment and treatment maintenance to indicate if it is applicable to that stage of treatment. MMs and SPRs not applicable to initial or maintenance treatments for the proposed project were removed from the tables.

**Timing.** This column identifies the time frame in which the SPR or mitigation measure will be implemented (e.g., prior to treatment, during treatment, etc.) (Table 1 and Table 2).

**Implementing Entity.** The implementing entity is the agency or organization responsible for carrying out the requirement. Fire Agency, Contractor, Fire Agency & Contractor, or MWPA is indicated in this column to identify which entity will be the responsible party (Table 1 and Table 2). The fire departments included with in the category of Fire Agency include Kentfield Fire District, Ross Valley Fire Department, Central Marin Fire Department, and Marin County Fire Department. In the future MWPA may manage implementation of portions of the proposed project, but at this time it is assumed that the fire agencies are managing implementation.

**Verifying/Monitoring Entity.** The verifying/monitoring entity is the agency or organization responsible for ensuring that the requirement is implemented. The verifying/monitoring entity may be different from the implementing entity. See Table 1 and Table 2.

## PDIFs and SPRs Comparison Table Overview

In addition to the SPRs and MMs, MWPA has developed specific design and implementation features adapted from several source documents that will be incorporated as applicable into the project design and implementation for each of its projects. The Project Design and Implementation Features (PDIFs) relevant to the proposed project in comparison to the CalVTP PEIR SPRs are listed in Table 3.

# Standard Project Requirements

**Table 1 Standard Project Requirements Applicable to the Greater Ross Valley Shaded Fuel Break Project**

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Administrative Standard Project Requirements** | | | | |
| **SPR AD-3 Consistency with Local Plans, Policies, and Ordinances:** The project proponent will design and implement the treatment in a manner that is consistent with applicable local plans (e.g., general plans, Community Wildfire Protection Plans, CAL FIRE Unit Fire Plans), policies, and ordinances to the extent the project is subject to them. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency | MWPA |
| **SPR AD-4 Public Notifications for Prescribed Burning:** At least days prior to the commencement of prescribed burning operations, the project proponent will: 1) post signs along the closest public roadway to the treatment area describing the activity and timing, and requesting persons in the area to contact a designated representative of the project proponent (contact information will be provided with the notice) if they have questions or smoke concerns; 2) publish a public interest notification in a local newspapers or other widely distributed media source describing the activity, timing, and contact information; 3) send the local county supervisor and county administrative officer (or equivalent official responsible for distribution of public information) a notification letter describing the activity, its necessity, timing, and measures being taken to protect the environment and prevent prescribed burn escape. This SPR applies only to prescribed burn treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **Aesthetic and Visual Resource Standard Project Requirements** | | | | |
| **SPR AES-1 Vegetation Thinning and Edge Feathering:** The project proponent will thin and feather adjacent vegetation to break up or screen linear edges of the clearing and mimic forms of natural clearings as reasonable or appropriate for vegetation conditions. In general, thinning and feathering in | **Initial Treatment:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| irregular patches of varying densities, as well as a gradation of tall to short vegetation at the clearing edge, will achieve a natural transitional appearance. The contrast of a distinct clearing edge will be faded into this transitional band. This SPR only applies to mechanical and manual treatment activities and all treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR AES-2 Avoid Staging within Viewsheds:** The project proponent will store all treatment-related materials, including vehicles, vegetation treatment debris, and equipment, outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible. The project proponent will also locate materials staging and storage areas outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **SPR AES-3 Provide Vegetation Screening:** The project proponent will preserve sufficient vegetation within, at the edge of, or adjacent to treatment areas to screen views from public trails, parks, recreation areas, and roadways as reasonable or appropriate for vegetation conditions. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |
| **Air Quality Standard Project Requirements** | | | | |
| **SPR AQ-1 Comply with Air Quality Regulations:** The project proponent will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **SPR AQ-2 Submit Smoke Management Plan:** The project proponent will submit a smoke management plan for all prescribed burns to the applicable air district, in accordance with 17 CCR Section 80160. Pursuant to this regulation a smoke management plan will not be required for burns less than 10 acres that also will not be conducted near smoke sensitive areas, unless | **Initial Treatment: Y** | Prior | Fire Agency | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| otherwise directed by the air district. Burning will only be conducted in compliance with the burn authorization program of the applicable air district(s) having jurisdiction over the treatment area. Example of a smoke management plan is in Appendix PD-2. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR AQ-3 Create Burn Plan:** The project proponent will create a burn plan using the CAL FIRE burn plan template for all prescribed burns. The burn plan will include a fire behavior model output of First Order Fire Effects Model and BEHAVE or other fire behavior modeling simulation and that is performed by a qualified fire behavior technical specialist that predicts fire behavior, calculates consumption of fuels, tree mortality, predicted emissions, greenhouse gas emissions, and soil heating. The project proponent will minimize soil burn severity from broadcast burning to reduce the potential for runoff and soil erosion. The burn plan will be created with input from a qualified technician or certified State burn boss. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **SPR AQ-4 Minimize Dust:** To minimize dust during treatment activities, the project proponent will implement the following measures:<br>Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions, in accordance with the California Air Resources Board (CARB) Fugitive Dust protocol.<br>If road use creates excessive dust, the project proponent will wet appurtenant, unpaved, dirt roads using water trucks or treat roads with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material) during dry, dusty conditions. Any dust suppressant product used will be environmentally benign (i.e., non-toxic to plants and will not negatively impact water quality) and its use will not be prohibited by ARB, EPA, or the State Water Resources Control Board (SWRCB). The project proponent will not over-water exposed areas such that the water results in runoff. The type of dust suppression method will be selected by the project | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| proponent based on soil, traffic, site-specific conditions, and air quality regulations.<br>Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available. The project proponent will remove dust, silt, and mud from vehicles at the conclusion of each workday, or at a minimum of every 24 hours for continuous treatment activities, in accordance with Vehicle Code Section 23113.<br>Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR AQ-5 Avoid Naturally Occurring Asbestos:** The project proponent will avoid ground-disturbing treatment activities in areas identified as likely to contain naturally occurring asbestos (NOA) per maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the air district(s) with jurisdiction over the treatment area. Any NOA-related guidance provided by the applicable air district will be followed. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **SPR AQ-6: Prescribed Burn Safety Procedures:** Prescribed burns planned and managed by non-CAL FIRE crews will follow all safety procedures required of CAL FIRE crew, including the implementation of an approved Incident Action Plan (IAP). The IAP will include the burn dates; burn hours; weather limitations; the specific burn prescription; a communications plan; a medical plan; a traffic plan; and special instructions such as minimizing | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| smoke impacts to specific local roadways. The IAP will also assign responsibilities for coordination with the appropriate air district, such as conducting onsite briefings, posting notifications, weather monitoring during burning, and other burn related preparations. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | | | | |
| **Archaeological, Historical, and Tribal Cultural Resources Standard Project Requirements** | | | | |
| **SPR CUL-1 Conduct Record Search:** An archaeological and historical resource record search will be conducted per the applicable state or local agency procedures. Instead of conducting a new search, the project proponent may use recent record searches containing the treatment area requested by a landowner or other public agency in accordance applicable agency guidance. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |
| **SPR CUL-2 Contact Geographically Affiliated Native American Tribes:** The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the project proponent will notify the California Native American Tribes in the counties where the treatment activity is located. The notification will contain the following:<br>• A written description of the treatment location and boundaries.<br>• Brief narrative of the treatment objectives.<br>• A description of the activities used (e.g., prescribed burning, mastication) and associated acreages.<br>• A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.<br>- A request for information regarding potential impacts to cultural resources from the proposed treatment.<br>• A detailed description of the depth of excavation, if ground disturbance is expected. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| In addition, the project proponent will contact the NAHC for a review of their Sacred Lands File. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR CUL-3 Pre-field Research:** The project proponent will conduct research prior to implementing treatments as part of the cultural resource investigation. The purpose of this research is to properly inform survey design, based on the types of resources likely to be encountered within the treatment area, and to be prepared to interpret, record, and evaluate these findings within the context of local history and prehistory. The qualified archaeologist and/or archaeologically-trained resource professional will review records, study maps, read pertinent ethnographic, archaeological, and historical literature specific to the area being studied, and conduct other tasks to maximize the effectiveness of the survey. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |
| **SPR CUL-4 Archaeological Surveys:** The project proponent will coordinate with an archaeologically trained resource professional and/or qualified archaeologist to conduct a site-specific survey of the treatment area. The survey methodology (e.g., pedestrian survey, subsurface investigation) depends on whether the area has a low, moderate, or high sensitivity for resources, which is based on whether the records search, pre-field research, and/or Native American consultation identifies archaeological or historical resources near or within the treatment area. A survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable state or local agency procedures. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |
| **SPR CUL-5 Treatment of Archaeological Resources:** If cultural resources are identified within a treatment area, and cannot be avoided, a qualified archaeologist will notify the culturally affiliated tribe(s) based on information provided by NAHC and assess, whether an archaeological find qualifies as a unique archaeological resource, an historical resource, or in coordination with said tribe(s), as a tribal cultural resource. The project proponent, in | **Initial Treatment: Y**<br><br>**Treatment Maintenance:** Y | Prior-During | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| consultation with culturally affiliated tribe(s), will develop effective protection measures for important cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. These protection measures will be written in clear, enforceable language, and will be included in the survey report in accordance with applicable state or local agency procedures. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR CUL-6 Treatment of Tribal Cultural Resources:** The project proponent, in consultation with the culturally affiliated tribe(s), will develop effective protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. The project proponent will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached after a good-faith effort, the proponent determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | MWPA | MWPA |
| **SPR CUL-7 Avoid Built Historical Resources:** If the records search identifies built historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, the project proponent will avoid these resources. Within a buffer of 100 feet of the built historical resource, there will be no prescribed burning or mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| evaluated for historic significance are present in the treatment area, they will similarly be avoided. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR CUL-8 Cultural Resource Training:** The project proponent will train all crew members and contractors implementing treatment activities on the protection of sensitive archaeological, historical, or tribal cultural resources. Workers will be trained to halt work if archaeological resources are encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., soil disturbance). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |
| **Biological Resources Standard Project Requirements** | | | | |
| **SPR BIO-1: Review and Survey Project-Specific Biological Resources:** The project proponent will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to treatment, no more than one year prior to the submittal of the PSA, and no more than one year between completion of the PSA and implementation of the treatment project. The data reviewed will include the biological resources setting, species and sensitive natural communities tables, and habitat information in this PEIR for the ecoregion(s) where the treatment will occur. It will also include review of the best available, current data for the area, including vegetation mapping data, species distribution/range information, CNDDB, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, relevant BIOS queries, and relevant general and regional plans. Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the environmental setting of a project site. The qualified surveyor will 1.) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural community, wetlands, or wildlife nursery site or habitat (including bird nests), and 2.) assess the suitability of habitat for special-status plant and animal species. The surveyor will also record any incidental wildlife observations. For each treatment project, habitat | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| assessments will be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to the submittal of the PSA, unless it can be demonstrated in the PSA that habitat assessments older than one year remain valid (e.g., site conditions are unchanged and no treatment activity has occurred since the assessment). If more than one year passes between completion of the PSA and initiation of the treatment project, the project proponent will verify the continued accuracy of the PSA prior to beginning the treatment project by reviewing for any data updates and/or visiting the site to verify conditions. Based on the results of the data review and reconnaissance-level survey, the project proponent, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment:<br>1. **Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.** If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to initiating treatment and will remain in effect throughout the treatment:<br>a. by physically avoiding the suitable habitat, or<br>b. by conducting treatment outside of the season when a sensitive resource could be present within the suitable habitat or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).<br>Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.<br>2. **Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.** Further review and surveys will be conducted to determine | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| presence/absence of sensitive biological resources that may be affected, as described in the SPRs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, CNPS, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment activity. Focused or protocol-level surveys will be conducted as necessary to determine presence/absence. If protocol surveys are conducted, survey procedures will adhere to methodologies approved by resource agencies and the scientific community, such as those that are available on the CDFW webpage at: https://www.wildlife.ca.gov/Conservation/Survey-Protocols. Specific survey requirements are addressed for each resource type in relevant SPRs (e.g., additional survey requirements are presented for special-status plants in SPR BIO-7).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR BIO-2: Require Biological Resource Training for Workers.** The project proponent will require crew members and contractors to receive training from a qualified RPF or biologist prior to beginning a treatment project. The training will describe the appropriate work practices necessary to effectively implement the biological SPRs and mitigation measures and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified RPF, biologist, or biological technician. The qualified RPF, biologist, or biological technician will immediately contact CDFW or USFWS, as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| its own (without being handled). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Sensitive Natural Communities and Other Sensitive Habitats** | | | | |
| **SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats:** If SPR BIO-1 determines that sensitive natural communities or sensitive habitat may be present and adverse effects cannot be avoided, the project proponent will:<br>• require a qualified RPF or biologist to perform a protocol-level survey following the CDFW "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" (current version dated March 20, 2018) of the treatment area prior to the start of treatment activities for sensitive natural communities and sensitive habitats. Sensitive natural communities will be identified using the best means possible, including keying them out using the most current edition of *A Manual of California Vegetation* (including updated natural communities data at http://vegetation.cnps.org/), or referring to relevant reports (e.g., reports found on the VegCAMP website).<br>• map and digitally record, using a Global Positioning System (GPS), the limits of any potential sensitive habitat and sensitive natural community identified in the treatment area.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |
| **SPR BIO-4: Design Treatment to Avoid Loss or Degradation of Riparian Habitat Function:** Project proponents, in consultation with a qualified RPF or qualified biologist, will design treatments in riparian habitats to retain or improve habitat functions by implementing the following within riparian habitats:<br>• Retain at least 75 percent of the overstory and 50 percent of the understory canopy of native riparian vegetation within the limits of riparian habitat identified and mapped during surveys conducted | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| pursuant to SPR BIO-3. Native riparian vegetation will be retained in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of treatment activities.<br>• Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species.<br>• Removal of large, native riparian hardwood trees (e.g., willow, ash, maple, oak, alder, sycamore, cottonwood) will be minimized to the extent feasible and 75 percent of the pretreatment native riparian hardwood tree canopy will be retained. Because tree size varies depending on vegetation type present and site conditions, the tree size retention parameter will be determined on a site-specific basis depending on vegetation type present and setting; however, live, healthy, native trees that are considered large for that type of tree and large relative to other trees in that location will be retained. A scientifically-based, project-specific explanation substantiating the retention size parameter for native riparian hardwood tree removal will be provided in the Biological Resources Discussion of the PSA. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, presence of sufficient seed trees, light availability, and changes in stream shading may inform the tree size retention requirements.<br>• Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service). | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.<br>• Ground disturbance within riparian habitats will be limited to the minimum necessary to implement effective treatments. This will consist of the minimum disturbance area necessary to reduce hazardous fuels and return the riparian community to a natural fire regime (i.e., Condition Class 1) considering historic fire return intervals, climate change, and land use constraints.<br>• Only hand application of herbicides approved for use in aquatic environments will be allowed and only during low-flow periods or when seasonal streams are dry.<br>• The project proponent will notify CDFW when required by California Fish and Game Code Section 1602 prior to implementing any treatment activities in riparian habitats. Notification will identify the treatment activities, map the vegetation to be removed, identify the impact avoidance identification methods to be used (e.g., flagging), and appropriate protections for the retention of shaded riverine habitat, including buffers and other applicable measures to prevent erosion into the waterway.<br>• In consideration of spatial variability of riparian vegetation types and condition and consistent with California Forest Practice Rules Section 916.9(v) (February 2019 version), a different set of vegetation retention standards and protection measures from those specified in the above bullets may be implemented on a site-specific basis if the qualified RPF and the project proponent demonstrate through substantial evidence that alternative design measures provide a more effective means of achieving the treatment goals objectives and would result in effects to the Beneficial Functions of Riparian Zones equal or more favorable than those expected to result from application of the above measures. Deviation from the above design specifications, different protection measures and design standards will only be approved when the treatment plan incorporates an evaluation of beneficial functions of the riparian habitat and with written concurrence from CDFW. | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub:** The project proponent will design treatment activities to avoid type conversion where native coastal sage scrub and chaparral are present. An ecological definition of type conversion is used in the CalVTP PEIR for assessment of environmental effects: a change from a vegetation type dominated by native shrub species that are characteristic of chaparral and coastal sage scrub vegetation alliances to a vegetation type characterized predominantly by weedy herbaceous cover or annual grasslands. For the PEIR, type conversion is considered in terms of habitat function, which is defined here as the arrangement and capability of habitat features to provide refuge, food source, and reproduction habitat to plants and animals, and thereby contribute to the conservation of biological and genetic diversity and evolutionary processes (de Groot et al. 2002). Some modification of habitat characteristics may occur provided habitat function is maintained (i.e., the location, essential habitat features, and species supported are not substantially changed). During the reconnaissance-level survey required in SPR BIO-1, a qualified RPF or biologist will identify chaparral and coastal sage scrub vegetation to the alliance level and determine the condition class and fire return interval departure of the chaparral and/or coastal sage scrub present in each treatment area.<br><br>For all treatment types in chaparral and coastal sage scrub, the project proponent, in consultation with a qualified RPF or qualified biologist will:<br>• Develop a treatment design that avoids environmental effects of type conversion in chaparral and coastal sage scrub vegetation alliances, which will include evaluating and determining the appropriate spatial scale at which the proponent would consider type conversion, and substantiating its appropriateness. The project proponent will demonstrate with substantial evidence that the habitat function of chaparral and coastal sage scrub would be at least maintained within the identified spatial scale at which type conversion is evaluated for the | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| specific treatment project. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, spatial needs of sensitive species, presence of sufficient seed plants and nurse plants, light availability, and edge effects may inform the determination of an appropriate spatial scale.<br>• The treatment design will maintain a minimum percent cover of mature native shrubs within the treatment area to maintain habitat function; the appropriate percent cover will be identified by the project proponent in the development of treatment design and be specific to the vegetation alliances that are present in the identified spatial scale used to evaluate type conversion. Mature native shrubs that are retained will be distributed contiguously or in patches within the stand. If the stand consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity, to the extent needed to avoid type conversion.<br>These SPR requirements apply to all treatment activities and all treatment types, including treatment maintenance.<br>Additional measures will be applied to ecological restoration treatment types:<br>• For ecological restoration treatment types, complete removal of the mature shrub layer will not occur in native chaparral and coastal sage scrub vegetation types.<br>• Ecological restoration treatments will not be implemented in vegetation types that are within their natural fire return interval (i.e., time since last burn is less than the average time listed as the fire return interval range in Table 3.6-1) unless the project proponent demonstrates with substantial evidence that the habitat function of chaparral and coastal sage scrub would be improved.<br>• A minimum of 35 percent relative cover of existing shrubs and associated native vegetation will be retained at existing densities in patches distributed in a mosaic pattern within the treated area or the shrub canopy will be thinned by no more than 20 percent from baseline density (i.e., if baseline shrub canopy density is 60 percent, post | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| treatment shrub canopy density will be no less than 40 percent). A different percent relative cover can be retained if the project proponent demonstrates with substantial evidence that alternative treatment design measures would result in effects on the habitat function of chaparral and coastal sage scrub that are equal or more favorable than those expected to result from application of the above measures. Biological considerations that may inform a deviation from the minimum 35 percent relative cover retention include but are not limited to soil moisture requirements, increased soil temperatures, changes in light/shading, presence of sufficient seed plants and nurse plants, erosion potential, and site hydrology.<br>• If the stand within the treatment area consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity.<br>These SPR requirements apply to all treatment activities and only the ecosystem restoration treatment type, including treatment maintenance.<br>A determination of compliance with the SB 1260 prohibition of type conversion in chaparral and coastal sage scrub is a statutory issue separate from CEQA compliance that may involve factors additional to the ecological definition and habitat functions presented in the PEIR, such as geographic context. It is beyond the legal scope of the PEIR to define SB 1260 type conversion and statutory compliance. The project proponent, acting as lead agency for the proposed later treatment project, will be responsible for defining type conversion in the context of the project and making the finding that type conversion would not occur, as required by SB 1260. The project proponent will determine its criteria for defining and avoiding type conversion and, in making its findings, may draw upon information presented in this PEIR. | | | | |
| **SPR BIO-6: Prevent Spread of Plant Pathogens.** When working in sensitive natural communities, riparian habitats, or oak woodlands that are at risk from plant pathogens (e.g., lone chaparral, blue oak woodland), the project proponent will implement the following best management practices to | **Initial Treatment:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| prevent the spread of Phytopthora and other plant pathogens (e.g., pitch canker (Fusarium), goldspotted oak borer, shot hole borer, bark beetle):<br>• clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving at a treatment site and when leaving a contaminated site, or a site in a county where contamination is a risk;<br>• include training on *Phytopthora* diseases and other plant pathogens in the worker awareness training;<br>• minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment;<br>• minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination;<br>• clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and<br>• follow the procedures listed in Guidance for plant pathogen prevention when working at contaminated restoration sites or with rare plants and sensitive habitat (Working Group for *Phytoptheras* in Native Habitats 2016).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **Special-Status Plants** | | | | |
| **SPR BIO-7: Survey for Special-Status Plants.** If SPR BIO-1 determines that suitable habitat for special-status plant species is present and cannot be avoided, the project proponent will require a qualified RPF or botanist to conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment prior to initiation of the treatment. The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities." | **Initial Treatment:** Y<br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.<br>If potentially occurring special-status plants are listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.<br>For other special-status plants not listed under CESA or ESA, as defined in Section 3.6.1 of this PEIR, surveys will not be required under the following circumstances:<br>• If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.<br>• If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **Invasive Plants and Wildlife** | | | | |
| **SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife:** The project proponent will take the following actions to prevent the spread of invasive plants, noxious weeds, and invasive wildlife (e.g., New Zealand mudsnail):<br>• clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;<br>• for all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area from an area with infestations of invasive plants, noxious weeds, or invasive wildlife. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;<br>• inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the treatment area. If the equipment is not clean, the qualified RPF or biological technician will deny entry to the work areas;<br>• stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area;<br>• identify significant infestations of invasive plant species (i.e., those rated as invasive by Cal-IPC or designated as noxious weeds by California Department of Food and Agriculture) during reconnaissance-level surveys and target them for removal during treatment activities. Treatment methods will be selected based on the invasive species present and may include herbicide application, manual or mechanical treatments, prescribed burning, and/or herbivory, and will be designed to | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| maximize success in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present. Treatments will be focused on removing invasive plant species that cause ecological harm to native vegetation types, especially those that can alter fire cycles;<br>• treat invasive plant biomass onsite to eliminate seeds and propagules and prevent reestablishment or dispose of invasive plant biomass offsite at an appropriate waste collection facility (if not kept on site); transport invasive plant materials in a closed container or bag to prevent the spread of propagules during transport; and<br>• implement Fire and Fuel Management BMPs outlined in the "Preventing the Spread of Invasive Plants: Best Management Practices for Land Mangers" (Cal-IPC 2012, or current version).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Wildlife** | | | | |
| **SPR BIO-10: Survey for Special-Status Wildlife and Nursery Sites:** If SPR BIO-1 determines that suitable habitat for special-status wildlife species or nurseries of any wildlife species is present and cannot be avoided, the project proponent will require a qualified RPF or biologist to conduct focused or protocol-level surveys for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries, monarch overwintering sites) with potential to be directly or indirectly affected by a treatment activity. The survey area will be determined by a qualified RPF or biologist based on the species and habitats and any recommended buffer distances in agency protocols.<br>The qualified RPF or biologist will determine if following an established protocol is required, and the project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no more than 14 days prior to the beginning of treatment activities. Focused or protocol surveys for a special-status species with | **Initial Treatment:** Y<br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| potential to occur in the treatment area may not be required if presence of the species is assumed.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR BIO-11. Install Wildlife-Friendly Fencing (Prescribed Herbivory).** If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly fencing design will be used. The project proponent will require a qualified RPF or biologist to review and approve the design before installation to minimize the risk of wildlife entanglement. The fencing design will meet the following standards:<br>• Minimize the chance of wildlife entanglement by avoiding barbed wire, loose or broken wires, or any material that could impale or snag a leaping animal; and, if feasible, keeping electric netting-type fencing electrified at all times or laid down while not in use.<br>• Charge temporary electric fencing with intermittent pulse energizers; continuous output fence chargers will not be permitted.<br>• Allow wildlife to jump over easily without injury by installing fencing that can flex as animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult ungulates to jump over it. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.<br>• Be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers.<br>This SPR applies only to prescribed herbivory and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Contractor | MWPA |
| **SPR BIO-12. Protect Common Nesting Birds, Including Raptors.** The project proponent will schedule treatment activities to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the treatment site, if feasible. Common native birds are species not otherwise treated as special status in the CalVTP PEIR. The active nesting season will be defined by the qualified RPF or biologist. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| If active nesting season avoidance is not feasible, a qualified RPF or biologist will conduct a survey for common nesting birds, including raptors. Existing records (e.g., CNDDB, eBird database, State Wildlife Action Plan) should be reviewed in advance of the survey to identity the common nesting birds, including raptors, that are known to occur in the vicinity of the treatment site. The survey area will encompass reasonably accessible areas of the treatment site and the immediately surrounding vicinity viewable from the treatment site. The survey area will be determined by a qualified RPF or biologist, based on the potential species in the area, location of suitable nesting habitat, and type of treatment. For vegetation removal or project activities that would occur during the nesting season, the survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 3 weeks before treatment. The survey will occur in a single survey period of sufficient duration to reasonably detect nesting birds, including raptors, typically one day for most treatment projects (depending on the size, configuration, and vegetation density in the treatment site), and conducted during the active time of day for target species, typically close to dawn and/or dusk. The survey may be conducted concurrently with other biological surveys, if they are required by other SPRs. Survey methods will be tailored by the qualified RPF or biologist to site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting behavior that is typical of breeding (e.g., delivering food).<br><br>If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on nesting bird behavior, the project proponent will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:<br>• **Establish Buffer.** The project proponent will establish a temporary, species-appropriate buffer around the nest sufficient to reasonably expect that breeding would not be disrupted. Treatment activities will be implemented outside of the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| buffer location will include: presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected treatment activities. Nests of common birds within the buffer need not be monitored during treatment. However, buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>• **Modify Treatment.** The project proponent will modify the treatment in the vicinity of an active nest to avoid disturbance of active nests (e.g., by implementing manual treatment methods, rather than mechanical treatment methods). Treatment modifications will be determined by the project proponent in coordination with the qualified RPF or biologist.<br>• **Defer Treatment.** The project proponent will defer the timing of treatment in the portion(s) of the treatment site that could disturb the active nest. If this avoidance strategy is implemented, treatment activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>Feasible actions will be taken by the project proponent to avoid loss of common native bird nests. The feasibility of implementing the avoidance strategies will be determined by the project proponent based on whether implementation of this SPR will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. Considerations may include limitations on the presence of environmental and atmospheric conditions necessary to execute treatment prescriptions (e.g., the limited seasonal windows during which prescribed burning can occur when vegetation moisture, weather, wind, and other physical conditions are suitable). If it is infeasible to avoid loss of common bird nests (not including raptor nests), the project proponent will document the reasons implementation of the avoidance strategies is infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>The following avoidance strategies may also be considered together with or in lieu of other actions for implementation by a project proponent to avoid disturbance to raptor nests:<br>• **Monitor Active Raptor Nest During Treatment**. A qualified RPF, biologist, or biological technician will monitor an active raptor nest during treatment activities to identify signs of agitation, nest defense, or other behaviors that signal disturbance of the active nest is likely (e.g., standing up from a brooding position, flying off the nest). If breeding raptors are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify treatment or defer treatment) will be implemented or a pause in the treatment activity will occur until the disturbance behavior ceases.<br>• **Retention of Raptor Nest Trees**. Trees with visible raptor nests, whether occupied or not, will be retained.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Geology, Soils, and Mineral Resource Standard Project Requirements** | | | | |
| **SPR GEO-1 Suspend Disturbance during Heavy Precipitation:** The project proponent will suspend mechanical, prescribed herbivory, and herbicide treatments if the National Weather Service forecast is a "chance" (30 percent or more) of rain within the next 24 hours. Activities that cause mechanical soil disturbance may resume when precipitation stops and soils are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials. This SPR | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| applies only to mechanical, prescribed herbivory, and herbicide treatment activities and all treatment types, including treatment maintenance. | | | | |
| **SPR GEO-2 Limit High Ground Pressure Vehicles:** The project proponent will limit heavy equipment that could cause soil disturbance or compaction to be driven through treatment areas when soils are wet and saturated to avoid compaction and/or damage to soil structure. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. If use of heavy equipment is required in saturated areas, other measures such as operating on organic debris, using low ground pressure vehicles, or operating on frozen soils/snow covered soils will be implemented to minimize soil compaction. Existing compacted road surfaces are exempted as they are already compacted from use. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR GEO-3 Stabilize Disturbed Soil Areas:** The project proponent will stabilize soil disturbed during mechanical, prescribed herbivory treatments, and prescribed burns that result in exposure of bare soil over 50 percent or more of the treatment area with mulch or equivalent immediately after treatment activities, to the maximum extent practicable, to minimize the potential for substantial sediment discharge. If mechanical, prescribed herbivory, or prescribed burn treatment activities could result in substantial sediment discharge from soil disturbed by machinery, animal hooves, or being bare, organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion. Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface. This SPR only applies to mechanical, prescribed herbivory, and prescribed burns that result in exposure of bare soil over 50 percent of the project area treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **SPR GEO-4 Erosion Monitoring:** The project proponent will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event per SPR GEO-3 and GEO-8. Additionally, the project proponent will inspect for evidence of erosion after the first large storm or rainfall event (i.e., ≥ 1.5 inches in 24 hours) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours per the methods stated in SPRs GEO-3 and GEO-8. This SPR applies only to mechanical, prescribed herbivory, and prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During-After | Fire Agency & Contractor | MWPA |
| **SPR GEO-5 Drain Stormwater via Water Breaks:** The project proponent will drain compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules (February 2019 version). Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks cause surface run-off to be concentrated on downslopes, other erosion controls will be installed as needed to maintain site productivity by minimizing soil loss. This SPR applies only to mechanical, manual, and prescribed burn treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR GEO-6 Minimize Burn Pile Size:** The project proponent will not create burn piles that exceed 20 feet in length, width, or diameter, except when on landings, road surfaces, or on contour to minimize the spatial extent of soil damage. In addition, burn piles will not occupy more than 15 percent of the total treatment area (Busse et al. 2014). The project proponent will not locate burn piles in a Watercourse and Lake Protection Zone as defined in SPR HYD-4. This SPR applies to mechanical, manual, and prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **SPR GEO-7 Minimize Erosion: To minimize erosion, the project proponent will:**<br>(1) Prohibit use of heavy equipment where any of the following conditions are present:<br>(i) Slopes steeper than 65 percent.<br>(ii) Slopes steeper than 50 percent where the erosion hazard rating is high or extreme.<br>(iii) Slopes steeper than 50 percent that lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake.<br>(2) On slopes between 50 percent and 65 percent where the erosion hazard rating is moderate, and all slope percentages are for average slope steepness based on sample areas that are 20 acres, or less, heavy equipment will be limited to:<br>(i) Existing tractor roads that do not require reconstruction, or<br>(ii) New tractor roads flagged by the project proponent prior to the treatment activity.<br>(3) Prescribed herbivory treatments will not be used in areas with over 50 percent slope.<br>This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR GEO-8 Steep Slopes:** The project proponent will require a Registered Professional Forester (RPF) or licensed geologist to evaluate treatment areas with slopes greater than 50 percent for unstable areas (areas with potential for landslide) and unstable soils (soil with moderate to high erosion hazard). If unstable areas or soils are identified within the treatment area, are unavoidable, and will be potentially directly or indirectly affected by the treatment, a licensed geologist (P.G. or C.E.G.) will determine the potential for landslide, erosion, of other issue related to unstable soils and identity measures (e.g., those in SPR GEO-7) that will be implemented by the project proponent such that substantial erosion or loss of topsoil would not occur. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| This SPR applies only to mechanical treatment activities and WUI fuel reduction, non-shaded fuel breaks, and ecological restoration treatment types, including treatment maintenance. | | | | |
| **Hazardous Material and Public Health and Safety Standard Project Requirements** | | | | |
| **SPR HAZ-1 Maintain All Equipment:** The project proponent will maintain all diesel- and gasoline-powered equipment per manufacturer's specifications, and in compliance with all state and federal emissions requirements. Maintenance records will be available for verification. Prior to the start of treatment activities, the project proponent will inspect all equipment for leaks and inspect everyday thereafter until equipment is removed from the site. Any equipment found leaking will be promptly removed. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |
| **SPR HAZ-2 Require Spark Arrestors:** The project proponent will require mechanized hand tools to have federal- or state-approved spark arrestors. This SPR applies only to manual treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HAZ-3 Require Fire Extinguishers:** The project proponent will require tree cutting crews to carry one fire extinguisher per chainsaw. Each vehicle would be equipped with one long-handled shovel and one axe or Pulaski consistent with PRC Section 4428. This SPR applies only to manual treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HAZ-4 Prohibit Smoking in Vegetated Areas:** The project proponent will require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **SPR HAZ-5 Spill Prevention and Response Plan:** The project proponent or licensed Pest Control Advisor (PCA) will prepare a Spill Prevention and Response Plan (SPRP) prior to beginning any herbicide treatment activities to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants. The SPRP will include (but not be limited to):<br>• a map that delineates staging areas, and storage, loading, and mixing areas for herbicides;<br>• a list of items required in an onsite spill kit that will be maintained throughout the life of the activity;<br>• procedures for the proper storage, use, and disposal of any herbicides, adjuvants, or other chemicals used in vegetation treatment.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |
| **SPR HAZ-6 Comply with Herbicide Application Regulations**: The project proponent will coordinate pesticide use with the applicable County Agricultural Commissioner(s), and all required licenses and permits will be obtained prior to herbicide application. The project proponent will prepare all herbicide applications to do the following:<br>• Be implemented consistent with recommendations prepared annually by a licensed PCA.<br>• Comply with all appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the EPA, DPR, and applicable local jurisdictions.<br>• Adhere to label directions for application rates and methods, storage, transportation, mixing, container disposal, and weather limitations to application such as wind speed, humidity, temperature, and precipitation.<br>• Be applied by an applicator appropriately licensed by the State.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **SPR HAZ-7 Triple Rinse Herbicide Containers:** The project proponent will triple rinse all herbicide and adjuvant containers with clean water at an approved site, and dispose of rinsate by placing it in the batch tank for application per 3 CCR Section 6684. The project proponent will puncture used containers on the top and bottom to render them unusable, unless said containers are part of a manufacturer's container recycling program, in which case the manufacturer's instructions will be followed. Disposal of non-recyclable containers will be at legal dumpsites. Equipment will not be cleaned, and personnel will not be washed in a manner that would allow contaminated water to directly enter any body of water within the treatment area or adjacent watersheds. Disposal of all herbicides will follow label requirements and waste disposal regulations.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HAZ-8 Minimize Herbicide Drift to Public Areas:** The project proponent will employ the following herbicide application parameters during herbicide application to minimize drift into public areas:<br>• application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative);<br>• low nozzle pressures (30-70 pounds per square inch) will be utilized to minimize drift; and<br>• spray nozzles will be kept within 24 inches of vegetation during spraying.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HAZ-9 Notification of Herbicide Use in the Vicinity of Public Areas:** For herbicide applications occurring within or adjacent to public recreation areas, residential areas, schools, or any other public areas within 500 feet, the project proponent will post signs at each end of herbicide treatment areas and any intersecting trails notifying the public of the use of herbicides. The signs will include the signal word (i.e., Danger, Warning or Caution), | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| product name, and manufacturer; active ingredient; EPA registration number; target pest; treatment location; date and time of application; restricted entry interval, if applicable per the label requirements; date which notification sign may be removed; and a contact person with a telephone number. Signs will be posted prior to the start of treatment and notification will remain in place for at least 72 hours after treatment ceases. This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | | | | |
| **Hydrology and Water Quality Standard Project Requirements** | | | | |
| **SPR HYD-1 Comply with Water Quality Regulations:** Project proponents must also conduct proposed vegetation treatments in conformance with appropriate RWQCB timber, vegetation, and land disturbance related Waste Discharge Requirements (WDRs) and/or related Conditional Waivers of Waste Discharge Requirements (Waivers), and appropriate Basin Plan Prohibitions. Where these regulatory requirements differ, the most restrictive will apply. If applicable, this includes compliance with the conditions of general waste discharge requirements (WDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. In general, WDR and Waivers of waste discharge requirements for fuel reduction and forest health activities require that wastes, including but not limited to petroleum products, soil, silt, sand, clay, rock, felled trees, slash, sawdust, bark, ash, and pesticides must not be discharged to surface waters or placed where it may be carried into surface waters; and that Water Board staff must be allowed reasonable access to the property in order to determine compliance with the waiver conditions. The specifications for each WDR and Waiver vary by region. Regions 2 (San Francisco Bay), 4 (Los Angeles), 8 (Santa Ana), and 7 (Colorado River) are highly urban or minimally forested and do not offer WDRs or Waivers for fuel reduction or vegetation management activities. The current applicable WDRs and Waivers for timber and vegetation management activities are | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| included in Appendix HYD-1. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR HYD-2 Avoid Construction of New Roads:** The project proponent will not construct or reconstruct (i.e., cutting or filling involving less than 50 cubic yards/0.25 linear road miles) any new roads (including temporary roads). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HYD-3 Water Quality Protections for Prescribed Herbivory:** The project proponent will include the following water quality protections for all prescribed herbivory treatments:<br>• Environmentally sensitive areas such as waterbodies, wetlands, or riparian areas will be identified in the treatment prescription and excluded from prescribed herbivory project areas using temporary fencing or active herding. A buffer of approximately 50 feet will be maintained between sensitive and actively grazed areas.<br>• Water will be provided for grazing animals in the form of an on-site stock pond or a portable water source located outside of environmentally sensitive areas.<br>• Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed.<br>This SPR applies to prescribed herbivory treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **SPR HYD-4 Identify and Protect Watercourse and Lake Protection Zones:** The project proponent will establish Watercourse and Lake Protection Zones (WLPZs) on either side of watercourses as defined in the table below, which is based on 14 CCR Section 916 .5 of the California Forest Practice Rules (February 2019 version). WLPZ's are classified based on the uses of the stream and the presence of aquatic life. Wider WLPZs are required for steep slopes. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|

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

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

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

The following WLPZ protections will be applied for all treatments:

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Treatment activities with WLPZs will retain at least 75 percent surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation and for wildlife habitat. If this percentage is reduced a qualified RPF will provide the project proponent with a site- and/or treatment activity-specific explanation for the percent surface cover reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced percent as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report). This requirement is based on 14 CCR Section 916.4 [936.4, 956.4] Subsection (b)(6) (February 2019 version) and 14 CCR Section 916.5 (February 2019 version).<br>• Equipment, including tractors and vehicles, must not be driven in wet areas or WLPZs, except over existing roads or watercourse crossings where vehicle tires or tracks remain dry.<br>• Equipment used in vegetation removal operations will not be serviced in WLPZs, within wet meadows or other wet areas, or in locations that would allow grease, oil, or fuel to pass into lakes, watercourses, or wet areas.<br>• WLPZs will be kept free of slash, debris, and other material that harm the beneficial uses of water. Accidental deposits will be removed immediately.<br>• Burn piles will be located outside of WLPZs.<br>• No fire ignition (nor use of associated accelerants) will occur within WLPZs however low intensity backing fires may be allowed to enter or spread into WLPZs.<br>• Within Class I and Class II WLPZs, locations where project operations expose a continuous area of mineral soil 800 square feet or larger shall be treated for reduction of soil loss. Treatment shall occur prior to October 15th and disturbances that are created after October 15th shall be treated within 10 days. Stabilization measures shall be selected that will prevent significant movement of soil into water bodies and may | | | | |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| include but are not limited to mulching, rip-rap, grass seeding, or chemical soil stabilizers.<br>• Where mineral soil has been exposed by project operations on approaches to watercourse crossings of Class I, II, or III within a WLPZ, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts that would adversely affect the quality and beneficial uses of the watercourse.<br>• Where necessary to protect beneficial uses of water from project operations, protection measures such as seeding, mulching, or replanting shall be used to retain and improve the natural ability of the ground cover within the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.<br>• Equipment limitation zones (ELZs) will be designated adjacent to Class III and Class IV watercourses with minimum widths of 25 feet where side-slope is less than 30 percent and 50 feet where side-slope is 30 percent or greater. An RPF will describe the limitations of heavy equipment within the ELZ and, where appropriate, will include additional measures to protect the beneficial uses of water.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR HYD-5 Protect Non-Target Vegetation and Special-status Species from Herbicides:** The project proponent will implement the following measures when applying herbicides:<br>• Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.<br>• Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand application of herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • No terrestrial or aquatic herbicides will be applied within WLPZs of Class I and II watercourses, if feasible. If this is not feasible, hand application of herbicides labeled for use in aquatic environments may be used within the WLPZ provided that the project proponent notifies the applicable regional water quality control board no fewer than 15 days prior to herbicide application. The feasibility of avoiding herbicide application within WLPZ of Class I and II watercourses will be determined by the project proponent and may be based on whether doing so will preclude achieving CalVTP program objectives, including, but not limited to, protection of vulnerable communities. The reasons for infeasibility will be documented in the PSA.<br>• No herbicides will be applied within a 50-foot buffer of ESA or CESA listed plant species or within 50 feet of dry vernal pools.<br>• For spray applications in and adjacent to habitats suitable for special-status species, use herbicides containing dye (registered for aquatic use by DPR, if warranted) to prevent overspray.<br>• Application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative);<br>• No herbicide will be applied during precipitation events or if precipitation is forecast 24 hours before or after project activities.<br>This SPR applies to herbicide treatment activities and all treatment types, including treatment maintenance. | | | | |
| **SPR HYD-6 Protect Existing Drainage Systems:** If a treatment activity is adjacent to a roadway with stormwater drainage infrastructure, the existing stormwater drainage infrastructure will be marked prior to ground disturbing activities. If a drainage structure or infiltration system is inadvertently disturbed or modified during project activities, the project proponent will coordinate with owner of the system or feature to repair any damage and restore pre-project drainage conditions. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Noise Standard Project Requirements** | | | | |
| **SPR NOI-1 Limit Heavy Equipment Use to Daytime Hours:** The project proponent will require that operation of heavy equipment associated with treatment activities (heavy off-road equipment, tools, and delivery of equipment and materials) will occur during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship). Cities and counties in the treatable landscape typically restrict construction-noise (which would apply to vegetation treatment noise) to particular daytime hours. If the project proponent is subject to local noise ordinance, it will adhere to those to the extent the project is subject to them. If the applicable jurisdiction does not have a noise ordinance or policy restricting the time-of-day when noise-generating activity can occur noise-generating vegetation treatment activity will be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday and federal holidays. If the project proponent is not subject to local ordinances (e.g., CAL FIRE), it will adhere to the restrictions stated above or may elect to adhere to the restrictions identified by the local ordinance encompassing the treatment area. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR NOI-2 Equipment Maintenance:** The project proponent will require that all powered treatment equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. This SPR applies to all activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |
| **SPR NOI-3 Engine Shroud Closure:** The project proponent will require that engine shrouds be closed during equipment operation. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **SPR NOI-4 Locate Staging Areas Away from Noise-Sensitive Land Uses:** The project proponent will locate treatment activities, equipment, and equipment staging areas away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible, to minimize noise exposure. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **SPR NOI-5 Restrict Equipment Idle Time: The** project proponent will require that all motorized equipment be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR NOI-6 Notify Nearby Off-Site Noise-Sensitive Receptors:** For treatment activities utilizing heavy equipment, the project proponent will notify noise-sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship) located within 1,500 feet of the treatment activity. Notification will include anticipated dates and hours during which treatment activities are anticipated to occur and contact information, including a daytime telephone number, of the project representative. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) will also be included in the notification. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **Recreation Standard Project Requirements** | | | | |
| **SPR REC-1 Notify Recreational Users of Temporary Closures:** If a treatment activity would require temporary closure of a public recreation area or facility, the project proponent to will coordinate with the owner/manager of that recreation area or facility. If temporary closure of a recreation area or facility is required, the project proponent will work with the owner/manager to post notifications of the closure at least 2 weeks prior to the commencement of the treatment activities. Additionally, notification of the | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| treatment activity will be provided to the Administrative Officer (or equivalent official responsible for distribution of public information) of the county(ies) in which the affected recreation area or facility is located. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Transportation Standard Project Requirements** | | | | |
| **SPR TRAN-1 Implement Traffic Control during Treatments**: Prior to initiating vegetation treatment activities the project proponent will work with the agency(ies) with jurisdiction over affected roadways to determine if a Traffic Management Plan (TMP) is needed. A TMP will be needed if traffic generated by the project would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual vegetation treatments. If needed, a TMP will be prepared to provide measures to reduce potential traffic obstructions, hazards, and service level degradation along affected roadway facilities. The scope of the TMP will depend on the type, intensity, and duration of the specific treatment activities under the CalVTP. Measures included in the TMP could include (but are not be limited to) construction signage to provide motorists with notification and information when approaching or traveling along the affected roadway facilities, flaggers for lane closures to provide temporary traffic control along affected roadway facilities, treatment schedule restrictions to avoid seasons or time periods of peak vehicle traffic, haul-trip, delivery, and/or commute time restrictions that would be implemented to avoid peak traffic days and times along affected roadway facilities. If the TMP identifies impacts on transportation facilities outside of the jurisdiction of the project proponent, the TMP will be submitted to the agency with jurisdiction over the affected roadways prior to commencement of vegetation treatment projects. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>Smoke generated during prescribed burn operations could potentially affect driver visibility and traffic operations along nearby roadways. Direct smoke impacts to roadway visibility and indirect impacts related to driver | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| distraction will be considered during the planning phase of burning operations. Smoke impacts and smoke management practices specific to traffic operations during prescribed fire operations will be identified and addressed within the TMP. The TMP will include measures to monitor smoke dispersion onto public roadways, and traffic control operations will be initiated in the event burning operations could affect traffic safety along any roadways. This SPR applies only to prescribed burn treatment activities and all treatment types, including treatment maintenance. | | | | |
| **Public Services and Utilities Standard Project Requirements** | | | | |
| **SPR UTIL-1: Solid Organic Waste Disposition Plan**: For projects requiring the disposal of material outside of the treatment area, the project proponent will prepare an Organic Waste Disposition Plan prior to initiating treatment activities. The Solid Organic Waste Disposition Plan will include the amount (e.g., tons) of solid organic waste to be managed onsite (i.e., scattering of wood materials, generating unburned piles, and pile burning) and transported offsite for processing (i.e., biomass power plant, wood product processing facility, composting). If the project proponent intends to transport solid organic waste offsite, the Solid Organic Waste Disposition Plan will clearly identify the location and capacity of the intended processing facility, consistent with local and state regulations to demonstrate that adequate capacity exists to accept the treated materials. This SPR applies only to mechanical and manual treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | Fire Agency | MWPA |

# Mitigation Measures

**Table 2 Mitigation Measures Applicable to the Greater Ross Valley Shaded Fuel Break Project**

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Air Quality** | | | | |
| **Mitigation Measure AQ-1: Implement On-Road Vehicle and Off-Road Equipment Exhaust Emission Reduction Techniques**<br>Where feasible, project proponents will implement emission reduction techniques to reduce exhaust emissions from off-road equipment. It is acknowledged that due to cost, availability, and the limits of current technology, there may be circumstances where implementation of certain emission reduction techniques will not feasible. The project proponent will document the emission reduction techniques that will be applied and will explain the reasons other techniques that could reduce emissions are infeasible.<br>Techniques for reducing emissions may include, but are not limited to, the following:<br>• Diesel-powered off-road equipment used in construction will meet EPA's Tier 4 emission standards as defined in 40 CFR 1039 and comply with the exhaust emission test procedures and provisions of 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Prior to implementation of treatment activities, the project proponent will demonstrate the ability to supply the compliant equipment. A copy of each unit's certified tier specification or model year specification and operating permit (if applicable) will be available upon request at the time of mobilization of each unit of equipment.<br>• Use renewable diesel fuel in diesel-powered construction equipment. Renewable diesel fuel must meet the following criteria:<br>- meet California's Low Carbon Fuel Standards and be certified by CARB Executive Officer; | **Initial Treatment: Y**<br>**Treatment Maintenance: Y** | During | Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| - be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass material (i.e., non-petroleum sources), such as animal fats and vegetables;<br>- contain no fatty acids or functionalized fatty acid esters; and<br>- have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines.<br>• Electric- and gasoline-powered equipment will be substituted for diesel-powered equipment.<br>• Workers will be encouraged to carpool to work sites, and/or use public transportation for their commutes.<br>• Off-road equipment, diesel trucks, and generators will be equipped with Best Available Control Technology for emission reductions of $NO_X$ and PM. | | | | |
| **Archaeological, Historical, and Tribal Cultural Resources** | | | | |
| **Mitigation Measure CUL-2: Protect Inadvertent Discoveries of Unique Archaeological Resources or Subsurface Historical Resources**<br>If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during ground-disturbing activities, all ground-disturbing activity within 100 feet of the resources will be halted and a qualified archaeologist will assess the significance of the find. The qualified archaeologist will work with the project proponent to develop a primary records report that will comply with applicable state or local agency procedures. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan will be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the archaeologist will work with the project proponent to develop appropriate procedures to protect the | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During-After | Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| integrity of the resource. Procedures could include preservation in place (which is the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or recovery of scientifically consequential information from and about the resource. Any find will be recorded standard DPR Primary Record forms (Form DPR 523) will be submitted to the appropriate regional information center. | | | | |
| **Biological Resources** | | | | |
| **Mitigation Measure BIO-1a: Avoid Loss of Special-Status Plants Listed under ESA or CESA**<br>If listed plants are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will avoid and protect these species by establishing a no-disturbance buffer around the area occupied by listed plants and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway), exceptions to this requirement are listed later in this measure. The no-disturbance buffers will generally be a minimum of 50 feet from listed plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid killing or damaging listed plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate buffer size will be determined based on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. For example, paint-on or wicking application of herbicides to invasive plants may be implemented within 50 feet of listed plant species without posing a risk, especially if the listed plants are dormant at the time of application. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform the determination of buffer width. If a no-disturbance buffer is reduced below 50 feet from a listed plant, a qualified RPF or botanist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report) with a science-based justification for the deviation. No fire ignition (nor use of associated accelerants) will occur within 50 feet of listed plants.<br>For species listed under ESA or CESA, if the project proponent cannot avoid loss by implementing no-disturbance buffers, the project proponent will implement Mitigation Measure BIO-1c.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist, in consultation with CDFW and USFWS, as appropriate depending on species status and location, that the listed plants would benefit from treatment in the occupied habitat area even though some of the listed plants may be lost during treatment activities. For a treatment to be considered beneficial to listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to listed plants, no compensatory mitigation for loss of individuals will be required. | | | | |
| **Mitigation Measure BIO-1b: Avoid Loss of Special-Status Plants Not Listed Under ESA or CESA**<br>If non-listed special-status plant species (i.e., species not listed under ESA or CESA, but meeting the definition of special-status as stated in Section 3.6.1 of the Program EIR) are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will implement the following measures to avoid loss of individuals and maintain habitat function of occupied habitat: | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Physically avoid the area occupied by the special-status plants by establishing a no-disturbance buffer around the area occupied by species and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The no-disturbance buffers will generally be a minimum of 50 feet from special-status plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid loss of or damaging to special-status plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate size and shape of the buffer zone will be determined by a qualified RPF or botanist and will depend on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform an appropriate buffer size and shape.<br>• Treatments may be conducted within this buffer if the potentially affected special-status plant species is a geophytic, stump-sprouting, or annual species, and the treatment can be conducted outside of the growing season (e.g., after it has completed its annual life cycle) or during the dormant season using only treatment activities that would not damage the stump, root system or other underground parts of special-status plants or destroy the seedbank.<br>• Treatments will be designed to maintain the function of special-status plant habitat. For example, for a fuel break proposed in treatment areas occupied by special-status plants, if the removal of shade cover would degrade the special-status plant habitat despite the requirement to physically or seasonally avoid the special-status plant itself, habitat function would be diminished and the treatment would need to be modified or precluded from implementation. | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • No fire ignition (nor use of associated accelerants) will occur within the special-status plant buffer.<br><br>A qualified RPF or botanist with knowledge of the special-status plant species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment would not maintain habitat function of the special-status plant habitat (i.e., the habitat would be rendered unsuitable) or because the loss of special-status plants would substantially reduce the number or restrict the range of a special-status plant species. If the project proponent determines the impact on special-status plants would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status plants or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-1c will be implemented.<br><br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the special-status plants would benefit from treatment in the occupied habitat area even though some of the non-listed special-status plants may be killed during treatment activities. For a treatment to be considered beneficial to non-listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status plants, no compensatory mitigation will be required. | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Mitigation Measure BIO-2a: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Listed Wildlife Species and California Fully Protected Species (All Treatment Activities)**<br>If California Fully Protected Species or species listed under ESA or CESA are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid adverse effects to the species by implementing the following.<br><u>Avoid Mortality, Injury, or Disturbance of Individuals</u><br>The project proponent will implement one of the following 2 measures to avoid mortality, injury, or disturbance of individuals:<br>1. Treatment will not be implemented within the occupied habitat. Any treatment activities outside occupied habitat will be a sufficient distance from the occupied habitat such that mortality, injury, or disturbance of the species will not occur, as determined by a qualified RPF or biologist using the most current and commonly-accepted science and considering published agency guidance; OR<br>2. Treatment will be implemented outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, CDFW and/or USFWS/NOAA Fisheries will be consulted to determine if there is a period of time within which treatment could occur that would avoid mortality, injury, or disturbance of the species.<br>- For species listed under ESA or CESA, if the project proponent cannot avoid mortality, injury or disturbance by implementing one of the two options listed above, the project proponent will implement Mitigation Measure BIO-2c.<br>- Injury or mortality of California Fully Protected Species is prohibited pursuant to Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code and will be avoided. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| Maintain Habitat Function<br>• The project proponent will design treatment activities to maintain the habitat function, by implementing the following:<br>- While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; dens; tree snags; large raptor nests [including inactive nests]; downed woody debris; food sources). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.<br>- If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that listed or fully protected wildlife with specific requirements for high canopy cover (e.g., Humboldt marten, fisher, spotted owl, coastal California gnatcatcher, riparian woodrat) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat association information, or other documented standards that are commonly accepted [e.g., 50 percent for coastal California gnatcatcher]) such that habitat function is maintained.<br>• A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. Because this measure pertains to species listed under CESA or ESA or are fully protected, the qualified RPF or biologist will consult with CDFW and/or USFWS/NOAA Fisheries regarding the determination that habitat | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| function is maintained. If consultation determines that the treatment will not maintain habitat function for the special-status species, the project proponent will implement Mitigation Measure BIO-2c. | | | | |
| **Mitigation Measure BIO-2b: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Other Special-Status Wildlife Species (All Treatment Activities)**<br>If other special-status wildlife species (i.e., species not listed under CESA or ESA or California Fully Protected but meeting the definition of special status as stated in Section 3.6.1 of the Program EIR) are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid or minimize adverse effects to the species by implementing the following.<br><u>Avoid Mortality, Injury, or Disturbance of Individuals</u><br>• The project proponent will implement the following to avoid mortality, injury, or disturbance of individuals:<br>For all treatment activities except prescribed burning, the project proponent will establish a no-disturbance buffer around occupied sites (e.g., nests, dens, roosts, middens, burrows, nurseries). Buffer size will be determined by a qualified RPF or biologist using the most current, commonly accepted science and will consider published agency guidance; however, buffers will generally be a minimum of 100 feet, unless site conditions indicate a smaller buffer would be sufficient for protection or a larger buffer would be needed. Factors to be considered in determining buffer size will include, but not be limited to, the species' tolerance to disturbance; the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; baseline levels of noise and human activity; and treatment activity. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the nest, den, burrow, or other occupied site. If a no-disturbance buffer is reduced below 100 feet from an occupied site, a qualified RPF or biologist will provide | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>• No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). No activity will occur within the buffer areas until the qualified RPF or biologist has determined that the young have fledged or dispersed; the nest, den, or other occurrence is no longer active; or reducing the buffer would not likely result in disturbance, mortality, or injury. A qualified RPF, biologist, or biological technician will be required to monitor the effectiveness of the no-disturbance buffer around the nest, den, burrow, or other occurrence during treatment. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in mortality, injury or disturbance to special-status species.<br>• For prescribed burning, the project proponent will implement the treatment outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, the qualified RPF or biologist will determine the period of time within which prescribed burning could occur that will avoid or minimize mortality, injury, or disturbance of the species. The project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate limited operating periods.<br><u>Maintain Habitat Function</u> | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • For all treatment activities, the project proponent will design treatment activities to maintain the habitat function by implementing the following:<br>- While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; tree snags; large raptor nests [including inactive nests]; downed woody debris). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.<br>- If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that special-status wildlife with specific requirements for high canopy cover (e.g., northern goshawk, Sierra Nevada snowshoe hare) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat association information, or other documented standards that are commonly accepted) such that the habitat function is maintained.<br>- A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding habitat function.<br>A qualified RPF or biologist with knowledge of the special-status wildlife species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| will not maintain habitat function of the special-status wildlife species' habitat or because the loss of special-status wildlife would substantially reduce the number or restrict the range of a special-status wildlife species. If the project proponent determines the impact on special-status wildlife would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status wildlife or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-2c will be implemented.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or biologist that the non-listed special-status wildlife would benefit from treatment in the occupied habitat area even though some of the non-listed special-status wildlife may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to non-listed special-status wildlife, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status wildlife, no compensatory mitigation will be required. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination that a non-listed special-status species would benefit from the treatment. | | | | |
| **Mitigation Measure BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands**<br>The project proponent will implement the following measures when working in treatment areas that contain sensitive natural communities identified during surveys conducted pursuant to SPR BIO-3: | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Reference the *Manual of California Vegetation*, Appendix 2, Table A2, *Fire Characteristics* (Sawyer et al. 2009 or current version, including updated natural communities' data at http://vegetation.cnps.org/) or other best available information to determine the natural fire regime of the specific sensitive natural community type (i.e., alliance) present. The condition class and fire return interval departure of the vegetation alliances present will also be determined.<br>• Design treatments in sensitive natural communities and oak woodlands to restore the natural fire regime and return vegetation composition and structure to their natural condition to maintain or improve habitat function of the affected sensitive natural community. Treatments will be designed to replicate the fire regime attributes for the affected sensitive natural community or oak woodland type including seasonality, fire return interval, fire size, spatial complexity, fireline intensity, severity, and fire type as described in *Fire in California's Ecosystems* (Van Wagtendonk et al. 2018) and the *Manual of California Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/). Treatments will not be implemented in sensitive natural communities that are within their natural fire return interval (i.e., time since last burn is less than the average time required for that vegetation type to recover from fire) or within Condition Class 1.<br>• To the extent feasible, no fuel breaks will be created in sensitive natural communities with rarity ranks of S1 (critically imperiled) and S2 (imperiled).<br>• To the extent feasible, fuel breaks will not remove more than 20 percent of the native vegetation relative cover from a stand of sensitive natural community vegetation in sensitive natural communities with a rarity rank of S3 (vulnerable) or in oak woodlands. In forest and woodland sensitive natural communities with a rarity rank of S3, and in oak woodlands, only shaded fuel breaks will be installed, and they will not be installed in more than 20 percent of the stand of sensitive natural community or oak | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| woodland vegetation (i.e., if the sensitive natural community covers 100 acres, no more than 20 acres will be converted to create the fuel break).<br>• Use prescribed burning as the primary treatment activity in sensitive natural communities that are fire dependent (e.g., closed-cone forest and woodland alliances, chaparral alliances characterized by fire-stimulated, obligate seeders), to the extent feasible and appropriate based on the fire regime attributes as described in *Fire in California's Ecosystems* (Van Wagtendonk et al. 2018) and the *Manual of California Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/).<br>• Time prescribed herbivory to occur when non-target vegetation is not susceptible to damage (e.g. non-target vegetation is dormant or has completed its reproductive cycle for the year). For example, use herbivores to control invasive plants growing in sensitive habitats or sensitive natural communities when sensitive vegetation is dormant but invasive plants are growing. Timing of herbivory to avoid non-target vegetation will be determined by a qualified botanist, RPF, or biologist based on the specific vegetation alliance being treated, the life forms and life conditions of its characteristic plant species, and the sensitivity of the non-target vegetation to the effects of herbivory.<br>The feasibility of implementing the avoidance measures will be determined by the project proponent based on whether implementation of this mitigation measure will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. If the avoidance measures are determined by the project proponent to be infeasible, the project proponent will document the reasons implementation of the avoidance strategies are infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report). | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| A qualified RPF or botanist with knowledge of the affected sensitive natural community will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat functions of the sensitive natural community or oak woodland. If the project proponent determines the impact on sensitive natural communities or oak woodlands would be less than significant, no further mitigation will be required. If the project proponent determines that the loss or degradation of sensitive natural communities or oak woodlands would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-3b will be implemented.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the sensitive natural community or oak woodland would benefit from treatment in the occupied habitat area even though some loss may occur during treatment activities. For a treatment to be considered beneficial to a sensitive natural community or oak woodland, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the community (or similar community) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to sensitive natural communities or oak woodlands, no compensatory mitigation will be required. | | | | |
| **Mitigation Measure BIO-4: Avoid State and Federally Protected Wetlands**<br>Impacts to wetlands will be avoided using the following measures:<br>• The qualified RPF or biologist will delineate the boundaries of federally protected wetlands according to methods established in the USACE wetlands delineation manual (Environmental Laboratory 1987) and the | **Initial Treatment:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| appropriate regional supplement for the ecoregion in which the treatment is being implemented.<br>• The qualified RPF or biologist will delineate the boundaries of wetlands that may not meet the definition of waters of the United States, but would qualify as waters of the state, according to the state wetland procedures (California Water Boards 2019 or current procedures).<br>• A qualified RPF or biologist will establish a buffer around wetlands and mark the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The buffer will be a minimum width of 25 feet but may be larger if deemed necessary. The appropriate size and shape of the buffer zone will be determined in coordination with the qualified RPF or biologist and will depend on the type of wetland present (e.g., seasonal wetland, wet meadow, freshwater marsh, vernal pool), the timing of treatment (e.g., wet or dry time of year), whether any special-status species may occupy the wetland and the species' vulnerability to the treatment activities, environmental conditions and terrain, and the treatment activity being implemented.<br>• A qualified RPF or biological technician will periodically inspect the materials demarcating the buffer to confirm that they are intact and visible, and wetland impacts are being avoided.<br>• Within this buffer, herbicide application is prohibited.<br>• Within this buffer, soil disturbance is prohibited. Accordingly, the following activities are not allowed within the buffer zone: mechanical treatments, prescribed herbivory, equipment and vehicle access or staging.<br>• Only prescribed (broadcast) burning may be implemented in wetland habitats if it is determined by a qualified RPF or biologist that:<br>- No special-status species are present in the wetland habitat<br>- The wetland habitat function would be maintained. | **Treatment**<br>**Maintenance:** Y | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| - The prescribed burn is within the normal fire return interval for the wetland vegetation types present<br>- Fire containment lines and pile burning are prohibited within the buffer<br>- No fire ignition (and associated use of accelerants) will occur within the wetland buffer | | | | |
| **Mitigation Measure BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites**<br>The project proponent will implement the following measures while working in treatment areas that contain nursery sites identified in surveys conducted pursuant to SPR BIO-10:<br>• **Retain Known Nursery Sites**. A qualified RPF or biologist will identify the important habitat features of the wildlife nursery and, prior to treatment activities, will mark these features for avoidance and retention during treatment<br>• **Establish Avoidance Buffers**. The project proponent will establish a non-disturbance buffer around the nursery site if activities are required while the nursery site is active/occupied. The appropriate size and shape of the buffer will be determined by a qualified RPF or biologist, based on potential effects of project-related habitat disturbance, noise, visual disturbance, and other factors. No treatment activity will commence within the buffer area until a qualified RPF or biologist confirms that the nursery site is no longer active/occupied. Monitoring of the effectiveness of the non-disturbance buffer around the nursery site by a qualified RPF, biologist, or biological technician during and after treatment activities will be required. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in potential adverse effects to special-status species. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Greenhouse Gas Emissions** | | | | |
| **Mitigation Measure GHG-2. Implement GHG Emission Reduction Techniques During Prescribed Burns**<br>When planning for and conducting a prescribed burn, project proponents implementing a prescribed burn will incorporate feasible methods for reducing GHG emissions, including the following, which are identified in the National Wildfire Coordinating Group Smoke Management Guide for Prescribed Fire (NWCG 2018):<br>• reduce the total area burned by isolating and leaving large fuels (e.g., large logs, snags) unburned;<br>• reduce the total area burned through mosaic burning;<br>• burn when fuels have a higher fuel moisture content;<br>• reduce fuel loading by removing fuels before ignition. Methods to remove fuels include mechanical treatments, manual treatments, prescribed herbivory, and biomass utilization; and<br>• schedule burns before new fuels appear.<br>As the science evolves, other feasible methods or technologies to sequester carbon could be incorporated, such as conservation burning, a technique for burning woody material that reduces the production of smoke particulates and carbon released into the atmosphere and generates more biochar. Biochar is produced from the material left over after the burn and spread with compost to increase soil organic matter and soil carbon sequestration. Technologies to reduce greenhouse gas emissions may also include portable units that perform gasification to produce electricity or pyrolysis that produces biooil that can be used as liquid fuel and/or syngas that can be used to generate electricity.<br>The project proponent will document in the Burn Plan required pursuant to SPR AQ-3 which methods for reducing GHG emissions can feasibly be integrated into the treatment design. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |
| **Hazardous Materials, Public Health and Safety** | | | | |

| Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Mitigation Measure HAZ-3: Identify and Avoid Known Hazardous Waste Sites**<br>Prior to the start of vegetation treatment activities requiring soil disturbance (i.e., mechanical treatments) or prescribed burning, CAL FIRE and other project proponents will make reasonable efforts to check with the landowner or other entity with jurisdiction (e.g., California Department of Parks and Recreation) to determine if there are any sites known to have previously used, stored, or disposed of hazardous materials. If it is determined that hazardous materials sites could be located within the boundary of a treatment site, the project proponent will conduct a DTSC EnviroStor web search (https://www.envirostor.dtsc.ca.gov/public/) and consult DTSC's Cortese List to identify any known contamination sites within the project site. If a proposed mechanical treatment or prescribed burn is located on a site included on the DTSC Cortese List as containing potential soil contamination that has not been cleaned up and deemed closed by DTSC, the area will be marked and no prescribed burning or soil disturbing treatment activities will occur within 100 feet of the site boundaries. If it is determined through coordination with landowners or after review of the Cortese List that no potential or known contamination is located on a project site, the project may proceed as planned. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

## Project Design and Implementation Features

As noted, the MWPA has developed PDIFs adapted from several source documents that are incorporated as applicable into the project design and implementation for each of its projects. The PDIFs appropriate to the proposed project are listed in Table 3 and include:

- PDIFs that would meet the SPRs
- PDIFs that are less stringent than the SPRs where the SPR would be used to meet the PDIF requirements
- PDIFs that do not have a corresponding SPR and would be implemented as part of the MWPA best practices

**Table 3 Project Design and Implementation Features and Comparable Standard Project Requirements Applicable to the Greater Ross Valley Shaded Fuel Break Project**

| PDIFs | SPR |
|---|---|
| **PDIFs that meet SPRs** | |
| **CUL-1 Training:** For all activities with the potential for ground disturbance (excluding prescribed herbivory, vegetation and tree trimming, and hand pulling smaller vegetation) all contractors and crew will receive training prepared by and/or conducted by a qualified archaeologist (who meets the U.S. Secretary of Interior's professional standards set forth in 48 FR Parts 44738-44739 and Appendix A to 36 CFR 61) prior to beginning work. The Tribal Heritage Preservation Officer(s) (THPO) from a local tribe (Federated Indians of Graton Rancheria [Graton Rancheria]) will be notified of the opportunity to attend and/or train crews. The training will address the potential for encountering subsurface cultural resources, recognizing basic signs of a potential resource, understanding required procedures if a potential resource is identified including reporting the resource to a qualified archaeologist and/or THPO, as appropriate, and understanding all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. | **SPR CUL-8 Cultural Resource Training:** The project proponent will train all crew members and contractors implementing treatment activities on the protection of sensitive archaeological, historical, or tribal cultural resources. Workers will be trained to halt work if archaeological resources are encountered on a treatment site and the treatment method consists of physical disturbance of land surfaces (e.g., soil disturbance). This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **CUL-2 Unanticipated Discovery:** In the event that a previously unidentified cultural resource is discovered during implementation of an activity all work within a minimum of 150 feet of the discovery will be halted. The resource will be located, identified, and recorded in the MWPA cultural resources GIS database.<br>The boundaries around the buffered resource will be temporarily marked, such as with fencing or flagging. A qualified archaeologist will inspect the discovery and determine whether further investigation is required. Data regarding archaeological resources will be kept confidential per law. As appropriate, the qualified archaeologist will inform Graton Rancheria's THPO of the discovery. If the discovery can be avoided and no further impacts will occur, the resource will be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort will be required. If the project proponent wishes to continue work in the area, only work performed | **SPR CUL-5 Treatment of Archaeological Resources:** If cultural resources are identified within a treatment area, and cannot be avoided, a qualified archaeologist will notify the culturally affiliated tribe(s) based on information provided by NAHC and assess, whether an archaeological find qualifies as a unique archaeological resource, an historical resource, or in coordination with said tribe(s), as a tribal cultural resource. The project proponent, in consultation with culturally affiliated tribe(s), will develop effective protection measures for important cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. These protection measures will be written in clear, enforceable language, and will be included in the survey report in accordance with |

| PDIFs | SPR |
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| using hand tools or powered hand tools is allowed, work cannot include ground disturbance and the work area can only be accessed on foot as determined acceptable by the qualified cultural resource specialist/archaeologist.<br>Alternatively, the qualified archaeologist and/or THPO or tribal monitor will evaluate the resource and determine whether it is:<br>• Eligible for the CRHR (and a historical resource for purposes of CEQA),<br>• A unique archaeological resource as defined by CEQA, and/or<br>• A potential tribal cultural resource (all archaeological resources could be a tribal cultural resource).<br>If the resource is determined to be neither a unique archaeological, an historical resource, nor a potential tribal cultural resource, work may commence in the area.<br>If the resource meets the criteria for either a historical resource, unique archaeological resource, and/or tribal cultural resource, work will remain halted in the buffered area around the resource. No work will occur within the buffered area except those methods previously discussed as determined acceptable by the qualified archaeologist and/or THPO or tribal monitor. After work is completed, all cultural resource delineators (e.g., flags or fencing) will be removed in order to avoid potential vandalism, unauthorized excavation(s), etc. | applicable state or local agency procedures. This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **CUL-3 Cultural Resource Investigation:** Prior to implementation of vegetation management activities that have potential for intensive ground disturbance below the ground surface, significant heat from a burn, or use of heavy equipment off established roads and trails, a qualified archaeologist will conduct a records search and/or site-specific survey of the project areas where such disturbances could occur. Outreach with Graton Rancheria will be conducted as early as feasible to obtain information regarding culturally sensitive areas and/or the location of tribal cultural resources within the project areas. Any information provided by Graton Rancheria and/or tribal monitor(s) is confidential and exempt from public disclosure in accordance with statutory and regulatory requirements (Gov. Code § 6254(r), 6254.10; PRC § 5097.98(c); Cal. Code Regs. § 15120(d)). Records searches and field survey results will be shared with Graton Rancheria, as appropriate. Resources found during the | **SPR CUL-3 Pre-field Research:** The project proponent will conduct research prior to implementing treatments as part of the cultural resource investigation. The purpose of this research is to properly inform survey design, based on the types of resources likely to be encountered within the treatment area, and to be prepared to interpret, record, and evaluate these findings within the context of local history and prehistory. The qualified archaeologist and/or archaeologically trained resource professional will review records, study maps, read pertinent ethnographic, archaeological, and historical literature specific to the area being studied, and conduct other tasks to maximize the effectiveness of the survey. This SPR applies to all treatment activities and treatment types, including treatment maintenance. |

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| records search, tribal outreach, and/or survey will be flagged for avoidance with an appropriate buffer identified by the qualified archaeologist, or the qualified archaeologist may identify modifications to the prescriptions using only hand tools or powered hand tools and access by foot with no ground disturbance, provided it would avoid all impacts to the resources. Any resource found during the site survey will be documented on California State Department of Parks and Recreation cultural resource record forms and a survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable state or local agency procedures. | |
| **ET-1 Environmental Training for Biological Resources:** All crew members and contractors will receive training from a qualified registered professional forester (RPF) or biologist prior to beginning a treatment project where sensitive biological resources could occur in the work areas. The training will describe the appropriate work practices necessary to effectively implement the appropriate project design and implementation features and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of potentially present special-status species with potential to occur; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; best management practices; and reporting requirements. As appropriate, the training will include protocols for work, such as specific trimming methods, where applicable. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified RPF or biologist. The qualified RPF or biologist will immediately contact the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS), as appropriate, if any wildlife protected by the CE Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on its own (without being handled). | **SPR BIO-2 Require Biological Resource Training for Workers:** The project proponent will require crew members and contractors to receive training from a qualified RPF or biologist prior to beginning a treatment project. The training will describe the appropriate work practices necessary to effectively implement the biological SPRs and mitigation measures and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of pertinent special-status species; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; impact minimization procedures; and reporting requirements. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified RPF, biologist, or biological technician. The qualified RPF, biologist, or biological technician will immediately contact CDFW or USFWS, as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on its own (without being handled). This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **GEO-1 Erosion and Soils Loss Stabilization Measures:** Soils will be stabilized if a vegetation management activity may leave less than 70 percent groundcover or native mulch/organic material. | **SPR GEO-3 Stabilize Disturbed Soil Areas:** The project proponent will stabilize soil disturbed during mechanical, prescribed herbivory treatments, and prescribed burns that result in exposure of bare soil over 50 percent or |

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| For areas between 50 percent and 70 percent ground cover left:<br>• Sow native grasses and other suitable native vegetation on denuded areas where natural colonization or other replanting will not occur rapidly; use slash or chips to prevent erosion on such areas.<br>• Use surface mounds, depressions, logs, rocks, trees and stumps, slash and brush, the litter layer, and native herbaceous vegetation downslope of denuded areas to reduce sedimentation and erosion, as necessary to prevent erosion or slope destabilization.<br>• Install approved, biodegradable erosion-control measures and non-filament-based geotextiles (e.g., coir, jute) when:<br>• Conducting substantial ground-disturbing work (e.g., use of heavy equipment, pulling large vegetation) within 100 feet and upslope of currently flowing or wet wetlands, streams, lakes, and riparian areas;<br>• Causing soil disturbance on moderate to steep (10 percent slope and greater) slopes; and<br>• Removing invasive plants from stream banks to prevent sediment movement into watercourses and to protect bank stability.<br>• Sediment-control devices, if installed, will be certified weed-free, as appropriate. Sediment control devices will be inspected daily during active work to ensure that they are repaired and working as needed to prevent sediment transport into the waterbodies.<br>For areas with less than 50 percent ground cover:<br>• Any of the above measures<br>• Stabilize with mulch or equivalent immediately after project activities, to the maximum extent practicable.<br>• If project activities could result in substantial sediment discharge from soil disturbance, as determined by the qualified personnel (e.g., RPF), organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion. | more of the treatment area with mulch or equivalent immediately after treatment activities, to the maximum extent practicable, to minimize the potential for substantial sediment discharge. If mechanical, prescribed herbivory, or prescribed burn treatment activities could result in substantial sediment discharge from soil disturbed by machinery, animal hooves, or being bare, organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion. Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface. This SPR only applies to mechanical, prescribed herbivory, and prescribed burns that result in exposure of bare soil over 50 percent of the project area treatment activities and all treatment types, including treatment maintenance. |

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| • Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface.<br>Once work is completed, the areas will be inspected at least annually if accessible, until groundcover exceeds 70 percent or slopes have stabilized, as determined by a qualified professional. At that time, erosion-control and slope-stability devices may be removed. | |
| **GEO-3 Soil Saturation and Rain Event Measures:** The following measures will be implemented to prevent soil loss and erosion during rain events and following rain events:<br>• Shut down use of off-road heavy equipment, skidding, and truck traffic when soils become saturated (from rain event) and unable to support the machines. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur.<br>• Off-road heavy equipment work will be suspended if the National Weather Service forecast is a "chance" (30 percent or more) of rain within the next 24 hours<br>• Ground disturbing work (e.g., use of heavy equipment, pulling large vegetation) will not occur during rain events (i.e., 0.5 inch of rain within a 48-hour or greater period≥ 1.5 inches in 24 hours) and may resume when precipitation stops and soils are no longer saturated. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.<br>• For activities that involve ground disturbing work and have not been stabilized, inspect for evidence of erosion after the first rain event (i.e., 0.5 inch of rain within a 48-hour or greater period) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours.<br>• For activities that involve ground disturbing work, inspect project areas for the proper implementation of erosion control, as necessary and determined | **SPR GEO-1 Suspend Disturbance during Heavy Precipitation:** The project proponent will suspend mechanical, prescribed herbivory, and herbicide treatments if the National Weather Service forecast is a "chance" (30 percent or more) of rain within the next 24 hours. Activities that cause mechanical soil disturbance may resume when precipitation stops and soils are no longer saturated (i.e., when soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur). Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials. This SPR applies only to mechanical, prescribed herbivory, and herbicide treatment activities and all treatment types, including treatment maintenance.<br>**SPR GEO-4 Erosion Monitoring:** The project proponent will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event per SPR GEO-3 and GEO-8. Additionally, the project proponent will inspect for evidence of erosion after the first large storm or rainfall event (i.e., ≥ 1.5 inches in 24 hours) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours per the methods stated in SPRs GEO-3 and GEO-8. This SPR applies only to mechanical, prescribed herbivory, and prescribed burning |

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| by the qualified personnel (e.g., RPF), prior to the rainy season. If erosion control measures are not properly implemented, the measures will be remediated prior to the first rainfall event. | treatment activities and all treatment types, including treatment maintenance. |
| **GEO-2 Prescribed Herbivory Erosion and Trail Control Measures:** Methods will be implemented to reduce the potential creation of prescribed herbivory trails and erosional features, including the following:<br>• Implement methods, which could include rotating or providing multiple feeding areas to minimize excessive congregation of animals in any one location for too long, as determined by a qualified professional.<br>• If prescribed herbivory trails or damaged areas form, the bare area will be remediated by decompacting the soil and discontinuing prescribed herbivory in the area until the trails are revegetated, as determined by a qualified professional.<br>• Manage livestock grazing on steep slopes (generally slopes with more than 35 percent grade) to reduce potential for erosion. Management can include (but is not limited to) reducing or limiting the number of animals or duration on slopes above 35% (using stocking equation) to avoid erosion and avoid placing water and feeding troughs on steep slopes.<br>• Grazing will not occur during a storm event or under muddy conditions, when hooves may sink into the ground. | **SPR GEO-7 Minimize Erosion**: To minimize erosion, the project proponent will: […]<br>(3) Prescribed herbivory treatments will not be used in areas with over 50 percent slope.<br>This SPR applies to all treatment activities and all treatment types, including treatment maintenance. |
| **HAZ-1 Leak Prevention and Spill Cleanup:** The project proponent will, at a minimum, implement measures that address the following procedures related to the use of hazardous materials during work:<br>• Proper disposal or management of contaminated soils and materials (i.e., clean up materials)<br>• Daily inspection of vehicles and equipment for leaks and spill containment procedures<br>• Emergency response and reporting procedures to address hazardous material releases<br>• Emergency spill supplies and equipment will be available to respond in a timely manner if an incident should occur | **SPR HAZ-1 Maintain All Equipment:** The project proponent will maintain all diesel- and gasoline-powered equipment per manufacturer's specifications, and in compliance with all state and federal emissions requirements. Maintenance records will be available for verification. Prior to the start of treatment activities, the project proponent will inspect all equipment for leaks and inspect everyday thereafter until equipment is removed from the site. Any equipment found leaking will be promptly removed. This SPR applies to all treatment activities and treatment types, including treatment maintenance. |

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| • Response materials such as oil-absorbent material, tarps, and storage drums will be available in the plan area at all times during management activities and will be used as needed to contain and control any minor releases<br>• The absorbent material will be removed promptly and disposed of properly<br>• Use of secondary containment and spill rags when fueling<br>• Discourage "topping-off" fuel tanks<br>• Workers using fuels or other hazardous materials must be knowledgeable of the specific procedures necessary for hazardous materials cleanup and emergency response<br>• All diesel and gasoline powered equipment will be maintained per manufacturer's specification, and in compliance with all state and federal emission requirements | |
| **HAZ-2 Wildfire Risk Reduction:** The following measures will be implemented during activities that involve the use of equipment that can generate sparks or heat:<br>• Maintain fire suppression equipment (e.g., shovel, extinguisher) in work vehicles and ensure workers are trained in use<br>• Closely monitor for ignited vegetation from equipment and tool use<br>• Train workers to properly handle and store flammable materials to minimize potential ignition sources<br>• Prohibit smoking in vegetated areas<br>• Avoid use of spark- and/or heat-generating equipment during high fire danger days (e.g., Red Flag Days and Fire Weather Watch)<br>• Outfit off-road diesel vehicles and equipment with spark arrestors<br>• Avoid metal string or blade weed trimmers<br>• Maintain one fire extinguisher for each chainsaw | **SPR HAZ-2 Require Spark Arrestors:** The project proponent will require mechanized hand tools to have federal- or state-approved spark arrestors. This SPR applies only to manual treatment activities and all treatment types, including treatment maintenance.<br>**SPR HAZ-3 Require Fire Extinguishers:** The project proponent will require tree cutting crews to carry one fire extinguisher per chainsaw. Each vehicle would be equipped with one long-handled shovel and one axe or Pulaski consistent with PRC Section 4428. This SPR applies only to manual treatment activities and all treatment types, including treatment maintenance. |
| **HAZ-4 Application of Herbicides**<br>• Projects will comply with all herbicide application regulations and ecologically sound integrated pest management principles. | **SPR HAZ-7 Triple Rinse Herbicide Containers:** The project proponent will triple rinse all herbicide and adjuvant containers with clean water at an approved site and dispose of rinsate by placing it in the batch tank for application per 3 CCR Section 6684. The project proponent will puncture used containers on the top and bottom to render them unusable, unless said |

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| • Herbicide containers will be triple rinsed with clean water at an approved site, and rinsate will be disposed of by placing it in the batch tank for application.<br>• Herbicide drift to public areas or sensitive areas will be minimized through the following measures:<br>- Application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative).<br>- No herbicide will be applied during precipitation events or if precipitation is forecast 24 hours before or after project activities.<br>- Spray nozzles will be configured to produce the largest appropriate droplet size to minimize drift.<br>- Low nozzle pressures will be utilized.<br>- Spray nozzles will be kept within 24 inches of vegetation if spraying.<br>• For herbicide applications occurring within or adjacent to public recreation areas, residential areas, schools, or any other public areas within 500 feet, signs will be posted at each end of herbicide application areas and any intersecting trails notifying the public of the use of herbicides at a minimum 1 day before and 1 day after herbicide use. | containers are part of a manufacturer's container recycling program, in which case the manufacturer's instructions will be followed. Disposal of non-recyclable containers will be at legal dumpsites. Equipment will not be cleaned, and personnel will not be washed in a manner that would allow contaminated water to directly enter any body of water within the treatment area or adjacent watersheds. Disposal of all herbicides will follow label requirements and waste disposal regulations.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance.<br><br>**SPR HAZ-8 Minimize Herbicide Drift to Public Areas:** The project proponent will employ the following herbicide application parameters during herbicide application to minimize drift into public areas:<br>• application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative);<br>• low nozzle pressures (30-70 pounds per square inch) will be utilized to minimize drift; and<br>• spray nozzles will be kept within 24 inches of vegetation during spraying.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. |
| **HAZ-5 Protect Vegetation and Special-Status Species from Herbicides**<br>The project proponent will implement their approved integrated pest management (IPM) procedures when utilizing herbicides, or the following measures if no IPM is in place that addresses herbicide use in sensitive areas:<br>• Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.<br>• Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand application of | **SPR HYD-5 Protect Non-Target Vegetation and Special-status Species from Herbicides:** The project proponent will implement the following measures when applying herbicides:<br>• Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.<br>• Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand |

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| herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry.<br>• No terrestrial or aquatic herbicides will be applied within Watercourse and Lake Protection Zones (WLPZs) of Class I and II watercourses, if feasible. If this is not feasible, hand application of herbicides labeled for use in aquatic environments may be used within the WLPZ provided that the project proponent notifies the applicable regional water quality control board no fewer than 15 days prior to herbicide application.<br>• No herbicides will be applied within a 50-foot buffer of federal Endangered Species Act (ESA) or California ESA listed plant species or within 50 feet of dry vernal pools.<br>• For spray applications in and adjacent to habitats suitable for special-status species, use herbicides containing dye (registered for aquatic use by California Department of Pesticide Regulation, if warranted) to prevent overspray. | application of herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry.<br>• No terrestrial or aquatic herbicides will be applied within WLPZs of Class I and II watercourses, if feasible. If this is not feasible, hand application of herbicides labeled for use in aquatic environments may be used within the WLPZ provided that the project proponent notifies the applicable regional water quality control board no fewer than 15 days prior to herbicide application. The feasibility of avoiding herbicide application within WLPZ of Class I and II watercourses will be determined by the project proponent and may be based on whether doing so will preclude achieving CalVTP program objectives, including, but not limited to, protection of vulnerable communities. The reasons for infeasibility will be documented in the PSA.<br>• No herbicides will be applied within a 50-foot buffer of ESA or CESA listed plant species or within 50 feet of dry vernal pools.<br>• For spray applications in and adjacent to habitats suitable for special-status species, use herbicides containing dye (registered for aquatic use by DPR, if warranted) to prevent overspray.<br>• Application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative);<br>• No herbicide will be applied during precipitation events or if precipitation is forecast 24 hours before or after project activities.<br>This SPR applies to herbicide treatment activities and all treatment types, including treatment maintenance. |
| **HYD-1 Prescribed Herbivory Treatments:** The following water quality protections will apply for all prescribed herbivory treatments:<br>• Limit the duration of prescribed herbivory within 50 feet of lakes/reservoirs, creeks, streams, riparian corridors, and wetlands to prevent soil erosion that could affect water quality (see SH-1) | **SPR HYD-3 Water Quality Protections for Prescribed Herbivory:** The project proponent will include the following water quality protections for all prescribed herbivory treatments:<br>• Environmentally sensitive areas such as waterbodies, wetlands, or riparian areas will be identified in the treatment prescription and excluded |

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| • Water will be provided for grazing animals in the form of an on-site stock pond or a portable water source located outside of environmentally sensitive areas.<br>• Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed. | from prescribed herbivory project areas using temporary fencing or active herding. A buffer of approximately 50 feet will be maintained between sensitive and actively grazed areas.<br>• Water will be provided for grazing animals in the form of an on-site stock pond or a portable water source located outside of environmentally sensitive areas.<br>• Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed.<br>This SPR applies to prescribed herbivory treatment activities and all treatment types, including treatment maintenance. |
| **SH-2 Grazing and Sensitive Habitats:** Avoid grazing in sensitive habitats including serpentine-associated communities, chaparral, and across waterways and within a 50 foot buffer if there is a need for protection of riparian vegetation from grazing. Limited grazing may be allowed if it would be beneficial to plant and wetland communities, including serpentine-associated communities, without causing harm (e.g., removal of invasive species) and would not result in erosion. | |
| **NOI-1 Minimization of Noise Disruption to Nearby Neighbors and Sensitive Receptors:** All projects will comply with applicable local noise ordinances. All powered equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.<br>Measures to minimize noise disruption to nearby neighbors and sensitive receptors will be implemented as needed. These measures may include but are not limited to:<br>• Using noise control technologies on equipment (e.g., mufflers, ducts, and acoustically attenuating shields)<br>• Locating stationary noise sources (e.g., pumps and generators) away from sensitive receptors<br>• Closing engine shrouds during equipment operations<br>• Shutting down equipment when not in use. Equipment will not be idled unnecessarily<br>• Operating heavy equipment during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship) | **SPR NOI-1 Limit Heavy Equipment Use to Daytime Hours:** The project proponent will require that operation of heavy equipment associated with treatment activities (heavy off-road equipment, tools, and delivery of equipment and materials) will occur during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship). Cities and counties in the treatable landscape typically restrict construction-noise (which would apply to vegetation treatment noise) to particular daytime hours. If the project proponent is subject to local noise ordinance, it will adhere to those to the extent the project is subject to them. If the applicable jurisdiction does not have a noise ordinance or policy restricting the time-of-day when noise-generating activity can occur noise-generating vegetation treatment activity will be limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday and federal holidays. If the project proponent is not subject to local ordinances (e.g., CAL FIRE), it will adhere to the restrictions stated above or may elect to adhere to the restrictions identified by the local ordinance encompassing the treatment area. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>**SPR NOI-2 Equipment Maintenance:** The project proponent will require that all powered treatment equipment and power tools will be used and |

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| • Locating project activities, equipment, and equipment staging areas away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible | maintained according to manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations. This SPR applies to all activities and all treatment types, including treatment maintenance.<br>**SPR NOI-3 Engine Shroud Closure:** The project proponent will require that engine shrouds be closed during equipment operation. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance.<br>**SPR NOI-4 Locate Staging Areas Away from Noise-Sensitive Land Uses:** The project proponent will locate treatment activities, equipment, and equipment staging areas away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible, to minimize noise exposure. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>**SPR NOI-5 Restrict Equipment Idle Time:** The project proponent will require that all motorized equipment be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. |
| **WILD-1 Temporary Fencing:** If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly recyclable fencing design will be used. The design should consider the following:<br>• Minimize the chance of wildlife entanglement by minimizing barbed wire, loose or broken wires.<br>• If feasible, keep electric netting-type fencing electrified at all times or laid down while not in use.<br>• Charge temporary electric fencing with intermittent pulse energizers.<br>• Allow wildlife to jump over easily without injury by installing fencing that can flex as non-target animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult | **SPR BIO-11 Install Wildlife-Friendly Fencing (Prescribed Herbivory):** If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly fencing design will be used. The project proponent will require a qualified RPF or biologist to review and approve the design before installation to minimize the risk of wildlife entanglement. The fencing design will meet the following standards:<br>• Minimize the chance of wildlife entanglement by avoiding barbed wire, loose or broken wires, or any material that could impale or snag a leaping animal; and, if feasible, keeping electric netting-type fencing electrified at all times or laid down while not in use.<br>• Charge temporary electric fencing with intermittent pulse energizers; continuous output fence chargers will not be permitted. |

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| ungulates to jump over it, while keeping grazing animals safely within the fence. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.<br>• Fences should be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers. | • Allow wildlife to jump over easily without injury by installing fencing that can flex as animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult ungulates to jump over it. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.<br>• Be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers.<br>This SPR applies only to prescribed herbivory and all treatment types, including treatment maintenance. |
| **PDIFs where SPRs are more stringent** | |
| **CUL-4 Native American Project Notification:** For core projects subject to a CEQA determination or compliance and requiring MWPA Board of Directors' approval, Graton Rancheria will be notified and project maps and/or spatial data provided for projects that will potentially entail ground disturbance. Any input from Graton Rancheria regarding specific known resources that could be affected will be considered during project implementation through the methods of avoidance as described in CUL-3. | **SPR CUL-2 Contact Geographically Affiliated Native American Tribes:** The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the project proponent will notify the California Native American Tribes in the counties where the treatment activity is located. The notification will contain the following:<br>• A written description of the treatment location and boundaries.<br>• Brief narrative of the treatment objectives.<br>• A description of the activities used (e.g., prescribed burning, mastication) and associated acreages.<br>• A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.<br>- A request for information regarding potential impacts to cultural resources from the proposed treatment.<br>• A detailed description of the depth of excavation, if ground disturbance is expected.<br>In addition, the project proponent will contact the NAHC for a review of their Sacred Lands File. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>**SPR CUL-6 Treatment of Tribal Cultural Resources:** The project proponent, in consultation with the culturally affiliated tribe(s), will develop effective |

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| | protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. The project proponent will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached after a good-faith effort, the proponent determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected. This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **ES-1 Environmental Surveys for Rare Plants:** Within areas where rare and special-status plants have a moderate to high potential to occur, based on desktop data of habitat types, known site-specific information, and the professional judgement of qualified biologists, surveys will be conducted prior to any activity that has the potential to damage perennial plants or is proposed to occur during the flowering season for the specific annual plant species that has the potential to damage the flowering body and seeds of these plant species. Activities that have the potential to damage the flowering body may include but may not be limited to mowing, weed whacking, off-road vehicle and heavy equipment use, discing, and prescribed burning.<br><br>Surveys for rare plants will occur for these species across the entire project footprint. Surveys will occur during the blooming period, if feasible, and will occur prior to work for the specified special-status plant. If blooming period surveys are not feasible and the sensitive plant in question can be keyed to genus outside of the blooming period, surveys will be conducted for all members of the genus. Individuals will be flagged for avoidance or modified methods. Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat and removal after completion. For physical avoidance, a buffer may be implemented as determined necessary by the biologist. Sensitive species damage or loss avoidance may include implementation of appropriate species-specific no- | **SPR BIO-7: Survey for Special-Status Plants.** If SPR BIO-1 determines that suitable habitat for special-status plant species is present and cannot be avoided, the project proponent will require a qualified RPF or botanist to conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment prior to initiation of the treatment. The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities."<br><br>Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.<br><br>If potentially occurring special-status plants are listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.<br><br>For other special-status plants not listed under CESA or ESA, as defined in Section 3.6.1 of this PEIR, surveys will not be required under the following circumstances: |

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| activity buffers around sensitive resources. Temporary fencing will also be implemented, as and where determined necessary based on the species tolerance, if grazing is prescribed in the area of flagged individuals for avoidance or modified methods (WILD-1). | • If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.<br>• If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **IP-1 Clean Equipment:** All crew members, surveyors, and other personnel on site related to project activities will clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, known plant pathogens, or invasive wildlife. | **SPR BIO-6 Prevent Spread of Plant Pathogens:** When working in sensitive natural communities, riparian habitats, or oak woodlands that are at risk from plant pathogens (e.g., lone chaparral, blue oak woodland), the project proponent will implement the following best management practices to prevent the spread of Phytopthora and other plant pathogens (e.g., pitch canker (Fusarium), goldspotted oak borer, shot hole borer, bark beetle):<br>clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving at a treatment site and when leaving a contaminated site, or a site in a county where contamination is a risk;<br>• include training on Phytopthora diseases and other plant pathogens in the worker awareness training;<br>• minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment;<br>• minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination; |

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| | • clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and<br>• follow the procedures listed in Guidance for plant pathogen prevention when working at contaminated restoration sites or with rare plants and sensitive habitat (Working Group for Phytoptheras in Native Habitats 2016).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **IP-2 Prevent the Spread of Invasive Species and Plant Pathogens:** Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. Treat, as appropriate, to prevent the spread of invasive plants. Treatment may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green waste facility.<br>Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants or plant pathogens, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants. | **SPR BIO-9 Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife:** The project proponent will take the following actions to prevent the spread of invasive plants, noxious weeds, and invasive wildlife (e.g., New Zealand mudsnail):<br>• clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;<br>• for all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area from an area with infestations of invasive plants, noxious weeds, or invasive wildlife. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;<br>• inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the treatment area. If the equipment is not clean, the qualified RPF or biological technician will deny entry to the work areas;<br>• stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area; |

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| | • identify significant infestations of invasive plant species (i.e., those rated as invasive by Cal-IPC or designated as noxious weeds by California Department of Food and Agriculture) during reconnaissance-level surveys and target them for removal during treatment activities. Treatment methods will be selected based on the invasive species present and may include herbicide application, manual or mechanical treatments, prescribed burning, and/or herbivory, and will be designed to maximize success in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present. Treatments will be focused on removing invasive plant species that cause ecological harm to native vegetation types, especially those that can alter fire cycles;<br>• treat invasive plant biomass onsite to eliminate seeds and propagules and prevent reestablishment or dispose of invasive plant biomass offsite at an appropriate waste collection facility (if not kept on site); transport invasive plant materials in a closed container or bag to prevent the spread of propagules during transport; and<br>• implement Fire and Fuel Management BMPs outlined in the "Preventing the Spread of Invasive Plants: Best Management Practices for Land Mangers" (Cal-IPC 2012, or current version).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **IP-4 Retain Native Plants:** When removing vegetation, focus first on removing invasive and highly flammable species, and dead or diseased vegetation. Retain beneficial, low-fire risk native plant species whenever possible. | **SPR BIO-5 Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub:** The project proponent will design treatment activities to avoid type conversion where native coastal sage scrub and chaparral are present. An ecological definition of type conversion is used in the CalVTP PEIR for assessment of environmental effects: a change from a vegetation type dominated by native shrub species that are characteristic of chaparral and coastal sage scrub vegetation alliances to a vegetation type characterized predominantly by weedy herbaceous cover or annual grasslands. For the PEIR, type conversion is considered in terms of habitat function, which is defined here as the arrangement and capability of habitat features to provide refuge, food |

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| | source, and reproduction habitat to plants and animals, and thereby contribute to the conservation of biological and genetic diversity and evolutionary processes (de Groot et al. 2002). Some modification of habitat characteristics may occur provided habitat function is maintained (i.e., the location, essential habitat features, and species supported are not substantially changed).<br><br>During the reconnaissance-level survey required in SPR BIO-1, a qualified RPF or biologist will identify chaparral and coastal sage scrub vegetation to the alliance level and determine the condition class and fire return interval departure of the chaparral and/or coastal sage scrub present in each treatment area.<br><br>For all treatment types in chaparral and coastal sage scrub, the project proponent, in consultation with a qualified RPF or qualified biologist will:<br>• Develop a treatment design that avoids environmental effects of type conversion in chaparral and coastal sage scrub vegetation alliances, which will include evaluating and determining the appropriate spatial scale at which the proponent would consider type conversion and substantiating its appropriateness. The project proponent will demonstrate with substantial evidence that the habitat function of chaparral and coastal sage scrub would be at least maintained within the identified spatial scale at which type conversion is evaluated for the specific treatment project. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, spatial needs of sensitive species, presence of sufficient seed plants and nurse plants, light availability, and edge effects may inform the determination of an appropriate spatial scale.<br>• The treatment design will maintain a minimum percent cover of mature native shrubs within the treatment area to maintain habitat function; the appropriate percent cover will be identified by the project proponent in the development of treatment design and be specific to the vegetation alliances that are present in the identified spatial scale used to evaluate type conversion. Mature native shrubs that are retained will be distributed contiguously or in patches within the stand. If the stand consists of multiple age classes, patches representing a range of middle to old age |

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| | classes will be retained to maintain and improve heterogeneity, to the extent needed to avoid type conversion.<br><br>These SPR requirements apply to all treatment activities and all treatment types, including treatment maintenance.<br><br>Additional measures will be applied to ecological restoration treatment types:<br>• For ecological restoration treatment types, complete removal of the mature shrub layer will not occur in native chaparral and coastal sage scrub vegetation types.<br>• Ecological restoration treatments will not be implemented in vegetation types that are within their natural fire return interval (i.e., time since last burn is less than the average time listed as the fire return interval range in Table 3.6-1) unless the project proponent demonstrates with substantial evidence that the habitat function of chaparral and coastal sage scrub would be improved.<br>• A minimum of 35 percent relative cover of existing shrubs and associated native vegetation will be retained at existing densities in patches distributed in a mosaic pattern within the treated area or the shrub canopy will be thinned by no more than 20 percent from baseline density (i.e., if baseline shrub canopy density is 60 percent, post treatment shrub canopy density will be no less than 40 percent). A different percent relative cover can be retained if the project proponent demonstrates with substantial evidence that alternative treatment design measures would result in effects on the habitat function of chaparral and coastal sage scrub that are equal or more favorable than those expected to result from application of the above measures. Biological considerations that may inform a deviation from the minimum 35 percent relative cover retention include but are not limited to soil moisture requirements, increased soil temperatures, changes in light/shading, presence of sufficient seed plants and nurse plants, erosion potential, and site hydrology.<br>• If the stand within the treatment area consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity. |

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| | These SPR requirements apply to all treatment activities and only the ecosystem restoration treatment type, including treatment maintenance.<br>A determination of compliance with the SB 1260 prohibition of type conversion in chaparral and coastal sage scrub is a statutory issue separate from CEQA compliance that may involve factors additional to the ecological definition and habitat functions presented in the PEIR, such as geographic context. It is beyond the legal scope of the PEIR to define SB 1260 type conversion and statutory compliance. The project proponent, acting as lead agency for the proposed later treatment project, will be responsible for defining type conversion in the context of the project and making the finding that type conversion would not occur, as required by SB 1260. The project proponent will determine its criteria for defining and avoiding type conversion and, in making its findings, may draw upon information presented in this PEIR. |
| **SH-1 Riparian Resources – Project Design:** Work will be limited in riparian and wetland areas to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are representative of healthy stands of the riparian vegetation types that are characteristic of the region. Work will only be permitted in dry conditions, where soil is not saturated and no rain (precipitation of 0.5 inch or greater) has occurred in the past 24 hours. Allowable activities include hand removal of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species. Mature, healthy trees will not be removed from a riparian corridor. No foot traffic or equipment will be permitted to enter a wetted channel at any time. Any activities conducted within a riparian corridor will be conducted to avoid alteration to a bed, channel, or bank of a waterway and all debris, including sawdust, chips, or other vegetative material, will be prevented from entering the bed, channel, or bank of a waterway, unless a permit from the California Department of Fish and Game under Section 1600 is obtained. | **SPR BIO-4: Design Treatment to Avoid Loss or Degradation of Riparian Habitat Function.** Project proponents, in consultation with a qualified RPF or qualified biologist, will design treatments in riparian habitats to retain or improve habitat functions by implementing the following within riparian habitats:<br>• Retain at least 75 percent of the overstory and 50 percent of the understory canopy of native riparian vegetation within the limits of riparian habitat identified and mapped during surveys conducted pursuant to SPR BIO-3. Native riparian vegetation will be retained in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of treatment activities.<br>• Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species. |

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| | • Removal of large, native riparian hardwood trees (e.g., willow, ash, maple, oak, alder, sycamore, cottonwood) will be minimized to the extent feasible and 75 percent of the pretreatment native riparian hardwood tree canopy will be retained. Because tree size varies depending on vegetation type present and site conditions, the tree size retention parameter will be determined on a site-specific basis depending on vegetation type present and setting; however, live, healthy, native trees that are considered large for that type of tree and large relative to other trees in that location will be retained. A scientifically based, project-specific explanation substantiating the retention size parameter for native riparian hardwood tree removal will be provided in the Biological Resources Discussion of the PSA. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, presence of sufficient seed trees, light availability, and changes in stream shading may inform the tree size retention requirements.<br>• Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service).<br>• Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.<br>• Ground disturbance within riparian habitats will be limited to the minimum necessary to implement effective treatments. This will consist of the minimum disturbance area necessary to reduce hazardous fuels and return the riparian community to a natural fire regime (i.e., Condition Class 1) considering historic fire return intervals, climate change, and land use constraints.<br>• Only hand application of herbicides approved for use in aquatic environments will be allowed and only during low-flow periods or when seasonal streams are dry. |

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| | • The project proponent will notify CDFW pursuant to California Fish and Game Code Section 1602 prior to implementing any treatment activities in riparian habitats. Notification will identify the treatment activities, map the vegetation to be removed, identify the impact avoidance identification methods to be used (e.g., flagging), and appropriate protections for the retention of shaded riverine habitat, including buffers and other applicable measures to prevent erosion into the waterway.<br>• In consideration of spatial variability of riparian vegetation types and condition and consistent with California Forest Practice Rules Section 916.9(v) (February 2019 version), a different set of vegetation retention standards and protection measures from those specified in the above bullets may be implemented on a site-specific basis if the qualified RPF and the project proponent demonstrate through substantial evidence that alternative design measures provide a more effective means of achieving the treatment objectives and would result in effects to the Beneficial Functions of Riparian Zones equal or more favorable than those expected to result from application of the above measures. Deviation from the above design specifications, different protection measures and design standards will only be approved when the treatment plan incorporates an evaluation of beneficial functions of the riparian habitat and with written concurrence from CDFW.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **NB-1 Nesting Bird Season Avoidance:** Whenever possible, schedule work outside of the bird nesting season, which is generally from February 1 through July 3. Not all species nest between the regulatory season, and active nests that are encountered year-round are protected.<br><br>**NB-2 Nesting Bird Surveys:** If work that has the potential to impact nesting birds commences between February 1 and July 31 (during the nesting season), a qualified biologist (whose qualifications have been approved by the MWPA or lead public agency) will conduct a pre-activity survey for nesting birds.<br>Nesting bird surveys are recommended during the nesting season for work involving mowing with heavy equipment, other vegetation (including tree) | **SPR BIO-12. Protect Common Nesting Birds, Including Raptors**. The project proponent will schedule treatment activities to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the treatment site, if feasible. Common native birds are species not otherwise treated as special status in the CalVTP PEIR. The active nesting season will be defined by the qualified RPF or biologist.<br>If active nesting season avoidance is not feasible, a qualified RPF or biologist will conduct a survey for common nesting birds, including raptors. Existing records (e.g., CNDDB, eBird database, State Wildlife Action Plan) |

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| removal or limbing and trimming activities, and prescribed (broadcast and pile) burning. Low-impact activities including goat grazing, hand-pulling weeds, and herbicide application do not generally require nesting bird surveys. Determination of need for surveys for low-impact activities should be evaluated on a case-by-case basis in consultation with a qualified biologist or RPF.<br><br>Nesting bird surveys will occur within no more than 7 days prior to work to ensure that no nests will be disturbed during vegetation management work. If work pauses for more than 7 days, a follow-up survey will be conducted prior to the restarting of work. Appropriate survey areas will be determined by the qualified biologist depending on the project footprint, type of activity proposed, and suitable habitat for nesting birds. Surveys will be conducted during periods of high bird activity (i.e., 1-3 hours after sunrise and 1-3 hours before sunset). If the qualified biologist determines that visibility is significantly obstructed due to on-site conditions (such as access issues, rain, fog, smoke, or sound disturbance [including high wind]), surveys will be deferred until conditions are suitable for nest detection | should be reviewed in advance of the survey to identity the common nesting birds, including raptors, that are known to occur in the vicinity of the treatment site. The survey area will encompass reasonably accessible areas of the treatment site and the immediately surrounding vicinity viewable from the treatment site. The survey area will be determined by a qualified RPF or biologist, based on the potential species in the area, location of suitable nesting habitat, and type of treatment. For vegetation removal or project activities that would occur during the nesting season, the survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 3 weeks before treatment. The survey will occur in a single survey period of sufficient duration to reasonably detect nesting birds, including raptors, typically one day for most treatment projects (depending on the size, configuration, and vegetation density in the treatment site), and conducted during the active time of day for target species, typically close to dawn and/or dusk. The survey may be conducted concurrently with other biological surveys, if they are required by other SPRs. Survey methods will be tailored by the qualified RPF or biologist to site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting behavior that is typical of breeding (e.g., delivering food).<br><br>If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on nesting bird behavior, the project proponent will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:<br>• **Establish Buffer.** The project proponent will establish a temporary, species-appropriate buffer around the nest sufficient to reasonably expect that breeding would not be disrupted. Treatment activities will be implemented outside of the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining buffer location will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected treatment activities. Nests of common birds within the buffer need not be monitored |
| **NB-3 Nesting Birds: Active Nest Avoidance:** If active nests (i.e., presence of eggs and/or chicks) are observed in areas that could be directly or indirectly disturbed (including noise disturbance), a temporary, species-appropriate no-disturbance buffer zone will be created around the nest sufficient to reasonably expect that breeding would not be disrupted. No work will occur inside the buffer zone.<br><br>The size of the buffer zone will be determined by the biologist, by considering factors including but not limited to the following:<br>• Noise and human disturbance levels at the site at the time of the survey and the noise and disturbance expected during the work;<br>• Distance and amount of vegetation or other screening between the site and the nest; and<br>• Sensitivity of individual nesting species and behaviors of the nesting birds, considering factors such as topography, visibility to source of disturbance, noise/vibration, nesting phase, and other case-by-case specifics.<br><br>Buffer sizes may be altered during work at the recommendation of the biologist. Raptor nests are subject to additional protections, including during the | |

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| "branching" phase, when fledglings begin to fly but do not fully leave the nest. Buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified biologist.<br>If work must occur within the buffer, proceed to NB-4. | during treatment. However, buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>• **Modify Treatment.** The project proponent will modify the treatment in the vicinity of an active nest to avoid disturbance of active nests (e.g., by implementing manual treatment methods, rather than mechanical treatment methods). Treatment modifications will be determined by the project proponent in coordination with the qualified RPF or biologist.<br>• **Defer Treatment.** The project proponent will defer the timing of treatment in the portion(s) of the treatment site that could disturb the active nest. If this avoidance strategy is implemented, treatment activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>Feasible actions will be taken by the project proponent to avoid loss of common native bird nests. The feasibility of implementing the avoidance strategies will be determined by the project proponent based on whether implementation of this SPR will preclude completing the treatment project within the reasonable period necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. Considerations may include limitations on the presence of environmental and atmospheric conditions necessary to execute treatment prescriptions (e.g., the limited seasonal windows during which prescribed burning can occur when vegetation moisture, weather, wind, and other physical conditions are suitable). If it is infeasible to avoid loss of common bird nests (not including raptor nests), the project proponent will document the reasons implementation of the avoidance strategies is infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>The following avoidance strategies may also be considered together with or in lieu of other actions for implementation by a project proponent to avoid disturbance to raptor nests: |
| **NB-4 Nesting Birds - Active Nest Monitoring:** If an avoidance buffer is not achievable, a qualified biologist may monitor the nest(s) during work activities within the recommended nest buffer to document that no take of the nest (nest failure) has occurred related to work activities. If it is determined that work activity is resulting in nest disturbance, work should cease immediately. | |

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| | • **Monitor Active Raptor Nest During Treatment.** A qualified RPF, biologist, or biological technician will monitor an active raptor nest during treatment activities to identify signs of agitation, nest defense, or other behaviors that signal disturbance of the active nest is likely (e.g., standing up from a brooding position, flying off the nest). If breeding raptors are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify treatment, or defer treatment) will be implemented or a pause in the treatment activity will occur until the disturbance behavior ceases.<br>• **Retention of Raptor Nest Trees.** Trees with visible raptor nests, whether occupied or not, will be retained.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. |
| **TR-2 Traffic Control Measures:** Traffic control measures will be implemented to maintain traffic and pedestrian circulation on streets affected by project activities. The following measures may include:<br>• All traffic control devices will conform to the latest edition of the MUTCD, and as amended by the latest edition of the MUTCD California supplement.<br>• Any work that disturbs normal traffic signal operations and ensure proper temporary traffic control (lane shifts, lane closures, detours etc.) will be coordinated with the agency having jurisdiction, at least 72 hours prior to commencing worker.<br>• Flaggers and/or warning signage of work ahead.<br>• A minimum of twelve (12) foot travel lanes on public roads must be maintained unless otherwise approved.<br>• Maintaining access to driveways and private roads at all times unless other arrangements have been made.<br>• Traffic control devices will be removed from view or covered when not in use.<br>• Sidewalks for pedestrians will remain open if safe for pedestrians. Alternate routes and signing will be provided if pedestrian routes are to be closed.<br>• Scheduling truck trips during non-peak hours to the extent feasible. | **SPR TRAN-1 Implement Traffic Control during Treatments:** Prior to initiating vegetation treatment activities the project proponent will work with the agency(ies) with jurisdiction over affected roadways to determine if a Traffic Management Plan (TMP) is needed. A TMP will be needed if traffic generated by the project would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual vegetation treatments. If needed, a TMP will be prepared to provide measures to reduce potential traffic obstructions, hazards, and service level degradation along affected roadway facilities. The scope of the TMP will depend on the type, intensity, and duration of the specific treatment activities under the CalVTP. Measures included in the TMP could include (but are not be limited to) construction signage to provide motorists with notification and information when approaching or traveling along the affected roadway facilities, flaggers for lane closures to provide temporary traffic control along affected roadway facilities, treatment schedule restrictions to avoid seasons or time periods of peak vehicle traffic, haul-trip, delivery, and/or commute time restrictions that would be implemented to avoid peak traffic days and times along affected roadway facilities. If the TMP identifies impacts on transportation facilities outside of the jurisdiction of the project proponent, the TMP will be submitted to the agency with |

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| | jurisdiction over the affected roadways prior to commencement of vegetation treatment projects. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>Smoke generated during prescribed burn operations could potentially affect driver visibility and traffic operations along nearby roadways. Direct smoke impacts to roadway visibility and indirect impacts related to driver distraction will be considered during the planning phase of burning operations. Smoke impacts and smoke management practices specific to traffic operations during prescribed fire operations will be identified and addressed within the TMP. The TMP will include measures to monitor smoke dispersion onto public roadways, and traffic control operations will be initiated in the event burning operations could affect traffic safety along any roadways. This SPR applies only to prescribed burn treatment activities and all treatment types, including treatment maintenance. |
| **PDIFS with no corresponding SPR** | |
| **CUL-5 Cultural Resources Monitoring:** Based on the results of CUL-3 and -4, cultural resources monitoring may be conducted to avoid impacts to known resources. In addition to flagging the resource for avoidance (as described in CUL-2 or CUL-3) if monitoring is conducted, a qualified archaeologist will be present during ground disturbance work to ensure the known or previously unidentified resources are avoided and protected during project implementation, and if the resource is identified to be pre-contact archaeological and/or a tribal cultural resource, a tribal monitor will be invited to attend during the ground disturbance work. | NA |
| **IP-3 Treat Invasive Plants Prior to Seeding:** Schedule activities to maximize the effectiveness of control efforts and minimize introduction and spread of invasive plants as feasible, with consideration for project objectives and location (e.g., install and maintain fuel breaks, disc lines, and other work before non-native plants set seeds). | NA |
| **NSO-1 Northern Spotted Owl Nesting Season Avoidance.** Each project will be reviewed by a qualified biologist to determine if northern spotted owls have | NA |

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| potential to occur near proposed project activities. Within areas where northern spotted owl have the potential to occur, work, including mowing with heavy equipment, the mechanical removal of vegetation, or prescribed burning, including pile and broadcast burning, will occur outside of the northern spotted owl nesting season to the extent feasible (February 1 to July 31).<br>If work must occur during the northern spotted owl nesting season, either NSO-2 or NSO-3 will apply. | |
| **NSO-2 Work During Northern Spotted Owl Nesting Season – Surveys**<br>Within an area where northern spotted owl has the potential to occur, when work will occur during the northern spotted owl nesting season (February 1 through July 31), and work is not considered low-impact by a qualified biologist the following measure will apply. Low impact type activities include, but are not limited to, goat grazing, hand pulling of weeds, hand trimming of trees and vegetation with non-mechanized equipment, chipping from existing roadways in residential areas, and use of mechanized equipment adjacent to roads or in residential areas that is a typical noise for the environment. In contrast, high-impact activities may include operation of heavy machinery in wildlands with lower baseline environmental noise, or work which produces noise disturbance for a longer duration than is typical in the environment.<br>The biologists will determine if a known breeding pair is found within 0.25 mile of the proposed activity (i.e., from existing surveys that season or historic data) and perform a nest check to confirm presence. If no survey data for the season has been completed for the areas, two surveys will be conducted by a qualified biologist (whose qualifications have been approved by the MWPA or lead public agency) for nesting northern spotted owls during the months of April and May preceding the commencement of these activities. At a minimum, the survey area will include all suitable nesting habitats within 0.25 mile of any planned activity sites, and then one of the two options listed below will be implemented. If access cannot be secured for surveys, then work should be delayed until after the nesting season, unless it can be shown that noise generation from the activities and the activities proposed would be below noise and visual disturbance levels for northern spotted owls (refer to USFWS Revised Transmittal of Guidance: Estimating the Effects of Auditory and Visual | NA |

| PDIFs | SPR |
|---|---|
| Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California) at the nest site, if known.<br>• If it is conclusively determined that there are nesting northern spotted owls, planned activities that generate noise (e.g., mowing, heavy equipment usage, crews with hand tools that generate noise) in areas without regular human disturbances from human residency (e.g., leaf blowers, home construction and remodeling, roadways), that are within 0.25-mile of an identified active nest will not begin prior to September 1 unless the young have fledged, at which time work may begin no earlier than July 10. Prescribed burns may only occur within suitable northern spotted owl habitat (as determined by a qualified biologist) during the nesting season if protocol surveys have determined that northern spotted owl nesting is not occurring in the area of planned activity.<br>• If work must occur within 0.25 mile, and work has been determined to have the potential to impact an active northern spotted owl nest, CDFW and USFWS would be consulted to determine if take could occur and whether further permits are required. | |
| **NSO-3 Northern Spotted Owl Habitat Alteration**<br>For projects involving removal of large trees (10-inches DBH or greater) in potential northern spotted owl roosting, or nesting habitat (as identified during the desktop review) in areas without regular human disturbances from human residency, habitat alteration within core use areas (nesting and roosting habitat) will be planned in consultation with a qualified northern spotted owl biologist. | NA |
| **NSO-4 Retain Dusky-footed Woodrat Nests**<br>Dusky-footed woodrats are important prey for northern spotted owls. Wherever feasible, project activities will leave dusky-footed wood rat nests intact. If possible, maintain a 3-foot buffer of vegetation around dusky-footed woodrat middens. | NA |
| **RB-1 Prework Survey:** If vegetation management activities would (1) occur in trees with potential for roosting bat species, (2) would include removal or trimming of trees where a bat could be roosting, or (3) would involve removal or | NA |

| PDIFs | SPR |
|---|---|
| trimming of a tree with mechanized equipment adjacent to trees or structures that could have roosting bats and (4) the work would commence between March 1 and July 31, during the bat maternity period, a pre-activity survey will be conducted for roosting bats within 2 weeks prior to work to ensure that no roosting bats will be disturbed during work. This survey can be conducted concurrent with other surveys for other sensitive species. Trees and shrubs within the work footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during work is presumed to be unaffected, and no buffer would be necessary. | |
| **RB-2 Avoidance of Maternity Roosts and Day Roosts:** If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from work activities, avoidance buffers will be implemented. The buffer size will be determined in consultation with the qualified biologist or RPF. | NA |
| **RB-3 Bat Roosting Tree Removal – Seasonal Restrictions:** If it is determined that a colonial maternity roost is potentially present, the roost will be avoided and will not be removed during the breeding season (March 1 through July 31) unless removal is necessary to address an imminent safety hazard.<br>Operation of mechanical equipment producing high noise levels (e.g., chainsaws, heavy equipment) in proximity to buildings/structures supporting or potentially supporting a colonial bat roost will be restricted to periods of seasonal bat activity (as defined above), when possible. | NA |
| **RB-4 Bat Roosting Tree Removal – Emergency Removals:** Potential non-colonial roosts that must be removed to address a safety hazard, can be removed after consultation with a biologist. Removal will occur on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly. Appropriate methods will be used to minimize the potential of harm to bats during tree removal. Such methods may include using a two-step tree removal process. This method is conducted over two consecutive days and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on Day 1. The noise and vibration disturbance, together with the visible | NA |

| PDIFs | SPR |
|---|---|
| alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night. The remainder of the tree is removed on Day 2. | |
| **SH-3 Minimization of Pile Burning Disturbance:** Pile burning will not be performed in sensitive habitats, such as serpentine-associated communities, wetlands, or riparian areas. If piles are burned on a different day than piled, the piles should be moved prior to burning to ensure wildlife is not present, such as by re-piling by hand, or a qualified biologist will inspect the pile prior to burning to ensure wildlife are not present. If moving or inspection of the piles is not feasible, the pile will be lit from one side and allowed to burn slowly to the other side, to allow any wildlife to relocate, rather than lighting the entire pile at once. | NA |
| **HAZ-3 Pile Burning:** The following measures will be implemented to reduce hazards associated with pile burning:<br>• Pile burning will only be allowed on days when fire is less likely to spread (e.g., wind speeds are less than 15 mph).<br>• Piles will only be constructed in areas where burning can be safely controlled, for example, on the flattest area possible. Bottoms of steep, vegetated hills will be avoided.<br>• Piles should be constructed with 10 feet of clearance around them.<br>• Piles will be set back from public roads and trails at a distance to minimize risk to the public or cordoned off from the public.<br>• All requirements of CAL FIRE, the local fire department, and/or the BAAQMD will be met, including any permit, notification, burn bans, and reporting requirements.<br>• Have fire suppression crews on-site during the fire season determined by CAL FIRE or the local fire department (typically mid-May to mid-November) during curtain and pile burns.<br>• Pile burning will adhere to BAAQMD criteria pollutant thresholds and Regulation 5 for open burning. | NA |
| **TR-1 Emergency Access to Project Areas:** The following measures will be implemented to maintain emergency access: | NA |

| PDIFs | SPR |
|---|---|
| • At least one week prior to temporary lane or full closure of a public road for vegetation management-related work, the appropriate emergency response agency/agencies will be contacted with jurisdiction to ensure that each agency is notified of the closure and any temporary detours in advance and obtain all required encroachment permits<br>• In the event of any emergency, roads blocked or obstructed for maintenance activities will be cleared to allow the vehicles to pass.<br>• During temporary lane or road closures on public roads, flaggers equipped with two-way radios will be utilized where needed to control traffic. During an emergency, flaggers will radio to the crew to cease operations and reopen the public road to emergency vehicles.<br>• All authorized vehicles at the treatment site will be parked to not block roads when no operator is present to move the vehicle. | |

# Attachment C: Archaeological Resources Inventory for the Greater Ross Valley Shaded Fuel Break Project, Marin County, California (Confidential)

# Attachment D: Biological Resources Supporting Materials

**Attachment D.1: Sensitive Species Tables**

The following are rare, threatened, endangered, and Species of Special Concern which are known to occur within 3 miles of the proposed project.

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| **Sensitive Plants** | | | | | | | | |
| *Amorpha californica* var. *napensis* | Napa false indigo | CNPS 1B.2 | 12 | Wetland, riparian woodland | April - July | Known to occur. Suitable habitat is present in and near the project area. One occurrence is documented where the project intersects Bolinas Road in Fairfax, another at "Pam's Blue Ridge" in Fairfax, and one documented occurrence in Baltimore Canyon Preserve near Kentfield. | Botanical Surveys | No |
| *Amsinckia lunaris* | bent-flowered fiddleneck | CNPS 1B.2 | 3 | Grassland, serpentine, gravelly slopes | March - June | Known to occur. Documented where the project abuts Cascade Canyon Preserve. | Avoid work during the blooming period or botanical surveys | Yes |
| *Arctostaphylos montana* ssp. *montana* | Mt. Tamalpais manzanita | CNPS 1B.3 | 10 | Chaparral, valley grassland | February - April | Known to occur in the project area in the Baltimore Canyon Preserve near Magnolia Ave. Another occurrence | Botanical surveys | No |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| | | | | | | at Whites Hill Open Space is recorded as "needs fieldwork". | | |
| *Arctostaphylos virgata* | Marin manzanita | CNPS 1B.2 | 8 | Closed-cone pine forest, redwood forest, mixed evergreen forest, chaparral | January - March | May occur. One occurrence was documented in Baltimore Canyon Preserve near the border of the project footprint, and the project contains suitable habitat for this species. | Botanical surveys | No |
| *Calochortus tiburonensis* | Tiburon mariposa-lily | FT, CT, CNPS 1B.1 | 1 | Serpentine grassland | March - June | Known to occur in the project area where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Yes |
| *Castilleja affinis* var. *neglecta* | Tiburon paintbrush | FE, CT, CNPS 1B.2 | 3 | Serpentine grassland | April - June | Known to occur in the project area where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | No |
| *Ceanothus masonii* | Mason's ceanothus | CR, CNPS 1B.2 | 2 | Chaparral | March - April | May occur. Suitable habitat was documented in the project footprint. | Botanical Surveys | No |
| *Chloropyron maritimum* ssp. *palustre* | Point Reyes salty bird's-beak | CNPS 1B.2 | 6 | Coastal salt marsh | June - October | Not expected to occur. No suitable habitat is present in the treatment area. | No avoidance required; not expected to occur | Yes |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| *Cirsium hydrophilum* var. *vaseyi* | Mt. Tamalpais thistle | CNPS 1B.2 | 11 | Serpentine seeps | May - August | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | No |
| *Dirca occidentalis* | western leatherwood | CNPS 1B.2 | 2 | Riparian woodland | January - March | May occur. The project contains suitable habitat for this species. | Botanical Surveys | No |
| *Eriogonum luteolum* var. *caninum* | Tiburon buckwheat | CNPS 1B.2 | 18 | Chaparral, coastal prairie, valley grassland | May - September | Known to occur in the project area where the project abuts Ring Mountain Preserve, in the Baltimore Canyon Preserve, and in the Deer Park area. | Avoid work during the blooming period or botanical surveys | Yes |
| *Fissidens pauperculus* | minute pocket moss | CNPS 1B.2 | 2 | Seasonally moist hard-packet soils on steep faces, gullies, or cut banks | No blooming period | May occur in riparian areas within the project footprint. | Botanical Surveys | No |
| *Fritillaria lanceolata* var. *tristulis* | Marin checker lily | CNPS 1B.1 | 1; occurrence from 1951 | Oak or pine scrub, grassland | February - May | May occur. Suitable habitat was documented in the project footprint. | Botanical Surveys | No |
| *Gilia millefoliata* | dark-eyed gilia | CNPS 1B.2 | 1 | Coastal dunes | April - July | Not expected to occur. No suitable habitat occurs | No avoidance required; not | Yes |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| | | | | | | within the project footprint. | expected to occur | |
| *Hemizonia congesta* ssp. *congesta* | congested-headed hayfield tarplant | CNPS 1B.2 | 4 | Northern coastal scrub, valley grassland | April - November | May occur. Suitable coastal scrub and grassland habitat is present in small portions of the project area. | Avoid work during the blooming period, or botanical surveys | Yes |
| *Hesperolinon congestum* | Marin western flax | FT, CT, CNPS 1B.1 | 8 | Serpentine, grassland | April - July | Known to occur in the project area where the project abuts Ring Mountain Preserve | Full serpentine avoidance | Yes |
| *Holocarpha macradenia* | Santa Cruz tarplant | FT, CE, CNPS 1B.1 | 1; "needs fieldwork". | Grassy areas, clay soil | June - October | Not expected to occur. This species is documented based on one occurrence from 1977 which states that the CNDDB doubts the validity of the identification and says "needs fieldwork". | No avoidance required; not expected to occur | Yes |
| *Horkelia tenuiloba* | thin-lobed horkelia | CNPS 1B.2 | 4 | Open chaparral | May - July | May occur. Suitable habitat was documented in the project footprint. | Botanical Surveys | Rhizomatous |
| *Kopsiopsis hookeri* | small groundcone | CNPS 2B.3 | 3 | Open woodland, mixed | April - August | May occur. Occurrences are documented within three miles of the project area and suitable habitat | Avoid work during the blooming period, or | Yes |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| | | | | conifer forest | | is present in the proposed treatment area. | botanical surveys | |
| *Lessingia micradenia* var. *micradenia* | Tamalpais lessingia | CNPS 1B.2 | 9 | Thin, gravelly soil of serpentine outcrops, roadcuts | July - October | Not expected to occur. Serpentine outcrops will be flagged and excluded from the project area, so no suitable habitat will be included in the project footprint. | No avoidance required; not expected to occur | Yes |
| *Navarretia rosulata* | Marin County navarretia | CNPS 1B.2 | 12 | Rocky, serpentine | May - July | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Yes |
| *Pleuropogon hooverianus* | North Coast semaphore grass | CNPS 1B.1, CT | 2 | Meadows, vernal-pools | April - June | Not expected to occur. Only one documented occurrence near the project from 1947 is noted as "possibly extirpated", and suitable habitat will be excluded from the project area. | No avoidance required; Not expected to occur | N/A, Not expected to occur |
| *Polygonum marinense* | Marin knotweed | CNPS 3.1 | 2 | Coastal salt, brackish marshes, swamps | May - August | Not expected to occur. No suitable habitat is included in the project footprint. | No avoidance required; Not expected to occur | Yes |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| *Quercus parvula* var. *tamalpaisensis* | Tamalpais oak | CNPS 1B.3 | 15 | Understory conifer woodland | March - April | May occur. One occurrence was documented in Baltimore Canyon Preserve near the border of the project footprint, and the project contains suitable habitat for this species. | Botanical Surveys | No |
| *Sidalcea hickmanii* ssp. *viridis* | Marin checkerbloom | CNPS 1B.1 | 1 | Dry ridges near coast, serpentine | May - June | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Rhizomatous |
| *Stebbinsoseris decipiens* | Santa Cruz microseris | CNPS 1B.2 | 2 | Open coastal, serpentine, sandy | April - May | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Yes |
| *Streptanthus batrachopus* | Tamalpais jewelflower | CNPS 1B.3 | 7 | Serpentine barrens, chaparral | April - July | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Yes |
| *Streptanthus gladulosus* ssp. *niger* | Tiburon jewelflower | FE, CE, CNPS 1B.1 | 2 | Serpentine outcrops in grasslands | May - June | May occur in serpentine soils where the project abuts Ring Mountain Preserve. | Full serpentine avoidance | Yes |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | Blooming Period | Potential to Occur in Treatment Areas | Recommended Avoidance Strategy | Can impacts be avoided if treatment occurs outside growing or blooming season? |
|---|---|---|---|---|---|---|---|---|
| *Streptanthus glandulosus* ssp. *pulchellus* | Mt. Tamalpais bristly jewelflower | CNPS 1B.2 | 17 | Chaparral, valley grassland | May - July | May occur. Suitable habitat was documented in the project footprint. | Avoid work during the blooming period, or botanical surveys | Yes |
| *Trifolium amoenum* | Two-fork clover, showy Indian clover | FE, CNPS 1B.1 | 2 | Wetlands, coastal bluff scrub, valley and foothill grassland/ serpentine | April-June | Unlikely to occur. Species propagated as part of reintroduction efforts outside of project footprint with limited success. | Botanical surveys | Yes |
| *Triquetrella californica* | coastal triquetrella | CNPS 1B.2 | 1 | Roadsides, hillsides, rocky slopes, fields, chaparral; low to moderate elevations | N/A; moss species | May occur. Suitable habitat was documented in the project footprint. | Botanical Surveys | No |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| **SENSITIVE WILDLIFE** | | | | | | |
| *Antrozous pallidus* | pallid bat | SSC | 2 | The pallid bat roosts in large diameter trees and abandoned buildings | N/A | Moderate. Suitable roosting habitat was observed throughout site. |
| *Brachyramphus marmoratus* | marbled murrelet | FT, CE | 0 | Marbled murrelets are pelagic birds for the majority of their lives, but they breed inland on mountains near the coast. | No, critical habitat is not present in project area but present within 3 miles | Not expected to occur. Marbled murrelets are not currently known to nest in Marin County (Paton and Ralph, 1990; GGNPS 2018). |
| *Corynorhinus townsendii* | Townsend's big-eared bat | SSC | 2 | Townsend's big-eared bat roost in caves, mines, bridges, building, rock crevices, tree hollows in coastal lowlands, and cultivated valleys. They prefer roosting in caves or other similar open spaces. | N/A | Moderate. Suitable roosting habitat was observed throughout site. |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| *Danaus plexippus* | monarch butterfly | CE | 0 | The monarch butterfly requires dense tree cover for overwintering and often use eucalyptus trees, specifically Eucalyptus globulus, or blue gum eucalyptus. This species is intolerant to frost and feeds on milkweeds, which makes the monarchs poisonous to predators. | N/A | Not expected to occur. All documented monarch overwintering sites in Marin County were reviewed, and all are greater than 5 miles from the proposed project area (IELP 2012). |
| *Setophaga petechia* | yellow warbler | SSC | 0; approximately 12 eBird entries in or near the project footprint | Yellow warblers breed in dense shrubs in forested areas, especially in areas bordering waterways and wetlands. | N/A | May occur. Suitable nesting habitat is preset throughout site, and several documented sightings are recorded in eBird during the nesting season for this species (eBird 2022). |
| *Dicamptodon ensatus* | California giant salamander | SSC | 7 | California giant salamander is found in wet coastal forests, such as coastal redwoods, in or near clear, cold permanent and semi-permanent streams and seepages. They are typically found in or near aquatic habitat in fast-moving streams, lakes, or rivers with substantial canopy cover. | N/A | May occur. Species is highly associated with streams in wet coastal forests, and several were observed within the project area. |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| *Emys marmorata* | western pond turtle | SSC | 4 | Western pond turtles use upland and aquatic habitat in and around freshwater ponds and streams. This species nests in leaves or soil upland from water bodies in flat areas with short vegetation and dry soil. | N/A | May occur. Species is highly associated with ponds and streams, and some suitable ponds and streams were observed within the project area. |
| *Lanius ludovicianus* | loggerhead shrike | SSC | 0 | Loggerhead shrikes inhabit open grasslands with short vegetation and nest on spiny or thorny shrubs. | N/A | Not expected to occur. Suitable habitat is infrequent and low-quality in the project footprint, and no records in eBird overlap the project area (eBird 2022). |
| *Laterallus jamaicensis coturniculus* | California black rail | FT, FP | 6 | The California black rail is found in tidal and freshwater wetlands and marshes. It is typically found in the shallow, dry portions of wetlands with dense canopy cover. | None | Not expected to occur. Suitable habitat is not present in the project footprint. |
| *Lavinia symmetricus* ssp. 2 | Tomales roach | SSC | 1 | The Tomales roach is a fully aquatic fish. | N/A | Not expected to occur. Work will not occur within aquatic habitat. |
| *Melospiza melodia samuelis* | San Pablo song sparrow | SSC | 2 | The San Pablo song sparrow is found year-round in tidal salt marshes and wetlands fringing the San Pablo Bay. | N/A | Not expected to occur. Suitable habitat is not present in the project footprint. |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| *Oncorhynchus kisutch* pop. 4 | coho salmon - central California coast ESU | FE, CE | 2 | Coho salmon is an anadromous, fully aquatic fish species. | None | Not expected to occur. Work will not occur within aquatic habitat. |
| *Oncorhynchus mykiss irideus* pop. 8 | steelhead - central California coast DPS | FT | 1 | Steelhead is an anadromous, fully aquatic fish species. | None | Not expected to occur. Work will not occur within aquatic habitat. |
| *Rallus obsoletus obsoletus* | California Ridgway's rail | FE, CE, FP | 5 | The California Ridgway's rail is found in tidal and freshwater wetlands, marshes, and swamps. | None | Not expected to occur. Suitable habitat is not present in the project footprint. |
| *Rana boylii* | foothill yellow-legged frog | CE, SSC | 7 | Foothill yellow-legged frogs inhabit rocky streams in a variety of habitats, including habitats such as valley foothill hardwood, valley-foothill riparian, coastal scrub, mixed conifer, mixed chaparral, and wet meadows. It is typically found in or very close to water. | N/A | May occur. This species is documented as recently as 2018 at a location overlapping the work area at San Anselmo Creek near Cascade Canyon Open Space Preserve. Six additional documented occurrences are mapped within three miles but greater than 0.25 mile from the project footprint, and suitable habitat was documented as several creek crossings in the project area. |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| *Rana draytonii* | California red-legged frog | FT, SCC | 0 | California red-legged frogs breed in ponds or slow-moving streams. While they are heavily associated with wetted areas, they are known to occupy grassland and oak woodland uplands for dispersal and foraging. | None | Not expected to occur. Some suitable habitat is present, but no documented occurrences of this species have been recorded within three miles of the project area. |
| *Reithrodontomys raviventris* | salt-marsh harvest mouse | FE, CE, FP | 4 | Salt marsh harvest mouse can be found in brackish and salt marshes and wetland edges in the San Francisco Bay, especially those characterized by an abundance of pickleweed (*Salicornica* sp.). | N/A | Not expected to occur. Suitable habitat is not present in the project footprint. |
| *Spirinchus thaleichthys* | longfin smelt | FC, CT | 1 | Longfin smelt is a fully aquatic fish known to use estuaries and brackish portions of freshwater streams. | N/A | Not expected to occur. Work will not occur within aquatic habitat. |

| Scientific Name | Common Name | Listing Status | Number of Occurrences Within 3 Miles | Habitat | USFWS-designated Critical Habitat In project Area? | Potential to Occur in Treatment Areas |
|---|---|---|---|---|---|---|
| *Strix occidentalis caurina* | northern spotted owl | FT, CT | 40 activity centers | Northern spotted owls live in forests characterized by dense canopies of mature trees, abundant logs, and standing snags. They prefer to nest in mature forest with multi-layered canopies and open space among the lower branches to allow for foraging and dispersal. | Yes, critical habitat for species is present in project area | Known to Occur. Documented historic nests and activity centers are present and overlap portions of the work area. Suitable breeding habitat was observed during reconnaissance-level surveys. |

Notes:

Species with occurrences within 3 miles of project areas were examined. Species which are considered "extirpated" or those with occurrence data greater than 75 years old were removed from the analysis as they are not anticipated to occur in the vicinity of the work area. Species with occurrence data which was greater than 50 years old were examined for inclusion on a case-by-case basis.

| | | | |
|---|---|---|---|
| FE | Federally Endangered | CR | California Rare |
| FT | Federally Threatened | CC | California State Candidate |
| FC | Federal Candidate | FP | Fully Protected |
| CE | California State Endangered | SSC | California State Species of Special Concern |
| CT | California State Threatened | CRPR | California Rare Plant Ranks |

## Attachment D.2 Relevant Maps

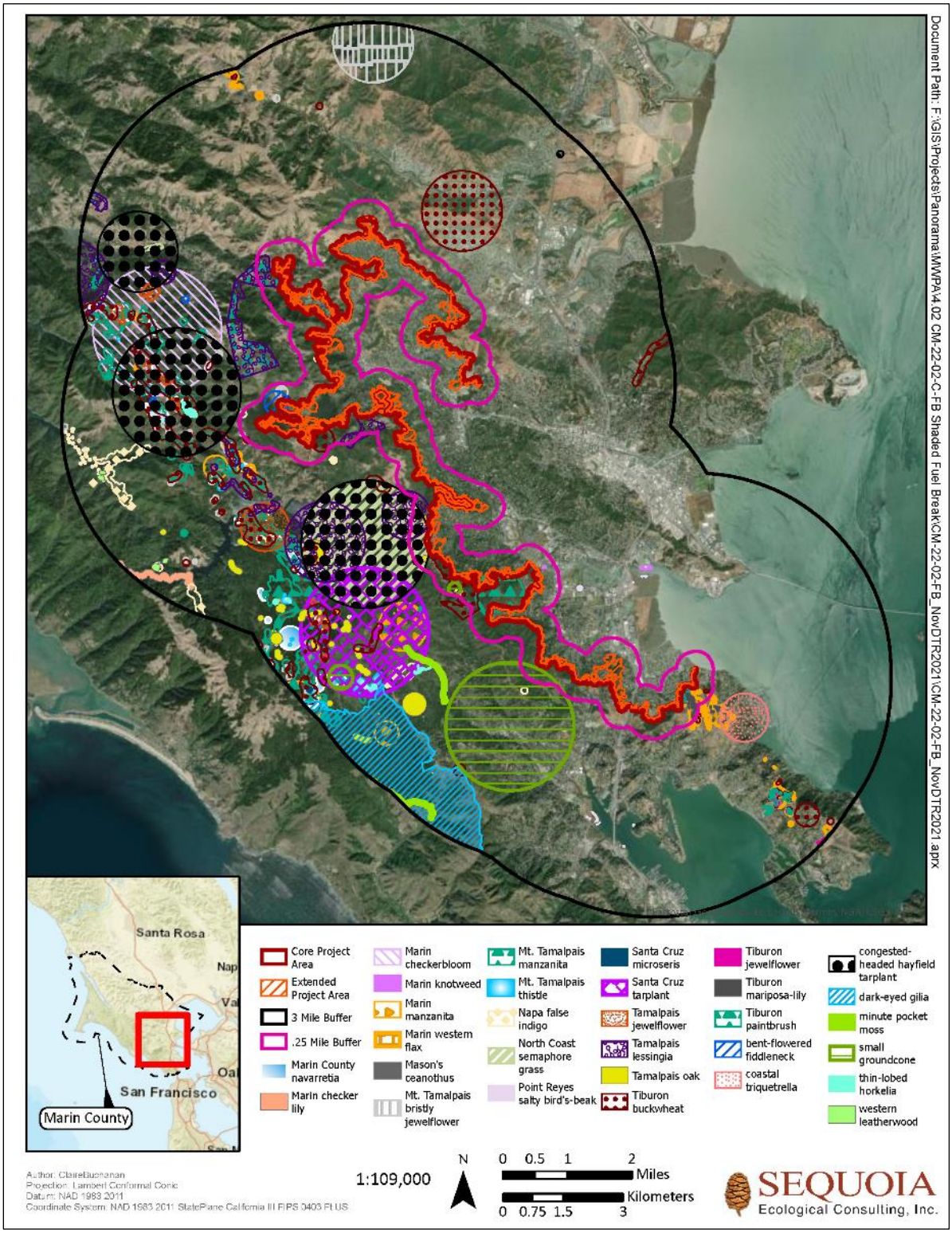


**Figure 1.** CNDDB plants documented within a 3-mile buffer of the project boundary.

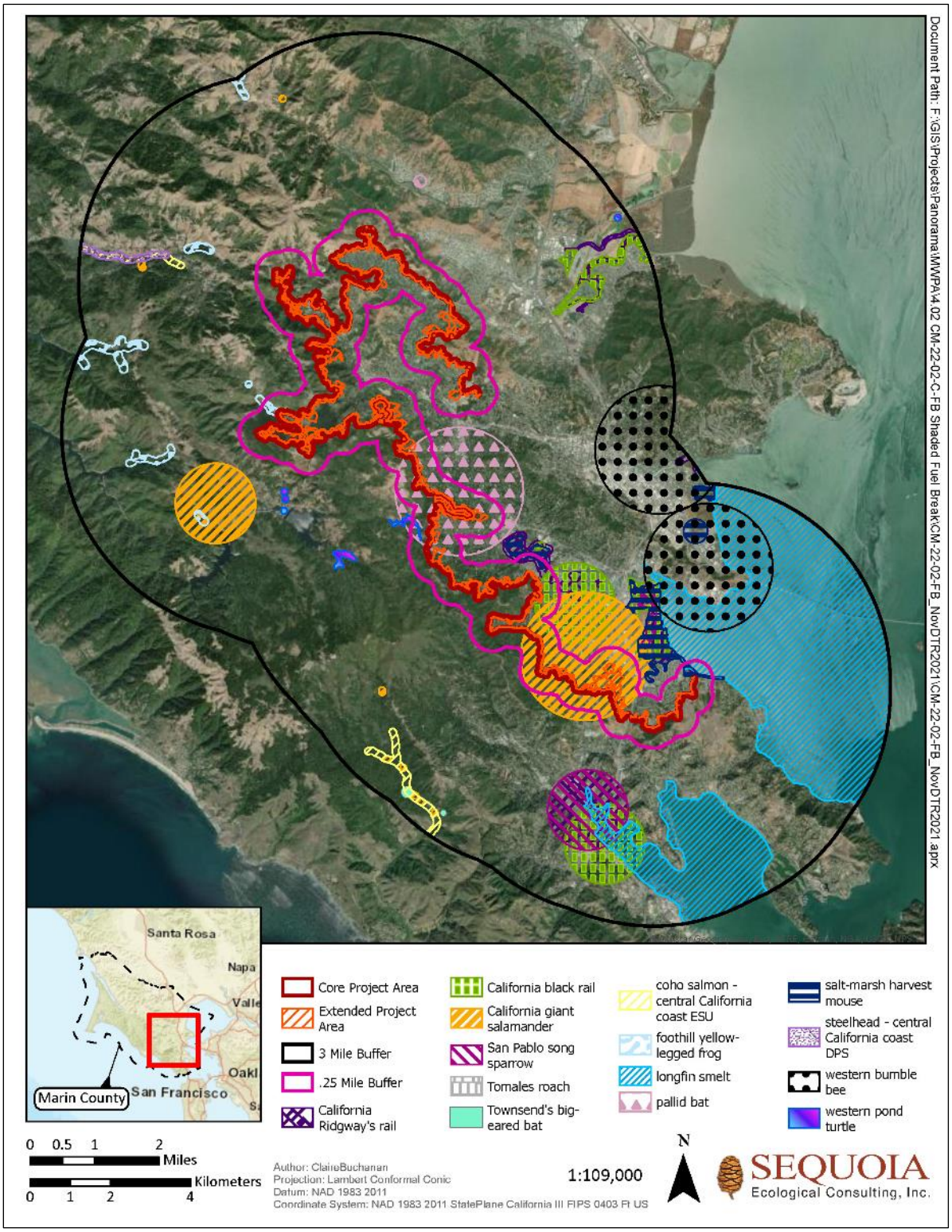


**Figure 2.** CNDDB wildlife documented within a 3-mile buffer of the project boundary.

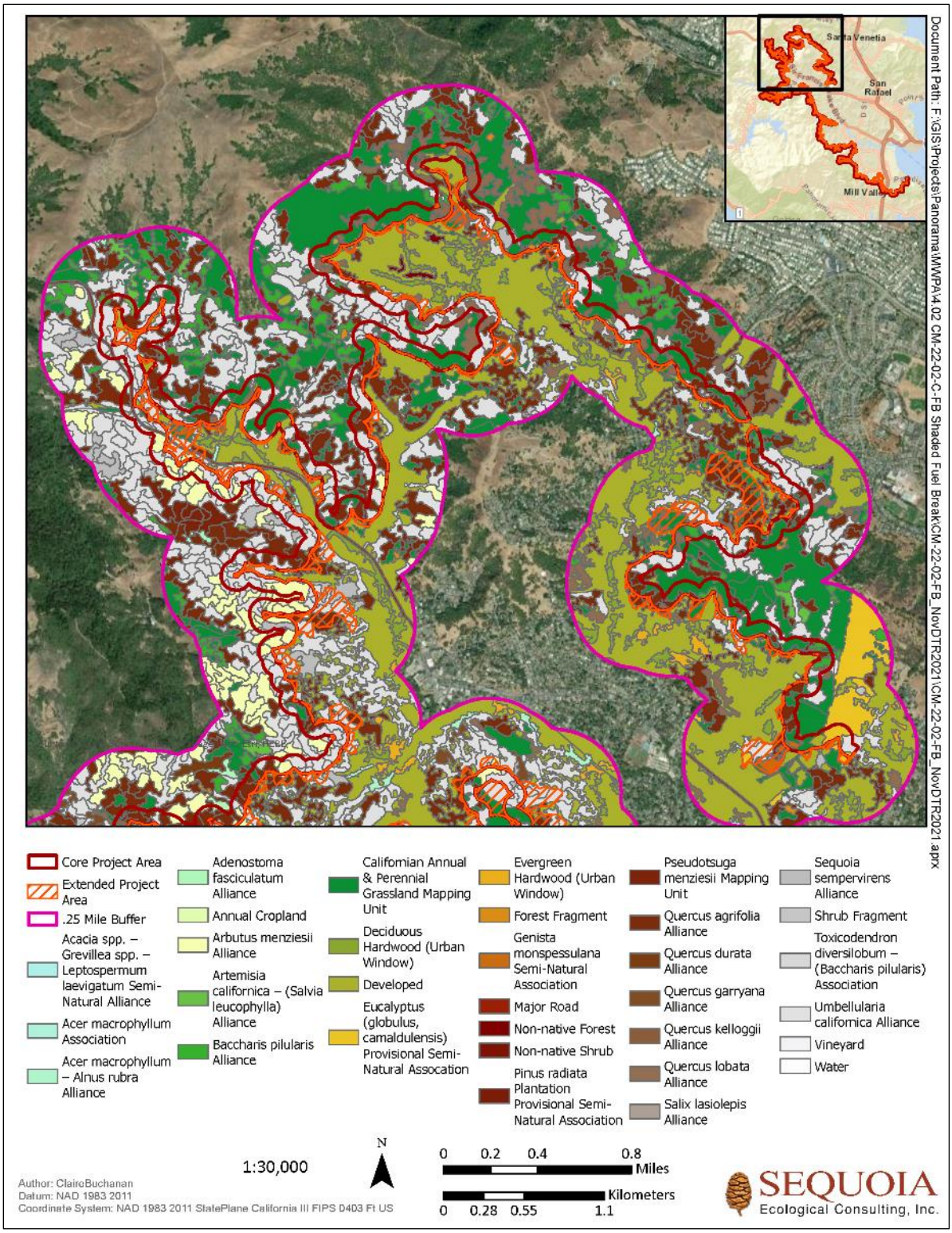


**Figure 3.** Vegetation types documented within the project boundary (Northern portion of the project).

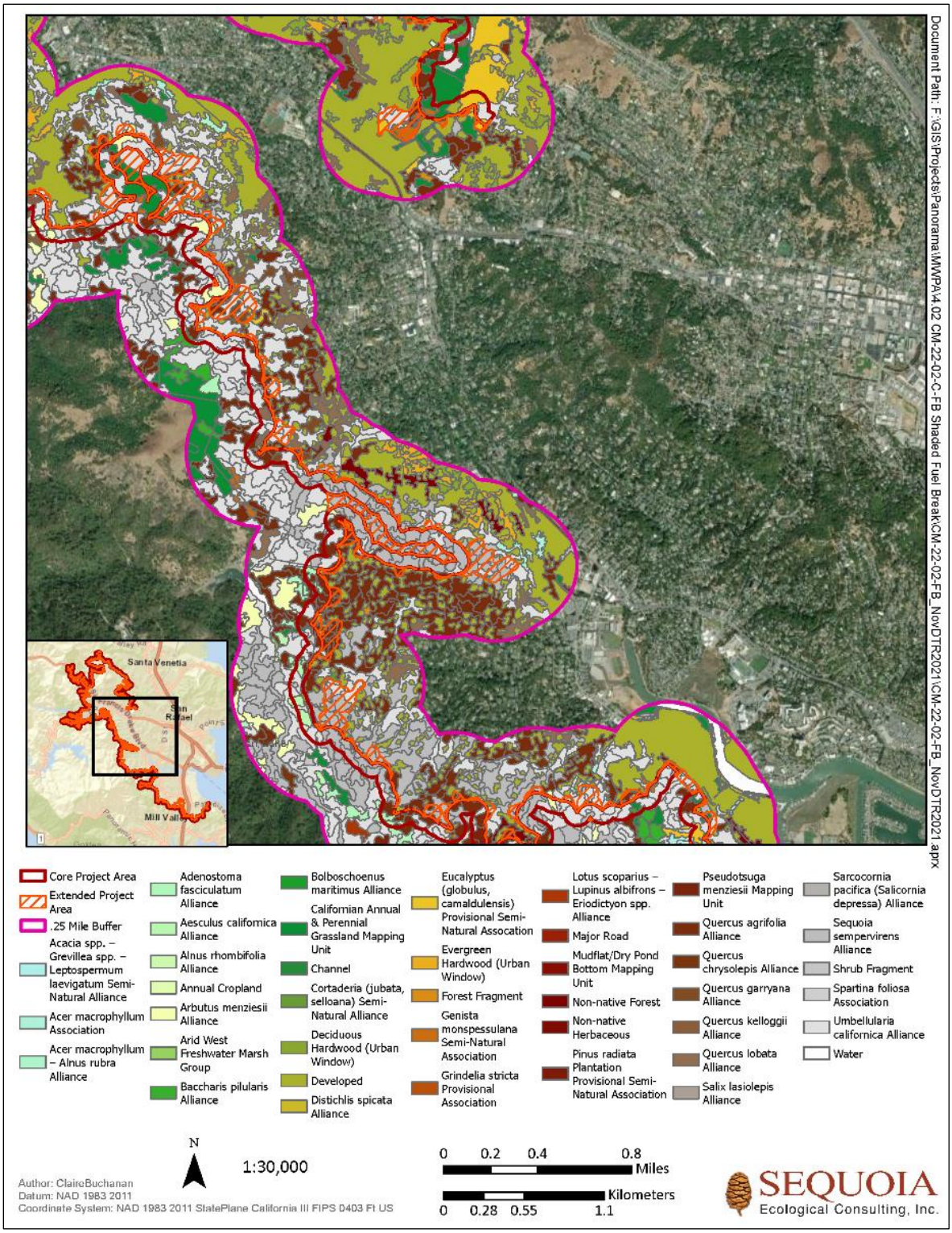


**Figure 4.** Vegetation types documented within the project boundary (Central portion of the project).

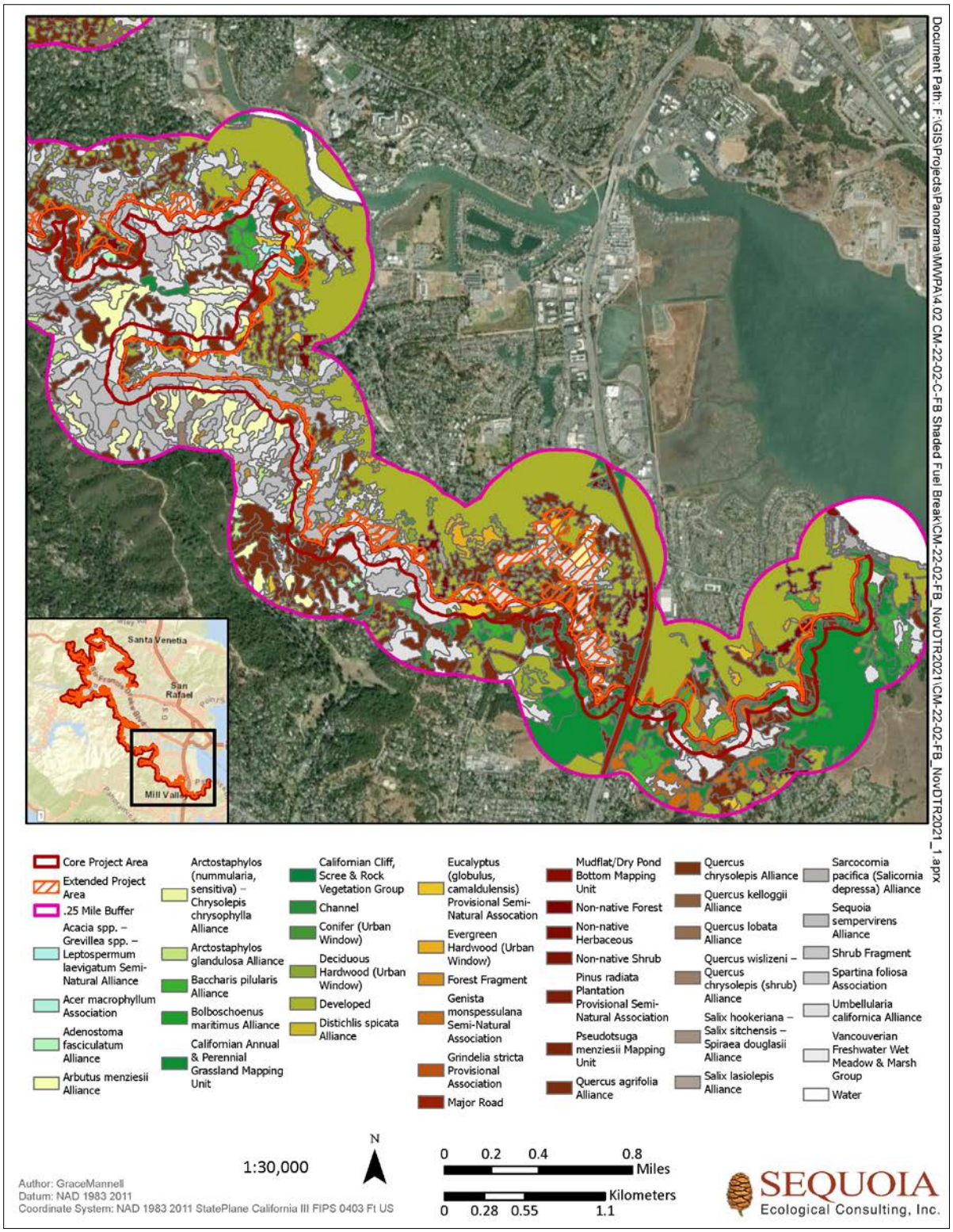


**Figure 5.** Vegetation types documented within the project boundary (Southern portion of the project).

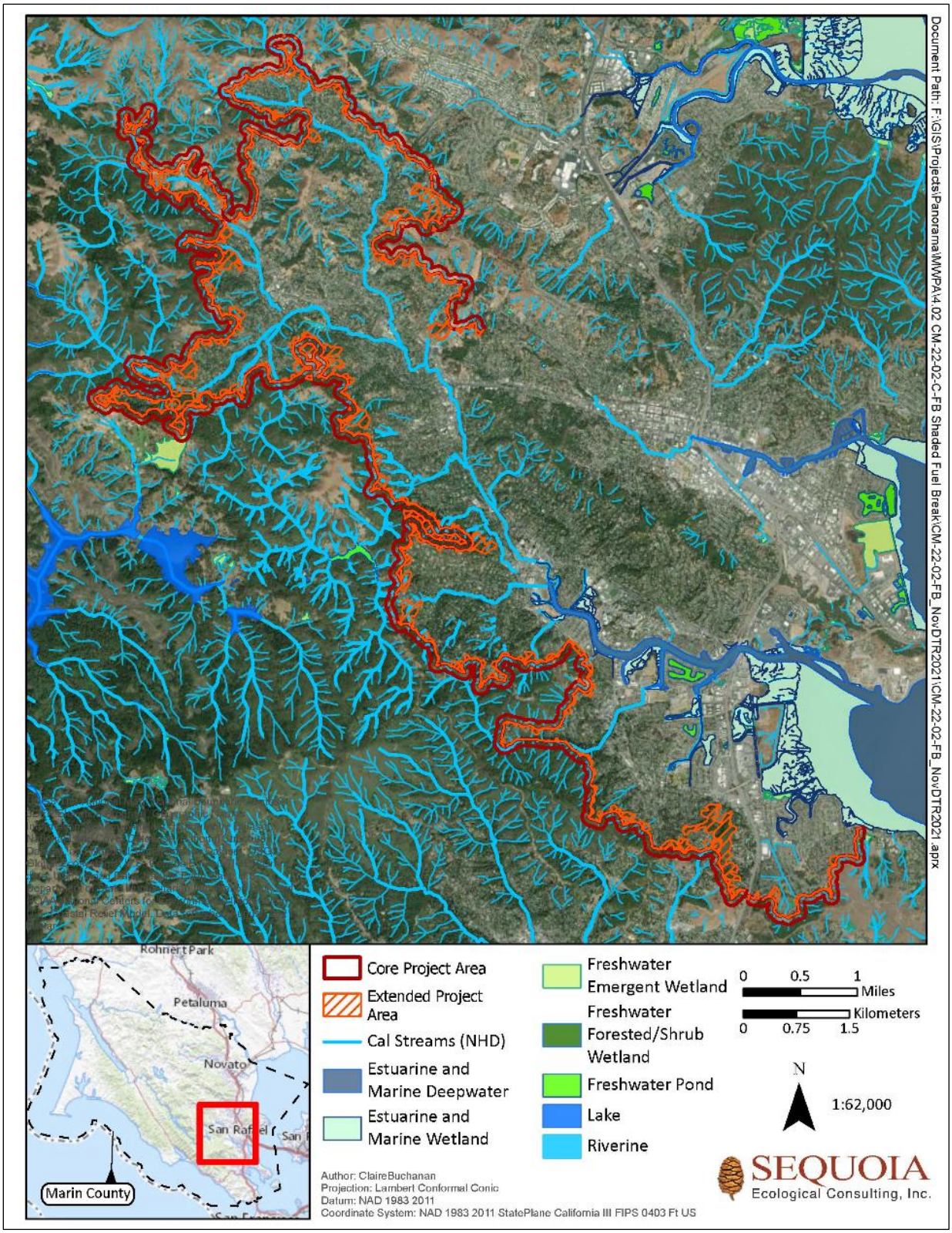


**Figure 6.** Wetlands and waterways documented within in the vicinity of the project boundary.

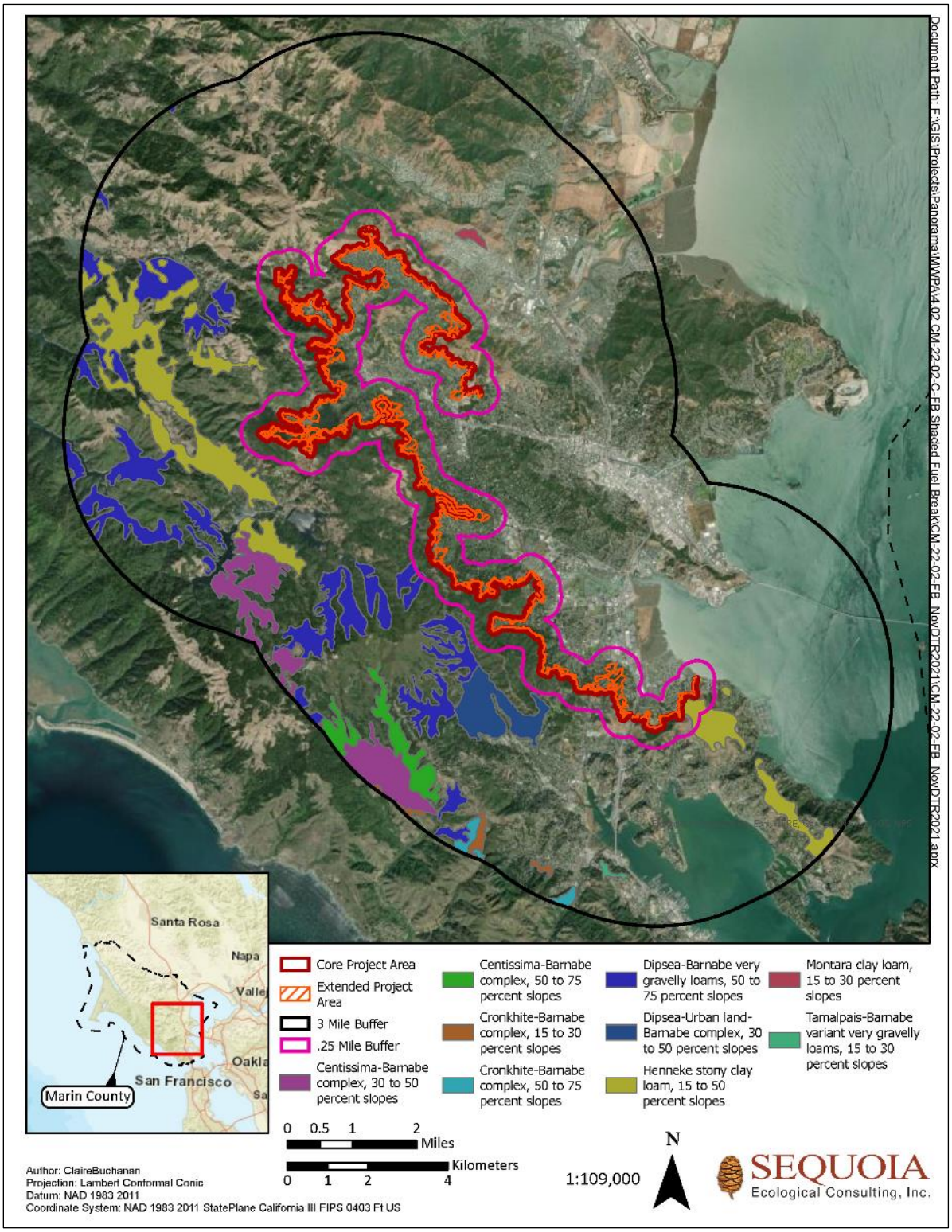


**Figure 7.** Serpentine soils documented within the vicinity of the project boundary. In the southern end of the project area at Ring Mountain Preserve, the project area overlaps serpentine soils.

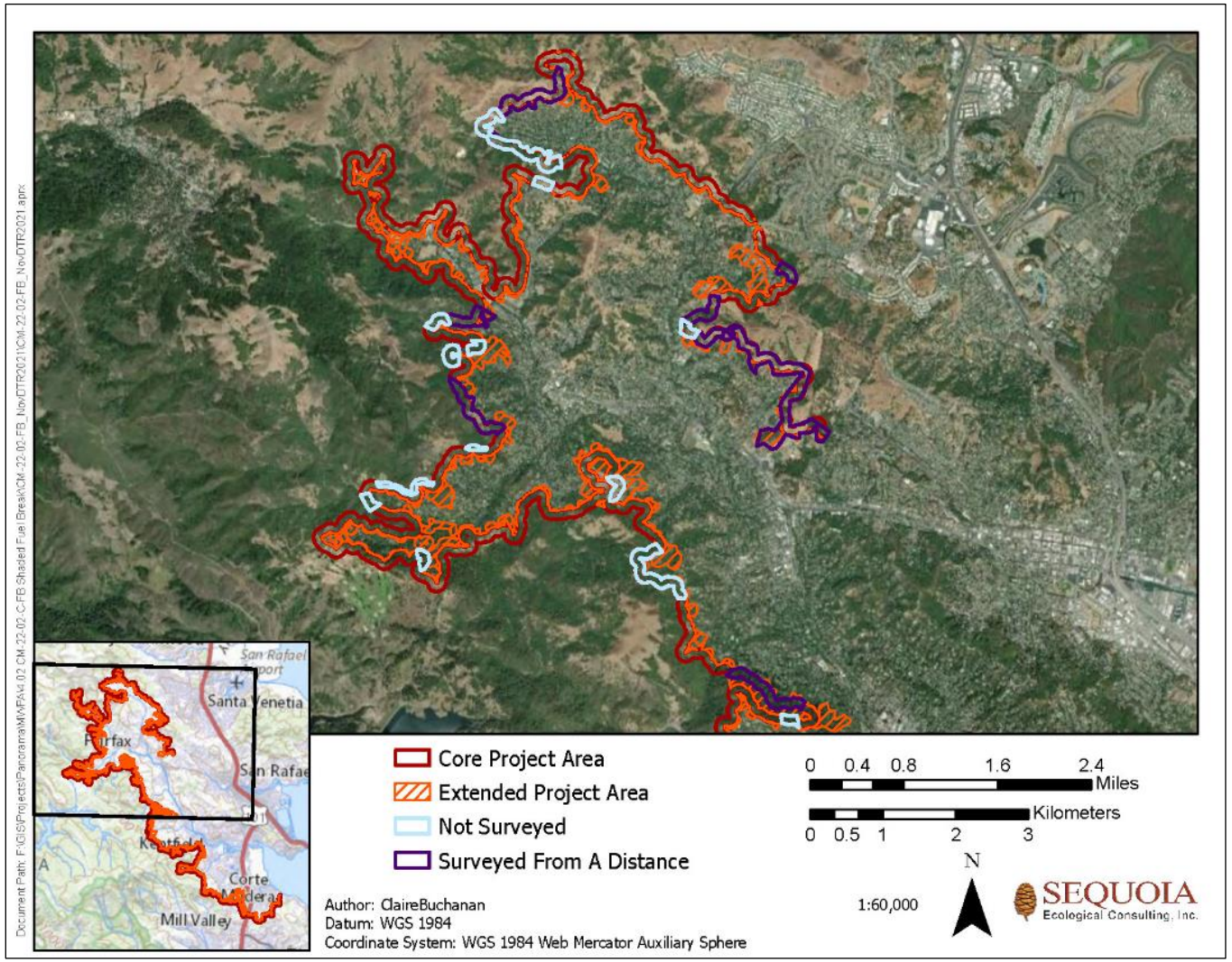


**Figure 8.** Surveyed areas within the northern portion of the project boundary. Some areas could not be surveyed or were surveyed from a distance due to access limitations.


**Figure 9.** Surveyed areas within the southern portion of the project boundary. Some areas could not be surveyed or were surveyed from a distance due to access limitations.

**Attachment D.3 Summary of Survey Results**

Ten surveys were conducted between November 15 and December 9, 2021, throughout the project area. Some areas were not accessible and so were not surveyed or were surveyed from a distance with binoculars (Section D2, Figures 8 and 9).

Surveys were conducted during favorable conditions, when weather did not impair visibility or access to the site. Survey conditions occurred when temperatures were between 43-72°F, with 0-7 mph wind, variable cloud cover, and no greater than 25% chance of precipitation. The overall results of these surveys are summarized below and included in Figures 3, 4, and 5 (Section D.3). Habitat types were ground-truthed, with focus on sensitive habitats such as waterways, wetlands, avian nesting and bat roosting habitat, terrestrial riparian wildlife habitat, aquatic habitat, chaparral, and other potential sensitive plant habitat.

Sensitive Resources Observed

- Wetland Habitat was observed on site. Wetland habitat was generally assessed as low-quality wetland habitat for marsh wildlife (such as protected rails and salt-marsh harvest mouse) due to the small size and isolated nature of wetlands. In addition, wetlands observed on site were generally not suitable for wetland-adapted sensitive plants such as Napa false indigo (*Amorpha californica* var. *napensis)* due to the density of willow and broom vegetation.
- Riparian Corridors were observed and mapped throughout the site.
- Suitable Avian Nesting and Bat Roosting Habitat was common throughout the site. Terrestrial riparian habitat was identified at several riparian areas throughout the project.
- Terrestrial Riparian Wildlife Habitat (habitat for western pond turtle, foothill yellow-legged frog, and California giant salamander) was present and varied in quality throughout site.
    - The perennial creek next to Piedmont Trail is good quality habitat for the California giant salamander and foothill yellow-legged frog. No ponds suitable for California red-legged frog breeding or western pond turtle basking were observed, though these species may use the area as dispersal.
    - Several small, unnamed streams in forested areas provide good quality cover for California giant salamander in the forested areas near a waterway.
        - Along Ross Creek near Lagunitas road, habitat is particularly good for giant salamander larvae. The riparian area on the northern side of the creek included good cover for adults.
        - In Loma Alto Open Space, the waterways, high percentage of native vegetation, and woody debris for cover in creates good habitat for California giant salamander.
    - The biologists observed new construction in the extended fuels project area between the Loma Alto Open Space and Sir Francis Drake Boulevard. The construction project is the San Anselmo Flood Risk Reduction Project. Excavation has created a large depression where an orchard used to be. The depression contains standing water that looks fairly deep. This new wetland provides good habitat for western pond turtle and

California red-legged frog. It is unknown whether the wetland will be a permanent feature in the area.

- Northern Spotted Owl Nesting Habitat was noted throughout site. Habitat quality varies but in most areas with trees exceeding 10 inches diameter at breast height (DBH), northern spotted owl could potentially nest. In forested redwood and bay areas, the understory was frequently extremely dense, which may prevent northern spotted owl foraging for prey. Forest understory was typically invaded with French broom and young tanoak (*Notholithocarpus densiflorus*). Northern spotted owls require open space in the understory to allow flight under the canopy to forage. Sign of dusky-footed woodrats (*Neotoma fuscipes*), which are not protected in Marin County, but which do provide important prey base for northern spotted owls, were observed throughout the project area. Designated critical habitat for northern spotted owl is present outside of but near the project boundary, and activity centers have historically been documented at several locations throughout site.
- Sensitive Plant Habitat: Sensitive plants that arose in the desktop review were categorized by habitat type. The following habitats that have potential to support at least one species of sensitive plant in the project area were observed and assessed for habitat suitability:
    - *Annual Grassland*: Habitat quality was variable throughout site. Most grassland areas were heavily invaded my non-native grass species. Less frequently, high-quality grassland with nearly 50% native herb cover were observed. Both the lower-quality and high-quality grassland areas have the potential to provide suitable habitat for native plants and ground-nesting wildlife, but the areas with greater native plant coverage provide relatively higher quality habitat than those which were dominated by non-native species.
    - *Wetland*: Habitat quality was fair for Napa false indigo within bay woodland and *Quercus agrifolia* habitat where the soil was wet or wetland-like.
    - *Serpentine Grassland* was identified in the project. Serpentine habitat was observed in the southern boundary of the project area, where it borders Bald Mountain Preserve. High-quality serpentine grassland is present in the preserve, however, in areas where the project overlapped serpentine grassland, the grasslands were heavily disturbed and invaded by non-native plants. Despite the presence of non-native plant cover, these areas provide suitable serpentine grassland to support serpentine-endemic species. Sensitive plants in these areas may benefit from some targeted invasive plant removal.
    - *Forests:* Habitat quality of Forested area is fair. Biologists observed high diversity of native species, but the understory is covered in young tanoak, broom species, and ivy.
    - *Chaparral*: Habitat quality of observed chaparral was variable, and some was very good for sensitive species habitat. The biologists observed a variable percentage of native versus invasive species in chaparral. Chaparral habitat was mapped to Alliance group in order to determine sensitivity status.
- Chaparral Alliances: Chaparral stands observed during site surveys were mapped and characterized to Alliance group by dominant species. Alliance groups were identified based on individual stands, or contiguous patches of scrub habitat. Coyote bush (*Baccharis pilularis*) stands were most common and were also the most likely to have a high density of invasive

species presence. Some stands were identified by the Alliance group of the dominant genus, because suitable flowering parts of the individual plant were not sufficient to identify the dominant individuals to species (this is the case for stands of *Arctostaphylos* and *Adenostoma* stands). In total, the following were observed and mapped during surveys:

- Twenty-nine (29) stands of *Baccharis pilularis*
- Four (4) stands of *Arctostaphylos glandulosa*
- One (1) stand of *Arctostaphylos* spp. Alliance
- One (1) stand of *Adenostoma* spp. Alliance
- Three (3) stands of *Adenostoma fasciculatum* Alliance
- Three (3) stands of *Artemisia californica* Alliance
- One (1) mixed *Adenostoma fasciculatum* and *Artemisia californica* Alliance

Resource Impact Avoidance

A limited list of resource avoidance measures is presented below. The PSA, Section 3.5 provides an extensive analysis, including the necessary Standard Project Requirements and mitigation measures from the Vegetation Treatment Program Environmental Impact Report.

- Wetland and Riparian Habitat: Potential impacts to these habitats will be avoided by excluding work from these areas, per measures SH-1, SH-2, and SH-3.
- Nesting Bird Habitat: Potential impact is low if work occurs outside of nesting season. If work which could disturb active nests will be conducted (tree or brush removal during the nesting season), a nesting bird survey would be performed prior to any project activities.
- Roosting Bat Habitat: Roosting bats could be impacted if roosting habitat is disturbed by project activities (branch or tree removal). A bat roosting survey is recommended prior to project activities.
- Riparian Species Habitat: Potential impact is low if work activity implements standard riparian avoidance measures and environmental training. Because California giant salamanders travel during and right after rain events, project activities should not continue during or directly after rain events.
- Serpentine Grasslands: Potential impact is low with full avoidance of serpentine habitat. Environmental training will cover how to identify serpentine habitat, and it will be flagged for avoidance prior to the start of work

Full Species List:

The following species were observed during surveys of the project area: Columbian black-tailed deer, eastern fox squirrel, gray squirrel, dusky-footed woodrat, western gray squirrel, California slender salamander, acorn woodpecker, American crow, American kestrel, American robin, Anna's hummingbird, band-tailed pigeon, Bewick's wren, black phoebe, black-bellied plover, brown creeper, bushtit, California quail, California scrub-jay, California towhee, chestnut-backed chickadee, common raven, Cooper's hawk, dark-eyed junco, European starling, golden-crowned sparrow, hermit thrush, house finch, lesser goldfinch, long-billed curlew, mallard, mourning dove, northern flicker, Nuttall's woodpecker, oak titmouse, pileated woodpecker, pine siskin, purple finch, pygmy nuthatch, red-breasted nuthatch, red-shouldered hawk, red-tailed hawk, ruby-crowned kinglet, sharp-shinned hawk,

snowy egret, song sparrow, spotted towhee, Steller's jay, turkey vulture, western bluebird, white-breasted nuthatch, white-crowned sparrow, and wrentit.

**Select site photos - Reconnaissance Survey 2021**

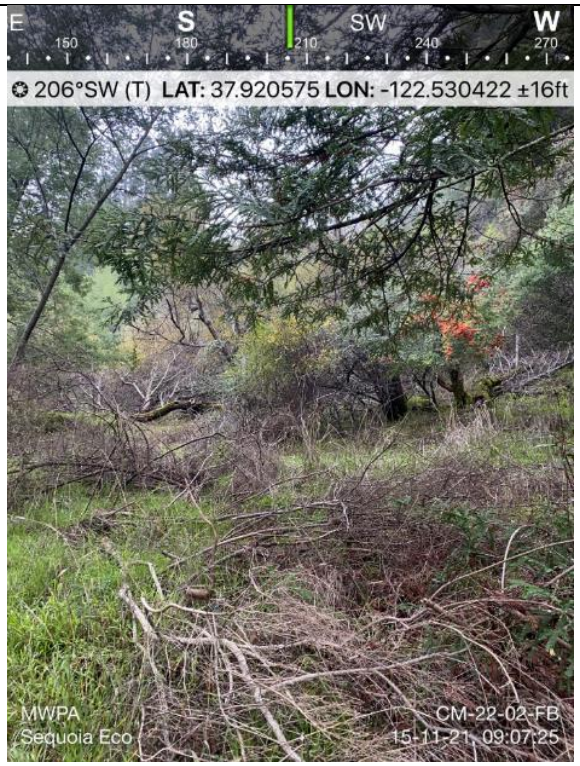


**Photo 1.** Example of a chaparral stand next to Corte Madera Avenue. Pictured is a mature *Baccharis* stand with a large percentage of invasive species. (Day 1 of Reconnaissance Survey, 11/15/2021, Survey Gird 12)

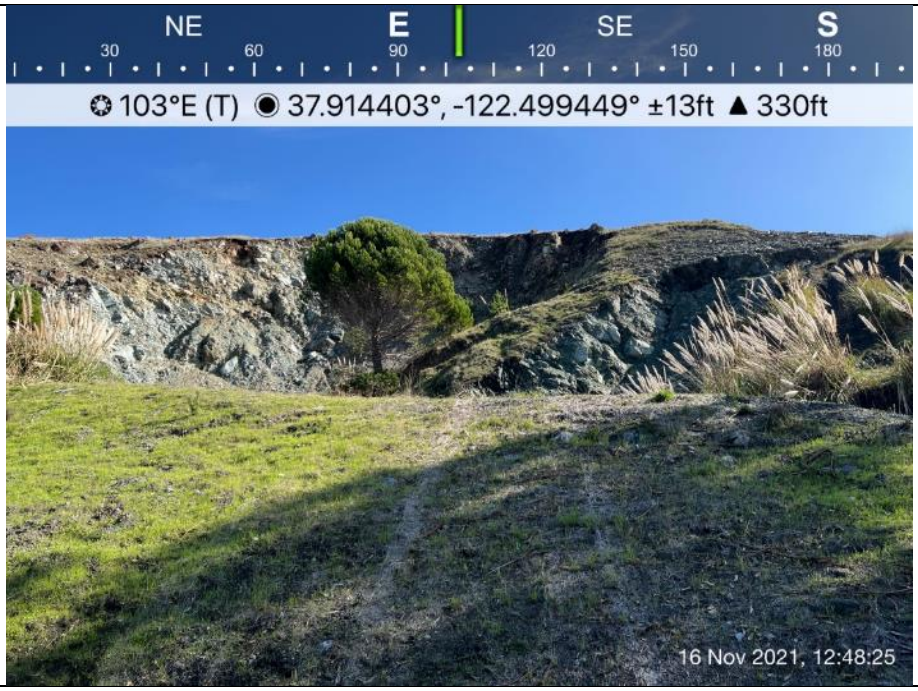


**Photo 2.** Serpentine habitat was found in multiple areas along the project area around Ring Mountain, where occurrences of rare plant species may be. (Day 2 of Reconnaissance Survey, 11/16/2021, Survey Grid 13)


**Photo 3.** Larkspur Creek runs through project area between Madrone Avenue and Piedmont trail, which provides good habitat for foothill yellow-legged frogs and California giant salamanders. (Day 3 of Reconnaissance Survey, 11/18/2021, Survey Grid 11)

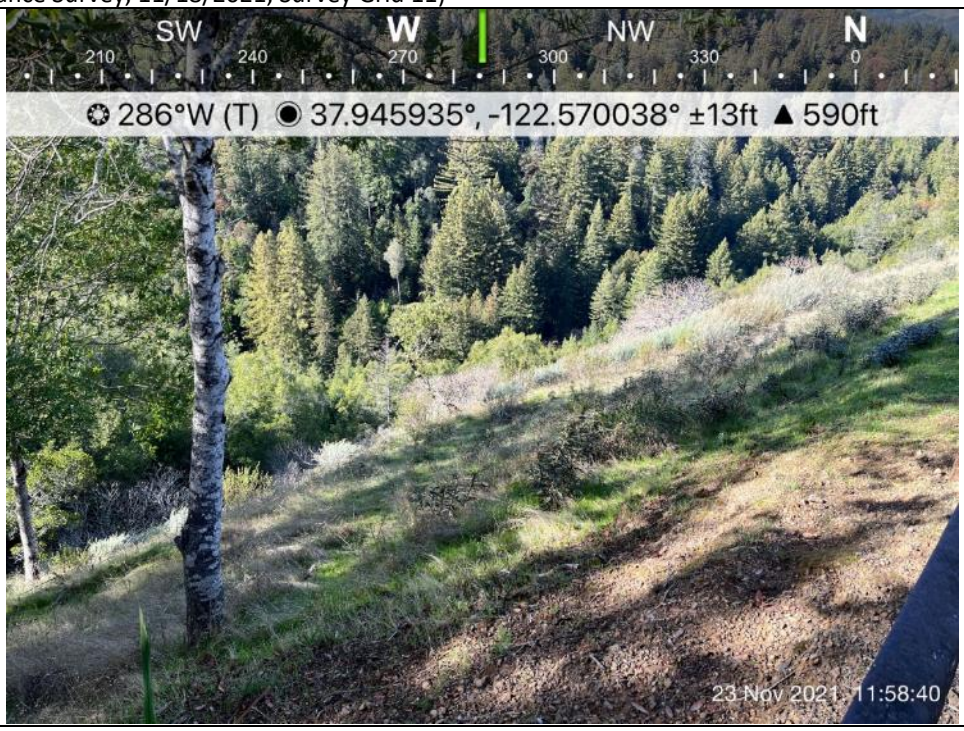


**Photo 4.** Example of *Artemisia* stand next to Crown Road is pictured, where there is a high percentage of native cover. (Day 4 of Reconnaissance Survey, 11/23/2021, Survey Grid 10)


**Photo 5.** Project area along Lagunitas Road includes sections of Ross Creek, which provides good habitat for California giant salamander. (Day 5 of Reconnaissance Survey, 12/2/2021, Survey Grid 8)

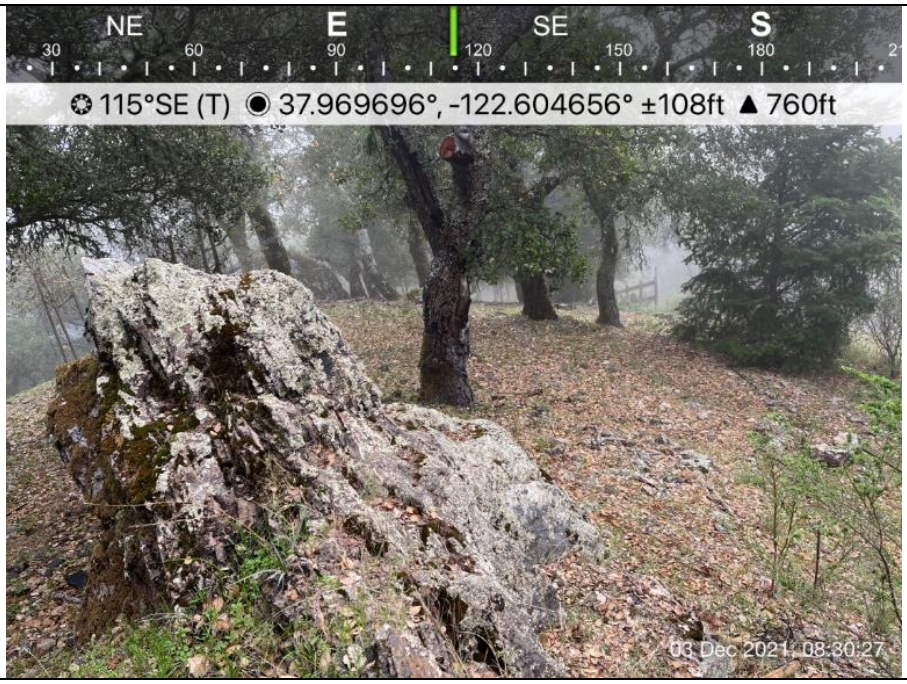


**Photo 6.** Example of rocky outcrop observed within project area. This area lacks serpentine influence, but may provide suitable habitat for rare grassland species such as buckwheat. (Day 6 of Reconnaissance Survey, 12/3/2021, Survey Grid 6)

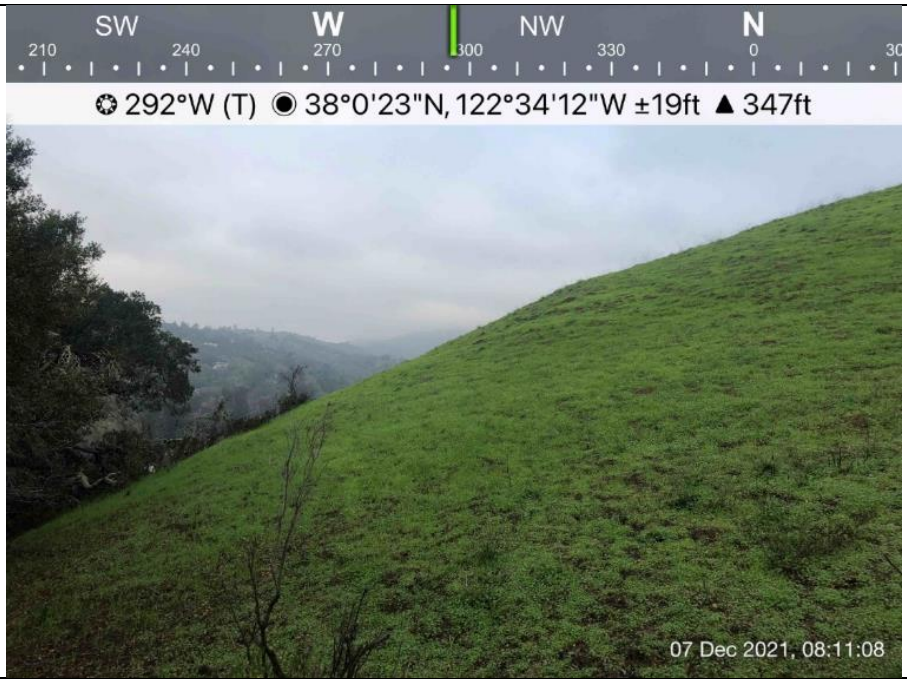


**Photo 7.** Example of grassland found within project area. Some native forbs were observed, such as Lupine spp. and California poppy, and a high percentage of invasive annual grasses. (Day 7 of Reconnaissance Survey, 12/7/2021, Survey Grid 3)


**Photo 8.** Multiple woodrat middens were observed during the reconnaissance survey. (Day 8 of Reconnaissance Survey, 12/8/2021, Survey Grid 2)

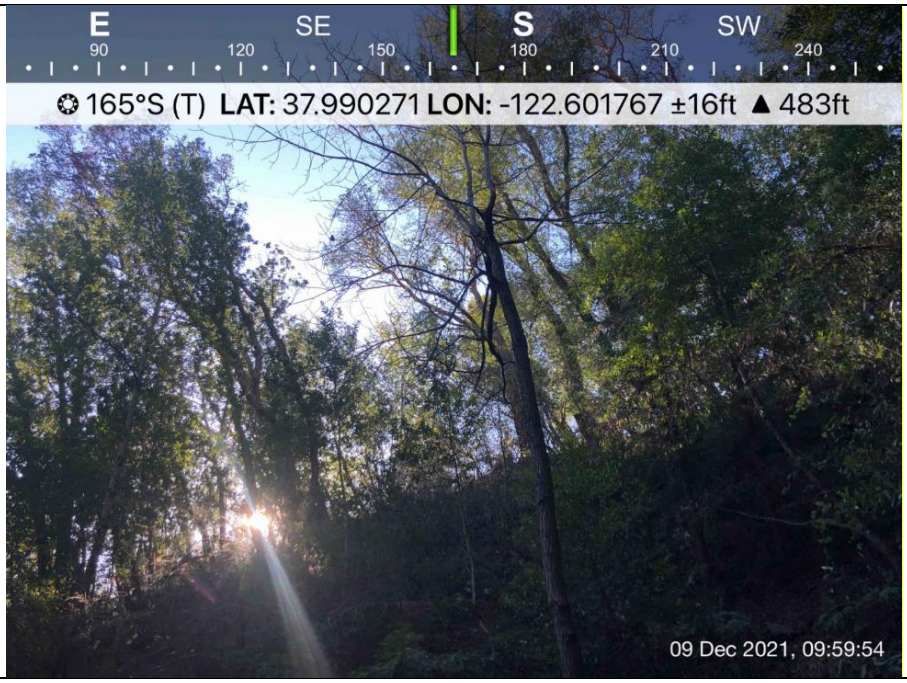


**Photo 9.** Grasslands that occurred on private land in the northwest project area were dominated by non-native and invasive plant species, and were largely developed. (Day 9 of Reconnaissance Survey, 12/9/2021, Survey Grid 4)

**Attachment D.4 Relevant MWPA PDIFs**

The MWPA implements the following Project Design and Implementation Features (PDIFs) on all projects in order to avoid and minimize potential impacts on sensitive plant species, wildlife species, and natural communities. As projects are processed, language may evolve and improve. Projects are reviewed on a case-by-case basis and measures are incorporated as they are determined to be relevant. Measures relevant to the Central Marin Ross Valley Shaded Fuel Break Project are provided below.

## *ET-1: Environmental Training for Biological Resources*

All crew members and contractors will receive training from a qualified registered professional forester (RPF) or biologist prior to beginning a treatment project where sensitive biological resources could occur in the work areas. The training will describe the appropriate work practices necessary to effectively implement the appropriate project design and implementation features and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of potentially present special-status species with potential to occur; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; best management practices; and reporting requirements. As appropriate, the training will include protocols for work, such as specific trimming methods, where applicable. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed, and when it is necessary to report encounters to a qualified RPF or biologist. The qualified RPF or biologist will immediately contact the California Department of Fish and Wildlife (CDFW) or United States Fish andWildlife Service (USFWS), as appropriate, if any wildlife protected by the California Endangered Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on its own (without being handled).

## *ES-1: Environmental Surveys for Rare Plants:*

Within areas where rare and special-status plants have a moderate to high potential to occur, based on desktop data of habitat types, known site-specific information, and the professional judgement of qualified biologists, surveys will be conducted prior to any activity that has either (a) the potential to damage sensitive perennial plants, or (b) is proposed to occur during the flowering season for the specific annual plant species and has the potential to damage the flowering body and/or seeds. Activities that have the potential to damage the flowering body may include but may not be limited to prescribed grazing, mowing, weed whacking, off-road vehicle and heavy equipment use, discing, and prescribed burning.

Surveys for rare plants will occur for these species within suitable habitat within the project footprint. Surveys will occur during the blooming period, if feasible, and will occur prior to work for the specified special-status plant. If blooming period surveys are not feasible and the

sensitive plant in question can be keyed to genus outside of the blooming period, surveys will be conducted for all members of the genus. Individuals will be flagged for avoidance or modified methods. Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat and removal after completion. For physical avoidance, a buffer may be implemented as determined necessary by the biologist. Sensitive species damage or loss avoidance may include implementation of appropriate species-specific no-activity buffers around sensitive resources. Temporary fencing will also be implemented, as and where determined necessary based on the species tolerance, if grazing is prescribed in the area of flagged individuals for avoidance or modified methods.

### *IP-1: Clean Equipment*

All crew members, surveyors, and other personnel on site related to project activities will clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, known plant pathogens, or invasive wildlife.

### *IP-2: Prevent the Spread of Invasive Species and Plant Pathogens*

Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. Treat, as appropriate, to prevent the spread of invasive plants. Treatment may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green waste facility.

Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants or plant pathogens, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants.

### *IP-3: Treat Invasive Plants Prior to Seeding*

Schedule activities to maximize the effectiveness of control efforts and minimize introduction and spread of invasive plants as feasible, with consideration for project objectives and location (e.g., install and maintain fuel breaks, disc lines, and other work before non-native plants set seeds).

### *IP-4: Retain Native Plants*

When removing vegetation, focus first on removing invasive and highly flammable species, and dead or diseased vegetation. Retain beneficial, low-fire risk native plant species whenever possible.

## *GEO-1: Erosion and Soils Loss Stabilization Measures*

Soils will be stabilized if a vegetation management activity may leave less than 70 percent groundcover or native mulch/organic material.

For areas between 50 percent and 70 percent ground cover left:

- Sow native grasses and other suitable native vegetation on denuded areas where natural colonization or other replanting will not occur rapidly; use slash or chips to prevent erosion on such areas.
- Use surface mounds, depressions, logs, rocks, trees and stumps, slash and brush, the litter layer, and native herbaceous vegetation downslope of denuded areas to reduce sedimentation and erosion, as necessary to prevent erosion or slope destabilization.
- Install approved, biodegradable erosion-control measures and non-filament-based geotextiles (e.g., coir, jute) when:
  - conducting substantial ground-disturbing work (e.g., use of heavy equipment, pulling large vegetation) within 100 feet and upslope of currently flowing or wet wetlands, streams, lakes, and riparian areas;
  - causing soil disturbance on moderate to steep (10 percent slope and greater) slopes; and
  - removing invasive plants from stream banks to prevent sediment movement into watercourses and to protect bank stability.
- Sediment-control devices, if installed, will be certified weed-free. Sediment control devices will be inspected daily during active work to ensure that they are repaired and working as needed to prevent sediment transport into the waterbodies.

For areas with less than 50 percent ground cover:

- Any of the above measures will be implemented.
- Stabilize with mulch or equivalent immediately after project activities to the maximum extent practicable.
- If project activities could result in substantial sediment discharge from soil disturbance, as determined by the qualified personnel (e.g., RPF), organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion.
- Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface.
- Once work is completed, the areas will be inspected at least annually if accessible, until groundcover exceeds 70 percent or slopes have stabilized, as determined by a qualified professional. At that time, erosion-control and slope-stability devices may be removed.

### *HAZ-1 Leak Prevention and Spill Cleanup*

The project proponent will, at a minimum, implement measures that address the following procedures related to the use of hazardous materials during work:

- Proper disposal or management of contaminated soils and materials (i.e., clean up materials)
- Daily inspection of vehicles and equipment for leaks and spill containment procedures
- Emergency response and reporting procedures to address hazardous material releases
- Emergency spill supplies and equipment will be available to respond in a timely manner if an incident should occur.
- Response materials such as oil-absorbent material, tarps, and storage drums will be available in the plan area at all times during management activities and will be used as needed to contain and control any minor releases.
- The absorbent material will be removed promptly and disposed of properly.
- Use of secondary containment and spill rags when fueling
- Discourage “topping-off” fuel tanks
- Workers using fuels or other hazardous materials must be knowledgeable of the specific procedures necessary for hazardous materials cleanup and emergency response.
- All diesel and gasoline powered equipment will be maintained per manufacturer's specification, and in compliance with all state and federal emission requirements.

### *HYD-1 Prescribed Herbivory Treatments*

The following water quality protections will apply for all prescribed herbivory treatments:

- Limit the duration of prescribed herbivory within 50 feet of lakes/reservoirs, creeks, streams, riparian corridors, and wetlands to prevent soil erosion that could affect water quality (see SH-1)
- Water will be provided for grazing animals in the form of an on-site stock pond, or a portable water source located outside of environmentally sensitive areas.
- Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed.

## *NSO-1 Northern Spotted Owl Nesting Season Avoidance*

Each project will be reviewed by a qualified biologist to determine if northern spotted owls have potential to occur near proposed project activities. Within areas where northern spotted owl has the potential to occur, work, including mowing with heavy equipment, the mechanical removal of vegetation, or prescribed burning, including pile and broadcast burning, will occur outside of the northern spotted owl nesting season to the extent feasible (February 1 to July 31).

If work must occur during the northern spotted owl nesting season, either NSO-2 or NSO-3 will apply.

## *NSO-2 Work During Northern Spotted Owl Nesting Season – Surveys*

Within an area where northern spotted owl has the potential to occur, when work will occur during the northern spotted owl nesting season (February 1 through July 31), and work is not considered low-impact by a qualified biologist the following measure will apply. Low impact type activities include, but are not limited to, goat grazing, hand pulling of weeds, hand trimming of trees and vegetation with non-mechanized equipment, chipping from existing roadways in residential areas, and use of mechanized equipment adjacent to roads or in residential areas that is a typical noise for the environment. In contrast, high-impact activities may include operation of heavy machinery in wildlands with lower baseline environmental noise, or work which produces noise disturbance for a longer duration than is typical in the environment.

The biologists will determine if a known breeding pair is found within 0.25 mile of the proposed activity (i.e., from existing surveys that season or historic data) and perform a nest check to confirm presence. If no survey data for the season has been completed for the areas, two surveys will be conducted by a qualified biologist (whose qualifications have been approved by the MWPA or lead public agency) for nesting northern spotted owls during the months of April and May preceding the commencement of these activities. At a minimum, the survey area will include all suitable nesting habitats within 0.25 mile of any planned activity sites, and then one of the two options listed below will be implemented. If access cannot be secured for surveys, then work should be delayed until after the nesting season, unless it can be shown that noise generation from the activities and the activities proposed would be below noise and visual disturbance levels for northern spotted owls (refer to USFWS Revised Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California) at the nest site, if known.

1. If it is conclusively determined that there are nesting northern spotted owls, planned activities that generate noise (e.g., mowing, heavy equipment usage, crews with hand tools that generate noise) in areas without regular human disturbances from human residency (e.g., leaf blowers, home construction and remodeling, roadways), that are within 0.25-mile of an identified active nest will not begin prior to September 1 unless the young have fledged, at which time work may begin no earlier than July 10. Prescribed burns may only occur within suitable northern spotted owl habitat (as determined by a qualified biologist)

during the nesting season if protocol surveys have determined that northern spotted owl nesting is not occurring in the area of planned activity.

2. If work must occur within 0.25 mile, and work has been determined to have the potential to impact an active northern spotted owl nest, CDFW and USFWS would be consulted to determine if take could occur and whether further permits are required.

### *NSO-3 Northern Spotted Owl Habitat Alteration*

For projects involving removal of large trees (10-inches DBH or greater) in potential northern spotted owl roosting, or nesting habitat (as identified during the desktop review) in areas without regular human disturbances from human residency, habitat alteration within core use areas (nesting and roosting habitat) will be planned in consultation with a qualified biologist.

### *NSO-4 Retain Dusky-footed Woodrat Nests*

Dusky-footed woodrats are important prey for northern spotted owls. Wherever feasible, project activities will leave dusky-footed wood rat nests intact. If possible, maintain a 3-foot buffer of vegetation around dusky-footed woodrat middens.

### *NB-1 Nesting Bird Season Avoidance*

Whenever possible, schedule work outside of the bird nesting season, which is generally from February 1 through July 31st [8]. Not all species nest between the regulatory season, and active nests that are encountered year-round are protected.

### *NB-2 Nesting Bird Surveys*

If work that has the potential to impact nesting birds commences between February 1 and July 31 (during the nesting season), a qualified biologist (whose qualifications have been approved by the MWPA or lead public agency) will conduct a pre-activity survey for nesting birds.

Nesting bird surveys are recommended during the nesting season for work involving mowing with heavy equipment, other vegetation (including tree) removal or limbing and trimming activities, and prescribed (broadcast and pile) burning. Low-impact activities including goat grazing, hand-pulling weeds, and herbicide application do not generally require nesting bird surveys. Determination of need for surveys for low-impact activities should be evaluated on a case-by-case basis in consultation with a qualified biologist or RPF.

Nesting bird surveys will occur within no more than 7 days prior to work to ensure that no nests will be disturbed during vegetation management work. If work pauses for more than 7 days, a follow-up survey will be conducted prior to the restarting of work. Appropriate survey areas will be determined by the qualified biologist depending on the project footprint, type of activity proposed, and suitable habitat for nesting birds. Surveys will be conducted during periods of high bird activity (i.e., 1-3 hours after sunrise and 1-3 hours before sunset). If the qualified

biologist determines that visibility is significantly obstructed due to on-site conditions (such as access issues, rain, fog, smoke, or sound disturbance [including high wind]), surveys will be deferred until conditions are suitable for nest detection.

### *NB-3 Nesting Birds: Active Nest Avoidance*

If active nests (i.e., presence of eggs and/or chicks) are observed in areas that could be directly or indirectly disturbed (including noise disturbance), a temporary, species-appropriate no-disturbance buffer zone will be created around the nest sufficient to reasonably expect that breeding would not be disrupted. No work will occur inside the buffer zone.

The size of the buffer zone will be determined by the biologist, by taking into account factors including but not limited to the following:

- Noise and human disturbance levels at the site at the time of the survey and the noise and disturbance expected during the work;
- Distance and amount of vegetation or other screening between the site and the nest; and
- Sensitivity of individual nesting species and behaviors of the nesting birds, taking into account factors such as topography, visibility to source of disturbance, noise/vibration, nesting phase, and other case-by-case specifics.

Buffer sizes may be altered during the course of work at the recommendation of the biologist. Raptor nests are subject to additional protections, including during the “branching” phase, when fledglings begin to fly but do not fully leave the nest. Buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified biologist.

If work must occur within the buffer, proceed to NB-4.

### *NB-4 Nesting Birds: Active Nest Monitoring*

If an avoidance buffer is not achievable, a qualified biologist may monitor the nest(s) during work activities within the recommended nest buffer to document that no take of the nest (nest failure) has occurred related to work activities. If it is determined that work activity is resulting in nest disturbance, work should cease immediately.

### *WILD-1 Temporary Fencing*

If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly recyclable fencing design will be used. The design should consider the following:

- Minimize the chance of wildlife entanglement by minimizing barbed wire, loose or broken wires.

- If feasible, keep electric netting-type fencing electrified at all times or laid down while not in use.
- Charge temporary electric fencing with intermittent pulse energizers.
- Allow wildlife to jump over easily without injury by installing fencing that can flex as non-target animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult ungulates to jump over it, while keeping grazing animals safely within the fence. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.
- Fences should be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers.

### *RB-1 Prework Survey*

If vegetation management activities would (1) occur in trees with potential for roosting bat species, (2) would include removal or trimming of trees where a bat could be roosting, or (3) would involve removal or trimming of a tree with mechanized equipment adjacent to trees or structures that could have roosting bats and (4) the work would commence between March 1 and July 31, during the bat maternity period, a pre-activity survey will be conducted for roosting bats within 2 weeks prior to work to ensure that no roosting bats will be disturbed during work. This survey can be conducted concurrent with other surveys for other sensitive species. Trees and shrubs within the work footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during work is presumed to be unaffected, and no buffer would be necessary.

### *RB-2 Avoidance of Maternity Roosts and Day Roosts*

If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from work activities, avoidance buffers will be implemented. The buffer size will be determined in consultation with the qualified biologist or RPF.

### *RB-3 Bat Roosting Tree Removal – Seasonal Restrictions*

If it is determined that a colonial maternity roost is potentially present, the roost will be avoided and will not be removed during the breeding season (March 1 through July 31) unless removal is necessary to address a safety hazard.

Operation of mechanical equipment producing high noise levels (e.g., chainsaws, heavy equipment) in proximity to buildings/structures supporting or potentially supporting a colonial bat roost will be restricted to periods of seasonal bat activity (as defined above), when possible.

### *RB-4 Bat Roosting Tree Removal – Emergency Removals*

Potential non-colonial roosts that must be removed in order to address an imminent safety hazard can be removed after consultation with a biologist. Removal will occur on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly. Appropriate methods will be used to minimize the potential of harm to bats during tree removal. Such methods may include using a two-step tree removal process. This method is conducted over two consecutive days, and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat trees using chainsaws only (no excavators or other heavy machinery) on Day 1. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night. The remainder of the tree is removed on Day 2.

### *SH-1 Riparian Resources – Project Design*

Work will be avoided in riparian and wetland areas. Some treatment may be approved on a case-by-case basis. Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are representative of healthy stands of the riparian vegetation types that are characteristic of the region. Work will only be permitted in dry conditions, where soil is not saturated and no rain (precipitation of 0.5 inches or greater) has occurred in the past 24 hours. Allowable activities include hand removal of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species. Mature, healthy trees will not be removed from a riparian corridor. No foot traffic or equipment will be permitted to enter a wetted channel at any time. Any activities conducted within a riparian corridor will be conducted so as to avoid alteration to a bed, channel, or bank of a waterway and all debris, including sawdust, chips, or other vegetative material, will be prevented from entering the bed, channel, or bank of a waterway, unless a permit from the California Department of Fish and Game under Section 1600 is obtained.

### *SH-2 Grazing and Sensitive Habitats*

Avoid grazing in sensitive habitats including serpentine-associated communities, chaparral, and across waterways and within a 50-foot buffer of waterways if there is a need for protection of riparian vegetation from grazing. Limited grazing may be allowed if it would be beneficial to plant and wetland communities, including serpentine-associated communities, without causing harm (e.g., removal of invasive species) and would not result in erosion.

### *SH-3 Minimization of Pile Burning Disturbance*

Pile burning will not be performed in sensitive habitats, such as serpentine-associated communities, wetlands, or riparian areas. If piles are burned on a different day than piled, the piles should be moved prior to burning to ensure wildlife is not present, such as by re-piling by

hand, or a qualified biologist will inspect the pile prior to burning to ensure wildlife are not present. If moving or inspection of the piles is not feasible, the pile will be lit from one side and allowed to burn slowly to the other side, in order to allow any wildlife to relocate, rather than lighting the entire pile at once.

# Attachment D.5 Biology References

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# Attachment E: Slope and Soils Study

# Attachment E– Soil and Slope Stability Report

## Soil Report and Slope Stability Analysis

A significant portion of the project area is located on steep terrain. Treatment activities could result in the exposure of soils, which would increase the potential for erosion and loss of topsoil. A soil report and slope stability analysis were conducted to identify soils and project areas with slopes greater than 50 percent. A soil report was produced for the fuel break and WUI fuel reduction area using the Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, 2022). Sixteen soil types were identified within the project area. The dominant soil types within the project site are the Tocaloma-McMullin complex and Tocalom-Saurin association that comprise of 32.8 percent and 26.1 percent of the project area, respectively. Soils that occur on slopes greater than 50 percent include the Maymen-Maymen variant, Saurin-Bonnydoon complex, Tocaloma-McMullin complex, and Tocaloma-Saurin association.

A steep slope analysis was performed to evaluate areas of the fuel break and WUI fuel reduction area over 50 percent in slope. Approximately, 804 acres of the fuel break and WUI fuel reduction area are located on slopes greater than 50 percent (as shown in Figure 1 through Figure 3).

**Figure 1 Steep Slope Analysis (Map 1 of 3)**

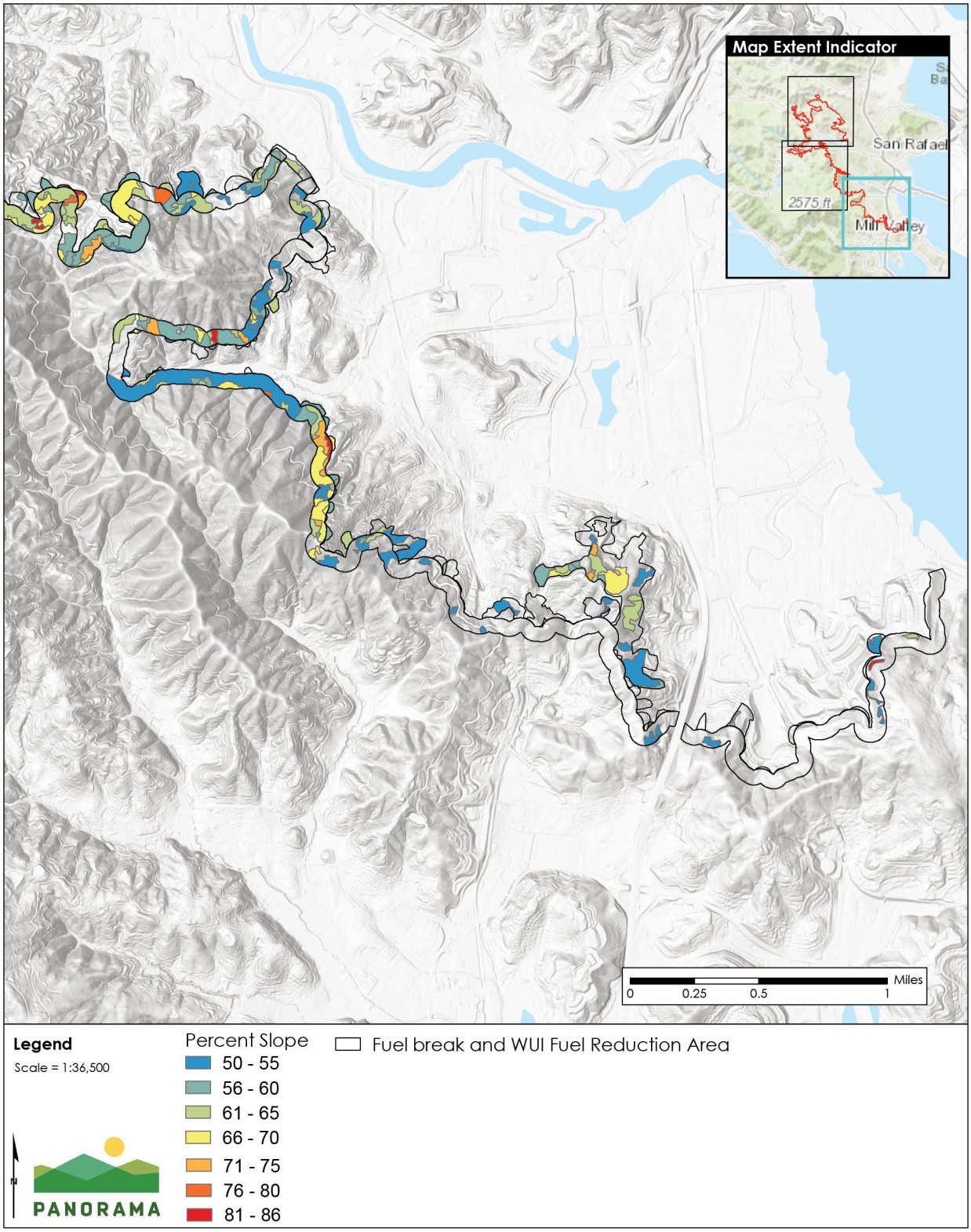
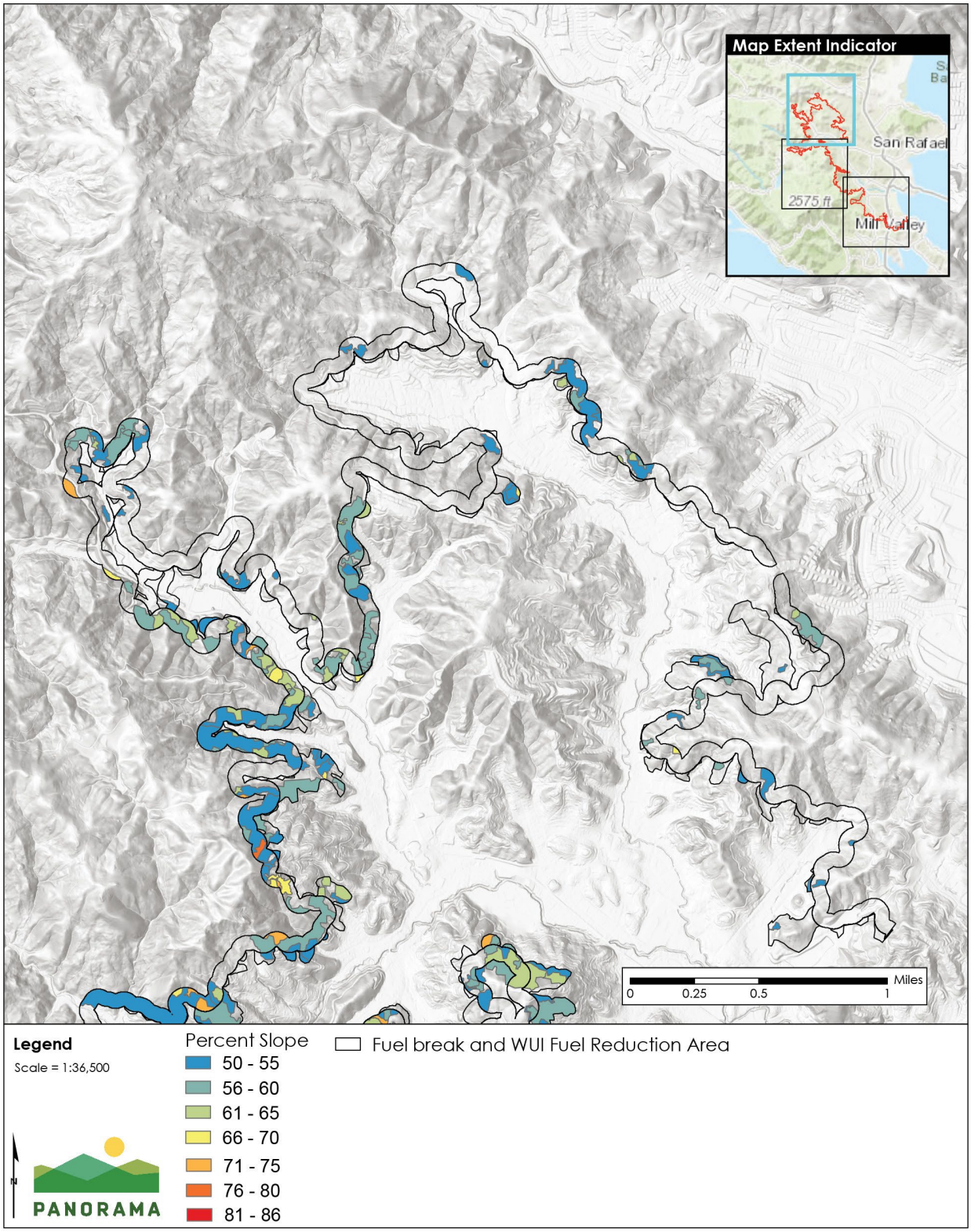
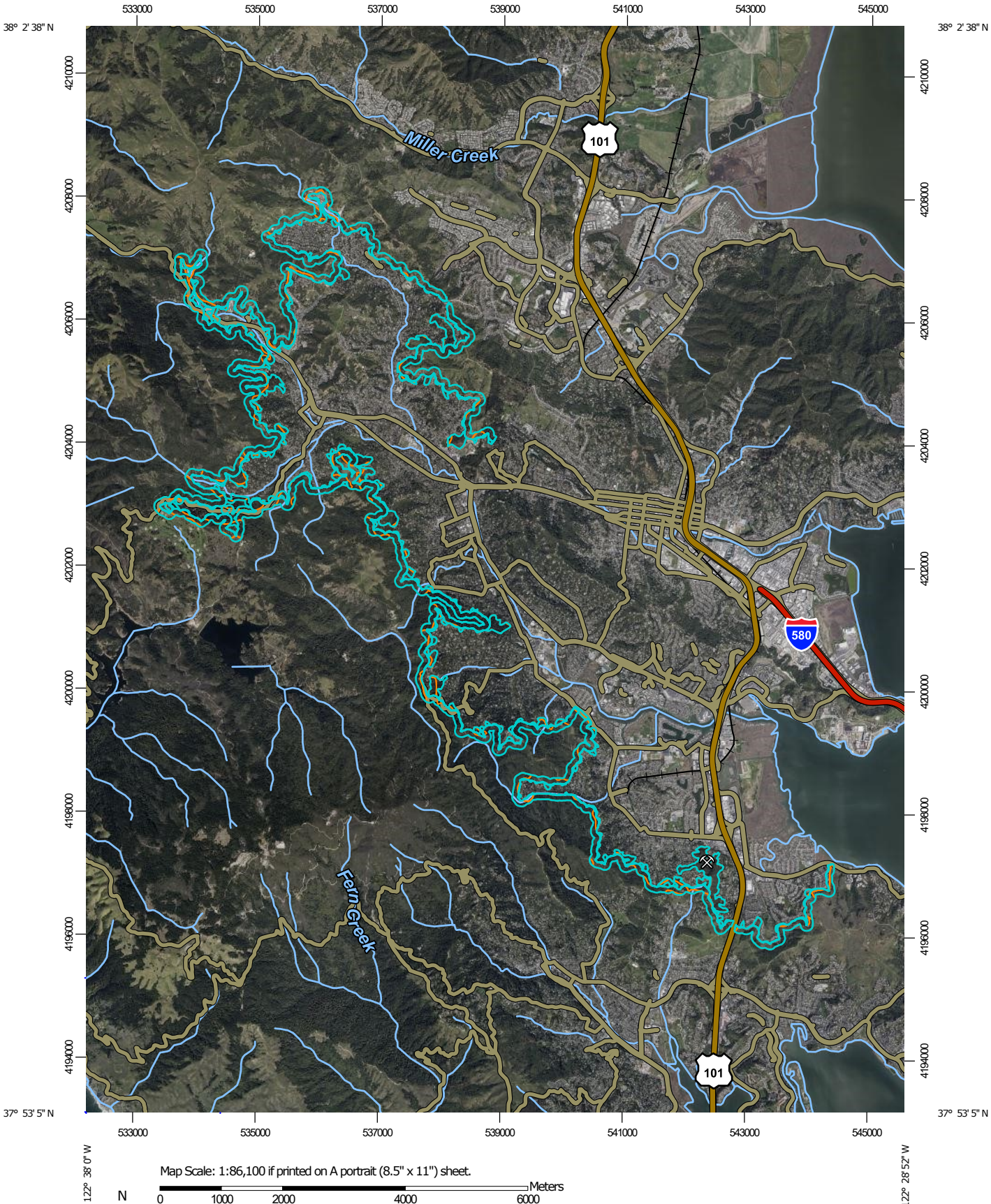


**Figure 2 Steep Slope Analysis (Map 2 of 3)**

**Figure 3 Steep Slope Analysis (Map 3 of 3)**



Soil Map—Marin County, California
(czcf_update_final_10212021)



## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

**Transportation**
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Marin County, California
Survey Area Data: Version 15, Sep 9, 2021

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

Date(s) aerial images were photographed: Mar 7, 2021—Mar 31, 2021

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

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 105 | Blucher-Cole complex, 2 to 5 percent slopes | 18.3 | 1.0% |
| 129 | Henneke stony clay loam, 15 to 50 percent slopes | 11.0 | 0.6% |
| 141 | Los Osos-Bonnydoon complex, 15 to 30 percent slopes | 12.8 | 0.7% |
| 142 | Los Osos-Bonnydoon complex, 30 to 50 percent slopes | 49.5 | 2.6% |
| 144 | Los Osos-Urban land-Bonnydoon complex, 30 to 50 percent slopes | 11.0 | 0.6% |
| 145 | Maymen-Maymen variant gravelly loams, 30 to 75 percent slopes | 27.5 | 1.5% |
| 163 | Saurin-Bonnydoon complex, 30 to 50 percent slopes | 68.3 | 3.6% |
| 164 | Saurin-Bonnydoon complex, 50 to 75 percent slopes | 32.3 | 1.7% |
| 179 | Tocaloma-McMullin complex, 30 to 50 percent slopes | 88.4 | 4.7% |
| 180 | Tocaloma-McMullin complex, 50 to 75 slopes | 621.2 | 32.8% |
| 181 | Tocaloma-McMullin-Urban land complex, 15 to 30 percent slopes | 1.0 | 0.1% |
| 182 | Tocaloma-McMullin-Urban land complex, 30 to 50 percent slopes | 330.2 | 17.4% |
| 184 | Tocaloma-Saurin association, very steep | 38.8 | 2.1% |
| 185 | Tocaloma-Saurin association, extremely steep | 494.1 | 26.1% |
| 203 | Xerorthents, fill | 1.6 | 0.1% |
| 204 | Xerorthents-Urban land complex, 0 to 9 percent slopes | 87.3 | 4.6% |
| **Totals for Area of Interest** | | **1,893.4** | **100.0%** |

# Map Unit Description

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

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

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

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

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

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

# Report—Map Unit Description

# Marin County, California

## 105—Blucher-Cole complex, 2 to 5 percent slopes

**Map Unit Setting**

*National map unit symbol:* hf18
*Elevation:* 0 to 500 feet

*Mean annual precipitation:* 25 to 35 inches
*Mean annual air temperature:* 57 to 61 degrees F
*Frost-free period:* 210 to 290 days
*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Blucher and similar soils:* 40 percent
*Cole and similar soils:* 30 percent
*Minor components:* 30 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Blucher**

**Setting**

*Landform:* Alluvial fans, basin floors
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Tread, talf
*Down-slope shape:* Linear, concave
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from sandstone, granite, or shale

**Typical profile**

*H1 - 0 to 7 inches:* silt loam
*H2 - 7 to 23 inches:* silt loam
*H3 - 23 to 60 inches:* clay loam

**Properties and qualities**

*Slope:* 2 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 0 inches
*Frequency of flooding:* NoneOccasional
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 10.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 2w
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C/D
*Ecological site:* R015XC025CA - CLAYEY BOTTOMLAND
*Hydric soil rating:* Yes

**Description of Cole**

**Setting**

*Landform:* Alluvial fans, basin floors
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope, tread

*Down-slope shape:* Concave, linear
*Across-slope shape:* Linear
*Parent material:* Alluvium derived from shale, sandstone, or granite

**Typical profile**

*H1 - 0 to 5 inches:* clay loam
*H2 - 5 to 14 inches:* silty clay loam
*H3 - 14 to 60 inches:* silty clay

**Properties and qualities**

*Slope:* 2 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* About 0 inches
*Frequency of flooding:* NoneOccasional
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.1 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 3w
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* C/D
*Ecological site:* R015XC025CA - CLAYEY BOTTOMLAND
*Hydric soil rating:* Yes

**Minor Components**

**Unnamed, slopes less than 2 percent**

*Percent of map unit:* 10 percent
*Hydric soil rating:* No

**Cortina**

*Percent of map unit:* 10 percent
*Hydric soil rating:* No

**Clear lake**

*Percent of map unit:* 10 percent
*Landform:* Depressions
*Landform position (two-dimensional):* Backslope
*Hydric soil rating:* Yes

## 129—Henneke stony clay loam, 15 to 50 percent slopes

**Map Unit Setting**

*National map unit symbol:* hf21
*Elevation:* 500 to 2,000 feet
*Mean annual precipitation:* 25 to 35 inches
*Mean annual air temperature:* 57 to 61 degrees F
*Frost-free period:* 230 to 250 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

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

**Description of Henneke**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from serpentinite

**Typical profile**

*H1 - 0 to 3 inches:* stony clay loam
*H2 - 3 to 16 inches:* very cobbly clay
*H3 - 16 to 20 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.57 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Very low (about 1.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC035CA - SHALLOW CLAYEY SERPENTINE
*Hydric soil rating:* No

**Minor Components**

**Slopes greater than 50 percent**

*Percent of map unit:* 8 percent
*Hydric soil rating:* No

**Unnamed, shallow**

*Percent of map unit:* 7 percent
*Hydric soil rating:* No

## 141—Los Osos-Bonnydoon complex, 15 to 30 percent slopes

### Map Unit Setting

*National map unit symbol:* hf2f
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 25 to 35 inches
*Mean annual air temperature:* 59 to 63 degrees F
*Frost-free period:* 270 to 320 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Los osos and similar soils:* 60 percent
*Bonnydoon and similar soils:* 20 percent
*Minor components:* 17 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Los Osos

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 18 inches:* loam
*H2 - 18 to 38 inches:* clay
*H3 - 38 to 42 inches:* bedrock

#### Properties and qualities

*Slope:* 15 to 30 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 5.7 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 4e
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC032CA - FINE LOAMY CLAYPAN
*Hydric soil rating:* No

### Description of Bonnydoon

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from shale, or sandstone

#### Typical profile

*H1 - 0 to 15 inches:* gravelly loam
*H2 - 15 to 19 inches:* bedrock

#### Properties and qualities

*Slope:* 15 to 30 percent
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC037CA - SHALLOW GRAVELLY LOAM
*Hydric soil rating:* No

### Minor Components

#### Tocaloma

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

#### Slumps

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

#### Slopes less than 15 percent

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

#### Yorkville

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

#### Unnamed, deep

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, shallow**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, gravelly**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Saurin**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed**
*Percent of map unit:* 1 percent
*Landform:* Depressions
*Hydric soil rating:* Yes

## 142—Los Osos-Bonnydoon complex, 30 to 50 percent slopes

### Map Unit Setting
*National map unit symbol:* hf2g
*Elevation:* 200 to 1,200 feet
*Mean annual precipitation:* 25 to 35 inches
*Mean annual air temperature:* 59 to 63 degrees F
*Frost-free period:* 270 to 320 days
*Farmland classification:* Not prime farmland

### Map Unit Composition
*Los osos and similar soils:* 60 percent
*Bonnydoon and similar soils:* 20 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Los Osos

#### Setting
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile
*H1 - 0 to 15 inches:* loam
*H2 - 15 to 30 inches:* clay
*H3 - 30 to 34 inches:* bedrock

#### Properties and qualities
*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock

*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC032CA - FINE LOAMY CLAYPAN
*Hydric soil rating:* No

## Description of Bonnydoon

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from shale, or sandstone

**Typical profile**

*H1 - 0 to 11 inches:* gravelly loam
*H2 - 11 to 15 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC037CA - SHALLOW GRAVELLY LOAM
*Hydric soil rating:* No

## Minor Components

**Rock outcrop**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Slumps**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Yorkville**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Unnamed, deep**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Slopes more than 50 percent**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

**Tocaloma**
*Percent of map unit:* 3 percent
*Hydric soil rating:* No

## 144—Los Osos-Urban land-Bonnydoon complex, 30 to 50 percent slopes

### Map Unit Setting

*National map unit symbol:* hf2j
*Elevation:* 200 to 1,200 feet
*Mean annual precipitation:* 25 to 35 inches
*Mean annual air temperature:* 57 to 63 degrees F
*Frost-free period:* 270 to 320 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Los osos and similar soils:* 40 percent
*Urban land:* 30 percent
*Bonnydoon and similar soils:* 20 percent
*Minor components:* 8 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Los Osos

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 15 inches:* loam
*H2 - 15 to 30 inches:* clay
*H3 - 30 to 34 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Description of Urban Land

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

**Interpretive groups**

*Land capability classification (irrigated):* 8
*Land capability classification (nonirrigated):* 8
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Description of Bonnydoon

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from shale, or sandstone

**Typical profile**

*H1 - 0 to 11 inches:* gravelly loam
*H2 - 11 to 15 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

**Minor Components**

**Slumps**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Unnamed, deep**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Xerorthents**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Slopes less than 30 percent**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Saurin**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Henneke**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

**Tocaloma**

*Percent of map unit:* 1 percent
*Hydric soil rating:* No

## 145—Maymen-Maymen variant gravelly loams, 30 to 75 percent slopes

**Map Unit Setting**

*National map unit symbol:* hf2k
*Elevation:* 500 to 2,500 feet
*Mean annual precipitation:* 36 to 52 inches

*Mean annual air temperature:* 52 to 59 degrees F
*Frost-free period:* 250 to 300 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Maymen and similar soils:* 50 percent
*Maymen variant and similar soils:* 20 percent
*Minor components:* 28 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Maymen**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 12 inches:* gravelly loam
*H2 - 12 to 16 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 75 percent
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC039CA - STEEP SHALLOW COARSE LOAMY
*Hydric soil rating:* No

**Description of Maymen Variant**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 4 inches:* gravelly loam
*H2 - 4 to 37 inches:* gravelly clay
*H3 - 37 to 41 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 75 percent
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock
*Drainage class:* Well drained
*Runoff class:* Very high
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC039CA - STEEP SHALLOW COARSE LOAMY
*Hydric soil rating:* No

## Minor Components

**Centissima**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Dipsea**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Unnamed, shallow**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Henneke**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Rock outcrop**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, gravelly**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Tocaloma**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes less than 30 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 163—Saurin-Bonnydoon complex, 30 to 50 percent slopes

### Map Unit Setting

*National map unit symbol:* hf34
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 25 to 40 inches
*Mean annual air temperature:* 57 to 63 degrees F
*Frost-free period:* 270 to 320 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Saurin and similar soils:* 50 percent
*Bonnydoon and similar soils:* 40 percent
*Minor components:* 8 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Saurin

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 10 inches:* clay loam
*H2 - 10 to 33 inches:* clay loam
*H3 - 33 to 37 inches:* bedrock

#### Properties and qualities

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* C

*Ecological site:* R015XC034CA - LOAMY
*Hydric soil rating:* No

**Description of Bonnydoon**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 11 inches:* gravelly loam
*H2 - 11 to 15 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC037CA - SHALLOW GRAVELLY LOAM
*Hydric soil rating:* No

**Minor Components**

**Tocaloma**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, shallow**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Los osos**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, dark surface**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 164—Saurin-Bonnydoon complex, 50 to 75 percent slopes

### Map Unit Setting

*National map unit symbol:* hf35
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 25 to 40 inches
*Mean annual air temperature:* 57 to 63 degrees F
*Frost-free period:* 270 to 320 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Saurin and similar soils:* 50 percent
*Bonnydoon and similar soils:* 40 percent
*Minor components:* 8 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Saurin

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 10 inches:* clay loam
*H2 - 10 to 33 inches:* clay loam
*H3 - 33 to 37 inches:* bedrock

#### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* C
*Ecological site:* R015XC034CA - LOAMY
*Hydric soil rating:* No

## Description of Bonnydoon

### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

### Typical profile

*H1 - 0 to 11 inches:* gravelly loam
*H2 - 11 to 15 inches:* bedrock

### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 10 to 20 inches to paralithic bedrock
*Drainage class:* Somewhat excessively drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 1.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R015XC037CA - SHALLOW GRAVELLY LOAM
*Hydric soil rating:* No

## Minor Components

### Tocaloma

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

### Los osos

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

### Unnamed, dark surface

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

### Unnamed, shallow

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 179—Tocaloma-McMullin complex, 30 to 50 percent slopes

### Map Unit Setting

*National map unit symbol:* hf3n
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 30 to 40 inches
*Mean annual air temperature:* 55 to 61 degrees F
*Frost-free period:* 290 to 330 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Tocaloma and similar soils:* 40 percent
*Mcmullin and similar soils:* 35 percent
*Minor components:* 19 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tocaloma

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

#### Properties and qualities

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

### Description of Mcmullin

#### Setting

*Landform:* Hills, hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from conglomerate

#### Typical profile

*H1 - 0 to 4 inches:* gravelly loam
*H2 - 4 to 18 inches:* gravelly loam
*H3 - 18 to 22 inches:* bedrock

#### Properties and qualities

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 12 to 20 inches to lithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

### Minor Components

#### Unnamed, shallow

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Saurin

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Unnamed, dark surface

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

#### Los osos

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

#### Rock outcrop

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 180—Tocaloma-McMullin complex, 50 to 75 slopes

### Map Unit Setting

*National map unit symbol:* hf3p
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 30 to 40 inches
*Mean annual air temperature:* 55 to 61 degrees F
*Frost-free period:* 290 to 330 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Tocaloma and similar soils:* 40 percent
*Mcmullin and similar soils:* 35 percent
*Minor components:* 18 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tocaloma

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

#### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Description of Mcmullin

### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from conglomerate

### Typical profile

*H1 - 0 to 4 inches:* gravelly loam
*H2 - 4 to 18 inches:* gravelly loam
*H3 - 18 to 22 inches:* bedrock

### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 12 to 20 inches to lithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Minor Components

### Saurin

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Bonnydoon

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Rock outcrop

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

### Maymen

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

### Unnamed, deep

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, shallow**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 181—Tocaloma-McMullin-Urban land complex, 15 to 30 percent slopes

### Map Unit Setting
*National map unit symbol:* hf3q
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 30 to 40 inches
*Mean annual air temperature:* 55 to 63 degrees F
*Frost-free period:* 290 to 330 days
*Farmland classification:* Not prime farmland

### Map Unit Composition
*Tocaloma and similar soils:* 30 percent
*Mcmullin and similar soils:* 25 percent
*Urban land:* 25 percent
*Minor components:* 12 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tocaloma

#### Setting
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile
*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

#### Properties and qualities
*Slope:* 15 to 30 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups
*Land capability classification (irrigated):* 4e

*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

### Description of Mcmullin

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from conglomerate

#### Typical profile

*H1 - 0 to 4 inches:* gravelly loam
*H2 - 4 to 18 inches:* gravelly loam
*H3 - 18 to 22 inches:* bedrock

#### Properties and qualities

*Slope:* 15 to 30 percent
*Depth to restrictive feature:* 12 to 20 inches to lithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

### Description of Urban Land

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

#### Interpretive groups

*Land capability classification (irrigated):* 8
*Land capability classification (nonirrigated):* 8
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

**Minor Components**

**Xerorthents**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Dipsea**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes less than 15 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes more than 30 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Saurin**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, shallow**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 182—Tocaloma-McMullin-Urban land complex, 30 to 50 percent slopes

**Map Unit Setting**
*National map unit symbol:* hf3r
*Elevation:* 10 to 1,500 feet
*Mean annual precipitation:* 25 to 40 inches
*Mean annual air temperature:* 55 to 64 degrees F
*Frost-free period:* 250 to 330 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**
*Tocaloma and similar soils:* 40 percent
*Mcmullin and similar soils:* 20 percent
*Urban land:* 20 percent
*Minor components:* 12 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tocaloma**

**Setting**
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex

*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 4e
*Land capability classification (nonirrigated):* 4e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Description of Mcmullin

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from conglomerate

**Typical profile**

*H1 - 0 to 4 inches:* gravelly loam
*H2 - 4 to 18 inches:* gravelly loam
*H3 - 18 to 22 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 12 to 20 inches to lithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Very low (about 2.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e

*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* D
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

**Description of Urban Land**

**Setting**
*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

**Interpretive groups**
*Land capability classification (irrigated):* 8
*Land capability classification (nonirrigated):* 8
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

**Minor Components**

**Dipsea**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, shallow**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes less than 30 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes more than 50 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Saurin**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Xerorthents**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

## 184—Tocaloma-Saurin association, very steep

**Map Unit Setting**
*National map unit symbol:* hf3t
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 30 to 40 inches
*Mean annual air temperature:* 55 to 63 degrees F
*Frost-free period:* 290 to 330 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Tocaloma and similar soils:* 40 percent
*Saurin and similar soils:* 30 percent
*Minor components:* 26 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tocaloma**

**Setting**

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

**Description of Saurin**

**Setting**

*Landform:* Hills, hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex, concave
*Parent material:* Residuum weathered from sandstone and shale

**Typical profile**

*H1 - 0 to 10 inches:* clay loam

*H2 - 10 to 33 inches:* clay loam
*H3 - 33 to 37 inches:* bedrock

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* 6e
*Land capability classification (nonirrigated):* 6e
*Hydrologic Soil Group:* C
*Ecological site:* R015XC034CA - LOAMY
*Hydric soil rating:* No

## Minor Components

**Bonnydoon**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Los osos**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Mcmullin**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Montara**

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

**Unnamed, light colored soils**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, gravelly soils**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed**

*Percent of map unit:* 2 percent
*Landform:* Depressions
*Hydric soil rating:* Yes

## 185—Tocaloma-Saurin association, extremely steep

### Map Unit Setting

*National map unit symbol:* hf3v
*Elevation:* 50 to 1,500 feet
*Mean annual precipitation:* 30 to 40 inches
*Mean annual air temperature:* 55 to 63 degrees F
*Frost-free period:* 290 to 330 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Tocaloma and similar soils:* 40 percent
*Saurin and similar soils:* 30 percent
*Minor components:* 23 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Tocaloma

#### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Concave
*Parent material:* Residuum weathered from sandstone and shale

#### Typical profile

*H1 - 0 to 19 inches:* loam
*H2 - 19 to 39 inches:* very gravelly loam
*H3 - 39 to 43 inches:* bedrock

#### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* Medium
*Capacity of the most limiting layer to transmit water (Ksat):* High (1.98 to 5.95 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 4.3 inches)

#### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* B
*Ecological site:* R015XY009CA - Hills 20-40"ppt
*Hydric soil rating:* No

## Description of Saurin

### Setting

*Landform:* Hills
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Residuum weathered from sandstone and shale

### Typical profile

*H1 - 0 to 10 inches:* clay loam
*H2 - 10 to 33 inches:* clay loam
*H3 - 33 to 37 inches:* bedrock

### Properties and qualities

*Slope:* 50 to 75 percent
*Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
*Drainage class:* Well drained
*Runoff class:* High
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 6.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* 7e
*Land capability classification (nonirrigated):* 7e
*Hydrologic Soil Group:* C
*Ecological site:* R015XC034CA - LOAMY
*Hydric soil rating:* No

## Minor Components

### Mcmullin

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Bonnydoon

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Unnamed, gravelly soils

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Rock outcrop

*Percent of map unit:* 5 percent
*Hydric soil rating:* No

### Unnamed, shallow

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed**

*Percent of map unit:* 1 percent
*Landform:* Depressions
*Hydric soil rating:* Yes

## 203—Xerorthents, fill

**Map Unit Setting**

*National map unit symbol:* hf4f
*Elevation:* 0 to 480 feet
*Mean annual precipitation:* 29 to 35 inches
*Mean annual air temperature:* 57 to 59 degrees F
*Frost-free period:* 345 to 365 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Xerorthents and similar soils:* 100 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Xerorthents**

**Setting**

*Landform:* Valley floors, tidal flats
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope, tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Earth spread deposits derived from igneous, metamorphic and sedimentary rock

**Properties and qualities**

*Slope:* 0 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

**Interpretive groups**

*Land capability classification (irrigated):* 8s
*Land capability classification (nonirrigated):* 8s
*Ecological site:* R015XY003CA - Loamy Bottom
*Hydric soil rating:* No

## 204—Xerorthents-Urban land complex, 0 to 9 percent slopes

**Map Unit Setting**

*National map unit symbol:* hf4g
*Elevation:* 0 to 500 feet
*Mean annual precipitation:* 20 to 30 inches
*Mean annual air temperature:* 55 to 63 degrees F

*Frost-free period:* 270 to 350 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Xerorthents and similar soils:* 45 percent
*Urban land:* 40 percent
*Minor components:* 14 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Xerorthents**

**Setting**

*Landform:* Valley floors, tidal flats
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Base slope, tread
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Earth spread deposits

**Properties and qualities**

*Slope:* 0 to 9 percent
*Depth to restrictive feature:* More than 80 inches
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

**Interpretive groups**

*Land capability classification (irrigated):* 8s
*Land capability classification (nonirrigated):* 8s
*Ecological site:* R015XY003CA - Loamy Bottom
*Hydric soil rating:* No

**Description of Urban Land**

**Setting**

*Landform:* Valley floors, tidal flats
*Landform position (two-dimensional):* Backslope

**Interpretive groups**

*Land capability classification (irrigated):* 8
*Land capability classification (nonirrigated):* 8
*Ecological site:* R015XY003CA - Loamy Bottom
*Hydric soil rating:* No

**Minor Components**

**Ballard**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Blucher**

*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Cole**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Unnamed, briefly flooded soils**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Slopes more than 9 percent**
*Percent of map unit:* 2 percent
*Hydric soil rating:* No

**Hydraquents**
*Percent of map unit:* 2 percent
*Landform:* Tidal flats
*Landform position (two-dimensional):* Backslope
*Hydric soil rating:* Yes

**Reyes**
*Percent of map unit:* 1 percent
*Landform:* Salt marshes
*Landform position (two-dimensional):* Backslope
*Hydric soil rating:* Yes

**Novato**
*Percent of map unit:* 1 percent
*Landform:* Salt marshes
*Landform position (two-dimensional):* Backslope
*Hydric soil rating:* Yes

## Data Source Information

Soil Survey Area: Marin County, California
Survey Area Data: Version 15, Sep 9, 2021

# Attachment F: CEQA Findings and Mitigation, Monitoring, and Reporting Program

# Project-Specific CEQA Findings and Statement of Overriding Considerations

## 1.1 Introduction

The Marin Wildfire Prevention Authority (MWPA), referred to herein as the "Project Proponent," [1] in the exercise of its independent judgment, makes and adopts the following findings regarding its decision to approve the Greater Ross Valley Shaded Fuel Break (GRVSFB) Project[2] (Project ID 2022-05), referred to herein as "vegetation treatment project" or "proposed project" within the scope of the California Vegetation Treatment Program (CalVTP). The MWPA is serving as the Project Proponent due to its role as the agency providing initial planning and implementation funding for this vegetation treatment project. Implementation of the vegetation treatment project will be managed by Central Marin Fire Department (Central Marin Fire) and associated fire agencies. The MWPA is a joint powers authority created for the purpose of funding, planning, and implementing wildfire risk reduction activities in cooperation with its 17 member agencies; Central Marin Fire is one such member agency. This document has been prepared in accordance with the California Environmental Quality Act (Pub. Resources Code, Sections 21000 et seq.) (CEQA) and the CEQA Guidelines (Cal. Code Regs., Tit. 14, Sections 15000 et seq.).

## 1.2 Statutory Requirements for Findings

Public Resources Code section 21002 provides that "public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects[.]" The same section provides that the procedures required by CEQA "are intended to assist public agencies in systematically identifying both the significant effects of projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects" (Pub. Resources Code, Section 21002.). Section 21002 goes on to provide that "in the event [that] specific economic, social, or other conditions make infeasible such project alternatives or such

[1] For the purposes of implementing the CalVTP, a project proponent is a public agency that provides funding for vegetation treatment or has land ownership, land management, or other regulatory responsibility in the treatable landscape and is seeking to fund, authorize, or implement vegetation treatments consistent with the CalVTP. If through the Project Specific Analysis (PSA) a project proponent determines that a proposed project is within the scope of the CalVTP PEIR, then the project proponent would act as a responsible agency pursuant to CEQA. A regulatory agency seeking to use the CalVTP PEIR to issue any secondary approval or permit for vegetation treatments would also be a responsible agency.

[2] A small area of the fuel break is on lands managed by the Marin Municipal Water District (MMWD). The fuel break in these areas is managed under MMWD's existing programs and EIR and not part of the proposed project for which findings will be adopted.

mitigation measures, individual projects may be approved in spite of one or more significant effects thereof."

The mandate and principles announced in Public Resources Code section 21002 are implemented, in part, through the requirement that agencies must adopt findings before approving projects for which EIRs are required (See Pub. Resources Code, Section 21081, subd. (a); CEQA Guidelines, Section 15091, subd. (a).). For each significant environmental effect identified in an EIR for a project, the approving agency must issue a written finding reaching one or more of three permissible conclusions:

1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
3. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

(CEQA Guidelines, Section 15091, subd. (a); Pub. Resources Code, Section 21081, subd. (a).) Public Resources Code section 21061.1 defines "feasible" to mean "capable of being accomplished in a successful manner within a reasonable period, taking into account economic, environmental, social, legal, and technological factors." (See also *Citizens of Goleta Valley v. Bd. of Supervisors* (1990) 52 Cal.3d 553, 565.)

With respect to a project for which significant impacts are not avoided or substantially lessened, a public agency, after adopting proper findings, may nevertheless approve the project if the agency first adopts a Statement of Overriding Considerations setting forth the specific reasons why the agency found that the project's "benefits" rendered "acceptable" its "unavoidable adverse environmental effects." (CEQA Guidelines, Sections 15093, 15043, subd. (b); see also Pub. Resources Code, Section 21081, subd. (b).) The California Board of Forestry and Fire Protection (the Board of Forestry) adopted Findings and a Statement of Overriding Considerations on December 30, 2019.

Here, as explained in the Board of Forestry's Findings and the Draft Program Environmental Impact Report (Draft PEIR) and the Final PEIR (collectively, the "PEIR"), the CalVTP would result in significant and unavoidable environmental effects to the following: Aesthetics; Air Quality; Archaeological, Historical, and Tribal Cultural Resources; Biological Resources; Greenhouse Gas Emissions; Transportation; and Public Services, Utilities, and Service Systems. For reasons set forth in the Board of Forestry's Statement of Overriding Considerations, however, the Board of Forestry determined that overriding economic, social, and other considerations outweigh the significant, unavoidable effects of the CalVTP.

As noted in the CalVTP PEIR, when a responsible agency approves a vegetation treatment project within the scope finding for all environmental impacts, it must adopt its own CEQA findings pursuant to Section 15091 of the State CEQA Guidelines, and if needed, a statement of overriding considerations, pursuant to Section 15093 of the State CEQA Guidelines (See CEQA Guidelines section 15096(h).). According to case law, a responsible agency's findings need only address environmental impacts "within the scope of the responsible agency's jurisdiction" (*Riverwatch v. Olivenhain Municipal Water District* (2009) 170 Cal.App.4th 1186, 1202.). Although each responsible agency must adopt its own findings, such agencies have the option of reusing, incorporating, or adapting all or part of the findings adopted by the Board of Forestry for the CalVTP PEIR to meet the agency's own requirements to the extent the findings are applicable to the proposed vegetation treatment project. The following document sets forth the required findings for an agency's project-specific approval that relies on and implements the CalVTP PEIR.

The Project Proponent adopts these findings to document its exercise of its independent judgment regarding the potential environmental effects analyzed in the PEIR and to document its reasoning for approving the vegetation treatment project under the CalVTP PEIR despite these effects.

## 1.3 Background and Project Description

The Central Marin Fire Department (Central Marin Fire) has collaborated with the Ross Valley Fire Department, Kentfield Fire Protection District, and Marin County Fire Department, and is proposing the project. The goal of the proposed project is to create and maintain a continuous reduced-fuel and forest-health-restoration zone around the communities in Central Marin. The overall GRVSFB project will involve conducting vegetation management activities to create an approximately 38-mile-long continuous shaded fuel break within a 1,379-acre area. Wildland Urban Interface (WUI) fuel reduction areas up to 497 acres adjacent to the fuel break may also be treated.

The GRVSFB project will be implemented on private and public lands within Marin County, City of Larkspur, City of Mill Valley, Town of Fairfax, Town of Ross, Town of Corte Madera, Town of San Anselmo, and Kentfield as well as on lands managed by the Marin County Open Space District (MCOSD)/Marin County Parks. A small area of the fuel break is on lands managed by the Marin Municipal Water District (MMWD). The fuel break on the MMWD lands is managed under MMWD's existing programs and EIR.

The GRVSFB project is within a State Responsibility Area (SRA) for 911 acres of land for which Marin County Fire Department is contracted to conduct fire protection services by the California Department of Forestry and Fire Prevention (CAL FIRE). The remaining 967 acres fall within the Local Responsibility Area (LRA) serviced by Central Marin Fire, Kentfield Fire District, the Ross Valley Fire Department, and Marin County Fire Department; however, the same types of vegetation communities are found in the LRA areas as the SRA areas and are

often contiguous to the SRA areas. Within the GRVSFB project area, 936 acres are within the treatable landscape and 940 acres are outside of the modeled treatable landscape. The areas outside the treatable landscape are being analyzed against the CalVTP PEIR through an addendum, as well as the use of air curtain burning as an additional, potential means of biomass disposal, which was not addressed directly in the CalVTP PEIR.

### 1.3.1 Proposed Treatments

The proposed project is broken up according to prioritized segments and land ownership, which are shown in Table 1. The proposed CalVTP treatments for both initial and maintenance treatments are listed in Table 2.

**Table 1 Project Segments by Land Ownership and Size**

| Project segments | Land manager | Acres | Total acres | Estimated schedule for initial treatments[a] |
|---|---|---|---|---|
| 1 | private | 102.3 | 150 | July 2022 through January 2023 |
| | Marin County Open Space District | 47.7 | | |
| 2 | private | 132.5 | 149 | July 2022 through January 2023 |
| | Marin County Open Space District | 16.5 | | |
| 3 | private | 103 | 108 | July 2023 through January 2024 |
| | Marin County Open Space District | 5.1 | | |
| 4 | private | 68.0 | 121 | July 2023 through January 2024 |
| | Marin County Open Space District | 52.4 | | |
| | Ross, Town of | 0.9 | | |
| 5 | private | 141.9 | 169 | July 2024 through January 2025 |
| | Marin County Open Space District | 26.0 | | |
| 6 | private | 107 | 143 | July 2024 through January 2025 |
| | Marin County Open Space District | 26.0 | | |
| | San Anselmo, City of | 8.6 | | |
| | Marin County Parks Department, County of | 0.4 | | |
| 7 | Marin County Open Space District | 87.1 | 150 | July 2025 through January 2026 |

| Project segments | Land manager | Acres | Total acres | Estimated schedule for initial treatments[a] |
|---|---|---|---|---|
| | private | 58.2 | | |
| | Larkspur, City of | 4.7 | | |
| 8 | Marin County Open Space District | 49.2 | 117 | July 2025 through January 2026 |
| | The Nature Conservancy | 28.8 | | |
| | private | 24.3 | | |
| | Corte Madera, Town of | 9.5 | | |
| | Tiburon, Town of | 4.2 | | |
| 9 | private | 121 | 139 | July 2026 through January 2027 |
| | Marin County Open Space District | 14.2 | | |
| | Ross, Town of | 4.1 | | |
| 10 | private | 38.4 | 40 | July 2026 through January 2027 |
| | Marin County Open Space District | 1.6 | | |
| 11 | private | 28 | 28 | |
| WUI fuel reduction area | private | 478.1 | 492 | |
| | Marin County Open Space District | 9.5 | | |
| | San Anselmo, City of | 4.8 | | |
| | Corte Madera, Town of | 0.1 | | |
| **Total CalVTP proposed project** | **private** | **1,405** | **1,806** | |
| | **public** | **401** | | |
| | Marin Municipal Water District[b] | 70.2 | | |
| **Total GRVSFB project** | **private** | **1,405** | **1,876** | |
| | **public** | **471** | | |

Notes:

Numbers may not add due to rounding.

[a] Timing may change based on funding sources, resource availability, and changing conditions. More segments may be completed sooner should grant funding be available. Maintenance of earlier segments may overlap initial treatments on later segments.

| Project segments | Land manager | Acres | Total acres | Estimated schedule for initial treatments[a] |
|---|---|---|---|---|

[b] 4.8 acres are within the WUI fuel reduction area instead of the fuelbreak.

**Table 2 Proposed CalVTP Project Initial Treatments**

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| Shaded fuel break | creation of a continuous fuelbreak approximately 200 feet, but up to 300 feet, in width, including thinning of understory and invasive species removal | manual treatments | 1,083, up to 1,299[a] | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring outside the nesting season, from August through January each year |
| | | ground-based mechanical treatments | 15 | skid steers or tractors with mounted masticators, or mowers; ride mowers | |
| | | prescribed herbivory | An estimated up to 325 acres may also be treated with prescribed herbivory | livestock; goats, sheep, cattle, horses | as needed |
| | | herbicide | Targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 1,314 acres) | herbicide and applicator materials | as needed |
| | | pile burn | As needed with material removed within the entire fuel break area (up to 1,314 acres) | drip torch | as needed |
| Wildland-urban interface (WUI) fuel reduction area | fuel reduction in open spaces to reduce wildfire hazards | manual treatments | 426, up to 484 | chainsaws, pole pruners, loppers, and string trimmers | phased over 5 years, with work generally occurring |

| CalVTP treatment type | Treatment description | CalVTP treatment activity | Treatment size (acres) max | Equipment used for treatments | Timing of initial treatments |
|---|---|---|---|---|---|
| | | ground-based mechanical treatments | 8 | skid steers or tractors with mounted masticators, or mowers; and ride mowers | outside the nesting season, from August through January each year |
| | | prescribed herbivory | An estimated up to 121 acres may also be treated with prescribed herbivory | livestock; goats, sheep, cattle, horses | as needed |
| | | herbicide | Targeted spot treatment as needed before, during, or after other treatments within the entire shaded fuel break area, where allowed per local regulation (within up to 492 acres) | herbicide and applicator materials | as needed |
| | | pile burn | As needed with material removed within the entire fuel break area (up to 492 acres) | drip torch | as needed |
| **Total acres** | | | **1,587, up to 1,806** | | |

Notes:

[a] Includes 232 acres of areas that were determined through modeling to be too steep or have too low of canopy cover. Treatment in these areas, however, is not precluded if the fire agency determines through site inspections that treatment is necessary and possible.

## 1.3.2 Initial Treatments

### Treatment Types

#### Fuel Break

The proposed project includes development and maintenance of a continuous reduced-fuel and forest-health-restoration zone within the typically 200-foot-wide fuelbreak around structures in the WUI at the periphery of communities adjacent to undeveloped open spaces. Portions of the fuelbreak may extend up to 300 feet from structures or may be less than 200 feet, based on topography, site conditions, and land management constraints. Within the portion of the fuelbreak typically 100 to 150 feet from structures, as determined appropriate by fire professionals and based on site conditions, treatments may include higher intensity fuel reduction typical of defensible space, with a focus on vertical and horizontal spacing in addition to removal of invasive species and dead and dying vegetation, if required by local fire codes or ordinances. Beyond 100 to 150 feet from structures, generally vegetation treatments will be lower intensity, focused primarily on removal of invasive and non-native, fire hazardous vegetation, removal of dead and dying vegetation, and limbing of native trees to mimic conditions that might exist in a natural environment where natural fires were allowed to occur.

In forested areas, the treatment will result in a shaded fuel break with retention of tree canopy and thinning of understory branches and vegetation. In grasslands, vegetation will generally remain, but encroaching shrubs and trees may be limbed, thinned, or removed. Refer to the treatment prescriptions by cover type in this section for more information.

#### Wildland-Urban Interface Fuel Reduction

The project area also includes fuel reduction within several extended areas of open space within the WUI that are located between the fuel break and structures. These areas are not part of the fuel break but could be treated to further increase wildland fire protections. Vegetation will be thinned to reduce density and fuel loads in these areas.

### Treatment Methods

#### Overview

Fuel treatment methods vary depending on cover type, condition of vegetation, topography, costs, and efficiency and in conformance with landowner/manager requirements. The primary treatment methods or activities that may be implemented include manual treatments, ground-based mechanical treatment, prescribed herbivory, and targeted herbicide application (CalVTP PEIR Section 2.5.2).

#### Manual Treatment

Manual treatments include use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous woody species and remove dead woody vegetation and low-lying shrubs and common coyote brush. These treatments are typically used where access for larger equipment is not feasible. Invasive species removal can be performed manually (or mechanically). Equipment and tools that could be used include chainsaws, pole pruners, loppers, and string trimmers.

**Ground-Based Mechanical Treatment**
Motorized equipment will be used to cut, uproot, crush/compact, or chop existing vegetation on slopes generally less than 35 percent, or over 35 percent for limited distances or with special equipment. The equipment and tools that could be used include skid steers or tractors with mounted masticators, mowers, and ride mowers.

**Prescribed Herbivory**
Prescribed herbivory will be used to reduce fuel loads, typically in shrubland and forest understory, but grasslands as well, and may be used as a pretreatment before implementation of other methods. Livestock will primarily consist of goats but, under the CalVTP, could also include horses, cattle, and sheep. Prescribed herbivory may require the installation of temporary fencing where natural barriers are not present and temporary water facilities and other infrastructure (e.g., tanks, corrals, fences) as well as the deployment of guard animals and/or a shepherd.

Goats are often used for targeted reduction of fine fuels such as grasses and herbaceous vegetation. Goat grazing will involve transporting a herd of goats to the designated prescribed herbivory sites. Site preparation will involve installation of a portable electric fence to contain the goats, powered by a battery charged by a generator or solar panels and water trough. The herder will determine the area to be grazed based on site conditions; it will typically range from 1 to 2 acres but can be up to 5 acres at one time for goats or a much larger area (larger than 5 acres) for other types of livestock, such as sheep or cattle.

**Herbicide Application**
Herbicides will be used in a targeted manner as stump and spot spray treatments to kill or prevent regrowth of invasive and non-native species such as broom and eucalyptus. The proposed project will use herbicides as part of an integrated pest management approach with other methods of invasive species eradication. Herbicides will be applied in adherence to all United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (CalEPA) regulations and in such a way to prevent over drift. Only target plant species will be affected. Herbicides will only be used as allowable based on local regulations (e.g., City of Fairfax Municipal Code Chapter 8.52).

### Biomass Disposal

**Overview**
Project debris will generally be processed through chipping and hauling, chipping, and broadcasting, or burning through pile burns or use of an air curtain burner or similar equipment. The cut vegetation materials may be processed in a variety of ways if off-hauled, including but not limited to use in pyrolysis-biomass conversion or enhanced composting. Approximately 20 to 30 cubic yards of material could be off-hauled from a single treatment area for processing each workday.

**Chipping**
An All-Terrain Vehicle (ATV) and tracked towable chipper may be used to process cut vegetative materials. The vegetative material will be fed through the chipper and broadcast at treatment areas or hauled away for processing. Chipped material spread on site will be chipped to under 3 inches in size will be applied 2 to 4 inches in depth at most to minimize wildfire risk. Vegetative material, if removed, will be hauled to Marin Sanitary or another appropriate biomass processing facility.

**Pile Burning**[3]
Cut material may be pile burned, depending upon access and the conditions of the treatment area. Suitable treatment areas are typically flat or gentle slopes and have open areas away from tree canopies and power lines. Areas selected will be those away from waterways. Piles will generally be 4 feet in diameter and 4 feet in height. Multiple piles may be burned on a single day. Pile burning will be conducted in compliance with CAL FIRE and Bay Area Air Quality Management District (BAAQMD) Regulation 5 for open burning and burn day restrictions.

**Air Curtain Burning**
Air curtain burning may be used as an alternative to pile burning for sites with higher fuel loading and more woody material and where access to a road or parking lot is available. An air curtain burner places a high velocity curtain of air over a defined burn chamber, which would be conducted in a well-conceived aboveground structure with refractory walls as part of the proposed project. When air curtain burning, the rising particulates or smoke particles (also referred to as "black carbon") from burning the wood waste hit the curtain of air, are bounced back down, and reburn to the area just below, which is usually the hottest area in the burn box and referred to as the "secondary burn chamber." The particles remaining that are light enough to penetrate the air curtain and rise outside of it are limited to gaseous emissions consisting mostly of water vapor and (biogenic) carbon dioxide. The result is a cleaner, nearly smokeless burn as well as a much faster burn, as some of the air curtain's volume is decisively directed in the burn chamber, over-oxygenating the fire and thereby accelerating it. The burner would be staged on parking lots or roads. The air curtain burner would typically only be run when a backstock of at least 2 days' worth of debris would be available to burn. While the CalVTP PEIR does not explicitly address air curtain burning, the methodology is similar enough to, but is less impactful than pile burning, which is covered under the CalVTP PEIR. On this account, air curtain burning is being added as a potential biomass processing tool for the project area through the addendum.

### 1.3.3 Maintenance Treatments
The condition of the treatment areas after treatment will be monitored annually. Maintenance in grasslands or areas where initial treatments were less intense could occur annually.

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[3] In the CalVTP PEIR, pile burning is one of the two categories of burning under the treatment activity referred to as "prescribed burning". Throughout the PSA analysis, the term "pile burning" is used for clarity. No broadcast burning is proposed.

Maintenance will occur every 3 to 5 years in woodlands, forests, and chaparral and annually in grasslands. Areas with broom are anticipated to be treated every 1 to 3 years, depending upon the condition of the sites. Subsequent treatments are anticipated to be the same as the proposed project activities but are subject to change depending on the site's condition and response to initial treatment.

## 1.4 Environmental Review Process

The Project Proponent followed the evaluation and reporting process outlined in the PSA and required under the CalVTP. The proposed project includes areas outside the CalVTP "treatable landscape," as well as one method, air curtain burning, that was not directly addressed. Under the CalVTP, areas outside the treatable landscape can be analyzed against the PEIR through an addendum if the types of vegetation are covered already, the types of treatment methods are covered, and no new or substantially greater impacts will occur. Similarly, new methods can be included if they result in no new or substantially greater impacts. The Project Proponent, therefore, also prepared an addendum to the CalVTP PEIR (Addendum) for the inclusion of the additional 939 acres outside of the modeled treatable landscape and air curtain burning as a potential method of biomass processing.

On March 16, 2022, updated on April 21, 2022, the Project Proponent submitted the required information to CAL FIRE regarding this project when it began preparing the PSA and Addendum. The submittal included:

- GIS data that included project location (as a point);
- project size;
- planned treatment types and activities; and
- contact information for a representative of the project proponent.

Upon adoption of these findings and approval of the project, the Project Proponent will submit this completed PSA and Addendum and associated geospatial data to CAL FIRE at the time a Notice of Determination is filed. The submittal will include the following:

- The completed PSA Environmental Checklist and Addendum;
- The completed Mitigation Monitoring and Reporting Program;
- GIS data that include:
  - a polygon(s) of the project area, showing the extent of each treatment type included in the project (ecological restoration, fuel break, WUI fuel reduction)

As required under the CalVTP, the Project Proponent will submit the following information annually to CAL FIRE after implementation of each phase of treatment:

- GIS data that include a polygon(s) of the treated area, showing the extent of each treatment type implemented (ecological restoration, fuel break, WUI fuel reduction)

- A post-project implementation report for each phase (referred to by CAL FIRE as a Completion Report) that includes
  - Size of treated area (typically acres);
  - Treatment types and activities;
  - Dates of work;
  - A list of the SPRs and mitigation measures that were implemented; and
  - Any explanations regarding implementation, if required by SPRs and mitigation measures (e.g., explanation for feasibility determination required by SPR BIO-12; explanation for reduction of a no-disturbance buffer below the general minimum size described in Mitigation Measures BIO-1a and BIO-2b.)

## 1.5 Record of Proceedings

In accordance with Public Resources Code Section 21167, subdivision (e), the record of proceedings for the Project Proponent's decision to approve the vegetation treatment project under the CalVTP includes the following documents at a minimum:

- The certified Final PEIR for the CalVTP, including the Draft PEIR, responses to comments on the Draft PEIR, and appendices;
- All recommendations and findings adopted by the Board of Forestry in connection with the CalVTP and all documents cited or referred to therein;
- All reports, studies, memoranda, maps, staff reports, or other planning documents relating to the treatment project prepared by the Project Proponent, consultants to the Project Proponent, or responsible or trustee agencies with respect to the Project Proponent's compliance with the requirements of CEQA and with respect to the Project Proponent's action on the CalVTP;
- Matters of common knowledge to the Project Proponent, including but not limited to federal, state, and local laws and regulations;
- Any documents expressly cited in these findings, in addition to those cited above; and
- Any other materials required for the record of proceedings by Public Resources Code section 21167.6, subdivision (e).

Pursuant to CEQA Guidelines section 15091, subdivision (e), the documents constituting the record of proceedings are available for review during normal business hours at 28 Liberty Ship Way, Ste 2800, Sausalito, CA 94965. The custodian of these documents is Anne Crealock, MWPA Planning and Program Manager.

## 1.6 Mitigation Monitoring and Reporting Program

A Mitigation Monitoring and Reporting Program (MMRP) was adopted by the Board of Forestry for the CalVTP, and the applicable mitigation measures for this treatment project have been identified in the PSA and Addendum. The Project Proponent will use the PSA MMRP to

track compliance with the CalVTP mitigation measures. The MMRP will remain available for public review during the compliance period. The Final MMRP is attached to and is approved in conjunction with the approval of the treatment project and adoption of these Findings.

## 1.7 Findings for Determinations of Less than Significant

The Project Proponent has reviewed and considered the information in the Final PEIR for the CalVTP addressing potential environmental effects, proposed mitigation measures, and alternatives. The Project Proponent, relying on the facts and analysis in the Final PEIR and the treatment project PSA and Addendum, which were presented to the MWPA Board and reviewed and considered prior to any approvals, concurs with the conclusions of the Final PEIR and the treatment project PSA and Addendum regarding the potential environmental effects of the CalVTP and the treatment project. Additionally, some of the environmental impacts predicted by the CalVTP PEIR to be significant and unavoidable or less than significant after mitigation may be determined in a PSA to be less severe for an individual treatment project than determined in the statewide PEIR. Those impacts found to be less than significant for the GRVSFB project have also been included here. The Project Proponent also finds that no new or more severe impacts will occur as a result of performing treatments in areas outside the "treatable landscape" considered in the CalVTP PEIR nor from the potential use of air curtain burning as a biomass disposal method.

The Project Proponent concurs with the conclusions in the Final PEIR and treatment project PSA that all the following impacts will have a less than significant or no impact:

### 1.7.1 Aesthetics and Visual Resources

- Impact AES-1: Result in short-term, substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a state scenic highway from treatment activities
- Impact AES-2: Result in long-term, substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a State scenic highway from WUI fuel reduction, ecological restoration, or shaded fuel break treatment types
- Impact AES-3: Result in long-term substantial degradation of a scenic vista or visual character or quality of public views, or damage to scenic resources in a state scenic highway from the non-shaded fuel break treatment type

### 1.7.2 Agricultural and Forestry Resources

- Impact AG-1: Directly result in the loss of forest land or conversion of forest land to a non-forest use or involve other changes in the existing environment which, due to their location or nature, could result in conversion of forest land to non-forest use

### 1.7.3 Air Quality

- Impact AQ-2: Expose people to diesel particulate matter emissions and related health risk
- Impact AQ-3: Expose people to fugitive dust emissions containing naturally occurring asbestos and related health risk
- Impact AQ-5: Expose people to objectionable odors from diesel exhaust

### 1.7.4 Archaeological, Historical, and Tribal Cultural Resources

- Impact CUL-1: Cause a substantial adverse change in the significance of built historical resources
- Impact CUL-3: Cause a substantial adverse change in the significance of a tribal cultural resource
- Impact CUL-4: Disturb human remains

### 1.7.5 Biological Resources

- Impact BIO-6: Substantially reduce habitat or abundance of common wildlife
- Impact BIO-7: Conflict with Local Policies or Ordinances Protecting Biological Resources
- Impact BIO-8: Conflict with the Provisions of an Adopted Natural Community Conservation Plan, Habitat Conservation Plan, or Other Approved Habitat Plan

### 1.7.6 Geology, Soils, and Mineral Resources

- Impact GEO-1: Result in Substantial Erosion or Loss of Topsoil
- Impact GEO-2: Increase Risk of Landslide

### 1.7.7 Greenhouse Gas Emissions

- Impact GHG-1: Conflict with applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

### 1.7.8 Energy Resources

- Impact ENG-1: result in wasteful, inefficient, or unnecessary consumption of energy

### 1.7.9 Hazardous Materials, Public Health, and Safety

- Impact HAZ-1: Create a significant health hazard from the use of hazardous materials
- Impact HAZ-2: Create a significant health hazard from the use of herbicides

### 1.7.10 Hydrology and Water Quality

- Impact HYD-1: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct

the implementation of a water quality control plan through the implementation of prescribed burning
- Impact HYD-2: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through the implementation of manual or mechanical treatment activities
- Impact HYD-3: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through prescribed herbivory
- Impact HYD-4: Violate water quality standards or waste discharge requirements, substantially degrade surface or ground water quality, or conflict with or obstruct the implementation of a water quality control plan through the ground application of herbicides
- Impact HYD-5: Substantially alter the existing drainage pattern of a treatment site or area

### 1.7.11 Land Use and Planning, Population and Housing
- Impact LU-1: Cause a significant environmental impact due to a conflict with a land use plan, policy, or regulation
- Impact LU-2: Induce substantial unplanned population growth

### 1.7.12 Noise
- Impact NOI-1: Result in a substantial short-term increase in exterior ambient noise levels during treatment implementation
- Impact NOI-2: Result in a substantial short-term increase in truck-generated SENLs during treatment activities

### 1.7.13 Recreation
- Impact REC-1: Directly or indirectly disrupt recreational activities within designated recreation areas

### 1.7.14 Transportation
- Impact TRAN-1: Result in temporary traffic operations impacts by conflicting with a program, plan, ordinance, or policy addressing roadway facilities or prolonged road closures
- Impact TRAN-2: Substantially increase hazards due to a design feature or incompatible uses

### 1.7.15 Public Services, Utilities, and Service Systems
- Impact UTIL-1: Result in physical impacts associated with provision of sufficient water supplies, including related infrastructure needs

- Impact UTIL-2: Generate Solid Waste in Excess of State Standards or Exceed Local Infrastructure Capacity
- Impact UTIL-3: Comply with federal, state, and local management and reduction goals, statutes, and regulations related to solid waste

### 1.7.16 Wildfire

- Impact WIL-1: Substantially exacerbate fire risk and expose people to uncontrolled spread of a wildfire
- Impact WIL-2: Expose people or structures to substantial risks related to post-fire flooding or landslides

### 1.7.17 Cumulative

- Aesthetics and Visual Resources
- Agriculture and Forestry Resources
- Archaeological, Historical and Tribal Cultural Resources
- Biological Resources
- Geology, Soils, Paleontology, and Mineral Resources
- Greenhouse Gas Emissions
- Energy Resources
- Hazardous Materials, Public Health and Safety
- Hydrology and Water Quality
- Land Use and Planning & Population and Housing
- Noise
- Recreation
- Transportation
- Public Services, Utilities and Service Systems
- Wildfire

## 1.8 Significant Effects and Mitigation Measures

The PEIR identified several significant and potentially significant environmental effects (or impacts) that the CalVTP will contribute to or cause. The Board of Forestry determined that some of these significant effects can be fully avoided through the application of feasible mitigation measures. Other effects, however, cannot be avoided by the adoption of feasible mitigation measures or alternatives and thus will be significant and unavoidable. For reasons set forth in Section 1.11 of the Board of Forestry's Findings and Statement of Overriding Considerations, however, the Board of Forestry determined that overriding economic, social, and other considerations outweigh the significant, unavoidable effects of the CalVTP.

The Board of Forestry adopted the findings required by CEQA for all direct and indirect significant impacts. The findings provided a summary description of each impact, described the applicable mitigation measures identified in the PEIR and adopted by the Board of Forestry, and stated the Board of Forestry's findings on the significance of each impact after imposition of

the adopted mitigation measures. A full explanation of these environmental findings and conclusions can be found in the Final PEIR; and the Board of Forestry incorporated by reference into its findings the discussion in those documents supporting the Final PEIR's determinations. In making those findings, the Board of Forestry ratified, adopted, and incorporated into the findings the analyses and explanations in the Draft PEIR and Final PEIR relating to environmental impacts and mitigation measures, except to the extent any such determinations and conclusions were specifically and expressly modified by the findings.

Not every individual treatment project will have all the significant environmental impacts that the CalVTP was determined to contribute to or cause. Additionally, some of the environmental impacts predicted by the CalVTP PEIR to be significant and unavoidable or less than significant after mitigation may be determined in a PSA to be less severe for an individual treatment project than determined in the statewide PEIR. The impacts and mitigation measures identified in Sections 1.9 below reflect the conclusions of the PSA and Addendum by indicating which of the CalVTP's impacts that this treatment project will contribute to or cause. By indicating the project-specific effects of this treatment project as follows, the Project Proponent's decisionmaker or decision-making body is hereby making the required findings under CEQA regarding the application or feasibility of mitigation measures to reduce those impacts.

## 1.9 Finding for Impact Mitigated to Less than Significant

The Project Proponent finds that changes or alterations have been required in, or incorporated into, the treatment project that avoid or substantially lessen the significant environmental effects indicated below, as identified in the Final PEIR and the PSA and Addendum. Implementation of the mitigation measures indicated below to be applicable to the treatment project, which have been required or incorporated into the project, will reduce these impacts to a less than significant level. The Project Proponent hereby directs that these mitigation measures be adopted.

### 1.9.1 Archaeological, Historical, and Tribal Cultural Resources

- Impact CUL-2: Cause a substantial adverse change in the significance of unique archaeological resources or subsurface historical resources
  - Mitigation Measure CUL-2: Protect Inadvertent Discoveries of Unique Archaeological Resources or Subsurface Historical Resources

### 1.9.2 Biological Resources

- Impact BIO-1: Substantially affect special-status plant species either directly or through habitat modifications
  - Mitigation Measure BIO-1a: Avoid Loss of Special-Status Plants Listed under ESA or CESA
  - Mitigation Measure BIO-1b: Avoid Loss of Special-Status Plants Not Listed Under ESA or CESA

- Impact BIO-2: Substantially affect special-status wildlife species either directly or through habitat modifications
  - Mitigation Measure BIO-2a: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Listed Wildlife Species and California Fully Protected Species (All Treatment Activities)
  - Mitigation Measure BIO-2b: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Other Special-Status Wildlife Species (All Treatment Activities)
- Impact BIO-3: Substantially affect riparian habitat or other sensitive natural community through direct loss or degradation that leads to loss of habitat function
  - Mitigation Measure BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands
- Impact BIO-4: Substantially affect state or federally protected wetlands
  - Mitigation Measure BIO-4: Avoid State and Federally Protected Wetlands
- Impact BIO-5: Interfere substantially with wildlife movement corridors or impede use of nurseries
  - Mitigation Measure BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites

### 1.9.3 Hazardous Materials, Public Health, and Safety

- Impact HAZ-3: Expose the public or environment to significant hazards from disturbance to known hazardous material sites
  - Mitigation Measure HAZ-3: Identify and Avoid Known Hazardous Waste Sites

### 1.9.4 Transportation

- Impact TRAN-3: Result in a net increase in VMT for the proposed CALVTP
  - Mitigation Measure AQ-1: Implement On-Road Vehicle and Off-Road Equipment Exhaust Emission Reduction Techniques

## 1.10 Findings for Significant and Unavoidable Impacts

The CalVTP PEIR determined that some impacts of the program would be significant and unavoidable, even after implementation of all feasible mitigation. The Project Proponent finds that the treatment project will contribute to or be within the scope of the following significant and unavoidable impacts identified in the CalVTP as indicated. Incorporating and implementing the following mitigation measures indicated to be applicable to the treatment project will reduce the severity of these impacts, but not necessarily to a less-than-significant level. The Project Proponent hereby directs that these mitigation measures be adopted. The Project Proponent therefore finds that changes or alterations have been required in, or incorporated into, the treatment project that will substantially lessen, but not avoid, the potentially significant environmental effect as identified in the PEIR and PSA.

The Project Proponent finds that there are no feasible mitigation measures beyond the mitigation measures indicated below to reduce these impacts. These impacts could remain significant and unavoidable for the proposed project, within the scope of the analysis of the CalVTP PEIR, but some or all the impacts identified for the CalVTP might also be fully mitigated by the required mitigation measures due to the reduced scale of the proposed project as compared to the statewide scale of the CalVTP. The Project Proponent concludes, however, that even though the proposed project may have some or all the same significant and unavoidable impacts of the CalVTP, the benefits of the CalVTP and this vegetation treatment project outweigh the potentially significant unavoidable impacts of the Program and treatment project, as set forth in the Board of Forestry's Statement of Overriding Considerations and the Project Proponent's own Statement of Overriding Considerations.

### 1.10.1 Air Quality

- Impact AQ-1: Generate emissions of criteria air pollutants and precursors during treatment activities that would exceed CAAQS or NAAQS
  - Mitigation Measure AQ-1: Implement On-Road Vehicle and Off-Road Equipment Exhaust Emission Reduction Techniques

Implementation of Mitigation Measure AQ-1 was required or incorporated into the CalVTP by the Board of Forestry to reduce the severity of this impact but may not reduce it to a less-than-significant level. Emission reduction techniques included Mitigation Measure AQ-1 will be included for the Project Proponent to the extent feasible, however, for the same reasons explained in the PEIR, this impact will remain within the scope of the PEIR's determination that the impact is potentially significant and unavoidable given the uncertainty of whether renewable diesel fuel or electric and gas-powered equipment would be available at any specific time during the implementation of the proposed project, as well as uncertainties with the associated emission reductions.

The Project Proponent incorporated all feasible and applicable measures to prevent and minimize this potential impact, pursuant to SPRs AQ-1 and AQ-6, and Mitigation Measure AQ-1. The Project Proponent finds that fully mitigating this impact is potentially not feasible due to the size and scope of the proposed project and the uncertainty about the availability of reduced emission equipment for use during the entire project implementation; there are no feasible mitigation measures to further reduce this impact. This impact will remain within the scope of the PEIR's determination that the impact is potentially significant and unavoidable. The Project Proponent concludes, however, that the benefits of the CalVTP and vegetation treatment project outweigh the significant unavoidable impacts of the Program and treatment project, as set forth in the Statement of Overriding Considerations. The Project Proponent therefore finds that changes or alterations have been required in, or incorporated into, the proposed project that will substantially lessen, but not avoid, the significant environmental effect as identified in the PEIR.

- Impact AQ-4: Expose people to toxic air contaminants emitted by prescribed burns and related health risk
  - No feasible mitigation is available.

The Project Proponent incorporated all feasible measures to prevent and minimize this potential impact pursuant to SPR AQ-2 and SPR AQ-6, and SPR AQ-4. The Project Proponent found that fully mitigating this impact is not feasible; there are no feasible mitigation measures to reduce this impact. This impact will remain within the scope of the PEIR's determination that the impact is potentially significant and unavoidable. The Project Proponent concludes, however, that the benefits of the CalVTP and vegetation treatment project outweigh the significant unavoidable impacts of the Program and vegetation treatment project, as set forth in the Statement of Overriding Considerations. The Project Proponent therefore finds that changes or alterations have been required in, or incorporated into, the proposed project that will substantially lessen, but not avoid, the significant environmental effect as identified in the PEIR.

- Impact AQ-6: Expose people to objectionable odors from smoke during prescribed burning
  - No feasible mitigation is available.

The Project Proponent has incorporated all feasible measures to prevent and minimize this potential impact pursuant to SPR AQ-2, SPR AQ-6, and SPR AQ-4. The Project Proponent finds that fully mitigating this impact is not feasible; there are no feasible mitigation measures to reduce this impact. This impact will remain within the scope of the PEIR's determination that the impact is potentially significant and unavoidable. The Project Proponent concludes, however, that the benefits of the CalVTP and vegetation treatment project outweigh the significant and unavoidable impacts of the Program and vegetation treatment, as set forth in the Statement of Overriding Considerations. The Project Proponent therefore finds that changes or alterations have been required in, or incorporated into, the proposed project that will substantially lessen, but not avoid, the significant environmental effect as identified in the PEIR.

### 1.10.2 Greenhouse Gas Emissions

- Impact GHG-2: Generate GHG emissions through treatment activities
  - Mitigation Measure GHG-2: Implement GHG Emission Reduction Techniques During Prescribed Burns

Implementation of Mitigation Measure GHG-2 was required or incorporated into the CalVTP by the Board of Forestry to reduce the severity of this impact, but not to a less-than-significant level. MM GHG-2 will be implemented for the GRVSFB and will reduce GHG emissions associated with pile burning by burning when fuels have a higher fuel moisture content, reducing the total area burned by mosaic burning and isolating and leaving large fuels unburned and by scheduling burns before new fuels appear. Treatment activities will contribute to annual GHG emissions generated under the CalVTP, and this impact will fall within the finding of the PEIR of potentially significant and unavoidable. Methods for reducing GHG emissions from pile and air curtain burning will be integrated into SPR AQ-3 (Burn Plan) as described in MM GHG-2. Other measures could include the purchase and retirement of carbon credits to offset the one-time GHG emissions directly associated with the proposed project; however, this approach would consume financial resources needed to achieve wildfire risk

reduction objectives. No other feasible and effective mitigation exists that would reduce this impact to a less-than-significant level without compromising the effectiveness of the proposed project.

The Project Proponent finds that mitigating this impact is not feasible; there are no feasible mitigation measures to reduce this impact. This impact will remain within the scope of the PEIR's determination that the impact is significant and unavoidable. The Project Proponent concludes, however, that the benefits of the CalVTP and vegetation treatment project outweigh the significant unavoidable impacts of the Program and treatment project, as set forth in the Statement of Overriding Considerations, below. The Project Proponent therefore find that changes or alterations have been required in, or incorporated into, the proposed project that will substantially lessen, but not avoid, the significant environmental effect as identified in the PEIR.

### 1.10.3 Cumulative

- Air Quality
  - Impact AQ-1: Generate emissions of criteria air pollutants and precursors during treatment activities that would exceed CAAQS or NAAQS
  - Impact AQ-4: Expose people to toxic air contaminants emitted by prescribed burns and related health risk
  - Impact AQ-6: Expose people to objectionable odors from smoke during prescribed burning

The Project Proponent has incorporated all feasible measures to prevent and minimize the potential contribution to a cumulative impact pursuant to SPRs and mitigation measures. The Project Proponent finds that fully mitigating the project's contribution to the cumulative impact is not feasible; there are no feasible mitigation measures to reduce this impact. The impacts will remain potentially significant and unavoidable. The Project Proponent concludes, however, that the benefits of the CalVTP and vegetation treatment project outweigh the significant and unavoidable impacts of the Program and vegetation treatment, as set forth in the Statement of Overriding Considerations. The Project Proponent therefore finds that changes or alterations have been required in, or incorporated into, the proposed project that will substantially lessen, but not avoid, the significant environmental effect as identified in the PEIR.

## 1.11 Statement of Overriding Considerations

As set forth in the Board of Forestry's adopted Findings, the Board of Forestry determined that the CalVTP will result in significant adverse environmental effects that cannot be avoided even with the adoption of all feasible mitigation measures, and there are no feasible project alternatives that would mitigate or substantially lessen the impacts. Despite these effects, however, the Board of Forestry, in accordance with CEQA Guidelines Section 15093, chose to approve the CalVTP because, in its view, the benefits to life, property, and other resources, and the other benefits of the CalVTP, will render the significant effects acceptable.

In the Board of Forestry's judgment, the CalVTP and its benefits outweigh its unavoidable significant effects. The Board of Forestry's Findings were based on substantial evidence in the record. The Board of Forestry's Statement of Overriding Considerations identified the specific reasons why, in the Board of Forestry's judgment, the benefits of the CalVTP as approved outweigh its unavoidable significant effects.

Exercising its independent judgment and review, the Project Proponent (the MWPA) concurs that the benefits of the CalVTP and the treatment project outweigh the significant environmental effects and hereby incorporates by reference and adopts the Board of Forestry's Statement of Overriding Considerations for the CalVTP.

Any one of the reasons listed in the Statement of Overriding Considerations is sufficient to justify approval of the treatment project. Thus, even if a court were to conclude that not every reason is supported by substantial evidence, the Project Proponent will stand by its determination that each individual reason is sufficient. The substantial evidence supporting the various benefits can be found in the preceding findings, which are incorporated by reference into this section, and the documents found in the Record of Proceedings, which are described and defined in Section 5, above.

- The CalVTP will reduce dire risks to life, property, and natural resources in California.
- The CalVTP reflects the most current and commonly accepted science and conditions in California and allows for adaptation in response to potential evolution and changes in science and conditions.
- The CalVTP reflects the Board of Forestry's and CAL FIRE's goals. The CalVTP will help the Board of Forestry and CAL FIRE achieve their central goals for reducing and preventing the impacts of fire in the state, as outlined in the *2018 Strategic Fire Plan for California*. The CalVTP will help to establish a natural environment that is more resilient and built assets that are more resistant to the occurrence and effects of wildland fire.
- The CalVTP will help implement Executive Orders, including:
  - EO B-42-17: Governor Brown's order issued to bolster the state's response to unprecedented tree die-off through further expediting removal of millions of dead and dying trees across the state;
  - EO B-52-18: Governor Brown's order to improve forest management and restoration, provide regulatory relief, and reduce barriers for prescribed fire; and
  - EO N-05-19: Governor Newsom's order directing CAL FIRE to recommend immediate-, medium-, and long-term actions to help prevent destructive wildfires.
- The Board of Forestry is required by law to comply with SB 1260, signed into law by Governor Brown in February 2018, which improves California forest management practices to reduce the risk of wildfire in light of the changing climate

and includes provisions for the CalVTP PEIR to serve as the programmatic CEQA coverage for prescribed burns within the SRA. The CalVTP will bring the Board of Forestry into compliance with these requirements.

- The Board of Forestry is required by law to comply with SB 632, signed into law by Governor Newsom in October 2019, which requires the Board of Forestry to certify a Final PEIR, pursuant to CEQA, for the vegetation treatment program filed with the State Clearinghouse under Number 2019012052 in January 2019. The CalVTP will bring the Board of Forestry into compliance with this requirement.
- The CalVTP will help to meet California's GHG emission goals consistent with the California Forest Carbon Plan, California's 2017 Climate Change Scoping Plan, Fire on the Mountain: Rethinking Forest Management in the Sierra Nevada, and California 2030 Natural and Working Lands Climate Change Implementation Plan.

# Mitigation Monitoring and Reporting Program

## Introduction

The California Environmental Quality Act (CEQA) and the State CEQA Guidelines (PRC Section 21081.6 and State CEQA Guidelines Sections 15091[d] and 15097) require public agencies "to adopt a reporting and monitoring program for changes to the project which it has adopted or made a condition of project approval to mitigate or avoid significant effects on the environment." A Mitigation Monitoring and Reporting Program (MMRP) is required for approval of the proposed project because the PSA/Addendum identifies potential significant adverse impacts, Standard Project Requirements (SPRs) that are incorporated into the program description to avoid and minimize adverse effects, and all feasible mitigation measures (MMs) that have been adopted. Where potentially significant impacts remain after application of SPRs, MMs have been identified to further reduce and/or compensate for those impacts. While only mitigation measures are required to be covered in an MMRP, both SPRs and MMs are included in the CalVTP MMRP to assist in implementation of all environmental protection features of later activities consistent with the CalVTP PEIR. In addition to the SPRs and MMs, MWPA has developed specific Project Design and Implementation Features (PDIFs) adapted from several source documents that will be incorporated as applicable into the project design and implementation for each of its projects.

## Purpose of Mitigation Monitoring and Reporting Program

This MMRP has been prepared to monitor the implementation of SPRs and mitigation measures in connection with the approval of the CalVTP PEIR and its use by project proponents. The attached tables present the text of each SPR and MM, the timing of its planned implementation, the implementing entity, and the entity with monitoring responsibility. The numbering of SPRs and MMs follows the numbering used in the CalVTP PEIR. SPRs and mitigation measures that are referenced more than once in the PSA/Addendum are not duplicated in the MMRP.

## Roles and Responsibilities

Unless otherwise specified herein, the Project Proponent (Marin Wildfire Prevention Authority [MWPA]) is responsible for verifying and monitoring implementation of the mitigation measures within its jurisdiction according to the specifications provided for each measure and for demonstrating that the action has been successfully completed, pursuant to Section 15097 of the State CEQA Guidelines. Implementation of the vegetation treatment project will be

managed by Central Marin Fire Department (Central Marin Fire) and associated fire agencies. Central Marin Fire and their contractors will implement the mitigation measures.

The Project Proponent is responsible for overall administration of the project-specific MMRP and for verifying that staff members, associated fire agencies, or contractors have completed the necessary actions for each measure (i.e., appropriate amendments to the proposed ordinance).

## Reporting

The Project Proponent will document and describe the compliance of the proposed project with the required SPRs and mitigation measures either by adapting the project-specific MMRP table or preparing a separate post-project implementation report.

## Mitigation Monitoring and Reporting Program Table

The categories identified in the attached MMRP table are described below.

**Applicable.** The SPRs or MMs from the CalVTP PEIR and listed below in Table 1 and Table 2 are applicable to the initial treatment and/or maintenance of the proposed project. The PDIFs that meet an SPR are shown as replacing the SPR. Where an SPR is identified as more stringent than the PDIFs, this is noted next to the SPR. The PDIFs that do not have a corresponding SPR are also shown in this MMRP for ease of implementation and monitoring. These PDIFs are not needed to address any new impacts but are a standard part of MWPA Core Projects. A yes/no (Y/N) is placed next to the initial treatment and treatment maintenance to indicate if it is applicable to that stage of treatment. MMs and SPRs not applicable to initial or maintenance treatments for the proposed project were removed from the tables.

**Timing.** This column identifies the time frame in which the SPR, PDIF, or mitigation measure will be implemented (e.g., prior to treatment, during treatment, etc.) (Table 1 and Table 2).

**Implementing Entity.** The implementing entity is the agency or organization responsible for carrying out the requirement. Fire Agency, Contractor, Fire Agency & Contractor, or MWPA is indicated in this column to identify which entity will be the responsible party (Table 1 and Table 2). The fire departments included with in the category of Fire Agency include Kentfield Fire District, Ross Valley Fire Department, Central Marin Fire Department, and Marin County Fire Department. In the future MWPA may manage implementation of portions of the proposed project, but at this time it is assumed that the fire agencies are managing implementation.

**Verifying/Monitoring Entity.** The verifying/monitoring entity is the agency or organization responsible for ensuring that the requirement is implemented. The verifying/monitoring entity may be different from the implementing entity. See Table 1 and Table 2.

## Standard Project Requirements/Project Design and Implementation Features

**Table 1 Standard Project Requirements/Project Design and Implementation Features Applicable to the Greater Ross Valley Shaded Fuel Break Project**

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Administrative** | | | | |
| **SPR AD-3 Consistency with Local Plans, Policies, and Ordinances:** The project proponent will design and implement the treatment in a manner that is consistent with applicable local plans (e.g., general plans, Community Wildfire Protection Plans, CAL FIRE Unit Fire Plans), policies, and ordinances to the extent the project is subject to them. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency | MWPA |
| **SPR AD-4 Public Notifications for Prescribed Burning:** At least days prior to the commencement of prescribed burning operations, the project proponent will: 1) post signs along the closest public roadway to the treatment area describing the activity and timing, and requesting persons in the area to contact a designated representative of the project proponent (contact information will be provided with the notice) if they have questions or smoke concerns; 2) publish a public interest notification in a local newspapers or other widely distributed media source describing the activity, timing, and contact information; 3) send the local county supervisor and county administrative officer (or equivalent official responsible for distribution of public information) a notification letter describing the activity, its necessity, timing, and measures being taken to protect the environment and prevent prescribed burn escape. This SPR applies only to prescribed burn treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **Aesthetic and Visual Resource** | | | | |
| **SPR AES-1 Vegetation Thinning and Edge Feathering:** The project proponent will thin and feather adjacent vegetation to break up or screen linear edges of the clearing and mimic forms of natural clearings as reasonable or appropriate for vegetation conditions. In general, thinning and feathering in | **Initial Treatment:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| irregular patches of varying densities, as well as a gradation of tall to short vegetation at the clearing edge, will achieve a natural transitional appearance. The contrast of a distinct clearing edge will be faded into this transitional band. This SPR only applies to mechanical and manual treatment activities and all treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR AES-2 Avoid Staging within Viewsheds:** The project proponent will store all treatment-related materials, including vehicles, vegetation treatment debris, and equipment, outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible. The project proponent will also locate materials staging and storage areas outside of the viewshed of public trails, parks, recreation areas, and roadways to the extent feasible. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **SPR AES-3 Provide Vegetation Screening:** The project proponent will preserve sufficient vegetation within, at the edge of, or adjacent to treatment areas to screen views from public trails, parks, recreation areas, and roadways as reasonable or appropriate for vegetation conditions. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |
| **Air Quality** | | | | |
| **SPR AQ-1 Comply with Air Quality Regulations:** The project proponent will comply with the applicable air quality requirements of air districts within whose jurisdiction the project is located. This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **SPR AQ-2 Submit Smoke Management Plan:** The project proponent will submit a smoke management plan for all prescribed burns to the applicable air district, in accordance with 17 CCR Section 80160. Pursuant to this regulation a smoke management plan will not be required for burns less than 10 acres that also will not be conducted near smoke sensitive areas, unless | **Initial Treatment: Y** | Prior | Fire Agency | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| otherwise directed by the air district. Burning will only be conducted in compliance with the burn authorization program of the applicable air district(s) having jurisdiction over the treatment area. Example of a smoke management plan is in Appendix PD-2. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR AQ-3 Create Burn Plan:** The project proponent will create a burn plan using the CAL FIRE burn plan template for all prescribed burns. The burn plan will include a fire behavior model output of First Order Fire Effects Model and BEHAVE or other fire behavior modeling simulation and that is performed by a qualified fire behavior technical specialist that predicts fire behavior, calculates consumption of fuels, tree mortality, predicted emissions, greenhouse gas emissions, and soil heating. The project proponent will minimize soil burn severity from broadcast burning to reduce the potential for runoff and soil erosion. The burn plan will be created with input from a qualified technician or certified State burn boss. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **SPR AQ-4 Minimize Dust:** To minimize dust during treatment activities, the project proponent will implement the following measures:<br>Limit the speed of vehicles and equipment traveling on unpaved areas to 15 miles per hour to reduce fugitive dust emissions, in accordance with the California Air Resources Board (CARB) Fugitive Dust protocol.<br>If road use creates excessive dust, the project proponent will wet appurtenant, unpaved, dirt roads using water trucks or treat roads with a non-toxic chemical dust suppressant (e.g., emulsion polymers, organic material) during dry, dusty conditions. Any dust suppressant product used will be environmentally benign (i.e., non-toxic to plants and will not negatively impact water quality) and its use will not be prohibited by ARB, EPA, or the State Water Resources Control Board (SWRCB). The project proponent will not over-water exposed areas such that the water results in runoff. The type of dust suppression method will be selected by the project | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| proponent based on soil, traffic, site-specific conditions, and air quality regulations.<br>Remove visible dust, silt, or mud tracked-out on to public paved roadways where sufficient water supplies and access to water is available. The project proponent will remove dust, silt, and mud from vehicles at the conclusion of each workday, or at a minimum of every 24 hours for continuous treatment activities, in accordance with Vehicle Code Section 23113.<br>Suspend ground-disturbing treatment activities, including land clearing and bulldozer lines, when there is visible dust transport (particulate pollution) outside the treatment boundary, if the particulate emissions may "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property," per Health and Safety Code Section 41700.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR AQ-5 Avoid Naturally Occurring Asbestos:** The project proponent will avoid ground-disturbing treatment activities in areas identified as likely to contain naturally occurring asbestos (NOA) per maps and guidance published by the California Geological Survey, unless an Asbestos Dust Control Plan (17 CCR Section 93105) is prepared and approved by the air district(s) with jurisdiction over the treatment area. Any NOA-related guidance provided by the applicable air district will be followed. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **SPR AQ-6: Prescribed Burn Safety Procedures:** Prescribed burns planned and managed by non-CAL FIRE crews will follow all safety procedures required of CAL FIRE crew, including the implementation of an approved Incident Action Plan (IAP). The IAP will include the burn dates; burn hours; weather limitations; the specific burn prescription; a communications plan; a medical plan; a traffic plan; and special instructions such as minimizing | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| smoke impacts to specific local roadways. The IAP will also assign responsibilities for coordination with the appropriate air district, such as conducting onsite briefings, posting notifications, weather monitoring during burning, and other burn related preparations. This SPR applies only to prescribed burning treatment activities and all treatment types, including treatment maintenance. | | | | |
| **Archaeological, Historical, and Tribal Cultural Resources** | | | | |
| **SPR CUL-1 Conduct Record Search:** An archaeological and historical resource record search will be conducted per the applicable state or local agency procedures. Instead of conducting a new search, the project proponent may use recent record searches containing the treatment area requested by a landowner or other public agency in accordance applicable agency guidance. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |
| **SPR CUL-2 Contact Geographically Affiliated Native American Tribes (more stringent than PDIF CUL-4, in combination with SPR CUL-6):** The project proponent will obtain the latest Native American Heritage Commission (NAHC) provided Native Americans Contact List. Using the appropriate Native Americans Contact List, the project proponent will notify the California Native American Tribes in the counties where the treatment activity is located. The notification will contain the following:<br>• A written description of the treatment location and boundaries.<br>• Brief narrative of the treatment objectives.<br>• A description of the activities used (e.g., prescribed burning, mastication) and associated acreages.<br>• A map of the treatment area at a sufficient scale to indicate the spatial extent of activities.<br>- A request for information regarding potential impacts to cultural resources from the proposed treatment.<br>• A detailed description of the depth of excavation, if ground disturbance is expected. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| In addition, the project proponent will contact the NAHC for a review of their Sacred Lands File. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF CUL-3 Cultural Resource Investigation (replaces SPR CUL-3 Pre-field Research):** Prior to implementation of vegetation management activities that have potential for intensive ground disturbance below the ground surface, significant heat from a burn, or use of heavy equipment off established roads and trails, a qualified archaeologist will conduct a records search and/or site-specific survey of the project areas where such disturbances could occur. Outreach with Graton Rancheria will be conducted as early as feasible to obtain information regarding culturally sensitive areas and/or the location of tribal cultural resources within the project areas. Any information provided by Graton Rancheria and/or tribal monitor(s) is confidential and exempt from public disclosure in accordance with statutory and regulatory requirements (Gov. Code § 6254(r), 6254.10; PRC § 5097.98(c); Cal. Code Regs. § 15120(d)). Records searches and field survey results will be shared with Graton Rancheria, as appropriate. Resources found during the records search, tribal outreach, and/or survey will be flagged for avoidance with an appropriate buffer identified by the qualified archaeologist, or the qualified archaeologist may identify modifications to the prescriptions using only hand tools or powered hand tools and access by foot with no ground disturbance, provided it would avoid all impacts to the resources. Any resource found during the site survey will be documented on California State Department of Parks and Recreation cultural resource record forms and a survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable state or local agency procedures. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |
| **SPR CUL-4 Archaeological Surveys:** The project proponent will coordinate with an archaeologically trained resource professional and/or qualified archaeologist to conduct a site-specific survey of the treatment area. The survey methodology (e.g., pedestrian survey, subsurface investigation) depends on whether the area has a low, moderate, or high sensitivity for | **Initial Treatment:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| resources, which is based on whether the records search, pre-field research, and/or Native American consultation identifies archaeological or historical resources near or within the treatment area. A survey report will be completed for every cultural resource survey completed. The specific requirements will comply with the applicable state or local agency procedures. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Treatment Maintenance:** N | | | |
| **PDIF CUL-2 Unanticipated Discovery (replaces SPR CUL-5 Treatment of Archaeological Resources):** In the event that a previously unidentified cultural resource is discovered during implementation of an activity all work within a minimum of 150 feet of the discovery will be halted. The resource will be located, identified, and recorded in the MWPA cultural resources GIS database.<br>The boundaries around the buffered resource will be temporarily marked, such as with fencing or flagging. A qualified archaeologist will inspect the discovery and determine whether further investigation is required. Data regarding archaeological resources will be kept confidential per law. As appropriate, the qualified archaeologist will inform Graton Rancheria's THPO of the discovery. If the discovery can be avoided and no further impacts will occur, the resource will be documented on California State Department of Parks and Recreation cultural resource record forms and no further effort will be required. If the project proponent wishes to continue work in the area, only work performed using hand tools or powered hand tools is allowed, work cannot include ground disturbance and the work area can only be accessed on foot as determined acceptable by the qualified cultural resource specialist/archaeologist.<br>Alternatively, the qualified archaeologist and/or THPO or tribal monitor will evaluate the resource and determine whether it is:<br>• Eligible for the CRHR (and a historical resource for purposes of CEQA),<br>• A unique archaeological resource as defined by CEQA, and/or<br>• A potential tribal cultural resource (all archaeological resources could be a tribal cultural resource). | **Initial Treatment: Y**<br><br>**Treatment Maintenance:** Y | Prior-During | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| If the resource is determined to be neither a unique archaeological, an historical resource, nor a potential tribal cultural resource, work may commence in the area.<br>If the resource meets the criteria for either a historical resource, unique archaeological resource, and/or tribal cultural resource, work will remain halted in the buffered area around the resource. No work will occur within the buffered area except those methods previously discussed as determined acceptable by the qualified archaeologist and/or THPO or tribal monitor. After work is completed, all cultural resource delineators (e.g., flags or fencing) will be removed in order to avoid potential vandalism, unauthorized excavation(s), etc. | | | | |
| **PDIF CUL-5 Cultural Resources Monitoring (not required by the CalVTP PEIR):** Based on the results of CUL-3 and -4, cultural resources monitoring may be conducted in order to avoid impacts to known resources. In addition to flagging the resource for avoidance (as described in CUL-2 or CUL-3) if monitoring is conducted, a qualified archaeologist will be present during ground disturbance work to ensure the known or previously unidentified resources are avoided and protected during project implementation, and if the resource is identified to be pre-contact archaeological and/or a tribal cultural resource, a tribal monitor will be invited to attend during the ground disturbance work. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | MWPA | MWPA |
| **SPR CUL-6 Treatment of Tribal Cultural Resources (more stringent than PDIF CUL-4, in combination with SPR CUL-2):** The project proponent, in consultation with the culturally affiliated tribe(s), will develop effective protection measures for important tribal cultural resources located within treatment areas. These measures may include adjusting the treatment location or design to entirely avoid cultural resource locations or changing treatment activities so that damaging effects to cultural resources will not occur. The project proponent will provide the tribe(s) the opportunity to submit comments and participate in consultation to resolve issues of concern. The project proponent will defer implementing the treatment until the tribe approves protection measures, or if agreement cannot be reached | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| after a good-faith effort, the proponent determines that any or all feasible measures have been implemented, where feasible, and the resource is either avoided or protected. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR CUL-7 Avoid Built Historical Resources:** If the records search identifies built historical resources, as defined in Section 15064.5 of the State CEQA Guidelines, the project proponent will avoid these resources. Within a buffer of 100 feet of the built historical resource, there will be no prescribed burning or mechanical treatment activities Buffers less than 100 feet for built historical resources will only be used after consultation with and receipt of written approval from a qualified archaeologist. If the records search does not identify known historical resources in the treatment area, but structures (i.e., buildings, bridges, roadways) over 50 years old that have not been evaluated for historic significance are present in the treatment area, they will similarly be avoided. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |
| **PDIF CUL-1 Training (replaces SPR CUL-8 Cultural Resource Training):** For all activities with the potential for ground disturbance (excluding prescribed herbivory, vegetation and tree trimming, and hand pulling smaller vegetation) all contractors and crew will receive training prepared by and/or conducted by a qualified archaeologist (who meets the U.S. Secretary of Interior's professional standards set forth in 48 FR Parts 44738-44739 and Appendix A to 36 CFR 61) prior to beginning work. The Tribal Heritage Preservation Officer(s) (THPO) from a local tribe (Federated Indians of Graton Rancheria [Graton Rancheria]) will be notified of the opportunity to attend and/or train crews. The training will address the potential for encountering subsurface cultural resources, recognizing basic signs of a potential resource, understanding required procedures if a potential resource is identified including reporting the resource to a qualified archaeologist and/or THPO, as appropriate, and understanding all procedures required under Health and Safety Code § 7050.5 and PRC §§ 5097.94, 5097.98, and 5097.99 for the discovery of human remains. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Biological Resources** | | | | |
| **SPR BIO-1: Review and Survey Project-Specific Biological Resources:** The project proponent will require a qualified RPF or biologist to conduct a data review and reconnaissance-level survey prior to treatment, no more than one year prior to the submittal of the PSA, and no more than one year between completion of the PSA and implementation of the treatment project. The data reviewed will include the biological resources setting, species and sensitive natural communities tables, and habitat information in this PEIR for the ecoregion(s) where the treatment will occur. It will also include review of the best available, current data for the area, including vegetation mapping data, species distribution/range information, CNDDB, California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California, relevant BIOS queries, and relevant general and regional plans. Reconnaissance-level biological surveys will be general surveys that include visual and auditory inspection for biological resources to help determine the environmental setting of a project site. The qualified surveyor will 1.) identify and document sensitive resources, such as riparian or other sensitive habitats, sensitive natural community, wetlands, or wildlife nursery site or habitat (including bird nests), and 2.) assess the suitability of habitat for special-status plant and animal species. The surveyor will also record any incidental wildlife observations. For each treatment project, habitat assessments will be completed at a time of year that is appropriate for identifying habitat and no more than one year prior to the submittal of the PSA, unless it can be demonstrated in the PSA that habitat assessments older than one year remain valid (e.g., site conditions are unchanged and no treatment activity has occurred since the assessment). If more than one year passes between completion of the PSA and initiation of the treatment project, the project proponent will verify the continued accuracy of the PSA prior to beginning the treatment project by reviewing for any data updates and/or visiting the site to verify conditions. Based on the results of the data review and reconnaissance-level survey, the project proponent, in consultation with a qualified RPF or biologist, will determine which one of the following best characterizes the treatment: | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| 1. **Suitable Habitat Is Present but Adverse Effects Can Be Clearly Avoided.** If, based on the data review and reconnaissance-level survey, the qualified RPF or biologist determines that suitable habitat for sensitive biological resources is present but adverse effects on the suitable habitat can clearly be avoided through one of the following methods, the avoidance mechanism will be implemented prior to initiating treatment and will remain in effect throughout the treatment:<br>a. by physically avoiding the suitable habitat, or<br>b. by conducting treatment outside of the season when a sensitive resource could be present within the suitable habitat or outside the season of sensitivity (e.g., outside of special-status bird nesting season, during dormant season of sensitive annual or geophytic plant species, or outside of maternity and rearing season at wildlife nursery sites).<br>Physical avoidance will include flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway) to delineate the boundary of the avoidance area around the suitable habitat. For physical avoidance, a buffer may be implemented as determined necessary by the qualified RPF or biologist.<br>2. **Suitable Habitat is Present and Adverse Effects Cannot Be Clearly Avoided.** Further review and surveys will be conducted to determine presence/absence of sensitive biological resources that may be affected, as described in the SPRs below. Further review may include contacting USFWS, NOAA Fisheries, CDFW, CNPS, or local resource agencies as necessary to determine the potential for special-status species or other sensitive biological resources to be affected by the treatment activity. Focused or protocol-level surveys will be conducted as necessary to determine presence/absence. If protocol surveys are conducted, survey procedures will adhere to methodologies approved by resource agencies and the scientific community, such as those that are available on the CDFW webpage at: https://www.wildlife.ca.gov/Conservation/Survey-Protocols. Specific survey requirements are addressed for each resource type in relevant | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| SPRs (e.g., additional survey requirements are presented for special-status plants in SPR BIO-7).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF ET-1 Environmental Training for Biological Resources (replaces SPR BIO-2: Require Biological Resource Training for Workers):** All crew members and contractors will receive training from a qualified registered professional forester (RPF) or biologist prior to beginning a treatment project where sensitive biological resources could occur in the work areas. The training will describe the appropriate work practices necessary to effectively implement the appropriate project design and implementation features and to comply with the applicable environmental laws and regulations. The training will include the identification, relevant life history information, and avoidance of potentially present special-status species with potential to occur; identification and avoidance of sensitive natural communities and habitats with the potential to occur in the treatment area; best management practices; and reporting requirements. As appropriate, the training will include protocols for work, such as specific trimming methods, where applicable. The training will instruct workers when it is appropriate to stop work and allow wildlife encountered during treatment activities to leave the area unharmed and when it is necessary to report encounters to a qualified RPF or biologist. The qualified RPF or biologist will immediately contact the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS), as appropriate, if any wildlife protected by the CE Species Act (CESA) or Federal Endangered Species Act (ESA) is encountered and cannot leave the site on its own (without being handled). | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | MWPA | MWPA |
| **Sensitive Natural Communities and Other Sensitive Habitats** | | | | |
| **SPR BIO-3: Survey Sensitive Natural Communities and Other Sensitive Habitats:** If SPR BIO-1 determines that sensitive natural communities or sensitive habitat may be present and adverse effects cannot be avoided, the project proponent will: | **Initial Treatment:** Y | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • require a qualified RPF or biologist to perform a protocol-level survey following the CDFW "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities" (current version dated March 20, 2018) of the treatment area prior to the start of treatment activities for sensitive natural communities and sensitive habitats. Sensitive natural communities will be identified using the best means possible, including keying them out using the most current edition of *A Manual of California Vegetation* (including updated natural communities data at http://vegetation.cnps.org/), or referring to relevant reports (e.g., reports found on the VegCAMP website).<br>• map and digitally record, using a Global Positioning System (GPS), the limits of any potential sensitive habitat and sensitive natural community identified in the treatment area.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR BIO-4: Design Treatment to Avoid Loss or Degradation of Riparian Habitat Function (more stringent than PDIF SH-1):** Project proponents, in consultation with a qualified RPF or qualified biologist, will design treatments in riparian habitats to retain or improve habitat functions by implementing the following within riparian habitats:<br>• Retain at least 75 percent of the overstory and 50 percent of the understory canopy of native riparian vegetation within the limits of riparian habitat identified and mapped during surveys conducted pursuant to SPR BIO-3. Native riparian vegetation will be retained in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of treatment activities.<br>• Treatments will be limited to removal of uncharacteristic fuel loads (e.g., removing dead or dying vegetation), trimming/limbing of woody species as necessary to reduce ladder fuels, and select thinning of vegetation to restore densities that are characteristic of healthy stands of the riparian vegetation types characteristic of the region. This includes hand removal | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| (or mechanized removal where topography allows) of dead or dying riparian trees and shrubs, invasive plant removal, selective thinning, and removal of encroaching upland species.<br>• Removal of large, native riparian hardwood trees (e.g., willow, ash, maple, oak, alder, sycamore, cottonwood) will be minimized to the extent feasible and 75 percent of the pretreatment native riparian hardwood tree canopy will be retained. Because tree size varies depending on vegetation type present and site conditions, the tree size retention parameter will be determined on a site-specific basis depending on vegetation type present and setting; however, live, healthy, native trees that are considered large for that type of tree and large relative to other trees in that location will be retained. A scientifically-based, project-specific explanation substantiating the retention size parameter for native riparian hardwood tree removal will be provided in the Biological Resources Discussion of the PSA. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, presence of sufficient seed trees, light availability, and changes in stream shading may inform the tree size retention requirements.<br>• Removed trees will be felled away from adjacent streams or waterbodies and piled outside of the riparian vegetation zone (unless there is an ecological reason to do otherwise that is approved by applicable regulatory agencies, such as adding large woody material to a stream to enhance fish habitat, e.g., see Accelerated Wood Recruitment and Timber Operations: Process Guidance from the California Timber Harvest Review Team Agencies and National Marine Fisheries Service).<br>• Vegetation removal that could reduce stream shading and increase stream temperatures will be avoided.<br>• Ground disturbance within riparian habitats will be limited to the minimum necessary to implement effective treatments. This will consist of the minimum disturbance area necessary to reduce hazardous fuels and return the riparian community to a natural fire regime (i.e., Condition | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| Class 1) considering historic fire return intervals, climate change, and land use constraints.<br>• Only hand application of herbicides approved for use in aquatic environments will be allowed and only during low-flow periods or when seasonal streams are dry.<br>• The project proponent will notify CDFW when required by California Fish and Game Code Section 1602 prior to implementing any treatment activities in riparian habitats. Notification will identify the treatment activities, map the vegetation to be removed, identify the impact avoidance identification methods to be used (e.g., flagging), and appropriate protections for the retention of shaded riverine habitat, including buffers and other applicable measures to prevent erosion into the waterway.<br>• In consideration of spatial variability of riparian vegetation types and condition and consistent with California Forest Practice Rules Section 916.9(v) (February 2019 version), a different set of vegetation retention standards and protection measures from those specified in the above bullets may be implemented on a site-specific basis if the qualified RPF and the project proponent demonstrate through substantial evidence that alternative design measures provide a more effective means of achieving the treatment goals objectives and would result in effects to the Beneficial Functions of Riparian Zones equal or more favorable than those expected to result from application of the above measures. Deviation from the above design specifications, different protection measures and design standards will only be approved when the treatment plan incorporates an evaluation of beneficial functions of the riparian habitat and with written concurrence from CDFW.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **SPR BIO-5: Avoid Environmental Effects of Type Conversion and Maintain Habitat Function in Chaparral and Coastal Sage Scrub (more stringent than PDIF IP-4):** The project proponent will design treatment activities to avoid | **Initial Treatment:** Y | Prior | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| type conversion where native coastal sage scrub and chaparral are present. An ecological definition of type conversion is used in the CalVTP PEIR for assessment of environmental effects: a change from a vegetation type dominated by native shrub species that are characteristic of chaparral and coastal sage scrub vegetation alliances to a vegetation type characterized predominantly by weedy herbaceous cover or annual grasslands. For the PEIR, type conversion is considered in terms of habitat function, which is defined here as the arrangement and capability of habitat features to provide refuge, food source, and reproduction habitat to plants and animals, and thereby contribute to the conservation of biological and genetic diversity and evolutionary processes (de Groot et al. 2002). Some modification of habitat characteristics may occur provided habitat function is maintained (i.e., the location, essential habitat features, and species supported are not substantially changed). During the reconnaissance-level survey required in SPR BIO-1, a qualified RPF or biologist will identify chaparral and coastal sage scrub vegetation to the alliance level and determine the condition class and fire return interval departure of the chaparral and/or coastal sage scrub present in each treatment area.<br>For all treatment types in chaparral and coastal sage scrub, the project proponent, in consultation with a qualified RPF or qualified biologist will:<br>• Develop a treatment design that avoids environmental effects of type conversion in chaparral and coastal sage scrub vegetation alliances, which will include evaluating and determining the appropriate spatial scale at which the proponent would consider type conversion, and substantiating its appropriateness. The project proponent will demonstrate with substantial evidence that the habitat function of chaparral and coastal sage scrub would be at least maintained within the identified spatial scale at which type conversion is evaluated for the specific treatment project. Consideration of factors such as site hydrology, erosion potential, suitability of wildlife habitat, spatial needs of sensitive species, presence of sufficient seed plants and nurse plants, light availability, and edge effects may inform the determination of an appropriate spatial scale. | **Treatment Maintenance:** Y | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • The treatment design will maintain a minimum percent cover of mature native shrubs within the treatment area to maintain habitat function; the appropriate percent cover will be identified by the project proponent in the development of treatment design and be specific to the vegetation alliances that are present in the identified spatial scale used to evaluate type conversion. Mature native shrubs that are retained will be distributed contiguously or in patches within the stand. If the stand consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity, to the extent needed to avoid type conversion.<br>These SPR requirements apply to all treatment activities and all treatment types, including treatment maintenance.<br>Additional measures will be applied to ecological restoration treatment types:<br>• For ecological restoration treatment types, complete removal of the mature shrub layer will not occur in native chaparral and coastal sage scrub vegetation types.<br>• Ecological restoration treatments will not be implemented in vegetation types that are within their natural fire return interval (i.e., time since last burn is less than the average time listed as the fire return interval range in Table 3.6-1) unless the project proponent demonstrates with substantial evidence that the habitat function of chaparral and coastal sage scrub would be improved.<br>• A minimum of 35 percent relative cover of existing shrubs and associated native vegetation will be retained at existing densities in patches distributed in a mosaic pattern within the treated area or the shrub canopy will be thinned by no more than 20 percent from baseline density (i.e., if baseline shrub canopy density is 60 percent, post treatment shrub canopy density will be no less than 40 percent). A different percent relative cover can be retained if the project proponent demonstrates with substantial evidence that alternative treatment design measures would result in effects on the habitat function of chaparral and coastal sage scrub that are equal or more favorable than | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| those expected to result from application of the above measures. Biological considerations that may inform a deviation from the minimum 35 percent relative cover retention include but are not limited to soil moisture requirements, increased soil temperatures, changes in light/shading, presence of sufficient seed plants and nurse plants, erosion potential, and site hydrology.<br>• If the stand within the treatment area consists of multiple age classes, patches representing a range of middle to old age classes will be retained to maintain and improve heterogeneity.<br>These SPR requirements apply to all treatment activities and only the ecosystem restoration treatment type, including treatment maintenance.<br>A determination of compliance with the SB 1260 prohibition of type conversion in chaparral and coastal sage scrub is a statutory issue separate from CEQA compliance that may involve factors additional to the ecological definition and habitat functions presented in the PEIR, such as geographic context. It is beyond the legal scope of the PEIR to define SB 1260 type conversion and statutory compliance. The project proponent, acting as lead agency for the proposed later treatment project, will be responsible for defining type conversion in the context of the project and making the finding that type conversion would not occur, as required by SB 1260. The project proponent will determine its criteria for defining and avoiding type conversion and, in making its findings, may draw upon information presented in this PEIR. | | | | |
| **SPR BIO-6: Prevent Spread of Plant Pathogens (more stringent than PDIF IP-1).** When working in sensitive natural communities, riparian habitats, or oak woodlands that are at risk from plant pathogens (e.g., lone chaparral, blue oak woodland), the project proponent will implement the following best management practices to prevent the spread of Phytopthora and other plant pathogens (e.g., pitch canker (Fusarium), goldspotted oak borer, shot hole borer, bark beetle): | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • clean and sanitize vehicles, equipment, tools, footwear, and clothes before arriving at a treatment site and when leaving a contaminated site, or a site in a county where contamination is a risk;<br>• include training on *Phytopthora* diseases and other plant pathogens in the worker awareness training;<br>• minimize soil disturbance as much as possible by limiting the number of vehicles, avoiding off-road travel as much as possible, and limiting use of mechanized equipment;<br>• minimize movement of soil and plant material within the site, especially between areas with high and low risk of contamination;<br>• clean soil and debris from equipment and sanitize hand tools, buckets, gloves, and footwear when moving from high risk to low risk areas or between widely separated portions of a treatment area; and<br>• follow the procedures listed in Guidance for plant pathogen prevention when working at contaminated restoration sites or with rare plants and sensitive habitat (Working Group for *Phytoptheras* in Native Habitats 2016).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Special-Status Plants** | | | | |
| **SPR BIO-7: Survey for Special-Status Plants (more stringent than PDIF ES-1).** If SPR BIO-1 determines that suitable habitat for special-status plant species is present and cannot be avoided, the project proponent will require a qualified RPF or botanist to conduct protocol-level surveys for special-status plant species with the potential to be affected by a treatment prior to initiation of the treatment. The survey will follow the methods in the current version of CDFW's "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities."<br>Surveys to determine the presence or absence of special-status plant species will be conducted in suitable habitat that could be affected by the treatment and timed to coincide with the blooming or other appropriate | **Initial Treatment:** Y<br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| phenological period of the target species (as determined by a qualified RPF or botanist), or all species in the same genus as the target species will be assumed to be special-status.<br>If potentially occurring special-status plants are listed under CESA or ESA, protocol-level surveys to determine presence/absence of the listed species will be conducted in all circumstances, unless determined otherwise by CDFW or USFWS.<br>For other special-status plants not listed under CESA or ESA, as defined in Section 3.6.1 of this PEIR, surveys will not be required under the following circumstances:<br>• If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity has occurred following the protocol-level survey, treatment may proceed without additional plant surveys.<br>• If the target special-status plant species is an herbaceous annual, stump-sprouting, or geophyte species, the treatment may be carried out during the dormant season for that species or when the species has completed its annual lifecycle without conducting presence/absence surveys provided the treatment will not alter habitat or destroy seeds, stumps, or roots, rhizomes, bulbs and other underground parts in a way that would make it unsuitable for the target species to reestablish following treatment.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **Invasive Plants and Wildlife** | | | | |
| **SPR BIO-9: Prevent Spread of Invasive Plants, Noxious Weeds, and Invasive Wildlife (more stringent than PDIF IP-2):** The project proponent will take the | **Initial Treatment:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| following actions to prevent the spread of invasive plants, noxious weeds, and invasive wildlife (e.g., New Zealand mudsnail):<br>• clean clothing, footwear, and equipment used during treatments of soil, seeds, vegetative matter, other debris or seed-bearing material, or water (e.g., rivers, streams, creeks, lakes) before entering the treatment area or when leaving an area with infestations of invasive plants, noxious weeds, or invasive wildlife;<br>• for all heavy equipment and vehicles traveling off road, pressure wash, if feasible, or otherwise appropriately decontaminate equipment at a designated weed-cleaning station prior to entering the treatment area from an area with infestations of invasive plants, noxious weeds, or invasive wildlife. Anti-fungal wash agents will be specified if the equipment has been exposed to any pathogen that could affect native species;<br>• inspect all heavy equipment, vehicles, tools, or other treatment-related materials for sand, mud, or other signs that weed seeds or propagules could be present prior to use in the treatment area. If the equipment is not clean, the qualified RPF or biological technician will deny entry to the work areas;<br>• stage equipment in areas free of invasive plant infestations unless there are no uninfested areas present within a reasonable proximity to the treatment area;<br>• identify significant infestations of invasive plant species (i.e., those rated as invasive by Cal-IPC or designated as noxious weeds by California Department of Food and Agriculture) during reconnaissance-level surveys and target them for removal during treatment activities. Treatment methods will be selected based on the invasive species present and may include herbicide application, manual or mechanical treatments, prescribed burning, and/or herbivory, and will be designed to maximize success in killing or removing the invasive plants and preventing reestablishment based on the life history characteristics of the invasive plant species present. Treatments will be focused on | **Treatment Maintenance:** Y | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| removing invasive plant species that cause ecological harm to native vegetation types, especially those that can alter fire cycles;<br>• treat invasive plant biomass onsite to eliminate seeds and propagules and prevent reestablishment or dispose of invasive plant biomass offsite at an appropriate waste collection facility (if not kept on site); transport invasive plant materials in a closed container or bag to prevent the spread of propagules during transport; and<br>• implement Fire and Fuel Management BMPs outlined in the "Preventing the Spread of Invasive Plants: Best Management Practices for Land Mangers" (Cal-IPC 2012, or current version).<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF IP-3 Treat Invasive Plants Prior to Seeding (not required by the CalVTP PEIR):** Schedule activities to maximize the effectiveness of control efforts and minimize introduction and spread of invasive plants as feasible, with consideration for project objectives and location (e.g., install and maintain fuel breaks, disc lines, and other work before non-native plants set seeds). | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |
| **Wildlife** | | | | |
| **SPR BIO-10: Survey for Special-Status Wildlife and Nursery Sites:** If SPR BIO-1 determines that suitable habitat for special-status wildlife species or nurseries of any wildlife species is present and cannot be avoided, the project proponent will require a qualified RPF or biologist to conduct focused or protocol-level surveys for special-status wildlife species or nursery sites (e.g., bat maternity roosts, deer fawning areas, heron or egret rookeries, monarch overwintering sites) with potential to be directly or indirectly affected by a treatment activity. The survey area will be determined by a qualified RPF or biologist based on the species and habitats and any recommended buffer distances in agency protocols.<br>The qualified RPF or biologist will determine if following an established protocol is required, and the project proponent may consult with CDFW | **Initial Treatment:** Y<br>**Treatment Maintenance:** N | Prior | MWPA | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| and/or USFWS for technical information regarding appropriate survey protocols. Unless otherwise specified in a protocol, the survey will be conducted no more than 14 days prior to the beginning of treatment activities. Focused or protocol surveys for a special-status species with potential to occur in the treatment area may not be required if presence of the species is assumed.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF WILD-1 Temporary Fencing (replaces SPR BIO-11. Install Wildlife-Friendly Fencing (Prescribed Herbivory)):** If temporary fencing is required for prescribed herbivory treatment, a wildlife-friendly recyclable fencing design will be used. The design should consider the following:<br>• Minimize the chance of wildlife entanglement by minimizing barbed wire, loose or broken wires.<br>• If feasible, keep electric netting-type fencing electrified at all times or laid down while not in use.<br>• Charge temporary electric fencing with intermittent pulse energizers.<br>• Allow wildlife to jump over easily without injury by installing fencing that can flex as non-target animals pass over it and installing the top wire low enough (no more than approximately 40 inches high on flat ground) to allow adult ungulates to jump over it, while keeping grazing animals safely within the fence. The determination of appropriate fence height will consider slope, as steep slopes are more difficult for wildlife to pass.<br>• Fences should be highly visible to birds and mammals by using high-visibility tape or wire, flagging, or other markers. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Contractor | MWPA |
| **SPR BIO-12. Protect Common Nesting Birds, Including Raptors (more stringent than PDIFs NB-1 through NB-4).** The project proponent will schedule treatment activities to avoid the active nesting season of common native bird species, including raptors, that could be present within or adjacent to the treatment site, if feasible. Common native birds are species | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| not otherwise treated as special status in the CalVTP PEIR. The active nesting season will be defined by the qualified RPF or biologist.<br><br>If active nesting season avoidance is not feasible, a qualified RPF or biologist will conduct a survey for common nesting birds, including raptors. Existing records (e.g., CNDDB, eBird database, State Wildlife Action Plan) should be reviewed in advance of the survey to identity the common nesting birds, including raptors, that are known to occur in the vicinity of the treatment site. The survey area will encompass reasonably accessible areas of the treatment site and the immediately surrounding vicinity viewable from the treatment site. The survey area will be determined by a qualified RPF or biologist, based on the potential species in the area, location of suitable nesting habitat, and type of treatment. For vegetation removal or project activities that would occur during the nesting season, the survey will be conducted at a time that balances the effectiveness of detecting nests and the reasonable consideration of potential avoidance strategies. Typically, this timeframe would be up to 3 weeks before treatment. The survey will occur in a single survey period of sufficient duration to reasonably detect nesting birds, including raptors, typically one day for most treatment projects (depending on the size, configuration, and vegetation density in the treatment site), and conducted during the active time of day for target species, typically close to dawn and/or dusk. The survey may be conducted concurrently with other biological surveys, if they are required by other SPRs. Survey methods will be tailored by the qualified RPF or biologist to site and habitat conditions, typically involving walking throughout the survey area, visually searching for nests and birds exhibiting behavior that is typical of breeding (e.g., delivering food).<br><br>If an active nest is observed (i.e., presence of eggs and/or chicks) or determined to likely be present based on nesting bird behavior, the project proponent will implement a feasible strategy to avoid disturbance of active nests, which may include, but is not limited to, one or more of the following:<br>• **Establish Buffer.** The project proponent will establish a temporary, species-appropriate buffer around the nest sufficient to reasonably expect that breeding would not be disrupted. Treatment activities will be | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| implemented outside of the buffer. The buffer location will be determined by a qualified RPF or biologist. Factors to be considered for determining buffer location will include: presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected treatment activities. Nests of common birds within the buffer need not be monitored during treatment. However, buffers will be maintained until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>• **Modify Treatment.** The project proponent will modify the treatment in the vicinity of an active nest to avoid disturbance of active nests (e.g., by implementing manual treatment methods, rather than mechanical treatment methods). Treatment modifications will be determined by the project proponent in coordination with the qualified RPF or biologist.<br>• **Defer Treatment.** The project proponent will defer the timing of treatment in the portion(s) of the treatment site that could disturb the active nest. If this avoidance strategy is implemented, treatment activity will not commence until young fledge or the nest becomes inactive, as determined by the qualified RPF, biologist, or biological technician.<br>Feasible actions will be taken by the project proponent to avoid loss of common native bird nests. The feasibility of implementing the avoidance strategies will be determined by the project proponent based on whether implementation of this SPR will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. Considerations may include limitations on the presence of environmental and atmospheric conditions necessary to execute treatment prescriptions (e.g., the limited seasonal windows during which prescribed burning can occur when vegetation moisture, weather, wind, and other physical conditions are suitable). If it is infeasible to avoid loss of common bird nests (not including raptor nests), the project proponent will document the reasons implementation of the avoidance strategies is infeasible in the PSA. After completion of the PSA and prior to or during treatment | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>The following avoidance strategies may also be considered together with or in lieu of other actions for implementation by a project proponent to avoid disturbance to raptor nests:<br>• **Monitor Active Raptor Nest During Treatment**. A qualified RPF, biologist, or biological technician will monitor an active raptor nest during treatment activities to identify signs of agitation, nest defense, or other behaviors that signal disturbance of the active nest is likely (e.g., standing up from a brooding position, flying off the nest). If breeding raptors are showing signs of nest disturbance, one of the other avoidance strategies (establish buffer, modify treatment or defer treatment) will be implemented or a pause in the treatment activity will occur until the disturbance behavior ceases.<br>• **Retention of Raptor Nest Trees**. Trees with visible raptor nests, whether occupied or not, will be retained.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF NSO-1 Northern Spotted Owl Nesting Season Avoidance (not required by the CalVTP PEIR).** Each project will be reviewed by a qualified biologist to determine if northern spotted owls have potential to occur near proposed project activities. Within areas where northern spotted owl have the potential to occur, work, including mowing with heavy equipment, the mechanical removal of vegetation, or prescribed burning, including pile and broadcast burning, will occur outside of the northern spotted owl nesting season to the extent feasible (February 1 to July 31).<br>If work must occur during the northern spotted owl nesting season, either NSO-2 or NSO-3 will apply. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **PDIF NSO-2 Work During Northern Spotted Owl Nesting Season – Surveys (not required by the CalVTP PEIR)**<br>Within an area where northern spotted owl has the potential to occur, when work will occur during the northern spotted owl nesting season (February 1 through July 31), and work is not considered low-impact by a qualified biologist the following measure will apply. Low impact type activities include, but are not limited to, goat grazing, hand pulling of weeds, hand trimming of trees and vegetation with non-mechanized equipment, chipping from existing roadways in residential areas, and use of mechanized equipment adjacent to roads or in residential areas that is a typical noise for the environment. In contrast, high-impact activities may include operation of heavy machinery in wildlands with lower baseline environmental noise, or work which produces noise disturbance for a longer duration than is typical in the environment.<br>The biologists will determine if a known breeding pair is found within 0.25 mile of the proposed activity (i.e., from existing surveys that season or historic data) and perform a nest check to confirm presence. If no survey data for the season has been completed for the areas, two surveys will be conducted by a qualified biologist (whose qualifications have been approved by the MWPA or lead public agency) for nesting northern spotted owls during the months of April and May preceding the commencement of these activities. At a minimum, the survey area will include all suitable nesting habitats within 0.25 mile of any planned activity sites, and then one of the two options listed below will be implemented. If access cannot be secured for surveys, then work should be delayed until after the nesting season, unless it can be shown that noise generation from the activities and the activities proposed would be below noise and visual disturbance levels for northern spotted owls (refer to USFWS Revised Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California) at the nest site, if known.<br>• If it is conclusively determined that there are nesting northern spotted owls, planned activities that generate noise (e.g., mowing, heavy equipment usage, crews with hand tools that generate noise) in areas without regular human disturbances from human residency (e.g., leaf | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| blowers, home construction and remodeling, roadways), that are within 0.25-mile of an identified active nest will not begin prior to September 1 unless the young have fledged, at which time work may begin no earlier than July 10. Prescribed burns may only occur within suitable northern spotted owl habitat (as determined by a qualified biologist) during the nesting season if protocol surveys have determined that northern spotted owl nesting is not occurring in the area of planned activity.<br>• If work must occur within 0.25 mile, and work has been determined to have the potential to impact an active northern spotted owl nest, CDFW and USFWS would be consulted to determine if take could occur and whether further permits are required. | | | | |
| **PDIF NSO-3 Northern Spotted Owl Habitat Alteration (not required by the CalVTP PEIR)**<br>For projects involving removal of large trees (10-inches DBH or greater) in potential northern spotted owl roosting, or nesting habitat (as identified during the desktop review) in areas without regular human disturbances from human residency, habitat alteration within core use areas (nesting and roosting habitat) will be planned in consultation with a qualified northern spotted owl biologist. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **PDIF NSO-4 Retain Dusky-footed Woodrat Nests (not required by the CalVTP the PEIR)**<br>Dusky-footed woodrats are important prey for northern spotted owls. Wherever feasible, project activities will leave dusky-footed wood rat nests intact. If possible, maintain a 3-foot buffer of vegetation around dusky-footed woodrat middens. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **PDIF RB-1 Prework Survey (not required by the CalVTP PEIR):** If vegetation management activities would (1) occur in trees with potential for roosting bat species, (2) would include removal or trimming of trees where a bat could be roosting, or (3) would involve removal or trimming of a tree with mechanized equipment adjacent to trees or structures that could have roosting bats and (4) the work would commence between March 1 and July 31, during the bat | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| maternity period, a pre-activity survey will be conducted for roosting bats within 2 weeks prior to work to ensure that no roosting bats will be disturbed during work. This survey can be conducted concurrent with other surveys for other sensitive species. Trees and shrubs within the work footprint that have been determined to be unoccupied by roosting bats, or that are located outside the avoidance buffer for active roosting sites may be removed. Roosting initiated during work is presumed to be unaffected, and no buffer would be necessary. | | | | |
| **PDIF RB-2 Avoidance of Maternity Roosts and Day Roosts (not required by the CalVTP PEIR):** If active maternity roosts or day roosts are found within the project site, or in areas subject to disturbance from work activities, avoidance buffers will be implemented. The buffer size will be determined in consultation with the qualified biologist or RPF. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **PDIF RB-3 Bat Roosting Tree Removal – Seasonal Restrictions (not required by the CalVTP PEIR):** If it is determined that a colonial maternity roost is potentially present, the roost will be avoided and will not be removed during the breeding season (March 1 through July 31) unless removal is necessary to address an imminent safety hazard.<br>Operation of mechanical equipment producing high noise levels (e.g., chainsaws, heavy equipment) in proximity to buildings/structures supporting or potentially supporting a colonial bat roost will be restricted to periods of seasonal bat activity (as defined above), when possible. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **PDIF RB-4 Bat Roosting Tree Removal – Emergency Removals (not required by the CalVTP PEIR):** Potential non-colonial roosts that must be removed in order to address a safety hazard, can be removed after consultation with a biologist. Removal will occur on warm days in late morning to afternoon when any bats present are likely to be warm and able to fly. Appropriate methods will be used to minimize the potential of harm to bats during tree removal. Such methods may include using a two-step tree removal process. This method is conducted over two consecutive days, and works by creating noise and vibration by cutting non-habitat branches and limbs from habitat | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| trees using chainsaws only (no excavators or other heavy machinery) on Day 1. The noise and vibration disturbance, together with the visible alteration of the tree, is very effective in causing bats that emerge nightly to feed, to not return to the roost that night. The remainder of the tree is removed on Day 2. | | | | |
| **Geology, Soils, and Mineral Resource** | | | | |
| **PDIF GEO-3 Soil Saturation and Rain Event Measures (replaces SPR GEO-1 Suspend Disturbance during Heavy Precipitation):** The following measures will be implemented to prevent soil loss and erosion during rain events and following rain events:<br>• Shut down use of off-road heavy equipment, skidding, and truck traffic when soils become saturated (from rain event) and unable to support the machines. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur.<br>• Off-road heavy equipment work will be suspended if the National Weather Service forecast is a "chance" (30 percent or more) of rain within the next 24 hours<br>• Ground disturbing work (e.g., use of heavy equipment, pulling large vegetation) will not occur during rain events (i.e., 0.5 inch of rain within a 48-hour or greater period≥ 1.5 inches in 24 hours) and may resume when precipitation stops and soils are no longer saturated. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.<br>• For activities that involve ground disturbing work and have not been stabilized, inspect for evidence of erosion after the first rain event (i.e., 0.5 inch of rain within a 48-hour or greater period) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • For activities that involve ground disturbing work, inspect project areas for the proper implementation of erosion control, as necessary and determined by the qualified personnel (e.g., RPF), prior to the rainy season. If erosion control measures are not properly implemented, the measures will be remediated prior to the first rainfall event. | | | | |
| **SPR GEO-2 Limit High Ground Pressure Vehicles:** The project proponent will limit heavy equipment that could cause soil disturbance or compaction to be driven through treatment areas when soils are wet and saturated to avoid compaction and/or damage to soil structure. Saturated soil means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. If use of heavy equipment is required in saturated areas, other measures such as operating on organic debris, using low ground pressure vehicles, or operating on frozen soils/snow covered soils will be implemented to minimize soil compaction. Existing compacted road surfaces are exempted as they are already compacted from use. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **PDIF GEO-1 Erosion and Soils Loss Stabilization Measures (replaces SPR GEO-3 Stabilize Disturbed Soil Areas):** Soils will be stabilized if a vegetation management activity may leave less than 70 percent groundcover or native mulch/organic material.<br>For areas between 50 percent and 70 percent ground cover left:<br>• Sow native grasses and other suitable native vegetation on denuded areas where natural colonization or other replanting will not occur rapidly; use slash or chips to prevent erosion on such areas.<br>• Use surface mounds, depressions, logs, rocks, trees and stumps, slash and brush, the litter layer, and native herbaceous vegetation downslope of denuded areas to reduce sedimentation and erosion, as necessary to prevent erosion or slope destabilization.<br>• Install approved, biodegradable erosion-control measures and non-filament-based geotextiles (e.g., coir, jute) when: | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • Conducting substantial ground-disturbing work (e.g., use of heavy equipment, pulling large vegetation) within 100 feet and upslope of currently flowing or wet wetlands, streams, lakes, and riparian areas;<br>• Causing soil disturbance on moderate to steep (10 percent slope and greater) slopes; and<br>• Removing invasive plants from stream banks to prevent sediment movement into watercourses and to protect bank stability.<br>• Sediment-control devices, if installed, will be certified weed-free, as appropriate. Sediment control devices will be inspected daily during active work to ensure that they are repaired and working as needed to prevent sediment transport into the waterbodies.<br>For areas with less than 50 percent ground cover:<br>• Any of the above measures<br>• Stabilize with mulch or equivalent immediately after project activities, to the maximum extent practicable.<br>• If project activities could result in substantial sediment discharge from soil disturbance, as determined by the qualified personnel (e.g., RPF), organic material from mastication or mulch will be incorporated onto at least 75 percent of the disturbed soil surface where the soil erosion hazard is moderate or high, and 50 percent of the disturbed soil surface where soil erosion hazard is low to help prevent erosion.<br>• Where slash mulch is used, it will be packed into the ground surface with heavy equipment so that it is sufficiently in contact with the soil surface.<br>Once work is completed, the areas will be inspected at least annually if accessible, until groundcover exceeds 70 percent or slopes have stabilized, as determined by a qualified professional. At that time, erosion-control and slope-stability devices may be removed. | | | | |
| **SPR GEO-4 Erosion Monitoring:** The project proponent will inspect treatment areas for the proper implementation of erosion control SPRs and mitigations prior to the rainy season. If erosion control measures are not properly implemented, they will be remediated prior to the first rainfall event per SPR | **Initial Treatment:** Y | During-After | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| GEO-3 and GEO-8. Additionally, the project proponent will inspect for evidence of erosion after the first large storm or rainfall event (i.e., ≥ 1.5 inches in 24 hours) as soon as is feasible after the event. Any area of erosion that will result in substantial sediment discharge will be remediated within 48 hours per the methods stated in SPRs GEO-3 and GEO-8. This SPR applies only to mechanical, prescribed herbivory, and prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Treatment Maintenance:** Y | | | |
| **SPR GEO-5 Drain Stormwater via Water Breaks:** The project proponent will drain compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules (February 2019 version). Where waterbreaks cannot effectively disperse surface runoff, including where waterbreaks cause surface run-off to be concentrated on downslopes, other erosion controls will be installed as needed to maintain site productivity by minimizing soil loss. This SPR applies only to mechanical, manual, and prescribed burn treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR GEO-6 Minimize Burn Pile Size:** The project proponent will not create burn piles that exceed 20 feet in length, width, or diameter, except when on landings, road surfaces, or on contour to minimize the spatial extent of soil damage. In addition, burn piles will not occupy more than 15 percent of the total treatment area (Busse et al. 2014). The project proponent will not locate burn piles in a Watercourse and Lake Protection Zone as defined in SPR HYD-4. This SPR applies to mechanical, manual, and prescribed burning treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **SPR GEO-7 Minimize Erosion: To minimize erosion, the project proponent will:**<br>• (1) Prohibit use of heavy equipment where any of the following conditions are present:<br>(i) Slopes steeper than 65 percent.<br>(ii) Slopes steeper than 50 percent where the erosion hazard rating is high or extreme.<br>(iii) Slopes steeper than 50 percent that lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake.<br>• (2) On slopes between 50 percent and 65 percent where the erosion hazard rating is moderate, and all slope percentages are for average slope steepness based on sample areas that are 20 acres, or less, heavy equipment will be limited to:<br>(i) Existing tractor roads that do not require reconstruction, or<br>(ii) New tractor roads flagged by the project proponent prior to the treatment activity.<br>• (3) Prescribed herbivory treatments will not be used in areas with over 50 percent slope.<br>This SPR applies to all treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **PDIF GEO-2 Prescribed Herbivory Erosion and Trail Control Measures (not required by the CalVTP PEIR):** Methods will be implemented to reduce the potential creation of prescribed herbivory trails and erosional features, including the following:<br>• Implement methods, which could include rotating or providing multiple feeding areas to minimize excessive congregation of animals in any one location for too long, as determined by a qualified professional.<br>• If prescribed herbivory trails or damaged areas form, the bare area will be remediated by decompacting the soil and discontinuing prescribed | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| herbivory in the area until the trails are revegetated, as determined by a qualified professional.<br>• Manage livestock grazing on steep slopes (generally slopes with more than 35 percent grade) to reduce potential for erosion. Management can include (but is not limited to) reducing or limiting the number of animals or duration on slopes above 35% (using stocking equation) to avoid erosion and avoid placing water and feeding troughs on steep slopes.<br>• Grazing will not occur during a storm event or under muddy conditions, when hooves may sink into the ground. | | | | |
| **SPR GEO-8 Steep Slopes:** The project proponent will require a Registered Professional Forester (RPF) or licensed geologist to evaluate treatment areas with slopes greater than 50 percent for unstable areas (areas with potential for landslide) and unstable soils (soil with moderate to high erosion hazard). If unstable areas or soils are identified within the treatment area, are unavoidable, and will be potentially directly or indirectly affected by the treatment, a licensed geologist (P.G. or C.E.G.) will determine the potential for landslide, erosion, of other issue related to unstable soils and identity measures (e.g., those in SPR GEO-7) that will be implemented by the project proponent such that substantial erosion or loss of topsoil would not occur. This SPR applies only to mechanical treatment activities and WUI fuel reduction, non-shaded fuel breaks, and ecological restoration treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |
| **Hazardous Material and Public Health and Safety** | | | | |
| **PDIF HAZ-1 Leak Prevention and Spill Cleanup (replaces SPR HAZ-1 Maintain All Equipment):** The project proponent will, at a minimum, implement measures that address the following procedures related to the use of hazardous materials during work:<br>• Proper disposal or management of contaminated soils and materials (i.e., clean up materials)<br>• Daily inspection of vehicles and equipment for leaks and spill containment procedures | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • Emergency response and reporting procedures to address hazardous material releases<br>• Emergency spill supplies and equipment will be available to respond in a timely manner if an incident should occur<br>• Response materials such as oil-absorbent material, tarps, and storage drums will be available in the plan area at all times during management activities and will be used as needed to contain and control any minor releases<br>• The absorbent material will be removed promptly and disposed of properly<br>• Use of secondary containment and spill rags when fueling<br>• Discourage "topping-off" fuel tanks<br>• Workers using fuels or other hazardous materials must be knowledgeable of the specific procedures necessary for hazardous materials cleanup and emergency response<br>• All diesel and gasoline powered equipment will be maintained per manufacturer's specification, and in compliance with all state and federal emission requirements | | | | |
| **PDIF HAZ-2 Wildfire Risk Reduction (replaces SPR HAZ-2 Require Spark Arrestors and SPR HAZ-3 Require Fire Extinguishers):** The following measures will be implemented during activities that involve the use of equipment that can generate sparks or heat:<br>• Maintain fire suppression equipment (e.g., shovel, extinguisher) in work vehicles and ensure workers are trained in use<br>• Closely monitor for ignited vegetation from equipment and tool use<br>• Train workers to properly handle and store flammable materials to minimize potential ignition sources<br>• Prohibit smoking in vegetated areas<br>• Avoid use of spark- and/or heat-generating equipment during high fire danger days (e.g., Red Flag Days and Fire Weather Watch)<br>• Outfit off-road diesel vehicles and equipment with spark arrestors<br>• Avoid metal string or blade weed trimmers | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| Maintain one fire extinguisher for each chainsaw | | | | |
| **SPR HAZ-4 Prohibit Smoking in Vegetated Areas:** The project proponent will require that smoking is only permitted in designated smoking areas barren or cleared to mineral soil at least 3 feet in diameter (PRC Section 4423.4). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |
| **SPR HAZ-5 Spill Prevention and Response Plan:** The project proponent or licensed Pest Control Advisor (PCA) will prepare a Spill Prevention and Response Plan (SPRP) prior to beginning any herbicide treatment activities to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants. The SPRP will include (but not be limited to):<br>• a map that delineates staging areas, and storage, loading, and mixing areas for herbicides;<br>• a list of items required in an onsite spill kit that will be maintained throughout the life of the activity;<br>• procedures for the proper storage, use, and disposal of any herbicides, adjuvants, or other chemicals used in vegetation treatment.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |
| **SPR HAZ-6 Comply with Herbicide Application Regulations**: The project proponent will coordinate pesticide use with the applicable County Agricultural Commissioner(s), and all required licenses and permits will be obtained prior to herbicide application. The project proponent will prepare all herbicide applications to do the following:<br>• Be implemented consistent with recommendations prepared annually by a licensed PCA.<br>• Comply with all appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the EPA, DPR, and applicable local jurisdictions. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • Adhere to label directions for application rates and methods, storage, transportation, mixing, container disposal, and weather limitations to application such as wind speed, humidity, temperature, and precipitation.<br>• Be applied by an applicator appropriately licensed by the State.<br>This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | | | | |
| **PDIF HAZ-4 Application of Herbicides (replaces SPR HAZ-7 Triple Rinse Herbicide Containers and SPR HAZ-8 Minimize Herbicide Drift to Public Areas)**<br>• Projects will comply with all herbicide application regulations and ecologically sound integrated pest management principles.<br>• Herbicide containers will be triple rinsed with clean water at an approved site, and rinsate will be disposed of by placing it in the batch tank for application.<br>• Herbicide drift to public areas or sensitive areas will be minimized through the following measures:<br>- Application will cease when weather parameters exceed label specifications or when sustained winds at the site of application exceeds 7 miles per hour (whichever is more conservative).<br>- No herbicide will be applied during precipitation events or if precipitation is forecast 24 hours before or after project activities.<br>- Spray nozzles will be configured to produce the largest appropriate droplet size to minimize drift.<br>- Low nozzle pressures will be utilized.<br>- Spray nozzles will be kept within 24 inches of vegetation, if spraying.<br>• For herbicide applications occurring within or adjacent to public recreation areas, residential areas, schools, or any other public areas within 500 feet, signs will be posted at each end of herbicide application areas and any intersecting trails notifying the public of the use of herbicides at a minimum 1 day before and 1 day after herbicide use. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **SPR HAZ-9 Notification of Herbicide Use in the Vicinity of Public Areas:** For herbicide applications occurring within or adjacent to public recreation areas, residential areas, schools, or any other public areas within 500 feet, the project proponent will post signs at each end of herbicide treatment areas and any intersecting trails notifying the public of the use of herbicides. The signs will include the signal word (i.e., Danger, Warning or Caution), product name, and manufacturer; active ingredient; EPA registration number; target pest; treatment location; date and time of application; restricted entry interval, if applicable per the label requirements; date which notification sign may be removed; and a contact person with a telephone number. Signs will be posted prior to the start of treatment and notification will remain in place for at least 72 hours after treatment ceases. This SPR applies only to herbicide treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **PDIF HAZ-3 Pile Burning (not required by the CalVTP PEIR):** The following measures will be implemented to reduce hazards associated with pile burning:<br>• Pile burning will only be allowed on days when fire is less likely to spread (e.g., wind speeds are less than 15 mph).<br>• Piles will only be constructed in areas where burning can be safely controlled, for example, on the flattest area possible. Bottoms of steep, vegetated hills will be avoided.<br>• Piles should be constructed with 10 feet of clearance around them.<br>• Piles will be set back from public roads and trails at a distance to minimize risk to the public or cordoned off from the public.<br>• All requirements of CAL FIRE, the local fire department, and/or the BAAQMD will be met, including any permit, notification, burn bans, and reporting requirements.<br>• Have fire suppression crews on-site during the fire season determined by CAL FIRE or the local fire department (typically mid-May to mid-November) during curtain and pile burns. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| • Pile burning will adhere to BAAQMD criteria pollutant thresholds and Regulation 5 for open burning. | | | | |
| **Hydrology and Water Quality** | | | | |
| **SPR HYD-1 Comply with Water Quality Regulations:** Project proponents must also conduct proposed vegetation treatments in conformance with appropriate RWQCB timber, vegetation and land disturbance related Waste Discharge Requirements (WDRs) and/or related Conditional Waivers of Waste Discharge Requirements (Waivers), and appropriate Basin Plan Prohibitions. Where these regulatory requirements differ, the most restrictive will apply. If applicable, this includes compliance with the conditions of general waste discharge requirements (WDR) and waste discharge requirement waivers for timber or silviculture activities where these waivers are designed to apply to non-commercial fuel reduction and forest health projects. In general, WDR and Waivers of waste discharge requirements for fuel reduction and forest health activities require that wastes, including but not limited to petroleum products, soil, silt, sand, clay, rock, felled trees, slash, sawdust, bark, ash, and pesticides must not be discharged to surface waters or placed where it may be carried into surface waters; and that Water Board staff must be allowed reasonable access to the property in order to determine compliance with the waiver conditions. The specifications for each WDR and Waiver vary by region. Regions 2 (San Francisco Bay), 4 (Los Angeles), 8 (Santa Ana), and 7 (Colorado River) are highly urban or minimally forested and do not offer WDRs or Waivers for fuel reduction or vegetation management activities. The current applicable WDRs and Waivers for timber and vegetation management activities are included in Appendix HYD-1. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During-After | Contractor | MWPA |
| **SPR HYD-2 Avoid Construction of New Roads:** The project proponent will not construct or reconstruct (i.e., cutting or filling involving less than 50 cubic yards/0.25 linear road miles) any new roads (including temporary roads). This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| | **Treatment Maintenance:** Y | | | |
| **PDIF HYD-1 Prescribed Herbivory Treatments (replaces SPR HYD-3 Water Quality Protections for Prescribed Herbivory):** The following water quality protections will apply for all prescribed herbivory treatments:<br>• Limit the duration of prescribed herbivory within 50 feet of lakes/reservoirs, creeks, streams, riparian corridors, and wetlands to prevent soil erosion that could affect water quality (see SH-1)<br>• Water will be provided for grazing animals in the form of an on-site stock pond or a portable water source located outside of environmentally sensitive areas.<br>• Treatment prescriptions will be designed to protect soil stability. Grazing animals will be herded out of an area if accelerated soil erosion is observed.<br>**PDIF SH-2 Grazing and Sensitive Habitats (replaces SPR HYD-3 Water Quality Protections for Prescribed Herbivory):** Avoid grazing in sensitive habitats including serpentine-associated communities, chaparral, and across waterways and within a 50 foot buffer if there is a need for protection of riparian vegetation from grazing. Limited grazing may be allowed if it would be beneficial to plant and wetland communities, including serpentine-associated communities, without causing harm (e.g., removal of invasive species) and would not result in erosion. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **SPR HYD-4 Identify and Protect Watercourse and Lake Protection Zones:** The project proponent will establish Watercourse and Lake Protection Zones (WLPZs) on either side of watercourses as defined in the table below, which is based on 14 CCR Section 916 .5 of the California Forest Practice Rules (February 2019 version). WLPZ's are classified based on the uses of the stream and the presence of aquatic life. Wider WLPZs are required for steep slopes.<br>**Procedures for Determining Watercourse and Lake Protection Zone (WLPZ) widths** | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|

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

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

The following WLPZ protections will be applied for all treatments:

- Treatment activities with WLPZs will retain at least 75 percent surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation and for wildlife habitat. If this percentage is reduced a

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| qualified RPF will provide the project proponent with a site- and/or treatment activity-specific explanation for the percent surface cover reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced percent as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report). This requirement is based on 14 CCR Section 916.4 [936.4, 956.4] Subsection (b)(6) (February 2019 version) and 14 CCR Section 916.5 (February 2019 version).<br>• Equipment, including tractors and vehicles, must not be driven in wet areas or WLPZs, except over existing roads or watercourse crossings where vehicle tires or tracks remain dry.<br>• Equipment used in vegetation removal operations will not be serviced in WLPZs, within wet meadows or other wet areas, or in locations that would allow grease, oil, or fuel to pass into lakes, watercourses, or wet areas.<br>• WLPZs will be kept free of slash, debris, and other material that harm the beneficial uses of water. Accidental deposits will be removed immediately.<br>• Burn piles will be located outside of WLPZs.<br>• No fire ignition (nor use of associated accelerants) will occur within WLPZs however low intensity backing fires may be allowed to enter or spread into WLPZs.<br>• Within Class I and Class II WLPZs, locations where project operations expose a continuous area of mineral soil 800 square feet or larger shall be treated for reduction of soil loss. Treatment shall occur prior to October 15th and disturbances that are created after October 15th shall be treated within 10 days. Stabilization measures shall be selected that will prevent significant movement of soil into water bodies and may include but are not limited to mulching, rip-rap, grass seeding, or chemical soil stabilizers. | | | | |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Where mineral soil has been exposed by project operations on approaches to watercourse crossings of Class I, II, or III within a WLPZ, the disturbed area shall be stabilized to the extent necessary to prevent the discharge of soil into watercourses or lakes in amounts that would adversely affect the quality and beneficial uses of the watercourse.<br>• Where necessary to protect beneficial uses of water from project operations, protection measures such as seeding, mulching, or replanting shall be used to retain and improve the natural ability of the ground cover within the WLPZ to filter sediment, minimize soil erosion, and stabilize banks of watercourses and lakes.<br>• Equipment limitation zones (ELZs) will be designated adjacent to Class III and Class IV watercourses with minimum widths of 25 feet where side-slope is less than 30 percent and 50 feet where side-slope is 30 percent or greater. An RPF will describe the limitations of heavy equipment within the ELZ and, where appropriate, will include additional measures to protect the beneficial uses of water.<br>This SPR applies to all treatment activities and treatment types, including treatment maintenance. | | | | |
| **PDIF HAZ-5 Protect Vegetation and Special-Status Species from Herbicides (replaces SPR HYD-5 Protect Non-Target Vegetation and Special-status Species from Herbicides)**<br>The project proponent will implement their approved integrated pest management (IPM) procedures when utilizing herbicides, or the following measures if no IPM is in place that addresses herbicide use in sensitive areas:<br>• Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.<br>• Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand application of | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry.<br>• No terrestrial or aquatic herbicides will be applied within Watercourse and Lake Protection Zones (WLPZs) of Class I and II watercourses, if feasible. If this is not feasible, hand application of herbicides labeled for use in aquatic environments may be used within the WLPZ provided that the project proponent notifies the applicable regional water quality control board no fewer than 15 days prior to herbicide application.<br>• No herbicides will be applied within a 50-foot buffer of federal Endangered Species Act (ESA) or California ESA listed plant species or within 50 feet of dry vernal pools.<br>• For spray applications in and adjacent to habitats suitable for special-status species, use herbicides containing dye (registered for aquatic use by California Department of Pesticide Regulation, if warranted) to prevent overspray. | | | | |
| **SPR HYD-6 Protect Existing Drainage Systems:** If a treatment activity is adjacent to a roadway with stormwater drainage infrastructure, the existing stormwater drainage infrastructure will be marked prior to ground disturbing activities. If a drainage structure or infiltration system is inadvertently disturbed or modified during project activities, the project proponent will coordinate with owner of the system or feature to repair any damage and restore pre-project drainage conditions. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |
| **Noise** | | | | |
| **PDIF NOI-1 Minimization of Noise Disruption to Nearby Neighbors and Sensitive Receptors (replaces SPR NOI-1 Limit Heavy Equipment Use to Daytime Hours, SPR NOI-2 Equipment Maintenance, SPR NOI-3 Engine Shroud Closure, SPR NOI-4 Locate Staging Areas Away from Noise-Sensitive Land Uses, and SPR NOI-5 Restrict Equipment Idle Time):** All projects will comply with applicable local noise ordinances. All powered equipment and power tools will be used and maintained according to | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| manufacturer specifications. All diesel- and gasoline-powered treatment equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.<br>Measures to minimize noise disruption to nearby neighbors and sensitive receptors will be implemented as needed. These measures may include but are not limited to:<br>• Using noise control technologies on equipment (e.g., mufflers, ducts, and acoustically attenuating shields)<br>• Locating stationary noise sources (e.g., pumps and generators) away from sensitive receptors<br>• Close engine shrouds during equipment operations<br>• Shut down equipment when not in use. Equipment will not be idled unnecessarily<br>• Operate heavy equipment during daytime hours if such noise would be audible to receptors (e.g., residential land uses, schools, hospitals, places of worship)<br>• Locate project activities, equipment, and equipment staging areas away from nearby noise-sensitive land uses (e.g., residential land uses, schools, hospitals, places of worship), to the extent feasible | | | | |
| **SPR NOI-6 Notify Nearby Off-Site Noise-Sensitive Receptors:** For treatment activities utilizing heavy equipment, the project proponent will notify noise-sensitive receptors (e.g., residential land uses, schools, hospitals, places of worship) located within 1,500 feet of the treatment activity. Notification will include anticipated dates and hours during which treatment activities are anticipated to occur and contact information, including a daytime telephone number, of the project representative. Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) will also be included in the notification. This SPR applies only to mechanical treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Recreation** | | | | |
| **SPR REC-1 Notify Recreational Users of Temporary Closures:** If a treatment activity would require temporary closure of a public recreation area or facility, the project proponent to will [sic] coordinate with the owner/manager of that recreation area or facility. If temporary closure of a recreation area or facility is required, the project proponent will work with the owner/manager to post notifications of the closure at least 2 weeks prior to the commencement of the treatment activities. Additionally, notification of the treatment activity will be provided to the Administrative Officer (or equivalent official responsible for distribution of public information) of the county(ies) in which the affected recreation area or facility is located. This SPR applies to all treatment activities and treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior | Fire Agency | MWPA |
| **Transportation** | | | | |
| **SPR TRAN-1 Implement Traffic Control during Treatments (more stringent than PDIF TR-2)**: Prior to initiating vegetation treatment activities the project proponent will work with the agency(ies) with jurisdiction over affected roadways to determine if a Traffic Management Plan (TMP) is needed. A TMP will be needed if traffic generated by the project would result in obstructions, hazards, or delays exceeding applicable jurisdictional standards along access routes for individual vegetation treatments. If needed, a TMP will be prepared to provide measures to reduce potential traffic obstructions, hazards, and service level degradation along affected roadway facilities. The scope of the TMP will depend on the type, intensity, and duration of the specific treatment activities under the CalVTP. Measures included in the TMP could include (but are not be limited to) construction signage to provide motorists with notification and information when approaching or traveling along the affected roadway facilities, flaggers for lane closures to provide temporary traffic control along affected roadway facilities, treatment schedule restrictions to avoid seasons or time periods of peak vehicle traffic, haul-trip, delivery, and/or commute time restrictions that would be implemented to avoid peak traffic days and times along affected | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| roadway facilities. If the TMP identifies impacts on transportation facilities outside of the jurisdiction of the project proponent, the TMP will be submitted to the agency with jurisdiction over the affected roadways prior to commencement of vegetation treatment projects. This SPR applies to all treatment activities and treatment types, including treatment maintenance.<br>Smoke generated during prescribed burn operations could potentially affect driver visibility and traffic operations along nearby roadways. Direct smoke impacts to roadway visibility and indirect impacts related to driver distraction will be considered during the planning phase of burning operations. Smoke impacts and smoke management practices specific to traffic operations during prescribed fire operations will be identified and addressed within the TMP. The TMP will include measures to monitor smoke dispersion onto public roadways, and traffic control operations will be initiated in the event burning operations could affect traffic safety along any roadways. This SPR applies only to prescribed burn treatment activities and all treatment types, including treatment maintenance. | | | | |
| **PDIF TR-1 Emergency Access to Project Areas (not required by the CalVTP PEIR):** The following measures will be implemented to maintain emergency access:<br>• At least one week prior to temporary lane or full closure of a public road for vegetation management-related work, the appropriate emergency response agency/agencies will be contacted with jurisdiction to ensure that each agency is notified of the closure and any temporary detours in advance and obtain all required encroachment permits<br>• In the event of any emergency, roads blocked or obstructed for maintenance activities will be cleared to allow the vehicles to pass.<br>• During temporary lane or road closures on public roads, flaggers equipped with two-way radios will be utilized where needed to control traffic. During an emergency, flaggers will radio to the crew to cease operations and reopen the public road to emergency vehicles.<br>• All authorized vehicles at the treatment site will be parked to not block roads when no operator is present to move the vehicle. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| Standard Project Requirements/Project Design and Implementation Features | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Public Services and Utilities** | | | | |
| **SPR UTIL-1: Solid Organic Waste Disposition Plan**: For projects requiring the disposal of material outside of the treatment area, the project proponent will prepare an Organic Waste Disposition Plan prior to initiating treatment activities. The Solid Organic Waste Disposition Plan will include the amount (e.g., tons) of solid organic waste to be managed onsite (i.e., scattering of wood materials, generating unburned piles, and pile burning) and transported offsite for processing (i.e., biomass power plant, wood product processing facility, composting). If the project proponent intends to transport solid organic waste offsite, the Solid Organic Waste Disposition Plan will clearly identify the location and capacity of the intended processing facility, consistent with local and state regulations to demonstrate that adequate capacity exists to accept the treated materials. This SPR applies only to mechanical and manual treatment activities and all treatment types, including treatment maintenance. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** N | Prior | Fire Agency | MWPA |

## Mitigation Measures

**Table 2 CalVTP PEIR Mitigation Measures Applicable to the Greater Ross Valley Shaded Fuel Break Project**

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| **Air Quality** | | | | |
| **Mitigation Measure AQ-1: Implement On-Road Vehicle and Off-Road Equipment Exhaust Emission Reduction Techniques**<br>Where feasible, project proponents will implement emission reduction techniques to reduce exhaust emissions from off-road equipment. It is acknowledged that due to cost, availability, and the limits of current technology, there may be circumstances where implementation of certain emission reduction techniques will not feasible. The project proponent will document the emission reduction techniques that will be applied and will | **Initial Treatment: Y**<br><br>**Treatment Maintenance: Y** | During | Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| explain the reasons other techniques that could reduce emissions are infeasible.<br>Techniques for reducing emissions may include, but are not limited to, the following:<br>• Diesel-powered off-road equipment used in construction will meet EPA's Tier 4 emission standards as defined in 40 CFR 1039 and comply with the exhaust emission test procedures and provisions of 40 CFR Parts 1065 and 1068. Tier 3 models can be used if a Tier 4 version of the equipment type is not yet produced by manufacturers. This measure can also be achieved by using battery-electric off-road equipment as it becomes available. Prior to implementation of treatment activities, the project proponent will demonstrate the ability to supply the compliant equipment. A copy of each unit's certified tier specification or model year specification and operating permit (if applicable) will be available upon request at the time of mobilization of each unit of equipment.<br>• Use renewable diesel fuel in diesel-powered construction equipment. Renewable diesel fuel must meet the following criteria:<br>- meet California's Low Carbon Fuel Standards and be certified by CARB Executive Officer;<br>- be hydrogenation-derived (reaction with hydrogen at high temperatures) from 100 percent biomass material (i.e., non-petroleum sources), such as animal fats and vegetables;<br>- contain no fatty acids or functionalized fatty acid esters; and<br>- have a chemical structure that is identical to petroleum-based diesel and complies with American Society for Testing and Materials D975 requirements for diesel fuels to ensure compatibility with all existing diesel engines.<br>• Electric- and gasoline-powered equipment will be substituted for diesel-powered equipment.<br>• Workers will be encouraged to carpool to work sites, and/or use public transportation for their commutes. | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| • Off-road equipment, diesel trucks, and generators will be equipped with Best Available Control Technology for emission reductions of $NO_X$ and PM. | | | | |
| **Archaeological, Historical, and Tribal Cultural Resources** | | | | |
| **Mitigation Measure CUL-2: Protect Inadvertent Discoveries of Unique Archaeological Resources or Subsurface Historical Resources**<br>If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during ground-disturbing activities, all ground-disturbing activity within 100 feet of the resources will be halted and a qualified archaeologist will assess the significance of the find. The qualified archaeologist will work with the project proponent to develop a primary records report that will comply with applicable state or local agency procedures. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan will be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the archaeologist will work with the project proponent to develop appropriate procedures to protect the integrity of the resource. Procedures could include preservation in place (which is the preferred manner of mitigating impacts to archaeological sites), archival research, subsurface testing, or recovery of scientifically consequential information from and about the resource. Any find will be recorded standard DPR Primary Record forms (Form DPR 523) will be submitted to the appropriate regional information center. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During-After | Contractor | MWPA |
| **Biological Resources** | | | | |
| **Mitigation Measure BIO-1a: Avoid Loss of Special-Status Plants Listed under ESA or CESA**<br>If listed plants are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will avoid and protect these species | **Initial Treatment:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| by establishing a no-disturbance buffer around the area occupied by listed plants and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway), exceptions to this requirement are listed later in this measure. The no-disturbance buffers will generally be a minimum of 50 feet from listed plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid killing or damaging listed plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate buffer size will be determined based on plant phenology at the time of treatment (e.g., whether the plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. For example, paint-on or wicking application of herbicides to invasive plants may be implemented within 50 feet of listed plant species without posing a risk, especially if the listed plants are dormant at the time of application. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform the determination of buffer width. If a no-disturbance buffer is reduced below 50 feet from a listed plant, a qualified RPF or botanist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report) with a science-based justification for the deviation. No fire ignition (nor use of associated accelerants) will occur within 50 feet of listed plants.<br>For species listed under ESA or CESA, if the project proponent cannot avoid loss by implementing no-disturbance buffers, the project proponent will implement Mitigation Measure BIO-1c.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist, in consultation with CDFW and | **Treatment**<br>**Maintenance:** Y | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| USFWS, as appropriate depending on species status and location, that the listed plants would benefit from treatment in the occupied habitat area even though some of the listed plants may be lost during treatment activities. For a treatment to be considered beneficial to listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to listed plants, no compensatory mitigation for loss of individuals will be required. | | | | |
| **Mitigation Measure BIO-1b: Avoid Loss of Special-Status Plants Not Listed Under ESA or CESA**<br>If non-listed special-status plant species (i.e., species not listed under ESA or CESA, but meeting the definition of special-status as stated in Section 3.6.1 of the Program EIR) are determined to be present through application of SPR BIO-1 and SPR BIO-7, the project proponent will implement the following measures to avoid loss of individuals and maintain habitat function of occupied habitat:<br>• Physically avoid the area occupied by the special-status plants by establishing a no-disturbance buffer around the area occupied by species and marking the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The no-disturbance buffers will generally be a minimum of 50 feet from special-status plants, but the size and shape of the buffer zone may be adjusted if a qualified RPF or botanist determines that a smaller buffer will be sufficient to avoid loss of or damaging to special-status plants or that a larger buffer is necessary to sufficiently protect plants from the treatment activity. The appropriate size and shape of the buffer zone will be determined by a qualified RPF or botanist and will depend on plant phenology at the time of treatment (e.g., whether the | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| plants are in a dormant, vegetative, or flowering state), the individual species' vulnerability to the treatment method being used, and environmental conditions and terrain. Consideration of factors such as site hydrology, changes in light, edge effects, and potential introduction of invasive plants and noxious weeds may inform an appropriate buffer size and shape.<br>• Treatments may be conducted within this buffer if the potentially affected special-status plant species is a geophytic, stump-sprouting, or annual species, and the treatment can be conducted outside of the growing season (e.g., after it has completed its annual life cycle) or during the dormant season using only treatment activities that would not damage the stump, root system or other underground parts of special-status plants or destroy the seedbank.<br>• Treatments will be designed to maintain the function of special-status plant habitat. For example, for a fuel break proposed in treatment areas occupied by special-status plants, if the removal of shade cover would degrade the special-status plant habitat despite the requirement to physically or seasonally avoid the special-status plant itself, habitat function would be diminished and the treatment would need to be modified or precluded from implementation.<br>• No fire ignition (nor use of associated accelerants) will occur within the special-status plant buffer.<br>A qualified RPF or botanist with knowledge of the special-status plant species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment would not maintain habitat function of the special-status plant habitat (i.e., the habitat would be rendered unsuitable) or because the loss of special-status plants would substantially reduce the number or restrict the range of a special-status plant species. If the project proponent determines the impact on special-status plants would be less than significant, no further | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| mitigation will be required. If the project proponent determines that the loss of special-status plants or degradation of occupied habitat would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-1c will be implemented.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the special-status plants would benefit from treatment in the occupied habitat area even though some of the non-listed special-status plants may be killed during treatment activities. For a treatment to be considered beneficial to non-listed special-status plants, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status plants, no compensatory mitigation will be required. | | | | |
| **Mitigation Measure BIO-2a: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Listed Wildlife Species and California Fully Protected Species (All Treatment Activities)**<br>If California Fully Protected Species or species listed under ESA or CESA are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid adverse effects to the species by implementing the following.<br><u>Avoid Mortality, Injury, or Disturbance of Individuals</u><br>The project proponent will implement one of the following 2 measures to avoid mortality, injury, or disturbance of individuals: | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
|---|---|---|---|---|
| 1. Treatment will not be implemented within the occupied habitat. Any treatment activities outside occupied habitat will be a sufficient distance from the occupied habitat such that mortality, injury, or disturbance of the species will not occur, as determined by a qualified RPF or biologist using the most current and commonly-accepted science and considering published agency guidance; OR<br>2. Treatment will be implemented outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, CDFW and/or USFWS/NOAA Fisheries will be consulted to determine if there is a period of time within which treatment could occur that would avoid mortality, injury, or disturbance of the species.<br>- For species listed under ESA or CESA, if the project proponent cannot avoid mortality, injury or disturbance by implementing one of the two options listed above, the project proponent will implement Mitigation Measure BIO-2c.<br>- Injury or mortality of California Fully Protected Species is prohibited pursuant to Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code and will be avoided.<br><u>Maintain Habitat Function</u><br>• The project proponent will design treatment activities to maintain the habitat function, by implementing the following:<br>- While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; dens; tree snags; large raptor nests [including inactive nests]; downed woody debris; food sources). These habitat features will be marked and treatments applied to the features will be designed to | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| minimize or avoid the loss or degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.<br>- If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that listed or fully protected wildlife with specific requirements for high canopy cover (e.g., Humboldt marten, fisher, spotted owl, coastal California gnatcatcher, riparian woodrat) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat association information, or other documented standards that are commonly accepted [e.g., 50 percent for coastal California gnatcatcher]) such that habitat function is maintained.<br>• A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. Because this measure pertains to species listed under CESA or ESA or are fully protected, the qualified RPF or biologist will consult with CDFW and/or USFWS/NOAA Fisheries regarding the determination that habitat function is maintained. If consultation determines that the treatment will not maintain habitat function for the special-status species, the project proponent will implement Mitigation Measure BIO-2c. | | | | |
| **Mitigation Measure BIO-2b: Avoid Mortality, Injury, or Disturbance and Maintain Habitat Function for Other Special-Status Wildlife Species (All Treatment Activities)**<br>If other special-status wildlife species (i.e., species not listed under CESA or ESA or California Fully Protected, but meeting the definition of special status as stated in Section 3.6.1 of the Program EIR) are observed during reconnaissance surveys (conducted pursuant to SPR BIO-1) or focused or | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| protocol-level surveys (conducted pursuant to SPR BIO-10), the project proponent will avoid or minimize adverse effects to the species by implementing the following.<br><u>Avoid Mortality, Injury, or Disturbance of Individuals</u><br>• The project proponent will implement the following to avoid mortality, injury, or disturbance of individuals:<br>For all treatment activities except prescribed burning, the project proponent will establish a no-disturbance buffer around occupied sites (e.g., nests, dens, roosts, middens, burrows, nurseries). Buffer size will be determined by a qualified RPF or biologist using the most current, commonly accepted science and will consider published agency guidance; however, buffers will generally be a minimum of 100 feet, unless site conditions indicate a smaller buffer would be sufficient for protection or a larger buffer would be needed. Factors to be considered in determining buffer size will include, but not be limited to, the species' tolerance to disturbance; the presence of natural buffers provided by vegetation or topography; nest height; locations of foraging territory; baseline levels of noise and human activity; and treatment activity. Buffer size may be adjusted if the qualified RPF or biologist determines that such an adjustment would not be likely to adversely affect (i.e., cause mortality, injury, or disturbance to) the species within the nest, den, burrow, or other occupied site. If a no-disturbance buffer is reduced below 100 feet from an occupied site, a qualified RPF or biologist will provide the project proponent with a site- and/or treatment activity-specific explanation for the buffer reduction, which will be included in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any deviation (e.g., further reduction) from the reduced buffer as explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>• No-disturbance buffers will be marked with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). No activity will occur within the buffer areas until the qualified RPF or biologist has determined that the young have fledged or | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| dispersed; the nest, den, or other occurrence is no longer active; or reducing the buffer would not likely result in disturbance, mortality, or injury. A qualified RPF, biologist, or biological technician will be required to monitor the effectiveness of the no-disturbance buffer around the nest, den, burrow, or other occurrence during treatment. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in mortality, injury or disturbance to special-status species.<br>• For prescribed burning, the project proponent will implement the treatment outside the sensitive period of the species' life history (e.g., outside the breeding or nesting season) during which the species may be more susceptible to disturbance, or disturbance could result in loss of eggs or young. For species present year-round, the qualified RPF or biologist will determine the period of time within which prescribed burning could occur that will avoid or minimize mortality, injury, or disturbance of the species. The project proponent may consult with CDFW and/or USFWS for technical information regarding appropriate limited operating periods.<br><u>Maintain Habitat Function</u><br>• For all treatment activities, the project proponent will design treatment activities to maintain the habitat function by implementing the following:<br>- While performing review and surveys for SPR BIO-1 and SPR BIO-10, a qualified RPF or biologist will identify any habitat features that are necessary for survival (e.g., habitat necessary for breeding, foraging, shelter, movement) of the affected wildlife species (e.g., trees with complex structure, trees with large cavities, trees with nesting platforms; tree snags; large raptor nests [including inactive nests]; downed woody debris). These habitat features will be marked and treatments applied to the features will be designed to minimize or avoid the loss or | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| degradation of suitable habitat for listed species during treatments. Identification and treatment of these features will be based on the life history and habitat requirements of the affected species and the most current, commonly accepted science.<br>- If it is determined during implementation of SPR BIO-1 and SPR BIO-10 that special-status wildlife with specific requirements for high canopy cover (e.g., northern goshawk, Sierra Nevada snowshoe hare) are present within a treatment area, then tree or shrub canopy cover within existing suitable areas will be retained at the percentage preferred by the species (as determined by expert opinion, published habitat association information, or other documented standards that are commonly accepted) such that the habitat function is maintained.<br>- A qualified RPF or biologist will determine if, after implementation of the impact avoidance measures listed above, the habitat function will remain for the affected species after implementation of the treatment. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding habitat function.<br>A qualified RPF or biologist with knowledge of the special-status wildlife species habitat and life history will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat function of the special-status wildlife species' habitat or because the loss of special-status wildlife would substantially reduce the number or restrict the range of a special-status wildlife species. If the project proponent determines the impact on special-status wildlife would be less than significant, no further mitigation will be required. If the project proponent determines that the loss of special-status wildlife or degradation of occupied habitat would be significant under CEQA after | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-2c will be implemented.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or biologist that the non-listed special-status wildlife would benefit from treatment in the occupied habitat area even though some of the non-listed special-status wildlife may be killed, injured, or disturbed during treatment activities. For a treatment to be considered beneficial to non-listed special-status wildlife, the qualified RPF or biologist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the species (or similar species) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to special-status wildlife, no compensatory mitigation will be required. The qualified RPF or biologist may consult with CDFW and/or USFWS for technical information regarding the determination that a non-listed special-status species would benefit from the treatment. | | | | |
| **Mitigation Measure BIO-3a: Design Treatments to Avoid Loss of Sensitive Natural Communities and Oak Woodlands**<br>The project proponent will implement the following measures when working in treatment areas that contain sensitive natural communities identified during surveys conducted pursuant to SPR BIO-3:<br>• Reference the *Manual of California Vegetation*, Appendix 2, Table A2, *Fire Characteristics* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/) or other best available information to determine the natural fire regime of the specific sensitive natural community type (i.e., alliance) present. The condition class and fire return interval departure of the vegetation alliances present will also be determined. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |

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

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| *Vegetation* (Sawyer et al. 2009 or current version, including updated natural communities data at http://vegetation.cnps.org/).<br>• Time prescribed herbivory to occur when non-target vegetation is not susceptible to damage (e.g. non-target vegetation is dormant or has completed its reproductive cycle for the year). For example, use herbivores to control invasive plants growing in sensitive habitats or sensitive natural communities when sensitive vegetation is dormant but invasive plants are growing. Timing of herbivory to avoid non-target vegetation will be determined by a qualified botanist, RPF, or biologist based on the specific vegetation alliance being treated, the life forms and life conditions of its characteristic plant species, and the sensitivity of the non-target vegetation to the effects of herbivory.<br>The feasibility of implementing the avoidance measures will be determined by the project proponent based on whether implementation of this mitigation measure will preclude completing the treatment project within the reasonable period of time necessary to meet CalVTP program objectives, including, but not limited to, protection of vulnerable communities. If the avoidance measures are determined by the project proponent to be infeasible, the project proponent will document the reasons implementation of the avoidance strategies are infeasible in the PSA. After completion of the PSA and prior to or during treatment implementation, if there is any change in the feasibility of avoidance strategies from those explained in the PSA, this will be documented in the post-project implementation report (referred to by CAL FIRE as a Completion Report).<br>A qualified RPF or botanist with knowledge of the affected sensitive natural community will review the treatment design and applicable impact minimization measures (potentially including others not listed above) to determine if the anticipated residual effects of the treatment would be significant under CEQA because implementation of the treatment will not maintain habitat functions of the sensitive natural community or oak woodland. If the project proponent determines the impact on sensitive natural communities or oak woodlands would be less than significant, no further mitigation will be required. If the project proponent determines that | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| the loss or degradation of sensitive natural communities or oak woodlands would be significant under CEQA after implementing feasible treatment design alternatives and impact minimization measures, then Mitigation Measure BIO-3b will be implemented.<br>The only exception to this mitigation approach is in cases where it is determined by a qualified RPF or botanist that the sensitive natural community or oak woodland would benefit from treatment in the occupied habitat area even though some loss may occur during treatment activities. For a treatment to be considered beneficial to a sensitive natural community or oak woodland, the qualified RPF or botanist will demonstrate with substantial evidence that habitat function is reasonably expected to improve with implementation of the treatment (e.g., by citing scientific studies demonstrating that the community (or similar community) has benefitted from increased sunlight due to canopy opening, eradication of invasive species, or otherwise reduced competition for resources), and the substantial evidence will be included in the PSA. If it is determined that treatment activities would be beneficial to sensitive natural communities or oak woodlands, no compensatory mitigation will be required. | | | | |
| **Mitigation Measure BIO-4: Avoid State and Federally Protected Wetlands**<br>Impacts to wetlands will be avoided using the following measures:<br>• The qualified RPF or biologist will delineate the boundaries of federally protected wetlands according to methods established in the USACE wetlands delineation manual (Environmental Laboratory 1987) and the appropriate regional supplement for the ecoregion in which the treatment is being implemented.<br>• The qualified RPF or biologist will delineate the boundaries of wetlands that may not meet the definition of waters of the United States, but would qualify as waters of the state, according to the state wetland procedures (California Water Boards 2019 or current procedures).<br>• A qualified RPF or biologist will establish a buffer around wetlands and mark the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| buffer will be a minimum width of 25 feet but may be larger if deemed necessary. The appropriate size and shape of the buffer zone will be determined in coordination with the qualified RPF or biologist and will depend on the type of wetland present (e.g., seasonal wetland, wet meadow, freshwater marsh, vernal pool), the timing of treatment (e.g., wet or dry time of year), whether any special-status species may occupy the wetland and the species' vulnerability to the treatment activities, environmental conditions and terrain, and the treatment activity being implemented.<br>• A qualified RPF or biological technician will periodically inspect the materials demarcating the buffer to confirm that they are intact and visible, and wetland impacts are being avoided.<br>• Within this buffer, herbicide application is prohibited.<br>• Within this buffer, soil disturbance is prohibited. Accordingly, the following activities are not allowed within the buffer zone: mechanical treatments, prescribed herbivory, equipment and vehicle access or staging.<br>• Only prescribed (broadcast) burning may be implemented in wetland habitats if it is determined by a qualified RPF or biologist that:<br>- No special-status species are present in the wetland habitat<br>- The wetland habitat function would be maintained.<br>- The prescribed burn is within the normal fire return interval for the wetland vegetation types present<br>- Fire containment lines and pile burning are prohibited within the buffer<br>- No fire ignition (and associated use of accelerants) will occur within the wetland buffer | | | | |
| **Mitigation Measure BIO-5: Retain Nursery Habitat and Implement Buffers to Avoid Nursery Sites** | **Initial Treatment:** Y | Prior-During | Fire Agency & Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| The project proponent will implement the following measures while working in treatment areas that contain nursery sites identified in surveys conducted pursuant to SPR BIO-10:<br>• **Retain Known Nursery Sites**. A qualified RPF or biologist will identify the important habitat features of the wildlife nursery and, prior to treatment activities, will mark these features for avoidance and retention during treatment<br>• **Establish Avoidance Buffers**. The project proponent will establish a non-disturbance buffer around the nursery site if activities are required while the nursery site is active/occupied. The appropriate size and shape of the buffer will be determined by a qualified RPF or biologist, based on potential effects of project-related habitat disturbance, noise, visual disturbance, and other factors. No treatment activity will commence within the buffer area until a qualified RPF or biologist confirms that the nursery site is no longer active/occupied. Monitoring of the effectiveness of the non-disturbance buffer around the nursery site by a qualified RPF, biologist, or biological technician during and after treatment activities will be required. If treatment activities cause agitated behavior of the individual(s), the buffer distance will be increased, or treatment activities modified until the agitated behavior stops. The qualified RPF, biologist, or biological technician will have the authority to stop any treatment activities that could result in potential adverse effects to special-status species. | **Treatment Maintenance:** Y | | | |
| **PDIF SH-3 Minimization of Pile Burning Disturbance (not required by the CalVTP PEIR):** Pile burning will not be performed in sensitive habitats, such as serpentine-associated communities, wetlands, or riparian areas. If piles are burned on a different day than piled, the piles should be moved prior to burning to ensure wildlife is not present, such as by re-piling by hand, or a qualified biologist will inspect the pile prior to burning to ensure wildlife are not present. If moving or inspection of the piles is not feasible, the pile will be lit from one side and allowed to burn slowly to the other side, in order to allow any wildlife to relocate, rather than lighting the entire pile at once. | **Initial Treatment:** Y<br><br>**Treatment Maintenance:** Y | During | Contractor | MWPA |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **Greenhouse Gas Emissions** | | | | |
| **Mitigation Measure GHG-2. Implement GHG Emission Reduction Techniques During Prescribed Burns**<br>When planning for and conducting a prescribed burn, project proponents implementing a prescribed burn will incorporate feasible methods for reducing GHG emissions, including the following, which are identified in the National Wildfire Coordinating Group Smoke Management Guide for Prescribed Fire (NWCG 2018):<br>• reduce the total area burned by isolating and leaving large fuels (e.g., large logs, snags) unburned;<br>• reduce the total area burned through mosaic burning;<br>• burn when fuels have a higher fuel moisture content;<br>• reduce fuel loading by removing fuels before ignition. Methods to remove fuels include mechanical treatments, manual treatments, prescribed herbivory, and biomass utilization; and<br>• schedule burns before new fuels appear.<br>As the science evolves, other feasible methods or technologies to sequester carbon could be incorporated, such as conservation burning, a technique for burning woody material that reduces the production of smoke particulates and carbon released into the atmosphere and generates more biochar. Biochar is produced from the material left over after the burn and spread with compost to increase soil organic matter and soil carbon sequestration. Technologies to reduce greenhouse gas emissions may also include portable units that perform gasification to produce electricity or pyrolysis that produces biooil that can be used as liquid fuel and/or syngas that can be used to generate electricity.<br>The project proponent will document in the Burn Plan required pursuant to SPR AQ-3 which methods for reducing GHG emissions can feasibly be integrated into the treatment design. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior-During | Contractor | MWPA |
| **Hazardous Materials, Public Health and Safety** | | | | |

| CalVTP PEIR Mitigation Measures | Applicable? (Y/N) | Timing | Implementing Entity | Verifying/Monitoring Entity |
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| **Mitigation Measure HAZ-3: Identify and Avoid Known Hazardous Waste Sites**<br>Prior to the start of vegetation treatment activities requiring soil disturbance (i.e., mechanical treatments) or prescribed burning, CAL FIRE and other project proponents will make reasonable efforts to check with the landowner or other entity with jurisdiction (e.g., California Department of Parks and Recreation) to determine if there are any sites known to have previously used, stored, or disposed of hazardous materials. If it is determined that hazardous materials sites could be located within the boundary of a treatment site, the project proponent will conduct a DTSC EnviroStor web search (https://www.envirostor.dtsc.ca.gov/public/) and consult DTSC's Cortese List to identify any known contamination sites within the project site. If a proposed mechanical treatment or prescribed burn is located on a site included on the DTSC Cortese List as containing potential soil contamination that has not been cleaned up and deemed closed by DTSC, the area will be marked and no prescribed burning or soil disturbing treatment activities will occur within 100 feet of the site boundaries. If it is determined through coordination with landowners or after review of the Cortese List that no potential or known contamination is located on a project site, the project may proceed as planned. | **Initial Treatment:** Y<br>**Treatment Maintenance:** Y | Prior | Fire Agency & Contractor | MWPA |