



San Lorenzo Valley Water District Post-Fire Recovery, Critical Asset Hardening, Vegetation, and Fuels Management Plan

May 2021



San Lorenzo Valley Water District

Post Fire Recovery, Critical Asset Hardening, Vegetation, and Fuels Management Plan

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TABLE OF CONTENTS

Table of Contents

1	Executive Summary	1-1
1.1	Introduction.....	1-1
1.2	Vegetation Treatment Methods and Priorities.....	1-1
1.3	Environmental Considerations and Permitting Requirements	1-3
1.4	Costs and Funding.....	1-3
2	Introduction	2-1
2.1	Overview of the San Lorenzo Valley Water District.....	2-1
2.2	Purpose and Need	2-1
3	Background and Environmental Setting	3-1
3.1	Management Area	3-1
3.2	Overview of Critical Assets.....	3-1
3.3	Resources Present	3-1
3.4	Recent Wildfires.....	3-3
3.5	Current Threats and Risks.....	3-4
3.6	Fire Agency Outreach	3-12
4	Vegetation Treatment Methods	4-1
4.1	Overview.....	4-1
4.2	Manual and Mechanical Methods	4-1
4.3	Prescribed Burning.....	4-4
4.4	Grazing or Prescribed Herbivory	4-4
4.5	Biomass and Slash Disposal.....	4-5
4.6	Best Management Practices.....	4-6
5	Recommended Treatments	5-1
5.1	Near-Term Post-Fire Recovery Treatments (~Years 2020-2023)	5-1
5.2	Defensible Space, Fuel Reduction, and Material Upgrades	5-9
5.3	Long-Term, Large-Scale Management Options (~Years 2021-2060)	5-12
5.4	Prioritization Process	5-16
6	Environmental and Permitting Requirements	6-1

TABLE OF CONTENTS

6.1	Overview.....	6-1
6.2	Project-by-Project Approach.....	6-1
6.3	Programmatic CEQA Approach.....	6-11
7	Estimated Cost for Implementation.....	7-1
8	Potential Funding Sources.....	8-1
9	Preparers.....	9-1
10	References.....	10-1
11	Glossary of Terms.....	11-1

List of Tables

Table 1	Attendees of the Outreach Meetings.....	3-12
Table 2	Potential Emergency Permits or Approvals Needed.....	6-2
Table 3	Potential Permits or Approvals Needed for Fuel and Infrastructure Hardening Projects.....	6-8
Table 4	Estimated Costs Per Treatment (Based on 2020/2021 Prices).....	7-1
Table 5	Estimated Costs for Permitting, Environmental Review, and Resource Surveys (Based on 2020/2021 Prices).....	7-3
Table 6	Summary of Potential Funding Sources (2020/2021).....	8-3
Table 7	Plan Authors.....	9-1

List of Figures

Figure 1	San Lorenzo Valley Water District Service Area and Lands.....	3-2
Figure 2	Local WUI.....	3-5
Figure 3	CAL FIRE Fire Hazard Severity Zones.....	3-6
Figure 4	Fire Hazard – Probability of Flame Lengths Exceeding 8 Feet.....	3-8
Figure 5	Sudden Oak Death Observations.....	3-11
Figure 6	Typical Masticator.....	4-2
Figure 7	Location of CZU Complex Perimeter Relative to SLVWD Infrastructure.....	5-2
Figure 8	Vegetation Burn Severity of SLVWD Lands.....	5-3
Figure 9	Potential Reforestation Areas (Map 1 of 3).....	5-6
Figure 10	Potential Reforestation Areas (Map 2 of 3).....	5-7
Figure 11	Potential Reforestation Areas (Map 3 of 3).....	5-8
Figure 12	California Ecoregions for Carbon Offset Projects.....	5-14
Figure 13	Properties with Deed Restrictions Prohibiting Timber Harvest.....	5-15
Figure 14	SLVWD-Owned Lands in CalVTP Treatable Area.....	6-7

TABLE OF CONTENTS

List of Appendices

Appendix A	Legal Description and Zoning Designations by SLVWD-Owned Parcel
Appendix B	Status of Existing Water Infrastructure, and Planned and Recommended Infrastructure Upgrades
Appendix C	Site Visit Notes and Photo Logs
Appendix D	Recommended Defensible Space, Fuel Reduction, and Material Upgrades Treatment Maps (Maps are Confidential)
Appendix E	Acres of Recommended Defensible Space and Fuel Reduction Treatment by Parcel and Type
Appendix F	Recommended Higher Priority Defensible Space, Fuel Reduction, and Material Upgrades Treatment Projects (Maps are Confidential)
Appendix G	Annual Planning and Reconciliation Checklists
Appendix H	Copies of Deed Restrictions

1 Executive Summary

1.1 Introduction

1.1.1 Overview of the District

The San Lorenzo Valley Water District (SLVWD or District), established in 1941, supplies water to the communities of Boulder Creek, Brookdale, Lompico, Ben Lomond, Zayante, Mañana Woods and Felton, and to a portion of the City of Scotts Valley, through a network of over 190 miles of distribution lines, pump stations and reservoirs. There are more than 7,900 connections that serve approximately 26,000 customers throughout its service area.

1.1.2 Existing Conditions and Threats

Changing climatic conditions, tree mortality caused by disease, high density of invasive species, and years of fire suppression have increased fuel loads and fire-prone conditions that could contribute to larger, more intense wildland fires within the District service area. The devastating CZU Lightning Complex ignited in fall 2020 and burned 80 percent of SLVWD-owned properties and destroyed or damaged 50 percent of the critical water infrastructure, resulting in interrupted supply of water to customers and substantial repair costs. Future wildfires carry the same risk of interrupted or further loss of water supply and damage to the watershed.

1.1.3 Purpose and Need

The Post-Fire Recovery, Critical Asset Hardening, Vegetation, and Fuels Management Plan (plan) is intended to address the need for vegetation and fuels management to lessen the presence of unnaturally high fuel loads on District-owned lands and around District-owned assets to reduce the intensity and harmful impacts of wildfires. The plan identifies a suite of recommended projects designed to reduce or maintain the lowered fuel loads, increase fire resiliency, and help reduce wildfire impacts to critical water infrastructure.

1.2 Vegetation Treatment Methods and Priorities

1.2.1 Vegetation Treatment Methods

Several different methods are available to implement fuel treatments targeted at managing vegetation on SLVWD-owned land and around critical water infrastructure. Vegetation and fuels treatments will be conducted primarily using manual and mechanical methods, as well as limited grazing and prescribed burning where appropriate. The methods implemented will depend upon site conditions, and the resources to be protected.

EXECUTIVE SUMMARY

1.2.2 Treatment Recommendations and Priorities

Recommended treatments identified in this plan fall into two main categories; 1) near-term post-fire recovery treatments and 2) defensible space, fuel reduction, and material upgrades. Near-term post-fire recovery treatments are concentrated on hazard tree inspections and removal, and reforestation in suitable locations. Defensible space, fuel reduction, and material upgrades include the vegetation management prioritization around water infrastructure and roadways, and specific types of infrastructure installation or upgrades recommended to fire-harden and increase emergency access to water tanks and through SLVWD-lands. The defensible space treatments will increase defensibility and minimize risk. The roadside and property boundary fuel reduction adjacent to residential areas will increase defensibility and provide fuelbreaks to safely conduct suppression actions should a wildfire ignite.

As part of plan preparation, SLVWD conducted meetings in March 2020 with several local fire protection district chiefs and the California Department of Forestry and Fire Protection (CAL FIRE) personnel to assist in fuel project prioritization. The fire agency personnel at these meetings provided various recommendations including establishing defensible space around water tanks and maintenance and vegetation clearance of the roads.

A prioritization process for each of the two treatment categories is detailed in the plan (refer to Section 5.4) to facilitate decision-making and identification of discrete projects. To assist SLVWD in the near-term, a selection of higher priority, recommended projects are presented in a table, with a description of each and estimated costs in Appendix F. The list of these projects is shown in the box to the right. These projects were developed according to the prioritization process in Section 5.4 of the plan, including the recommendations from fire agency staff and fire professionals, SLVWD staff input, and ease of access.

The plan also delves into the potential long-term, larger-scale management options for SLVWD to consider. Options include continued management of forested areas in the same manner as has been performed for the past 25 years, participation in the voluntary carbon market, and commercial timber harvesting. Each option has benefits and drawbacks that are summarized at a high level in this plan.

HIGHER PRIORITY PROJECTS

1. Defensible Space around Water Infrastructure Outside the CZU Complex on SLVWD-Owned Land (**9 acres**)
2. Ben Lomond Mountain Watershed Property Roadway Fuelbreak (**33.4 acres**)
3. Hydrant Installation
4. Felton Empire Grade Watershed Property Roadway Fuelbreak and Defensible Space Around Water Infrastructure (**12.7 acres**)
5. Felton Empire Grade Watershed Property Roadway Fuelbreak and Defensible Space Around Water Infrastructure (**9.6 acres**)
6. Olympia Property Roadway Fuelbreak (**20 acres**)
7. Felton Empire Grade Watershed Property Boundary Fuelbreak (**13.1 acres**)

1.3 Environmental Considerations and Permitting Requirements

The plan outlines the different types of permitting and environmental review that may be required, depending upon the project to be implemented (refer to Section 6). Where possible, Categorical Exemptions from the California Environmental Quality Act (CEQA) should be sought. Depending on the types of project, a more involved CEQA process may be required, and natural resource permits may also be needed for projects that could impact threatened and endangered species and state and federal waters. A few options for fulfilling CEQA are available, including utilizing CAL FIRE's Vegetation Treatment Program (CalVTP) and Program Environmental Impact Report (PEIR) and other programmatic documentation. These program documents allow for an expedited process, potentially at reduced costs over conducting individual CEQA review. Where existing program environmental review does not cover the proposed activities or would result in overly onerous conditions, the District could consider preparing their own CEQA Initial Study/Mitigated Negative Declaration (IS/MND) or Environmental Impact Report (EIR). Biological and cultural surveys may be needed prior to performing work, particularly for vegetation management projects.

1.4 Costs and Funding

Costs are a consideration for SLVWD and the plan outlines estimated costs per acre for fuel treatments, costs for infrastructure work, and for permitting and environmental review (refer to Section 7), as well as estimated costs for the higher priority projects (refer to Appendix F). Section 8 of the Plan identifies various funding opportunities that may be available to the District. For many of the funding sources, SLVWD may have greater success of grant approval by collaborating as part of a larger regional and multi-stakeholder opportunity such as with the Regional Conservation District (RCD).

2 Introduction

2.1 Overview of the San Lorenzo Valley Water District

SLVWD was established in 1941 as an independent special district. The District is governed by a five-member Board of Directors, elected at-large from within the District's service area.

The District service area comprises approximately 60 square miles in San Lorenzo Valley in Santa Cruz County. The District owns approximately 2,300 acres of land and also owns and operates water extraction, conveyance, and storage facilities consisting of 190 miles of pipelines (both above and below ground) and 11 water tanks, much of which are located on easements. Water service is currently provided to approximately 7,900 residential, commercial, and institutional connections. Both surface water and groundwater resources are depended upon by the District, including nine currently active stream diversions, one groundwater spring, and eight active groundwater wells. The District owns, operates, and maintains two water systems from separate water sources. All water sources are derived solely from rainfall within the 138-square-mile San Lorenzo River watershed. A wastewater system in Boulder Creek's Bear Creek Estates, is also owned, operated, and maintained by the District, which serves approximately 56 homes.

The District's mission is:

"To provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; to manage and protect the environmental health of the aquifers and watershed; and to ensure the fiscal vitality of the San Lorenzo Valley Water District."

2.2 Purpose and Need

Changing climatic conditions to warmer and windier conditions, past land uses, and years of fire suppression have increased fuel loads and fire-prone conditions that could contribute to more frequent, larger, and intense wildfires. Wildfires could disrupt the District's ability to achieve their mission through loss of water infrastructure and degradation of watershed health and water quality. The primary need for vegetation and fuels management is to lessen the presence of unnaturally high fuel loads on District-owned lands and around District-owned assets to reduce the intensity and harmful impacts of wildfires. This plan identifies recommended projects that have been designed to reduce fuel loads, increase fire resiliency, and minimize wildfire impacts on critical water infrastructure that can be implemented individually or collectively as a program.

3 Background and Environmental Setting

3.1 Management Area

San Lorenzo Valley is located in the Santa Cruz Mountains in Santa Cruz County, California. Over the years, the District's service area has changed from rural and vacation cabins with limited or seasons water use to a more urbanized, year-round water-use area. It is currently home to an estimated 35,000 people, of which SLVWD serves approximately 26,000 customers through approximately 7,900 connections. The District's service area covers the towns of Ben Lomond, Felton (including Lompico-Zayante areas), Brookdale, Boulder Creek, and parts of the City of Scotts Valley. The service area comprises approximately 60 square miles, within which the District owns approximately 2,300 acres of land, as shown in Figure 1.

3.2 Overview of Critical Assets

The District owns and operates over 190 miles of distribution lines, pump stations, and water tanks. This infrastructure is located both on lands owned in fee by SLVWD (Appendix A) and on private lands, with access governed by existing easements. The District has identified the infrastructure shown in Figure 1 and Appendix B as critical for maintaining water supply to the customers in the service area.

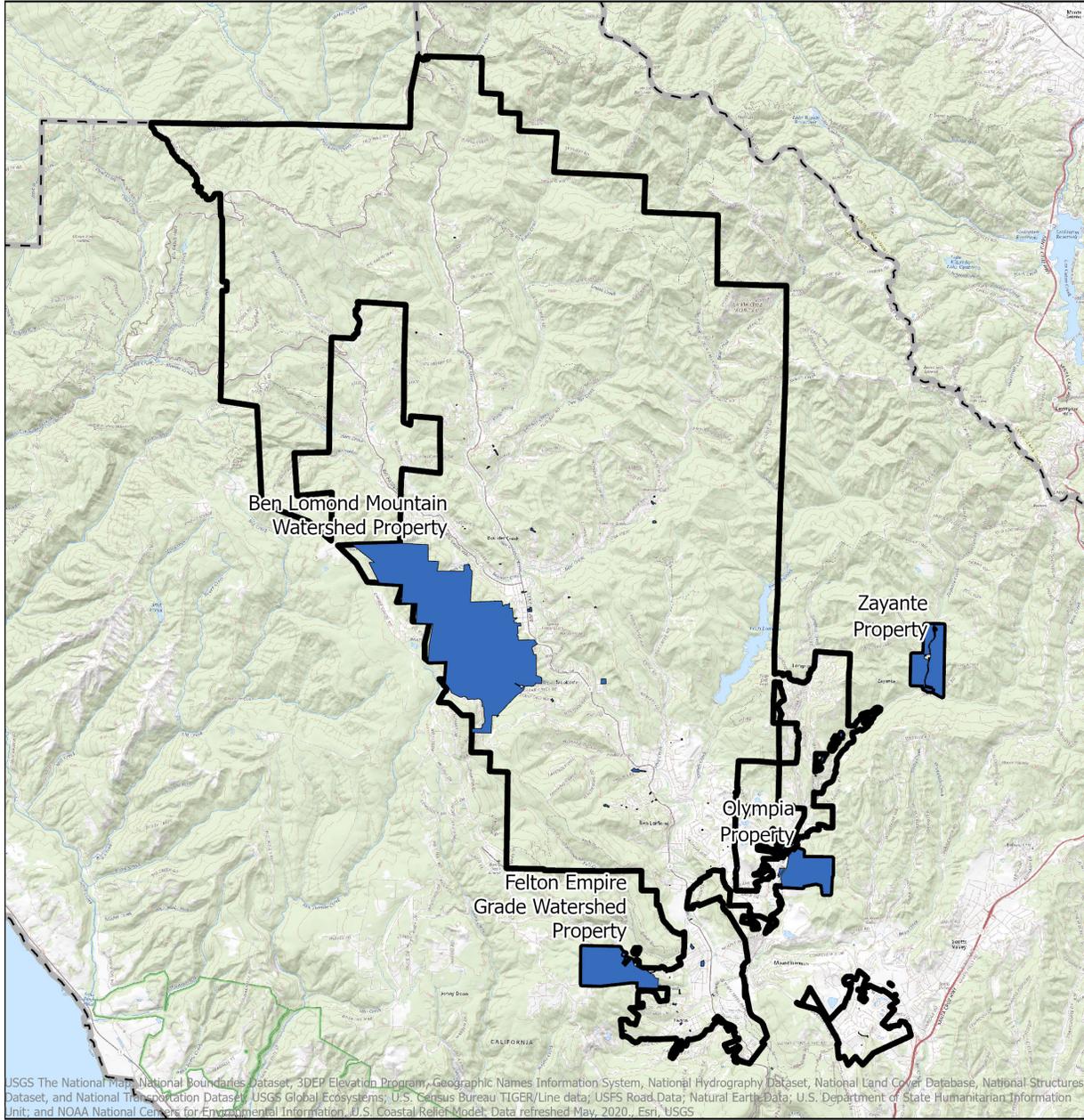
3.3 Resources Present

3.3.1 Natural Resources

The Santa Cruz Mountains are one of the more biologically diverse areas in California. The biological diversity of the Santa Cruz Mountains characterizes the San Lorenzo River watershed. The watershed contains overlapping habitats of terrestrial, aquatic, and marine species, including 55 species of mammals, 33 species of reptiles and amphibians, and more than 200 species of birds. Many special-status plant and animal species occur in the San Lorenzo River watershed, including California red-legged frog (*Rana boylei*) and Ben Lomond wallflower (*Erysimum teretifolium*). District-owned lands are also home to the rare inhabitants of the sandhills communities (SLVWD, 2009). The San Lorenzo River is an approximately 29-mile-long river originating in the Santa Cruz Mountains and flowing into the Monterey Bay.

BACKGROUND AND ENVIRONMENTAL SETTING

Figure 1 San Lorenzo Valley Water District Service Area and Lands



- SLVWD Property
- SLVWD Service Area
- Santa Cruz County Boundary



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BACKGROUND AND ENVIRONMENTAL SETTING

Approximately 26 miles of the San Lorenzo River, and at least nine of its major tributaries support federally threatened steelhead (*Oncorhynchus mykiss*). Historically, the San Lorenzo River supported the largest coho salmon (*Oncorhynchus kisutch irideus*) and steelhead fishery south of San Francisco Bay, and the fourth largest steelhead fishery in California (SLVWD, 2009).

The San Lorenzo River watershed supports a wide variety of natural plant communities, which in turn support a diverse range of wildlife species. Plant communities include redwood forests, chaparral, the rare sandhills, grassland, oak woodland, and riparian woodland. Many of these plant communities can be found on District-owned lands. Many of the plant species composing the sandhills community are disjunct coastal species, isolated in the sandhills miles from the coast. These disjunct coastal species often exert different morphologies from their coastal counterparts. The sandhills also contain forms of species that are common elsewhere in the state but have strikingly different forms or habits in the San Lorenzo River watershed. Sandhills chaparral communities have undergone the most dramatic shift in structure due to plant succession in the absence of fire, attributed to increased canopy closure. Invasive plants like broom and acacia are converting open canopy habitat into shrublands (McGraw, 2020). Canopy gaps important for maintaining plant diversity are likely also important for the unique sandhills fauna, which is impacted by canopy closure due to fire exclusion (SLVWD, 2009). Invasive and non-native species like European annual grasses and herbs are abundant in the sandhill habitats and are out competing native plants. The nearby Olympia quarry has contributed to the invasion of non-native plants. Woody invasive species, such as French broom, Portuguese broom, and silver wattle have a significant negative effect on the sandhill habitat and associated endemic plants and animals (McGraw, 2020). The invasive species correlated with increased fire risk are discussed further in Section 3.5.5.

3.3.2 Cultural Resources

The first residents of the San Lorenzo River watershed were the Ohlone Indians. Their numbers were small and their population density low. They hunted deer and other games, fished, and gathered various plant foods. They were nomadic; they traveled from place to place seasonally, following seasonal food sources. The Ohlone Indians were the original inhabitants of the canyon that now holds Loch Lomond Reservoir. This local group was referred to as the Zayante. No archeological sites on District-owned land have been observed by District staff. No such sites were found during an archeological survey completed in 1993, as part of a proposed timber harvest plan for the Malosky Creek property, now owned by the District (SLVWD, 2009). While no sites are known, sites may still occur that have yet to be discovered.

3.4 Recent Wildfires

On August 16, 2020, the CZU Lightning Complex (CZU Complex) began burning in Santa Cruz County. The wildfire spread eventually ended up burning over 86,000 acres, destroying hundreds of structures, and the majority of SLVWD lands west of the Highway 9 corridor. The fire resulted in direct damage to SLVWD infrastructure, immediate and potential delayed

BACKGROUND AND ENVIRONMENTAL SETTING

vegetation mortality, hazard trees, and created potential erosion issues. The impacts of this fire on vegetation are addressed in Section 5.1.1.

Prior to the CZU Complex, Santa Cruz County experienced three moderately sized wildfires resulting in approximately 5,400 acres burned and numerous homes destroyed (2008). Again, in 2009, Santa Cruz County experienced two large wildfires resulting in approximately 8,500 acres burned, damaging, and destroying numerous homes and structures. In 2016, the Loma Fire burned 4,500 acres along the crest of the Santa Cruz Mountains adjacent to the Santa Clara/Santa Cruz border. In 2017, the Bear Fire burned under 400 acres, destroyed seven structures and threatened hundreds in communities adjacent to Castle Rock State Park (CAL FIRE and RCD, 2018).

The San Lorenzo River watershed contains substantial areas of fire-adapted vegetation, reported to burn at historical intervals of typically 40 to 80 years. Prior to the CZU Complex that impacted part of the San Lorenzo River Watershed, no major wildfires occurred in the watershed in the last three decades (SLVWD, 2009).

3.5 Current Threats and Risks

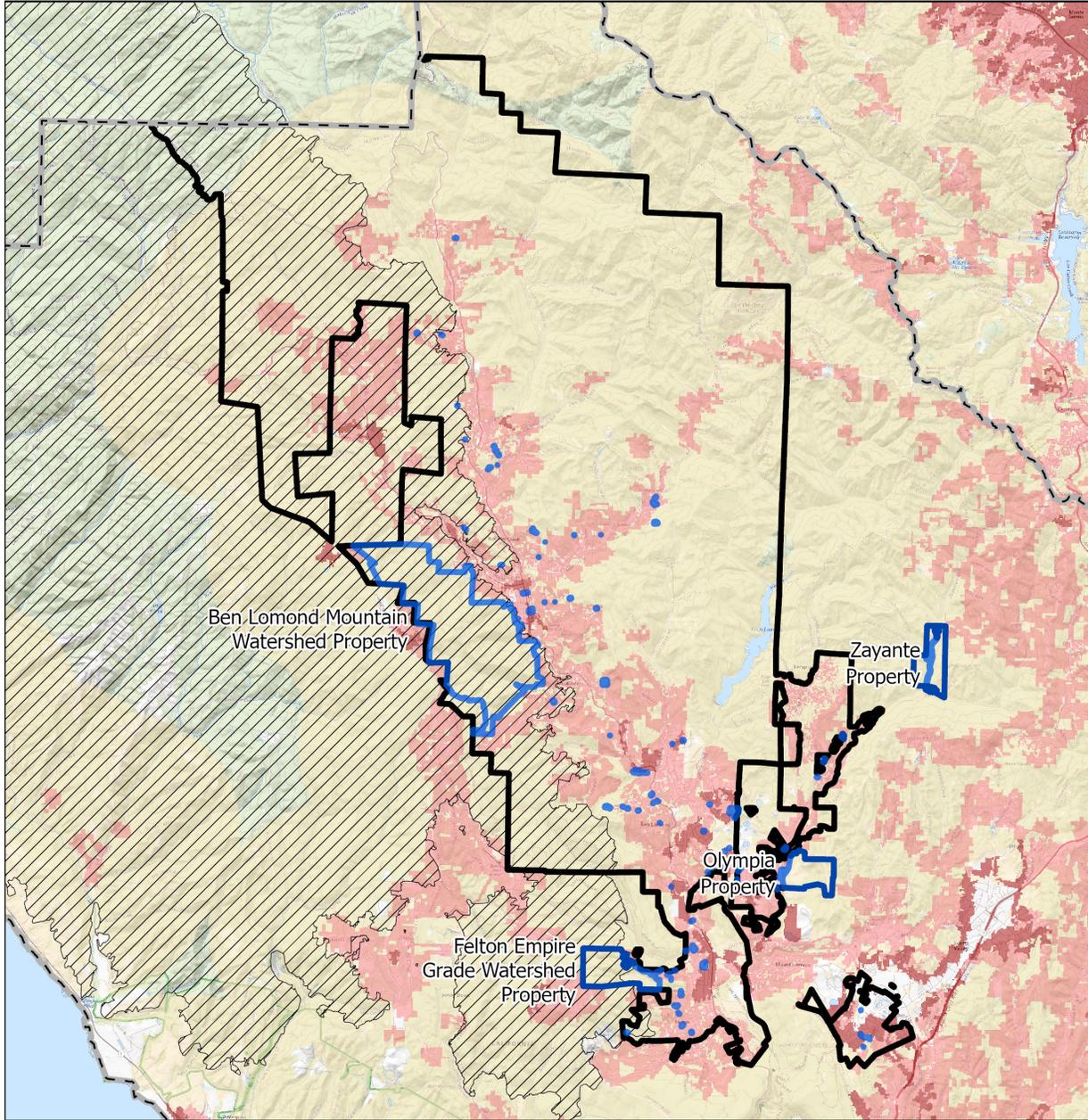
3.5.1 Overview

Wildfire has long been both a natural occurrence, as well as a land management tool in the Santa Cruz Mountains, since the earliest inhabitants arrived between 30,000 to 10,000 years ago. Wildland fire behavior is influenced by three main factors: weather, fuels, and topography. Changing climatic conditions, tree mortality caused by disease, high density of invasive species, and years of fire suppression have increased fuel loads and fire-prone conditions that could contribute to larger, more intense wildland fires within the District service area. The entire District service area is located in the Wildland Urban Interface (WUI) (Figure 2). Most of SLVWD-owned lands are designated as an influence zone¹ The service area is designated by CAL FIRE as in a moderate to high fire hazard severity zone (Figure 3).

¹ Interface: where structures are adjacent to the wildland vegetation
Intermix: where structures intermingle with wildland vegetation
Influence zone: areas of wildland vegetation

BACKGROUND AND ENVIRONMENTAL SETTING

Figure 2 Local WUI



Map Produced by Spatial Informatics Group on 4/29/2021

- | | |
|---|--|
|  SLVWD Property | Wildland Urban Interface (WUI)
(egis.fire.ca.gov) |
|  Santa Cruz County Boundary | |
|  SLVWD Service Area |  Influence Zone |
|  CZU Lightning Complex (data-nifc.opendata.arcgis.com) |  Intermix |
| |  Interface |

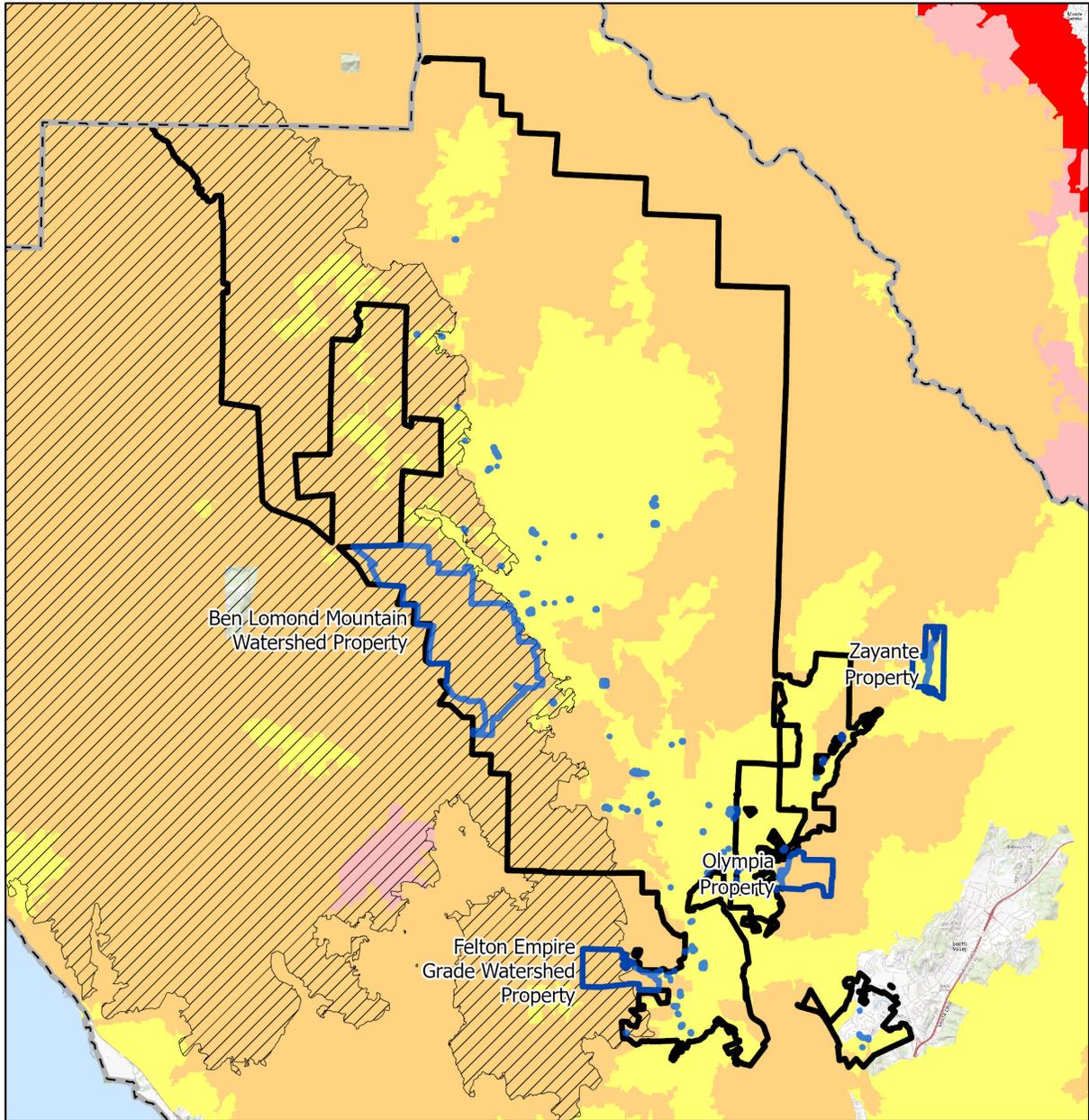


0 1 2 Miles

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BACKGROUND AND ENVIRONMENTAL SETTING

Figure 3 CAL FIRE Fire Hazard Severity Zones



Map Produced by Spatial Informatics Group on 4/30/2021

- | | |
|--|---|
|  SLVWD Property | CalFire Fire Hazard Severity Zone in LRA |
|  Santa Cruz County Boundary |  Very High |
|  SLVWD Service Area | CalFire Fire Hazard Severity Zone in SRA |
|  CZU Lightning Complex (data-nifc.opendata. arcgis.com) |  Very High |
| |  High |
| |  Moderate |



0 1 2 Miles

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Note: CAL FIRE Hazard Severity Zones are not updated to reflect effects of the CZU Complex.

BACKGROUND AND ENVIRONMENTAL SETTING

3.5.2 Fire Hazard Assessment Methodology

The CZU Complex dramatically altered surface fuels and forest vegetation within the San Lorenzo Valley Water District service area. In the short term, the CZU Complex is expected to result in the creation of new potential hazard trees, but surface fuels consumed and otherwise reduced by the wildfire should reduce potential fire hazard within burned areas, until adequate new fuels are accumulated over time.

Outside of the burn perimeter, fire hazard was assessed using publicly available data from the United States Department of Agriculture (USDA, 2020). This site provides recent and downloadable geo-spatial data on fire hazard risk that can be utilized to evaluate potential fire hazard at 100-meter scale for the San Lorenzo Valley Areas outside of the CZU Complex burn perimeter. The probability for the general area outside of the CZU Complex perimeter where flame lengths or modeled to exceed 8 feet are shown is shown in **Error! Not a valid bookmark self-reference.** Flame Length Exceedance Probability is the likelihood that flames generated in a fire would exceed 8 feet in size (USDA 2020; Scott et al. 2020). Flame length is typically used as a proxy for fire intensity. In general, the green areas would exhibit lower intensity fire grading up to red with the potential for highest intensity fire.

Areas within the CZU Complex are shown in grey as updated (post fire) data is not available, but generally speaking, due to the high consumption of surface fuels, flame lengths should remain relatively low (<4 feet) until additional surface fuels, grasses, and brush accumulates in the burn area. Other risks to communities from wildfire include difficult ingress and egress due to limited or narrow access roads. Some communities, such as Lompico, in Santa Cruz County have limited evacuation routes, which poses a risk during a wildfire or other natural disaster.

3.5.3 Historic and Current Vegetation Management

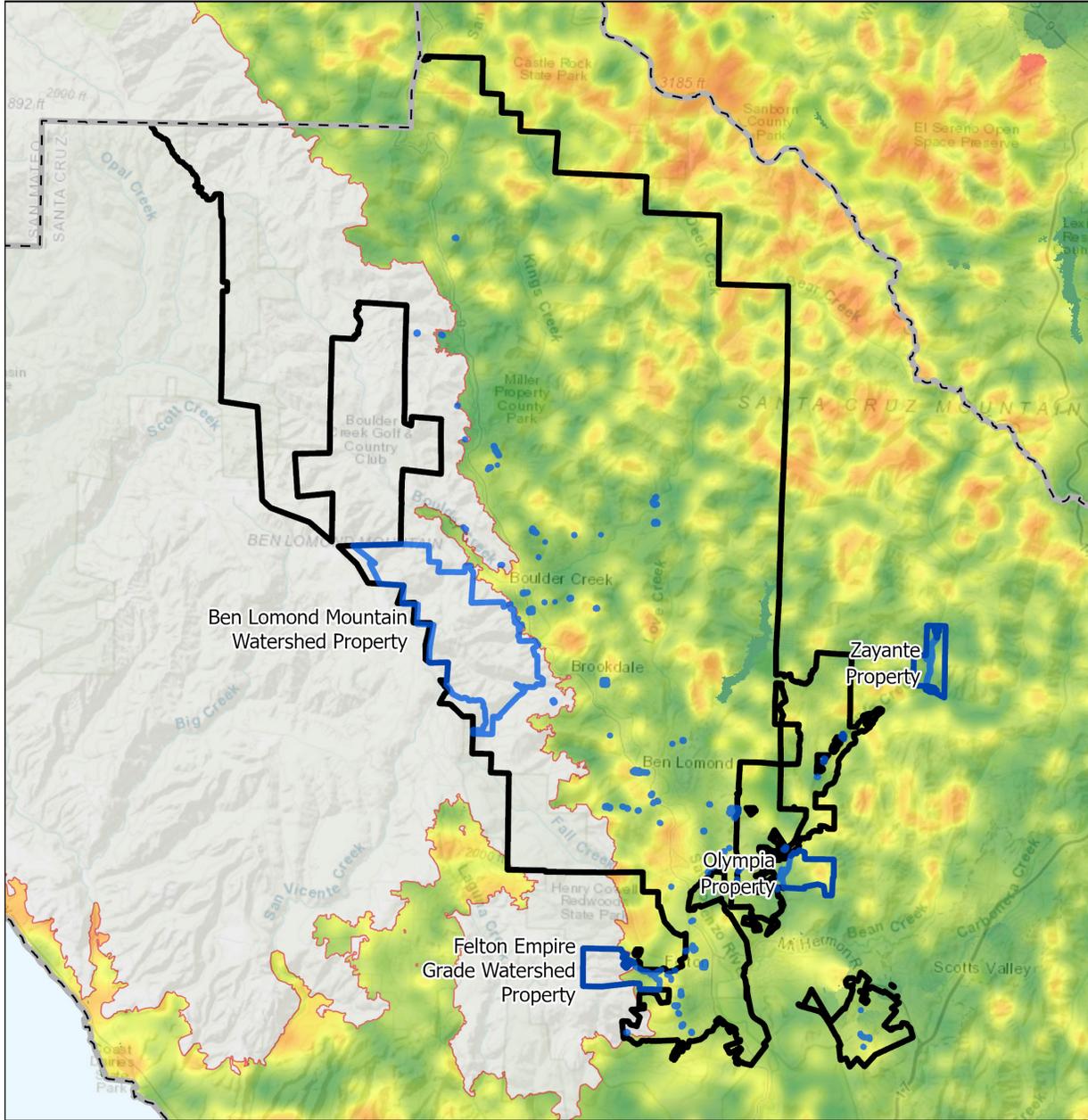
Prior to human inhabitation, lightning accounted for all fire ignitions. Over a 50-year period during this time, lightning fires were estimated to cover approximately 37 percent of the redwood forest, over approximately 20 percent of the land surface of Santa Cruz County.

Upon arrival of humans, lightning was no longer the main source of fire. Native Americans were nomadic, depending on the seasonal availability of foods. Fires were set in oak savannah and coastal prairie by Native Americans to increase the productivity and collection of acorns, bulbs, and other edible plants. Prior to the arrival of Europeans, forest fires were mostly low intensity ground fires that typically did not burn into the conifer live crowns. Fires set by Native Americans burned through the forest often enough to prevent the accumulation of high fuel loads on the forest floor or the occurrence of dense ladder fuels that carry flames into the canopy.

Traditional use of fire by the native Ohlone was made illegal upon the arrival of the Spanish. The Spanish primarily burned chaparral, in order to increase grazing areas on their ranches. Most of the forested land within the San Lorenzo River watershed was clearcut during the 1800s and early 1900s. Loggers burned to reduce slash, to ease the removal of downed logs, and to convert logged land to other uses.

BACKGROUND AND ENVIRONMENTAL SETTING

Figure 4 Fire Hazard – Probability of Flame Lengths Exceeding 8 Feet



Map Produced by Spatial Informatics Group on 4/29/2021

- SLVWD Property
- SLVWD Service Area
- Santa Cruz County Boundary
- CZU Lightning Complex (data-nifc.opendata. arcgis.com)

Flame Length Exceedance
Probability - 8ft (wildfirerisk.org)

Value

100%
0%



0 1 2 Miles

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BACKGROUND AND ENVIRONMENTAL SETTING

Since the late 1920s, fire has been suppressed and excluded as an ecosystem process in the San Lorenzo River watershed and throughout Santa Cruz County. Fire exclusion altered the natural processes of fire, reduced habitat variability, and impaired natural mechanisms necessary for ecosystem health. Fire suppression and clear-cutting altered forest structure, increasing density of tan oaks and hardwoods in the forest understory, and removed the patchy mosaic of various plant communities. The resulting build-up of ignitable fuel material on the ground has increased the risk of a catastrophic fire throughout the Santa Cruz Mountains (SLVWD, 2009).

The most recent known commercial timber harvesting on District lands was conducted on the Upper Zayante property in the 1970s. Since the 1970s, limited vegetation treatments have been conducted on the majority of lands owned by the District, consisting primarily of brushing associated with maintaining access roads (Blanchard, 2020). Moderately more intensive land management activities have been conducted on the Olympia watershed property as part of the District's Habitat Management and Monitoring Plan. Within the Olympia watershed property is a 6.3-acre Olympia Conservation Area that supports endangered species and sensitive habitats. Management in this area has been limited to invasive plant removal, erosion control, and protection of habitats via fencing (McGraw, 2020).

3.5.4 Current Vegetation Condition

Dominant forest vegetation types within proposed treatment sites include redwood forest, coastal oak woodland, mixed hardwood, and mixes of conifer (redwood trees and scattered Douglas-fir trees) and hardwood (tan oak and madrone). Age of the forest that survived the CZU Complex in the area of the treatment sites is around 100 years. The proposed treatment sites are generally estimated to be timber site classification III² (14 CCR § 1060). Refer to Section 5.1.1 for a preliminary assessment of vegetation in the area of CZU Complex. The Forest Management Plan to be prepared by SLVWD will identify the estimated extent of the natural damage and verify classification of the trees on the treatment sites.

3.5.5 Invasive Species

French broom (*Genista monspessulana*) infestations are quite flammable, increasing the risk of high intensity fire where it is present. According to invasive plant removal specialist Ken Moore, the invasive populations of French broom on District property at the Olympia property have increased the risk of catastrophic fire (McGraw, 2020). The remainder of District-owned lands have not been surveyed for invasive species such as French broom (SLVWD, 2009). Eucalyptus (*Eucalyptus globulus*) is present on SLVWD lands, and known to increase fire hazard, particularly where growing in close proximity to each other, particularly where shed bark and foliage has accumulated beneath established trees and stands (Coats, 2014).

² Site classifications are a reference to the quality of the timber, where I is the highest quality and V is the lowest quality. Classifications are generally based on tree size.

BACKGROUND AND ENVIRONMENTAL SETTING

3.5.6 Sudden Oak Death

Sudden Oak Death (SOD) is a prevalent disease within forested lands. SOD has killed over one million native oak and tanoak trees and infests many other forest species in one Oregon and 15 coastal California counties. SOD is confirmed to be present with the Santa Cruz mountains as shown in (COMTF, 2019). A comprehensive survey for SOD has not been conducted in Santa Cruz County, but small, local surveys have been conducted referred to as SOD blitzes. Based on recent data collected in 2020 in Santa Cruz County and across California, levels of SOD infections in coastal, cooler areas in Santa Cruz County are remaining stable, whereas SOD is spreading more than predicted based on rainfall in warmer slightly inland areas (UC Berkeley, 2020).

District-owned lands have not been surveyed for SOD (SLVWD, 2009). SOD is present at several of the sites on District land that were visited. The disease was most evident in tan oak (*Notholithocarpus densiflorus*) individuals less than 6 inches in diameter. Some standing dead trees greater than 12 inches in diameter may be present on the proposed treatment sites as a result of SOD.

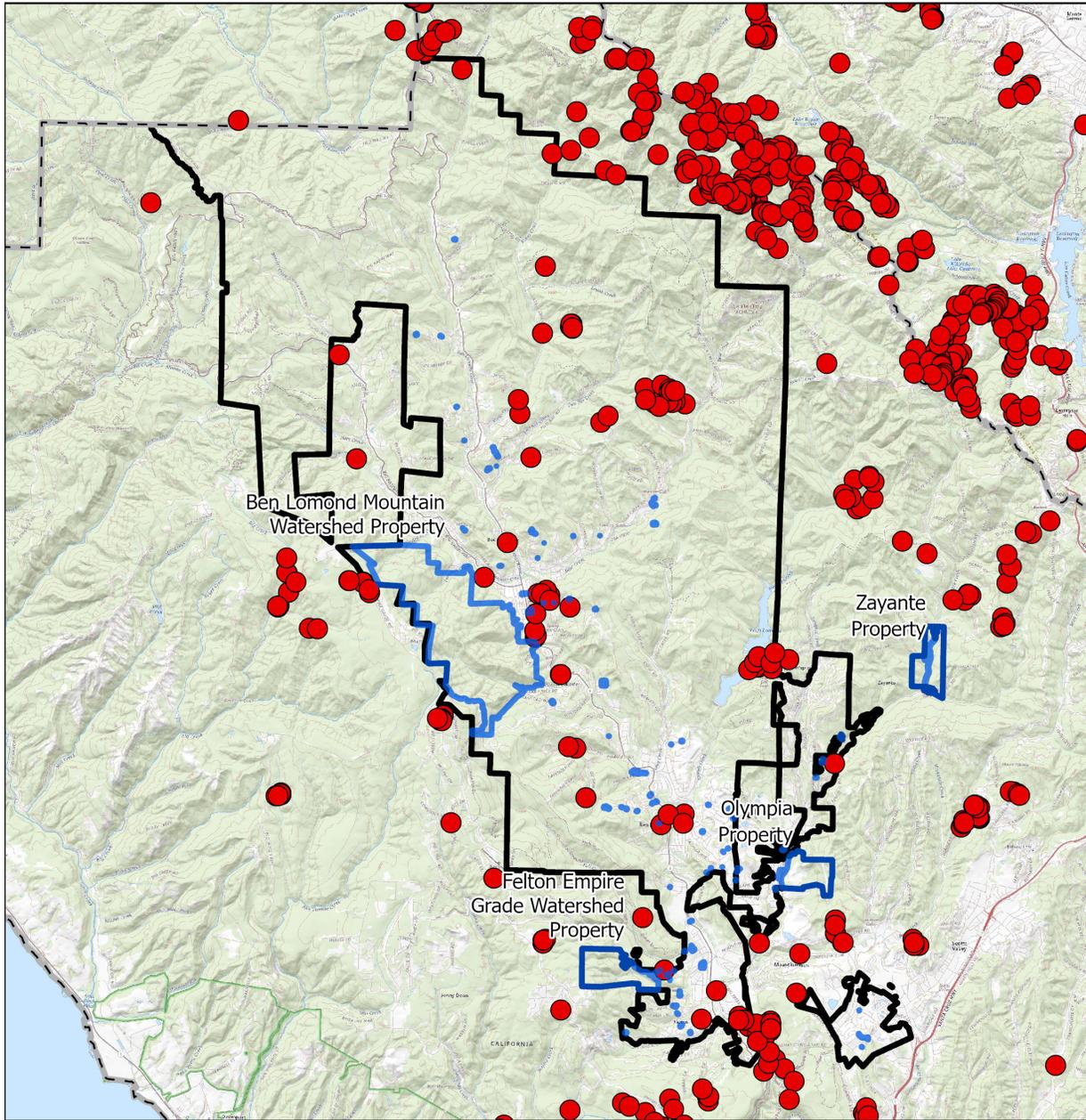
Refer to Section 4.6 for sources of best management practices (BMPs) that can be implemented to minimize the spread of SOD. In areas of SLVWD-owned lands that burned in the CZU fire, smaller trees including SOD-affected oak and bay trees, experienced high mortality. Studies are underway regarding to what extent SOD survives wildfire.

3.5.7 Climate Change

California is experiencing climate changes with more frequent heat waves, higher temperatures, and successive periods of drought. Temperatures in California are projected to increase 5.6 to 8.8 degrees by 2100. Conversely, the snowpack is anticipated to decline to less than half the historical average. Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. These changes are expected to lead to increased frequency and intensity of large wildland fires and greater fire risk if fuel management activities are not expanded across the state (CNRA, 2018).

BACKGROUND AND ENVIRONMENTAL SETTING

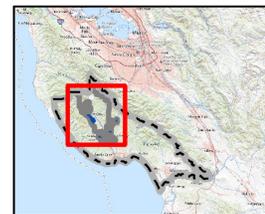
Figure 5 Sudden Oak Death Observations



San Lorenzo Valley Water District

Map Produced by Spatial Informatics Group on 4/29/2021
USGS Topo (<https://apps.nationalmap.gov/>)

- Sudden Oak Death (2006-2020 Berkeley Forest Pathology Lab)
 - SOD Positive Sample
- SLVWD Property
- Santa Cruz County Boundary
- SLVWD Service Area



0 1 2 Miles

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3.6 Fire Agency Outreach

Two fire agency coordination meetings were conducted on March 12 and 16, 2021 to initiate long-term coordination and collaboration efforts. Individuals from SLVWD, local fire protection districts, and CAL FIRE attended the meetings. Table 1 lists the names and contact information for the attendees of the meetings. The discussions with local fire agencies were centered primarily on recommendations to prioritize upgrades for SLVWD infrastructures and fuel treatments. Ongoing coordination via email with fire agencies continued after the meetings to narrow down priorities for tank access and hydrants or other upgrades. Recommendations from fire agencies were considered in preparation of the plan.

Table 1 Attendees of the Outreach Meetings

Name and Title	Agency	Email
Fire Agency Coordination Meeting March 12, 2021		
John Stipes, Chief	Zayante Fire Protection District	Jstipes@zayantefire.com
Mark Bingham, Chief	Boulder Creek Fire Protection District	Mbingham@bcfd.com
Robert Gray, Chief	Felton Fire Protection District	Rgray@feltonfire.com
Tom Shevenell, Battalion Chief	712 CAL FIRE	Tom.Shevenell@fire.ca.gov
Stacie Brownlee, Chief	Ben Lomond Fire Protection District	Blfdchief@benlomondfd.com
Rick Rogers, District Manager	SLVWD	rrogers@slvwd.com
Carly Blanchard, Environmental Planner	SLVWD	cblanchard@slvwd.com
James Furtado, Director of Operations	SLVWD	jfurtado@slvwd.com
Jason Moghaddas, Principal/RPF	SIG	jmoghaddas@sig-gis.com
Carl Rudeen, GIS Specialist	SIG	crudeen@sig-gis.com
Tania Treis, Principal	Panorama Environmental	tania.treis@panoramaenv.com
Caitlin Gilleran, Environmental Planner	Panorama Environmental	caitlin.gilleran@panoramaenv.com
Fire Agency Coordination Meeting March 16, 2021		
Chris Walter, Deputy Fire Marshal	CAL FIRE	Chris.walters@fire.ca.gov
Nicholi Mackewicz, Deputy Fire Marshal	Santa Cruz CAL FIRE	Nicholi.mackewicz@fire.ca.gov
Andy Hubbs, Vegetation Management Program Coordinator; Forester	Santa Cruz-San Mateo CAL FIRE	Andrew.hubbs@fire.ca.gov
Frank Rodgers, Fire Captain Pre-Fire Engineering	CAL FIRE	Frank.Rodgers@fire.ca.gov
Ron Whittle, Chief	Scotts Valley Fire District	Rwhittle@scottsvalleyfire.com

BACKGROUND AND ENVIRONMENTAL SETTING

Name and Title	Agency	Email
Carly Blanchard, Environmental Planner	SLVWD	cblanchard@slvwd.com
Phil Dye	Prometheus Fire Consulting	phil@prometheusfireconsulting.com
Jason Moghaddas, Principal/RPF	SIG	jmoghaddas@sig-gis.com
Carl Rudeen, GIS Specialist	SIG	crudeen@sig-gis.com
Tania Treis, Principal	Panorama Environmental	tania.treis@panoramaenv.com
Caitlin Gilleran, Environmental Planner	Panorama Environmental	caitlin.gilleran@panoramaenv.com

4 Vegetation Treatment Methods

4.1 Overview

This section describes the fuel treatment methods that may be utilized by SLVWD to manage vegetation on their properties and around their infrastructure. Vegetation and fuels treatments will be conducted primarily using manual and mechanical methods, as well as limited grazing and prescribed burning. Cut or pulled vegetation may be trucked away from treatment area. If the vegetative material is left in the treatment area, the material will be disposed of using pile burning or chipping. The methods implemented at a particular treatment area will vary depending upon site conditions and other considerations. Each treatment method that could be used to conduct vegetation and fuels treatment is described below.

4.2 Manual and Mechanical Methods

4.2.1 Summary

Manual and mechanical methods are used for vegetation removal via cutting, pulling, and chipping. Mechanical methods involve use of powered heavy equipment. Manual methods involve use of powered or non-powered hand tools. Cutting refers to the removal of the above ground portions of target vegetation. This activity encompasses pruning and limbing, designed to leave trees and shrubs alive but reduced in size; brushing and mowing activities, which remove all above ground parts of a plant but leave the roots intact below ground; and tree felling. Depending on the species and the specific technique used, cutting may result in mortality or it may simply reduce the height or seeding capacity of vegetation for one or more seasons. Girdling refers to removing a strip of bark from the entire circumference of a tree, which results in death in many species. Girdling is generally conducted with hand tools, specifically a hatchet or chainsaw. Pulling is used to completely remove target vegetation, via uprooting.

4.2.2 Equipment

Heavy Equipment

Heavy, diesel-powered equipment that could be used for cutting and pulling includes excavators, backhoes, and skid steers. Motorized heavy machinery are mounted with various mowing, mulching, chipping, and masticating heads for larger scale vegetation removal projects. Towable chippers or tub grinders may be used to chip cut material. Equipment operates both on-road and off-road; any equipment used off-road is track-mounted to minimize soil disturbance and compaction. A backhoe or excavator may push or pull-down individual

VEGETATION TREATMENT METHODS

non-native trees, either with the arm or with a cable or chain attached to the arm. A backhoe or excavator may be used to dig out large weeds. Articulating arms are used to extend reach both outward and up so equipment can stay on existing roads. Heavy equipment is typically transported to an access point along an existing access road.

The masticator size may vary depending on average tree removal size and equipment availability, but typical machinery to be used is shown in Figure 6. Smaller masticator/mulching equipment is available and can be used on steeper slopes or smaller work areas.

Figure 6 Typical Masticator



Power Hand Tools

Power hand tools used for cutting are most commonly brushcutters (metal blade), string trimmers (monofilament plastic line), and chainsaws, but may also include power pole saws and hedge trimmers. These tools are powered by two-stroke engines that use a mix of gas and engine oil. Brushcutters and chainsaws work where heavy equipment cannot safely reach, generally more than 30 feet from a road edge and on slopes exceeding 30 percent. Chainsaws are used to limb trees or remove individual trees or shrubs or trees. Brushcutters are used where stem diameters at cut level are small or the vegetation is predominantly herbaceous. Cutting of herbaceous vegetation, including grasses and very young seedlings, is done with string trimmers.

Non-Power Hand Tools

Hand tools are used to perform fine-scale tasks and finishing work behind heavy equipment. Non-powered hand tools used for cutting are most commonly loppers, hand pruners, hand saws, and hatchets, but may also include pulaskis, machetes, brush hooks or brush axes. Tasks include lopping, pruning, and girdling trees or large single-stem shrubs that do not resprout at the base.

VEGETATION TREATMENT METHODS

Non-power tools used for pulling plants are primarily Weed Wrenches (trade name, similar to the Extractigator, Rootjack, or Pullerbear) for taprooted woody plants, hand-picks for tenacious herbaceous species, or occasionally dandelion poppers (curved short-forked metal rod attached to a handle) for levering rosettes out of the ground. Digging with shovels or pulaskis is usually limited to about short depths around individual root crowns of weedy shrubs.

4.2.3 Treatment Types

Hazard Tree Removal

Trees affected by SOD and other standing dead due to the CZU Complex have been observed on District lands. Standing dead or damaged trees are considered hazards. Hazard tree removal consists of felling where the trees pose a direct threat of falling onto and damaging water related infrastructure, including storage tanks, pumping stations, and above ground pipelines, or other healthy trees. Standing dead trees greater than 12 inches diameter at breast height (DBH) may be felled where the tree pose a direct threat of falling onto and damaging adjacent occupied structures; water related infrastructure, including storage tanks, pumping stations, and above ground pipelines; or other healthy trees. Hazard trees are removed using hand crews and chainsaws or a machine mounted masticator.

Pruning

Pruning may be conducted on up to 50 trees per acre. Live and dead branches are pruned to a minimum height of 10 feet from residual trees. The number of trees per acre of trees pruned varies depending upon stand density and species. Slash created from prunings are chipped (refer below for biomass disposal options). Residual trees are maintained to retain at least 50 percent canopy cover.

Pre-commercial Thinning

The objectives of pre-commercial thinning of conifers and hardwoods are to:

- Reduce overall stand density to increase potential health and vigor of residual trees, and
- Reduce vertical and horizontal crown spacing to improve potential survival of residual trees in the event of a wildfire.

No live trees greater than 12 inches DBH are removed, unless the tree poses a hazard, as described above. Pre-commercial thinning consists of removing trees less than 12 inches DBH and pruning of residual trees to a height of at least 10 feet. Pre-commercial thinning involves thinning of live and dead conifers and hardwoods less than 12 inches DBH using either hand crews with chainsaws or a machine mounted masticator. Trees up to 12 inches DBH are removed to improve health and vigor of residual conifers and hardwoods. In general, residual tree spacing limits overlapping crowns and reduce stand density overall.

4.3 Prescribed Burning

Prescribed burning is a specific activity in which fire is ignited under specific environmental conditions to burn a well-defined area (burn unit) with discrete boundaries for the purpose of fuel load reduction. Burns are typically conducted between June and October to achieve the benefits of mimicking the historic fire regime, and when vegetation is dry enough to carry a fire with minimal smoke production and minimal damage to the seed bank. Burn units are generally selected to take advantage of natural breaks such as reservoirs and access roads. Prescribed burning occurs in four distinct phases: planning and pre-treatment, the burn event, mop up, and rehabilitation. Pre-treatment and planning generally involves identification of the burn unit and control lines. Existing control lines are used as feasible and may be improved by clearing vegetation and dead trees, as well as widening. New control lines may be installed, where needed. Once the burn unit(s) is prepared, and fire prescription parameter are met, fire is carefully applied at one or more ignition points and allowed to run between control lines across the designated unit. The fire is typically ignited in the morning when temperatures and wind are low. During the burn, fire suppression equipment and personnel will be on-site which typically includes fire engines and water tenders to provide control and on-scene safety. Mop-up begins immediately following the main burn event and continues until all burning material is extinguished or removed near the control lines. Rehabilitation consists of the decommissioning of control lines as well as follow-up weed control. Control line decommissioning is generally limited to the manual re-distribution of duff and brush back into the previous cleared lines. Prescribed burning is a cost-effective way to reduce fuel loads over larger acreages (up to hundreds of acres at a time).

4.4 Grazing or Prescribed Herbivory

Grazing, also known as prescribed herbivory, includes the use of livestock (sheep, goats, or cattle) to reduce fuel loads and suppress weeds. Grazing can be used to “spot treat” areas of brush or herbaceous plants that pose a fire hazard within and outside burned areas, particularly on steeper slopes or where other forms of equipment or crews cannot be efficiently utilized. Visitation to these and other grazed sites, with person(s) who managed the project and livestock is recommended prior to implementing at SLVWD. Temporary electrified fencing and water facilities need to be installed to allow grazing. SLVWD will consider any potential for water quality effects prior to implementation of grazing.

Grazing is currently not recommended for wide use in the sandhills habitat due to the ecological sensitivity of the area. Grazing may be suitable for removing dense infestations of exotic plants in areas of flat topography if other methods are not feasible (McGraw 2004). Grazing may be suitable in other areas with sensitive plants and wildlife, depending on the species.

4.5 Biomass and Slash Disposal

4.5.1 Pile Burning

Pile burning is a method of biomass disposal that uses fire to eliminate piles of dried plant material. Piles vary in size from 5 to 10 feet in diameter and 4 to 6 feet in height. Piles are constructed in concert with brush or weed removal and are placed in openings away from power lines and tree canopies to allow for safe ignition at a later date. The composition of piles varies with vegetation type. Pile burning typically occurs between November and May on days when weather conditions meet the specifications of the Monterey Bay Air Resources District. Multiple piles may be burned on a single day. Drip torches or other ignition devices are used to start ignitions.

4.5.2 Chipping or Mastication

Chipping is another method of biomass disposal that uses a chipper or tub grinder to reduce branches and other woody material to chips. Most chippers are tow-behind models, but a tracked chipper may be used as a standalone piece of equipment as needed. Chippers vary in size and weight, largely depending on the maximum diameter of material it can chip, but all are diesel equipment. Materials should typically be chipped to less than 6 inches in length and less than 1 inch in diameter. Chipped material is either broadcast on-site, considering fuel loading, or hauled for off-site disposal. Cut and chipped material can be sold with proper permits (THP or exemption under Santa Cruz County and CAL FIRE/Board of Forestry Rules). Chips may be brought to other SLVWD-owned properties adhering to forestry BMPs, such as those regarding minimizing spread of forest diseases (refer to section 4.6) and any other restrictions. Chips from trees affected by SOD are left on-site, unless local facilities exist that may take these chips. Santa Cruz County (along with 14 other California Coastal Counties) is within the SOD Quarantine Zone—chips may not leave this zone without a permit from the County Agricultural Commissioner (CDFA 2020).

Mastication treatments occurs when soils are adequately dry enough to mitigate potential compaction issues and conducted within relevant California Forest Practice Rules (refer to Section 4.6) and County or local fire prevention guidelines. Hand crews with chainsaws may operate during winter or wetter times of the year if crews can safely access and operate equipment on the site. For mastication treatments, slash is shredded and left on site. Slash created from chainsaw thinnings is chipped and either broadcast on site or hauled for off-site disposal. Leaving masticated or chipped material on the surface may provide some soils protection and moisture retention, although limited.

4.5.3 Lop and Scatter

Where cut material may not be chipped, burned, or removed, material may be lopped and scattered in place. Where feasible, cut will be bucked in place; limbs will be removed; and the main trunk will be cut into lengths sufficient to ensure contact with the ground to accelerate

VEGETATION TREATMENT METHODS

decomposition. Lop and scatter is performed to meet or exceed requirements specified under the 2020 California Forest Practice Rules (CABOF, 2020).

4.6 Best Management Practices

All treatments will be implemented in accordance with standard best management practices applicable to the use of mechanical equipment and hand crews (chainsaw thinning and pruning) identified in the latest California Forest Practice Rules (e.g., CABOF 2020). The latest appropriate standard measures recommended by the California Oak Mortality Task Force will be implemented during treatments to prevent the spread of SOD. In addition, BMPs, as appropriate, BMPs from the Sandhills Habitat Management and Monitoring Plan (McGraw, 2020), and the SLVWD Integrated Pest Management Policy (SLVWD, 2021). All activities and projects implemented per the recommendations in this Plan will be conducted in accordance with goals, objectives, and policies outlined in the District's Watershed Management Plan (SLVWD, 2009).

5 Recommended Treatments

5.1 Near-Term Post-Fire Recovery Treatments (~Years 2020-2023)

5.1.1 Preliminary Impact Assessment

Vegetation

The CZU Complex directly impacted SLVWD infrastructure and vegetation, burning approximately 1,840 acres or 80 percent of SLVWD-owned lands (Figure 7). A post-fire vegetation burn severity map for the CZU Complex is available (<https://sig-gis.com/czu-lightning-complex-map/>). The map was made using methods described by Parks et al. (2018). The map provides analysis based on a rapid Normalized Burn Ratio (NBR) calculated immediately after a wildfire. It is important to note that this map was completed with recent imagery acquired by satellite that provided views with little obstruction by wildfire smoke. Over time these maps will change as additional trees die from scorch related mortality and redwood trees potentially re-sprout over fire killed foliage over the next few years.

With respect to fire severity and vegetation, impacts are classified as “unchanged”, “low”, “moderate”, “high”, and “very high”. These categories refer to the relative mortality of vegetation and can be generally interpreted in categories of 25 percent (low <25 percent of vegetation killed, moderate: ≥25 to <50 percent, high: ≥50 to <75 percent, very high: ≥75 percent). While redwood trees will appear “killed” by the percentage of their live canopies killed, they will likely re-sprout and survive over time.

In the portions of land owned by SLVWD west of Boulder Creek on Ben Lomond Mountain Watershed Property, the Clear Creek subwatershed had high severity fire present, particularly on the upper slopes and ridgelines to the north of the creek (Figure 8). The upper portions of the Foreman and Silver Creek subwatersheds also experienced high severity fire, particularly on the south facing slopes and ridgelines associated with those drainages.

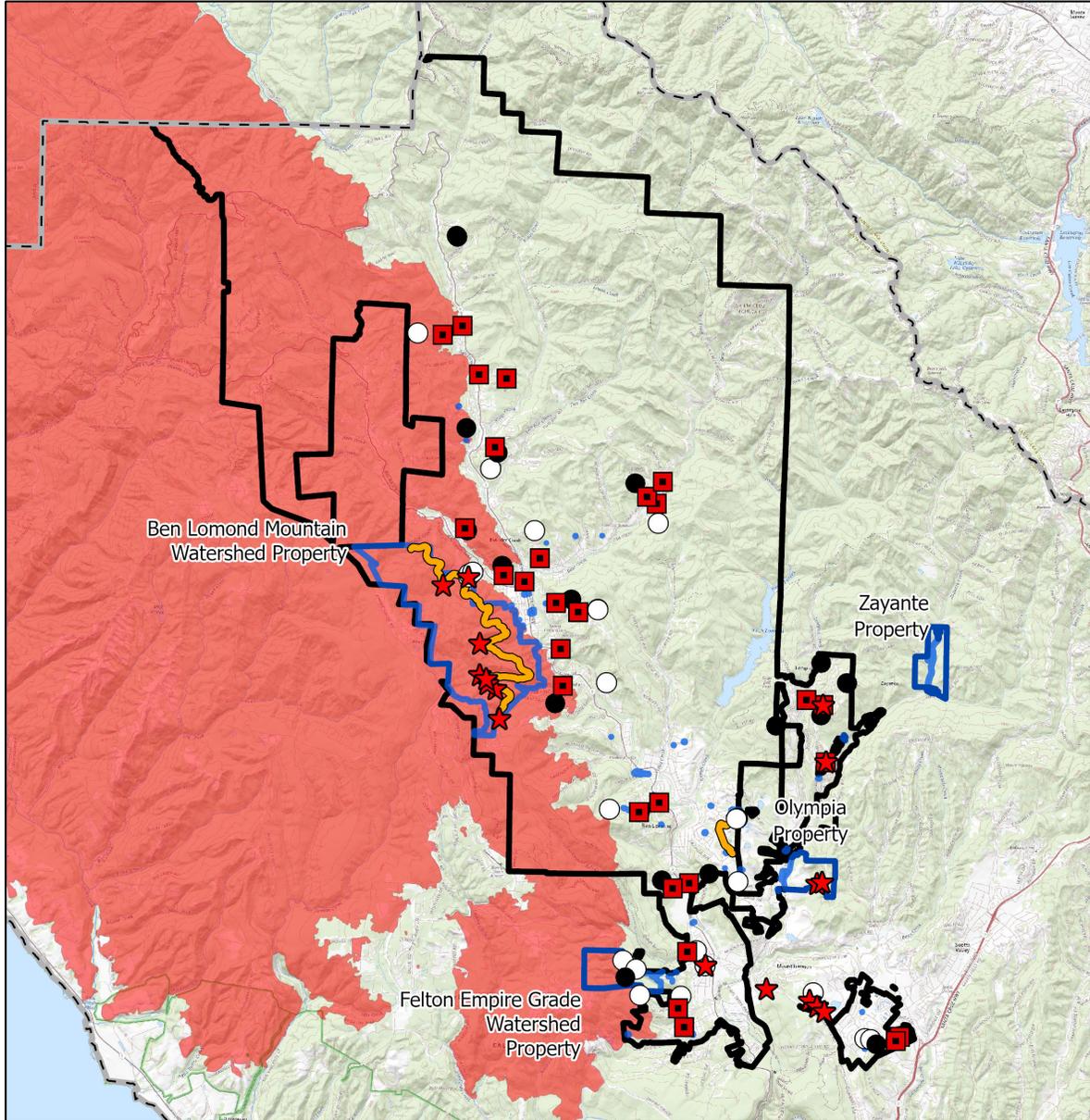
To the south of Boulder Creek on SLVWD lands, the Bennett Creek area (Felton Empire Grade Watershed Property) experienced low to moderate burn severity. The fire in this area generally reduced surface fuels, top-killed tan oak, but also likely impacted redwood regeneration in the understory, based on preliminary field visits (Figure 8).

Infrastructure

SLVWD began preparing for fuel management activities in the summer of 2020, prior to the CZU Complex. Portions of SLVWD infrastructure were visited by fire consultant, Phil Dye, of Prometheus Fire Consulting, Inc., in June of 2020.

RECOMMENDED TREATMENTS

Figure 7 Location of CZU Complex Perimeter Relative to SLVWD Infrastructure



Map Produced by Spatial Informatics Group on 4/29/2021
USGS Topo (<https://apps.nationalmap.gov/>)

- | | |
|---------------------------|---|
| ★ Critical Infrastructure | ▭ SLVWD Property |
| ■ Pumping Stations | ▭ SLVWD Service Area |
| ● Poly or Wood Tanks | ▭ Santa Cruz County Boundary |
| ○ Concrete & Steel Tanks | ■ CZU Lightning Complex (data-nifc.opendata.arcgis.com) |
| — Above Ground Water Main | |



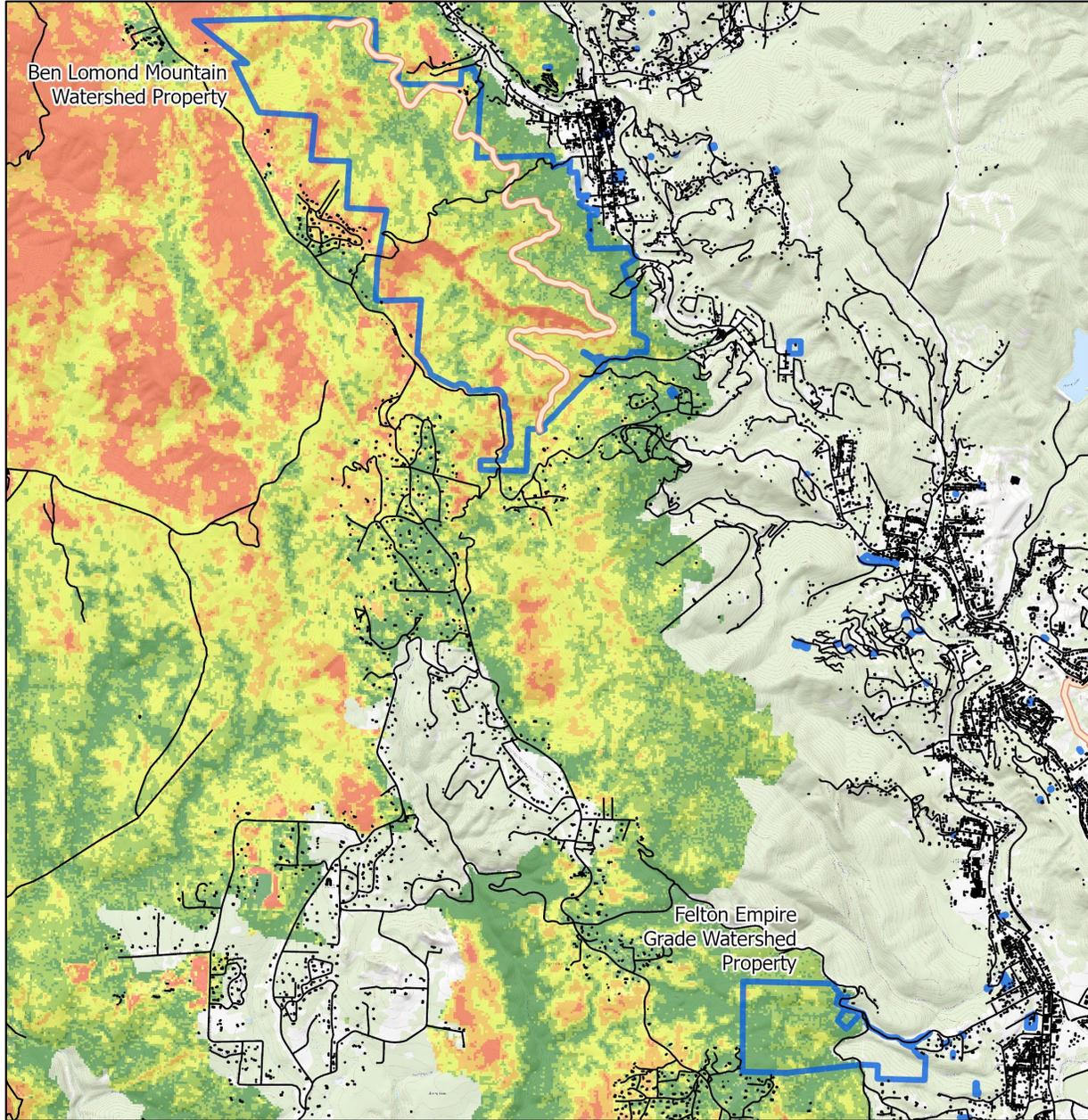
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Note: The 5-mile pipeline was destroyed by the CZU Complex and is undergoing planning for reinstallation.

RECOMMENDED TREATMENTS

Figure 8 Vegetation Burn Severity of SLVWD Lands



Map Produced by Spatial Informatics Group on 4/29/2021
USGS Topo (<https://apps.nationalmap.gov/>)

- | | |
|----------------------------|-----------------------|
| WaterMain - Above Ground | CZU Lightning Complex |
| Local Roads | 0 - Unchanged |
| Buildings | 1 - Low |
| SLVWD Property | 2 - Moderate |
| Santa Cruz County Boundary | 3 - High |
| | 4 - Very High |



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RECOMMENDED TREATMENTS

Representative photos from the field visits are shown in Appendix C. The CZU Complex fire heavily damaged SLVWD infrastructure, including their 5-mile high-density polyethylene (poly) pipeline and water intake structures on Ben Lomond Mountain Watershed Property, as well as wood and poly water storage tanks.

After the CZU Complex had burned the area (September 3, 2020), portions of the 5-mile pipeline (e.g., Clear Creek Pipeline) were visited by Spatial Informatics Group (SIG), Registered Professional Forester (RPF), Jason Moghaddas, and an extended group from SLVWD and the Watershed Emergency Response Team (WERT) for Santa Cruz County. Photos that document areas visited in June after being impacted by the CZU Complex are shown in Appendix C.

5.1.2 Hazard Tree Removal

Overview

“Hazard trees” refers to trees that have the potential to cause death, injury or property damage if they fail (Angwin et al. 2012). The hazard trees pose to people, infrastructure, and roads due to sliding, rolling, or otherwise moving downhill after they fall or have been felled should be considered. Preliminary site visits were made to areas owned by SLVWD, burned by the fire, and within 300 feet of roads, infrastructure, or mapped structures in the areas around Boulder Creek (on Ben Lomond Mountain Watershed Property) and Bennett Creek (on Felton Empire Grade Watershed Property). This visit was intended to provide general condition of hazard trees in the area, but not to designate, mark, or otherwise remove hazard trees.

In the areas west of Boulder Creek (on Ben Lomond Mountain Watershed Property), there are potential hazard trees, but these trees were on or near property lines. These trees should be re-assessed based on their location (on SLVWD-owned or private lands) and felled if needed.

General Hazard Tree Guidelines

Priority hazard trees are those fire killed and standing dead trees, or trees likely to die in the next year and that can have any portion directly fall onto, roll onto, or drop branches onto SLVWD or other public or private infrastructure, access roads, trails, turnouts, gates, or roads. Where eucalyptus has been top killed by fire, consider removal of those stands and/or individual trees. Eucalyptus stumps or sprouts will require regular removal over time to prevent regrowth back to a eucalyptus stand or forest over time. The general approach presented below may be considered for SLVWD to manage other hazard trees on the lands it owns in the future.

1. Retain services of a Licensed Timber Operator (LTO) who can safely fall, limb, buck, and remove (if necessary) hazard trees.
2. For trees near SLVWD and other private land boundaries, request landowner permission to enter property to assess hazard trees and their locations relative to property lines.
3. Use SLVWD owned GPS to establish property lines to degree possible given GPS accuracy and local signal.

RECOMMENDED TREATMENTS

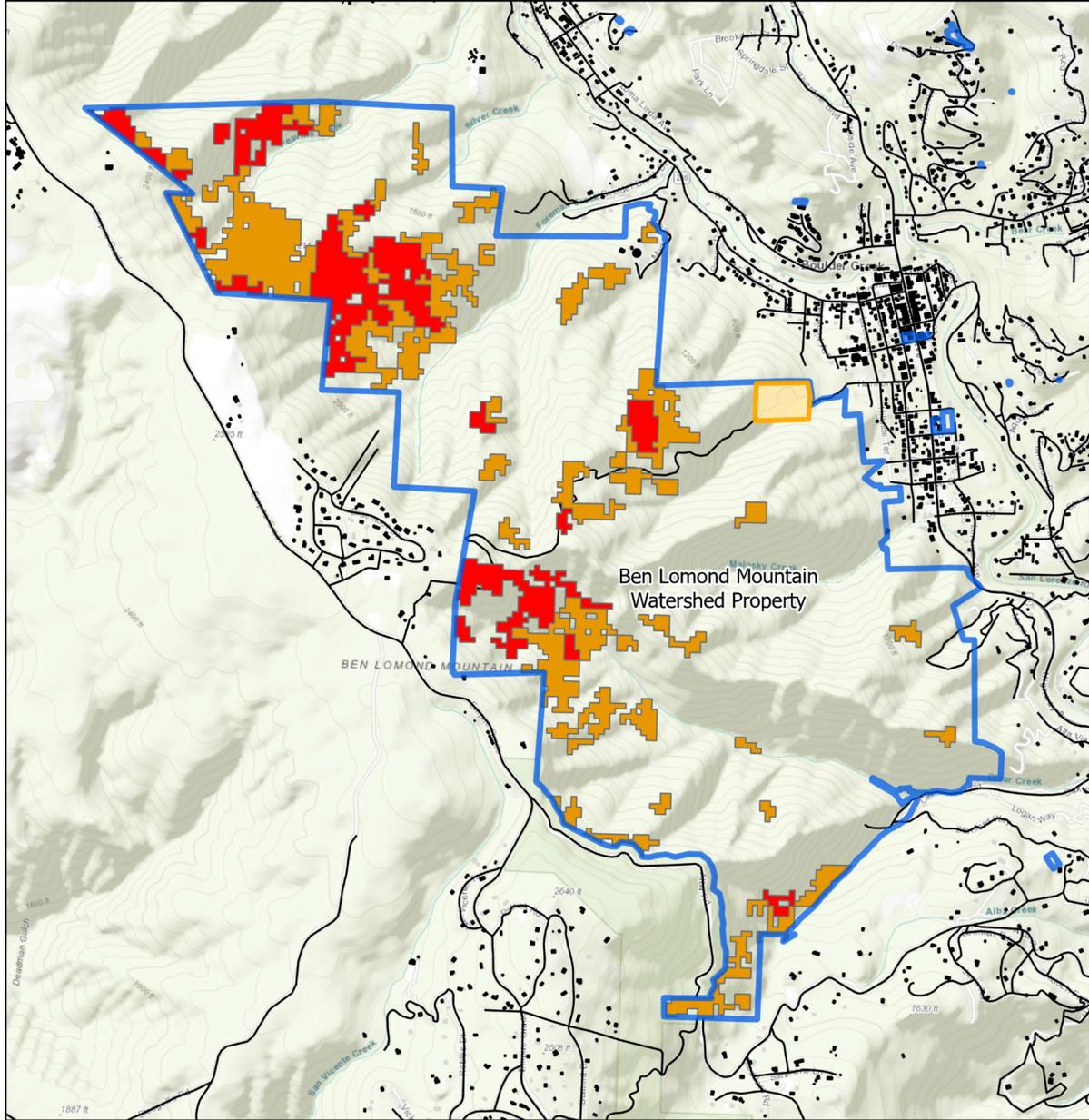
4. Work with (local) RPF to determine if trees are considered a hazard in areas where trees may fall on SLVWD, public, or private infrastructure, trails, and roads.
5. For trees deemed a hazard by an RPF, and clearly on SLVWD lands, designate with paint and number tree, and have LTO fall/remove/process as appropriate so tree does not roll/slide from felled position in the future.
6. For trees deemed a hazard by RPF, and “borderline” in terms of location on SLVWD or private lands, obtain landowner permission/agreement to designate/mark/fell/remove/process the tree. For landowners who do not wish to have the tree removed, have prepared document they sign declining removal and indemnifying SLVWD, staff, board from all future damages from the tree falling.
7. For hazard trees identified by landowners in the future via phone, letter, email, or other communications, repeat steps 2 through 6 as needed.
8. For hazard trees on SLVWD lands that do fall and impact roadways or other infrastructure, utilize LTO obtained in step 1 to remove in coordination with local county or Caltrans resources.
9. Inspect areas of concern annually giving enough time to remove any designated hazard trees, until there are no longer any trees deemed a hazard.

5.1.3 Revegetation and Reforestation

Reforestation efforts should be focused on areas of forest that were completely killed (high and moderate severity burn areas) and that will not resprout. Fire damaged Redwoods are also likely to resprout, even with near 100 percent crown scorch, as long as they do not incur substantial basal damage (Auten and Hamey 2012). Redwood forest on SLVWD lands will likely resprout, as such stands of Douglas fir are recommended for reforestation on SLVWD lands. Areas that were dominated by tan oak that burned with high severity may be reforested, but efforts will be needed to control resprouting tan oak following replanting to allow seedlings to successfully establish. Successful and feasible reforestation will depend upon the site class, slope, and access. Figure 9 and Figure 10 provide areas that could be suitable for reforestation rated by ease of reforestation based on the burn severity, slope, and forest type. Additional suitable locations for reforestation are areas that are currently forested with eucalyptus as shown in Figure 11 and **Error! Reference source not found.** Removal of the existing eucalyptus and subsequent replanting of native trees and vegetation may be conducted as appropriate with consideration for the type of vegetation community that should be in the area. A forester or ecologist is recommended to identify specific sites that are suitable for reforestation using the seedlings. SLVWD has ordered 500 Redwood seedlings to be used for reforestation, which will be available for planting in 2022. These trees can be used to spot plant in areas that were burned with high severity and have high probability for planting success and survival.

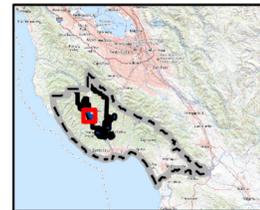
RECOMMENDED TREATMENTS

Figure 9 Potential Reforestation Areas (Map 1 of 3)



Map Produced by Spatial Informatics Group on 5/10/2021
World Topo (<https://services.arcgisonline.com>)

- | | |
|--|---|
|  Buildings |  Eucalyptus Boundaries |
|  Local Roads | Reforestation Areas |
|  SLVWD Property |  High Priority |
|  Santa Cruz County Boundary |  Medium Priority |

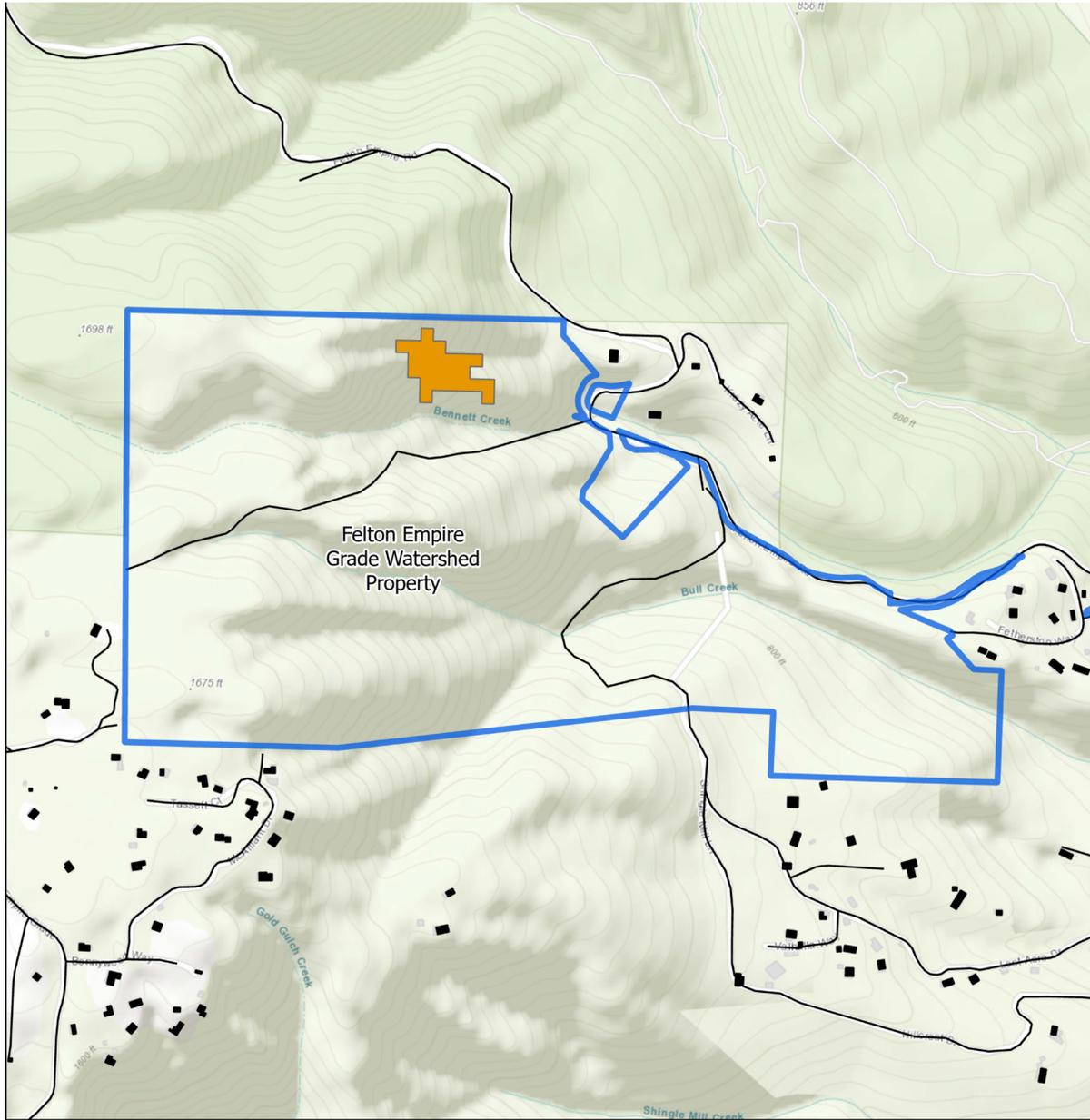


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Figure 10 Potential Reforestation Areas (Map 2 of 3)



Map Produced by Spatial Informatics Group on 5/10/2021
World Topo (<https://services.arcgisonline.com>)

- | | |
|--|--|
|  Buildings |  Santa Cruz County Boundary |
|  Local Roads |  Reforestation Areas |
|  SLVWD Property |  Medium Priority |

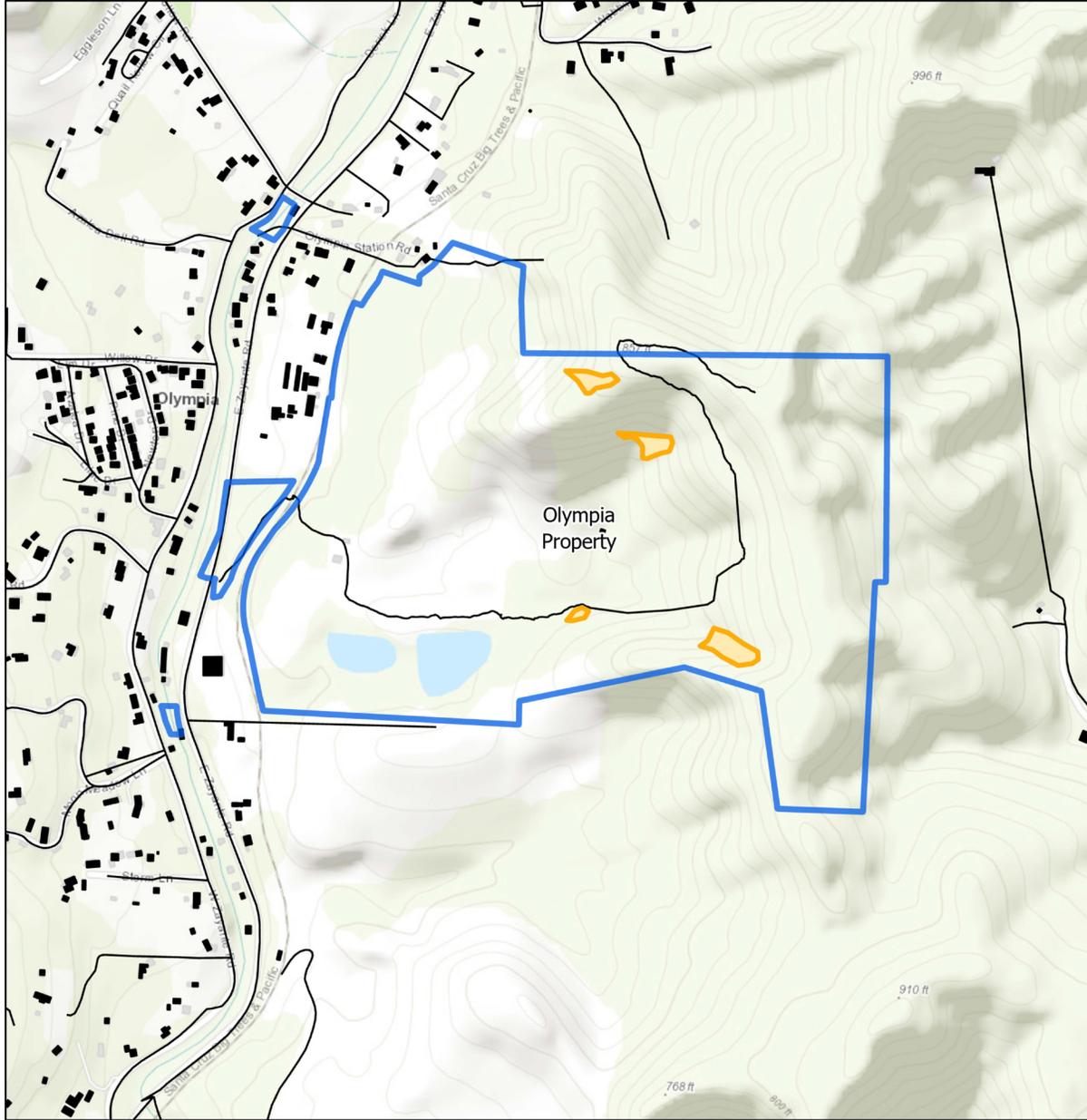


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RECOMMENDED TREATMENTS

Figure 11 Potential Reforestation Areas (Map 3 of 3)



Map Produced by Spatial Informatics Group on 5/10/2021
World Topo (<https://services.arcgisonline.com>)

- | | |
|--|--|
|  Buildings |  Santa Cruz County Boundary |
|  Local Roads |  Eucalyptus Boundaries |
|  SLVWD Property | |



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Miles

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RECOMMENDED TREATMENTS

5.1.4 Debris Flow and other Erosion Control Work

These activities are generally outside the scope of the plan. The official assessments, maps, and recommendations completed by the CZU Complex WERT, SANDIS, and SLVWD staff should be considered the authoritative reference material on post-fire erosion issues, mitigations, and should be used to direct SLVWD's actions for assessment of risks to and repair of infrastructure.

5.2 Defensible Space, Fuel Reduction, and Material Upgrades

5.2.1 Assessment

On June 9, 2020, a field visit was conducted to determine the vulnerability of District assets to wildfire. The site visit did not include all District facilities but rather prioritized assets that were most vulnerable to fire, particularly wooden or poly tanks and wooden pump houses. Geo-referenced photos were taken with a photo log describing each picture and brief description of the onsite conditions. Additional site visits to SLVWD-owned properties to determine road condition and fuel clearance feasibility were conducted in March and April 2021.

In general, the site visit demonstrated that most facilities could benefit from some form of fuel reduction. Some assets needed a significant amount of vegetation clearance while others simply needed reinforcement of existing clearance. Representative photos and descriptions from the field inspections are included in Appendix C.

5.2.2 Defensible Space and Fuel Reduction Potential Treatments

A variety of defensible space and fuel reduction treatments are recommended to protect critical infrastructure from wildfire into the future. The recommended treatments summarized in this section are shown in Appendix D, and details on acreages by parcel and ownership are found in Appendix E. Much of the infrastructure managed by SLVWD requires treatment on adjacent private (non-SLVWD) lands to reach a defensible space distance of 100 feet. Local fire agencies (e.g., Fire Protection Districts, CAL FIRE), should be made aware of locations where defensible space has been completed around water related infrastructure (refer to Appendix G for annual planning and reconciliation checklists).

Roadside Treatments

- On lands owned by SLVWD that are adjacent to known potential ingress/egress routes, reduce flammable live and dead vegetation at least 100 feet from the road edge, up to 300 feet where feasible.
- Specifically consider roadside treatments, including hazard tree removal, brushing, and chipping of dead material for the east-west interior road which crosses the Bennet Springs Property. This road should generally be maintained in a condition to allow wildland fire engine or wildfire crew transport access. Work with local CAL FIRE staff to review and plan this work as needed.

RECOMMENDED TREATMENTS

Prescribed Fire

- Lands owned by SLVWD that were burned in the CZU Complex had high consumption of surface fuels, and are generally in a state of low hazard due to the fire. Consider use of prescribed fire to maintain these low surface fuels over time.
- For lands owned by SLVWD outside of the CZU Complex, such as the sandhills area, consider the use of prescribed fire potentially in collaboration with CAL FIRE, in a manner consistent with existing management guidelines (McGraw, 2020).

Water Tanks

- Create a minimum of 100 feet of defensible space around water tanks using general CAL FIRE standards for defensible space. Creation of defensible space generally will require removal of standing and down dead material, mowing of grass, chipping or removal of brush, and pruning of live and dead branches. Actual removal needs will vary by site, slope, access, and vegetation type.
- Extend defensible space or up to 300 feet where feasible. In some areas this level of defensible space will require cooperation with adjacent landowners, but will also provide some level fire hazard reduction benefit for both the landowner and SLV.

Pump Houses

- Consider all pump houses as structures per Public Resources Code 4291, and maintain a minimum defensible space of 100 feet from each side and from the front and rear of the structure.
- Extend defensible space or up to 300 feet where feasible.

Critical Infrastructure³

- Consider all critical infrastructure as structures per Public Resources Code 4291 and maintain a minimum defensible space of 100 feet from each side and from the front and rear of the structure.
- Extend defensible space or up to 300 feet where feasible.

Aboveground Pipe

- It is difficult to create, annually maintain, and defend (in a wildfire) linear, inaccessible features such as aboveground HDPE pipe. Consider use of limited defensible space (recommended 5 to 100 feet) adjacent to these linear features, only where that effort can provide a clear reduction of hazard.
- In some areas, shut off and rapid replacement may be the most feasible option.

³ Includes 17 discrete, critical infrastructure as identified by SLVWD. Refer to Appendix E for list.

RECOMMENDED TREATMENTS

Other Treatments

- Create a permitting process to allow adjacent landowners to implement defensible space around their structures that may overlap SLVWD lands.
- Create a minimum of 100 feet up to 300 feet of fuelbreak along property boundaries adjacent to residential land uses.
- Conduct vegetation management along historic logging roads for use as a fire control line or shaded fuelbreak where feasible.

5.2.3 Critical Asset Structure and Material Upgrades

Critical assets include existing water tanks, pump houses, pump, and above and below ground piping. SLVWD is in the process of upgrading these facilities and general recommendations for each asset type are listed below. Design and implementation work should be completed by persons qualified and credentialed to work on domestic water supply systems. Local fire entities should be made aware of locations where upgrades have been completed for water related infrastructure (refer to Appendix G for annual agency coordination planning and reconciliation checklists).

Water Tank Hardening

- Conversion of wooden tanks (redwood) to steel tanks
- Conversion of poly (plastic) tanks to steel tanks
- Replacement of wood stands, supports, and tank platforms to steel or concrete. Design stands and supports to prevent movement during seismic events.
- Conversion of aboveground plastic pipe to underground pipe or aboveground metal pipe.
- Installation of hydrants that can be used to connect to a fire engine, water tender, or portable fire pump (i.e., "Mark 3" type pump).
- Conversion of plastic valves to all metal valves.
- Addition of valve and fitting, which can be used to connect to a fire engine, water tender, or portable fire pump (i.e., "Mark 3" type pump). To the extent practicable, fitting should be a 2-1/2" or 4-1/2" NH male connection with valve. Prior to installation, location of valve and connection type should be reviewed in the field with Local Fire Department and CAL FIRE as appropriate.

Pump House Hardening

- Upgrade of wooden siding and roofing material to non-flammable materials.
- Boxing in or covering of eaves, vents, and other gaps in siding to reduce ember penetration.
- Conversion of wooden pump houses to cinder block or concrete construction.

Aboveground Pipe Hardening

- Conversion of aboveground plastic pipe to underground pipe or aboveground metal pipe.
- Replacement of wooden support structures with metal or concrete support structures.

RECOMMENDED TREATMENTS

- Burying of pipe, where feasible.

5.2.4 Access and Signage

Maintaining access through and within SLVWD lands as well as signage to water sources can ensure faster and more efficient emergency response in the event of a wildfire. Local fire entities should be made aware of upgrades to roads and gate access (refer to Appendix G for annual agency coordination planning and reconciliation checklists). Tanks that are accessible by fire equipment should be reviewed with local and Santa Cruz County fire department(s) and CAL FIRE to ensure local responders are aware of tank location, fitting location, gates, and that they can safely access the tanks to fill firefighting equipment in an emergency.

- Upgrade and/or maintain roads to allow passage of Wildland Type 3 Engines.
- Install reflective signage indicating location of fire water tanks or turnoffs to fire water tanks.
- Install locking access system for gate access to allow easier emergency access to SLVWD lands without requiring keys or cutting locks.

5.3 Long-Term, Large-Scale Management Options (~Years 2021-2060)

5.3.1 Overview

Given the extent of the fire on lands and infrastructure owned and managed by the SLVWD, it is prudent to begin discussion of long-term vegetation and carbon management options across the approximately 2,300 acres of land owned by SLVWD, as well as within the larger San Lorenzo River Watershed with the other ownerships in the watershed. A larger-scale effort may allow for greater long-term protection of assets, natural resources, and water quality that is critical to District's mission. Three general approaches to long-term management both for the District-owned lands as well as in the greater watershed area are summarized in this section. These options should be considered within the context and potential integration with current and/or future community, county, multi-landowner, and regional fuels management strategies.

5.3.2 Status Quo Management Option

Status quo management involves continued management of forested areas in the same manner as has been performed for the past 25 years with exception of needed hazard tree removal, removal of trees for infrastructure repair/maintenance, and limited reforestation. Continued management will involve minimal to no vegetation management consisting primarily of removal of fallen trees and debris on water infrastructure. This option may generally result in lowest overall costs over time, but also provides no noted future revenue from forest management activities and does not mitigate wildfire risk that may increase costs due to loss and damage of infrastructure.

RECOMMENDED TREATMENTS

5.3.3 Voluntary Carbon Market Option

The voluntary carbon market allows participants to voluntarily purchase carbon offsets to offset emissions. Three main types of forest carbon offset projects include reforestation of unforested land, avoided forest conversion, and improved forest management (NC State, 2019).

SLVWD could develop a Forest Carbon Project under the American Carbon Registry (ACR) Voluntary Market System; however, the SLVWD ownership may be too small to individually sustain a viable project under the California Air Resources Board (CARB) protocols. Another consideration is that the upfront costs for project implementation and maintenance may be substantial. Other costs include those for monitoring and verification. SLVWD may alternatively participate in a Voluntary Market project that aggregates land owned by several landowners within the same ecoregion (see Figure 12) and similar forest types in Santa Cruz County. The overall size of the aggregated land needed to qualify will vary depending on existing stocking and management of the land. Based on studies, in order for forest carbon projects to be profitable the project area needs to be a minimum of 1,500 acres up to 11,860 acres (Kerchner & Keeton, 2015).

An aggregated project could spread out of the costs and meet the size requirements needed for a viable project. The types of details needed to refine an aggregated project, include land ownership, deed restrictions, and current stocking. If SLVWD entered into the Voluntary Market, SLVWD would be responsible for maintaining carbon stocks using management practices agreed upon and documented in the development of the project.

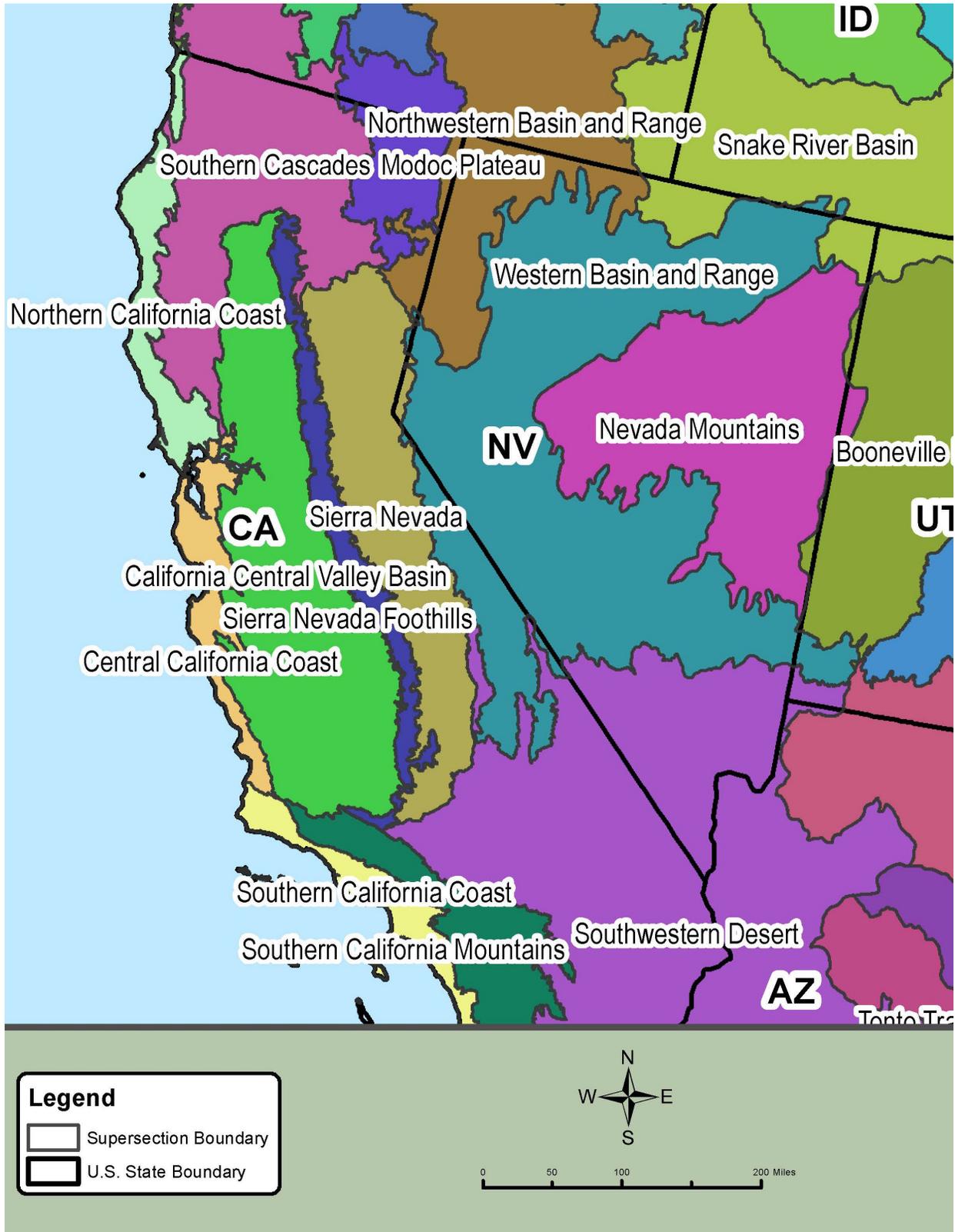
5.3.4 Commercial Timber Harvesting Option

Given current stocking and absence of commercial timber harvesting on SLVWD lands under an approved Timber Harvest Plan (THP) or Non Industrial Timber Management Plan (NTMP), there is *potential* to conduct commercial timber harvesting, though constraints below may limit that as a long-term option. Limitations include:

- Extensive areas (approximately 36 percent) of SLVWD ownership exceed 50 percent slope and as such cable or helicopter harvest operations is required, increasing cost and complexity for planning and implementation.
- Cost of THPs and NTMPs can be expensive, with THPs in the range of \$50,000+ and NTMPs in the range of \$100,000+.
- Existing deed restrictions excluding commercial timber harvesting for the entirety of the Felton Empire Grade Watershed Property and the areas on and surrounding Mulosky Creek (Figure 13; refer to Appendix H for copies of the deed restrictions). A total of 427 acres (approximately 19 percent) of SLVWD-owned lands have deed restrictions limiting timber harvesting.
- With respect to the removal of fire killed trees, that are not deemed hazard trees, Douglas-fir, which constitutes the majority of tree volume killed, has relatively low value (as of November 2020). As such, removal likely would not cover the planning and harvest implementation costs.

RECOMMENDED TREATMENTS

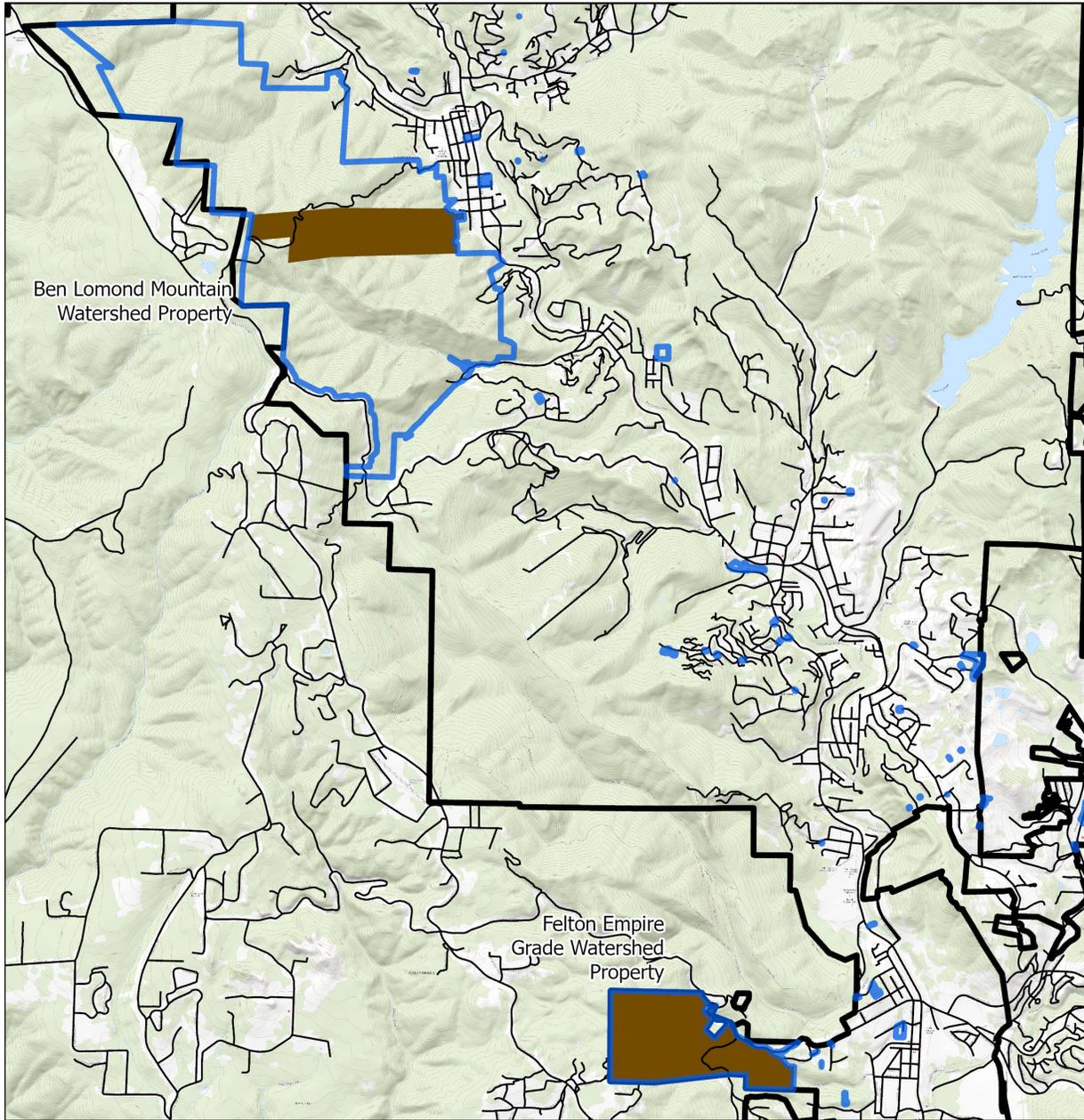
Figure 12 California Ecoregions for Carbon Offset Projects



Source: (CARB, 2015)

RECOMMENDED TREATMENTS

Figure 13 Properties with Deed Restrictions Prohibiting Timber Harvest



Map Produced by Spatial Informatics Group on 4/29/2021
USGS Topo (<https://apps.nationalmap.gov/>)

- | | |
|---|--|
|  SLVWD Property |  Local Roads |
|  Timber Harvest Restricted |  Santa Cruz County Boundary |
|  SLVWD Service Area | |



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5.4 Prioritization Process

Near-Term Post-Fire Recovery Treatments

Hazard Tree Removal

The priority is identification and, if needed, removal of fire killed and standing dead trees, or trees likely to die in the next year and that can have any portion of the tree directly fall onto, roll onto, or drop branches onto SLVWD or other public or private infrastructure, access roads, trails, turnouts, gates, or roads (hazard trees). Within areas burned by the CZU Complex, the priority should be continued assessment and removal of hazard trees. Annual inspections on trees on SLVWD-owned lands that border public roadways and adjacent occupied structures are recommended to be conducted by qualified personnel for the next 5 years (2021 to 2026).

Revegetation and Reforestation

High priority areas for reforestation are within very high, high, and moderate severity burn areas that occurred within Douglas fir or montane hardwood-conifer vegetation communities. Due to difficulty in access and reforestation efforts, areas with lower slopes, below 50 percent, are suggested as the focus for initial reforestation (refer to Figure 9 and Figure 10).

Defensible Space, Fuel Reduction, and Material Upgrades

General Categories

Project prioritization categories from highest to lowest are numbered below. Refer to the applicable recommendations in Section 5.2 for more details on each prioritization. The maximum vegetation management buffers of up to 300 feet are the optimal recommendations for enhanced fire management and protection with the understanding that conditions on the ground and land ownership may make the optimal buffer difficult or infeasible.

1. Vegetation management projects initially out to 100 feet but up to 300 feet around wood and HDPE existing tanks and pumphouses to help meet defensible space requirements (Public Resources Code [PRC] §4291).
2. Vegetation management projects initially out to 100 feet but up to 300 feet around existing diversions, pipelines, well areas, and other critical infrastructure to improve resilience and defensibility in the event of a wildfire.
3. Upgrades to fire resistant materials for tanks, pipelines, support structures, and other infrastructure where economically feasible or fundable.
4. Vegetation management initially out to 100 feet but up to 300 feet and improvement of existing roads on SLVWD lands to improve fire engine or crew ingress/egress for fire suppression.
5. Vegetation management initially out to 100 feet but up to 300 feet along SLVWD lands adjacent to public and private roadways that may be used for evacuation routes in the event of a wildfire.
6. Vegetation management initially out to 100 feet but up to 300 feet on SLVWD lands depending on conditions, particularly where those lands are near (within

RECOMMENDED TREATMENTS

100 to 300 feet) or adjacent to *developed* non-SLVWD residential areas or other developed uses.

7. Vegetation management initially out to 100 feet but up to 300 feet on SLVWD lands depending on conditions, particularly where those lands are near (within 100 to 300 feet) or adjacent to *un-developed* non-SLVWD parcels.

A suite of higher priority projects for the next 1 to 5 years that will be developed based on this prioritization, recommendations from fire agency staff and fire professionals, SLVWD staff input, and ease of access are identified in Appendix F.

Initial Projects Outside the CZU Complex Perimeter

Project prioritization will follow higher to lower priority, with the initial focus on projects outside the CZU Complex perimeter. Following completion of the higher priority projects (refer to Appendix F), SLVWD may consult publicly available wildfire hazard maps (such as Figure 7) to assist in prioritization of projects based on modeled higher fire hazard areas.

Fuel Reduction Treatment

Outside of the CZU Complex burned areas, fuel reduction should be prioritized around all existing water tanks, pump houses, and other infrastructure. Priority should be given to that infrastructure that is constructed of flammable materials, particularly water tanks that utilize wooden support structures.

Critical Asset Hardening

For infrastructure that is outside of the CZU Complex, the SLVWD is currently in the process of upgrading those structures and infrastructure to more fire-resistant materials (e.g., pre-cast concrete structures, metal pipe, buried pipe) as funding and capacity allow (refer to Appendix B for information on planned and recommended upgrades). Tanks that can be accessed by a fire engine or water tender should be fitted with valves or a hydrant installed to allow for filling in an emergency.

Initial Projects Within the CZU Complex Perimeter

Fuel Reduction Treatment

The CZU Complex dramatically reduced surface fuels, with consumption exceeding 90 percent in many areas, as well as top killing small tan oak and small trees. In general, areas adjacent to existing residences or residences that may be rebuilt should be maintained as fuel reduction areas. In these areas, smaller dead trees (up to 8" DBH) should be felled or masticated. Residual material (limbs and bole) that cannot be masticated or chipped due to slope limitations or access should be lopped in such a way to maintain close contact with the ground to facilitate decomposition. Priority treatment of this type can be implemented on the west side of the Felton Empire Grade Watershed Property adjacent to existing private lands, and to facilitate road access on the east-west road crossing the property (refer to Appendix D).

Critical Asset Hardening

It is recommended that infrastructure that was destroyed by the CZU Complex and is being rebuilt, be constructed with fire resistant materials, where feasible (refer to Appendix B for

RECOMMENDED TREATMENTS

information on planned and recommended upgrades). The work includes converting wooden tanks, support structures, and buildings to metal, concrete, or other suitable fire-resistant material. All tanks and fire related infrastructure shall be designed to meet current local, county, state, and National Fire Protection Association Standards (NFPA 2020).

6 Environmental and Permitting Requirements

6.1 Overview

This section briefly introduces the environmental and permitting requirements that could apply to vegetation and fuels treatments outlined in this plan if undertaken by SLVWD. Vegetation management may require compliance with various environmental requirements, particularly pertaining to natural resources and water quality protection. At the federal and State levels, the vegetation and fuels treatments may require compliance with the Clean Water Act, the Endangered Species Act, and the CEQA, for example. Compliance with CEQA is an important aspect of the project review process. If the project involves a discretionary action by a public agency and the project may lead to physical changes in the environment (directly or indirectly), the project would be subject to CEQA. CEQA requires that projects be reviewed to determine whether any significant environmental impacts could result and to mitigate those impacts. At the local level, the treatments may need to comply with local policies and regulations. The following sections are organized based on two potential approaches to meet the environmental and permitting requirements for the proposed vegetation and fuels treatments:

Project-by-Project Approach and Programmatic Approach. Conducting a programmatic approach can be more cost- and time-efficient in the long run although the costs are up front rather than spread over many years.

Project-by-Project Environmental Review

1. Seek **Categorical Exemptions** wherever feasible and applicable.
2. Where Categorical Exemptions may not apply, determine if the work could fall under **an existing programmatic document** (e.g., the CAL FIRE *Vegetation Treatment Program Programmatic Environmental Impact Report* [CaIVTP PEIR]).
3. If an existing programmatic document would not cover the activity or is not implementable, then an individual **Initial Study and Mitigated Negative Declaration (IS/MND) or Environmental Impact Report (EIR)** should be considered.

6.2 Project-by-Project Approach

6.2.1 Near-Term Post-Fire Recovery Treatments

Hazard Trees

Santa Cruz County, The California Office of Emergency Services (CALOES), and Cal Recycle are currently working to address the removal of hazard trees on properties affected by the CZU Complex. SLVWD has initiated participating in this program by submitting a Right of Entry (RoE) form, which is a key first step, to allow access for hazard tree identification and potential

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

removal. Detailed information on this hazard tree removal program can be found at <https://wildfirerecovery.caloes.ca.gov/>.

The Board of Forestry and Fire Protection has also adopted emergency regulations regarding post-fire recovery. Hazard tree removal can be completed under a “Post -Fire Recovery Exemption” or a “10% Dead, Dying or Diseased Trees Fuelwood or Split Products” permit. The “Post-Fire Recovery Exemption” permit allows removal of trees that are dead or dying as a result of a wildfire that occurred no more than three years prior to the submission of a notice of exemption. The “10% Dead, Dying or Diseased Trees Fuelwood or Exemption” permit allows cutting or removal of trees that are dead, dying, or diseased; fuelwood or split products in amounts less than 10% of the average volume per acre; or removal of slash and woody debris not located within a watercourse and lake protection zone. Additional authorizations could be required from the Regional Water Quality Control Board (RWQCB) and California Department of Fish and Wildlife if timber salvage operations were to occur within jurisdictional waters or could impact special-status species and their habitats. These permits would need to be obtained even if the trees are not planned for sale. The SLVWD should consider completing permit applications using a local RPF that covers the entire SLVWD ownership within the CZU Complex fire perimeter.

Revegetation and Reforestation

Revegetation and reforestation work described in Section 3.2.3 would not likely require any permits or approvals.

Emergency Activities

Emergency activities may include implementation of debris flow reduction strategies (including erosion control), which could include the installation of trees across streams to act as debris flow catchment. Other emergency activities could include replacement of the 5-mile pipeline as long as it is performed in-kind and in the short-term. Table 2 includes a list of permits that may be required for emergency activities.

Table 2 Potential Emergency Permits or Approvals Needed

Approval or Notification	Description and Noticing Requirements
CEQA Guidelines 15269	<ul style="list-style-type: none"> • Applies to projects that repair facilities damaged or destroyed as a result of a natural disaster in which a state of emergency was declared by the Governor (CEQA Guidelines § 15269) • Notice of Exemption (NOE) must be filed with the County Clerk and OPR after project approval. The NOE will include: <ul style="list-style-type: none"> – Project description – Location of the project – A finding that the project is exempt from CEQA, and a brief statement of reasons to support the finding – Applicant’s name

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

Approval or Notification	Description and Noticing Requirements
	<ul style="list-style-type: none"> • A 35 day statute of limitations period begins after filing the NOE. During this period, legal challenges to the agency's decision that the project is exempt from CEQA can be brought forth.
California General Permit for the Central Coast RWQCB	<ul style="list-style-type: none"> • A brief description of the emergency construction activity must be submitted to the Central Coast RWQCB within 5 days of construction, and all Permit Registration Documents (PRDs) will be submitted within 30 days
Emergency Regional General Permit No. 5 U.S. Army Corps of Engineers	<ul style="list-style-type: none"> • In an "emergency situation" a project qualifies for expedited authorization for discharges or work in waters of the United States under Regional General Permit (RGP) 5 • An emergency situation is defined by the U.S. Army Corps of Engineers (Corps) as an imminent threat to life or property demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or essential public services • The applicant must notify the District Engineer (DE) as early as possible and shall not begin work until the project is approved by the DE. The applicant must follow all project-specific special conditions imposed by the DE under RGP 5 <ul style="list-style-type: none"> – The Notification should be sent attn: North/South Branch Chief via fax 415-503-6990 or mail: U.S. Army Corps of Engineers San Francisco District Regulatory Division, CESP-N-R 450 Golden Gate Avenue, 4th Floor San Francisco, CA 94102 • The standard Application for Department of the Army Permit (Form ENG 4345) is used for the RGP 5 notification • The RGP 5 notification must include: <ul style="list-style-type: none"> – Contact information of the applicant – Location of the project and waterbodies that may be impacted by project activities – Description of the imminent threat to life or property and the proposed project's purpose and need – Description of methods anticipated to be used to rectify the situation – Description of the existing conditions and anticipated impacts resulting from the proposed work • Work must begin within 7 days of receiving authorization to proceed
Emergency 1600 Permit California Department of Fish and Wildlife	<ul style="list-style-type: none"> • Emergency work is exempt from the 1600 permit process • Emergency work includes the following: <ul style="list-style-type: none"> – immediate emergency repairs to public service facilities necessary to maintain service as a result of a disaster in an area in which the Governor has proclaimed a state of emergency – immediate emergency work necessary to protect life or property • Notification is not required before beginning emergency work, but an emergency notification must be submitted to the California Department of Fish and Wildlife within 14 days of work beginning

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

Approval or Notification	Description and Noticing Requirements
401 Water Quality Certification Central Coast RWQCB	<ul style="list-style-type: none"> The Central Coast RWQCB created a Fire Response Application Form for emergency work related to the fires that started from the August 16 thunderstorms, including the CZU Complex fire To initiate consultation with the RWQCB, the applicant shall fill out the Fire Response Application Form, and the RWQCB will determine if a 401 permit application is required
Santa Cruz County Ordinance and Permit Administration Emergency Use Approval (County Code Section 13.10.225)	<ul style="list-style-type: none"> Emergency use approvals may be granted at the discretion of the Planning Director to allow the temporary relocation of a use when the use has been displaced from its original location as a result of damage or destruction by a natural disaster for which a local emergency has been declared by the Board of Supervisors. Application for review of the occupancy under the provisions of this Chapter (Chapter 13.10) and Chapter 18.10 SCCC shall be made within 90 days of the date of issuance of the emergency permit, or the use shall be terminated.
Santa Cruz County Emergency Grading Approval (County Code Section 16.20.116)	<ul style="list-style-type: none"> Granted at the discretion of the Planning Director who may request, at the applicant's expense, verification by a qualified professional of the nature of and solutions to the emergency situation. Emergency work authorized under this approval shall be limited to necessary activities to protect the endangered structure or essential public structure. The approval shall be exercised within 15 days of issuance and expires 30 days after commencement of work unless an extension is granted by the Planning Director. At the time of application for an emergency approval or within 60 days of issuance of the emergency approval the applicant shall submit a completed application and the appropriate fees for a regular approval. Within 90 days of the issuance of an emergency approval, the owner of the property shall submit all required technical reports and project plans unless a time extension is granted by the Planning Director. If the emergency work is required during nonbusiness hours, the property owner shall submit an emergency grading permit application on the following business day.
Santa Cruz County Significant Trees Protection- Emergencies (County Code Section 16.34.080)	<ul style="list-style-type: none"> In the case of emergency caused by the hazardous or dangerous condition of a tree and requiring immediate action for the safety of life or property, such necessary action may be taken to remove the tree or otherwise reduce or eliminate the hazard without complying with the other provisions of this article, except that the person responsible for cutting or removal of the tree shall report such action to the Planning Director within 10 working days thereafter.

6.2.2 Defensible Space, Fuel Reduction, and Material Upgrades

Defensible Space

Vegetation treatments around structures, such as water infrastructure, may be considered defensible space under PRC §4921. This law requires maintenance of 100 feet of defensible space around homes as well as structures. Defensible space will generally require low impact pruning and removal and/or chipping of trees (<10 inches in diameter), brush, and mowing of grass. The

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

defensible space treatments would help to meet code requirements. There is no commercial sale or removal of wood products from defensible space treatments, so no THP or CAL FIRE permit is needed. It is anticipated that a categorical exemption from CEQA (CEQA §15304, Class 4 Minor Alterations to Land), should the work be performed by SLVWD or another public entity, would apply.

Fuel and Forest Treatments

Project-Level CEQA and Permitting

Completion of a CEQA Checklist is likely required for the proposed fuel and forest treatments (OPR 2020). Certain fuel and forest treatments may qualify for CEQA Categorical Exemptions, including Class 1 Existing Facilities (e.g., maintenance/grading of existing fuel breaks), Class 4 Minor Alterations to Land or Vegetation (e.g., fuel management within 100 feet of structures, chipping, and community shaded fuel breaks), and Classes 7 and 8 Actions to Protect Resources or Environment (e.g., extensive shaded fuel breaks along roads/ridges, piling and burning) (Robertson, n.d.). Refer to Section 6.3 for a discussion of the options to conduct plan-level CEQA to programmatically cover the suite of non-timber management projects recommended in this plan.

Consultation with federal, regional, and local agencies (e.g., California Department of Fish and Wildlife and RWQCB) may be needed for treatments affecting jurisdictional waters and special-status species and their habitats. Prescribed and pile burning activities would require authorizations from CAL FIRE and Monterey Bay Air Resources District. Fuel and forest treatments would also require removal of trees, so a significant tree removal permit may be needed from Santa Cruz County. Refer to Table 3 for a list of permits and approvals that may be required depending upon the type of activity.

Vegetation Treatment Program – Forest Treatments

Treatments may instead be covered under CAL FIRE's CalVTP PEIR. The California Board of Forestry and Fire Protection prepared the PEIR to evaluate the environmental impacts of implementing the CalVTP. The PEIR identifies 20.3 million acres treatable areas within CAL FIRE's State Responsibility Area (SRA) that may be appropriate for vegetation treatments as part of the CalVTP.

Almost all of SLVWD-owned lands are within the CalVTP treatable area as shown in Figure 14. Some of the proposed vegetation treatments presented in this plan will likely fall under the CalVTP PEIR, including mechanical methods of vegetation removal, prescribed burning, and grazing. The CalVTP is intended for use by any public agency seeking to implement vegetation treatments to reduce wildfire risk. Any public agency funding, authorizing, or implementing a vegetation treatment project that is in the SRA treatable areas and whose projects are consistent with the treatment types and activities described in the CalVTP PEIR may use what is known as the CalVTP Project Specific Analysis (PSA) to comply with CEQA under the already approved PEIR.

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

A PSA is a checklist-based evaluation of whether a vegetation treatment project qualifies as within the scope of the CalVTP PEIR. Completing the PSA Checklist and supporting analysis provides the documentation of this evaluation to streamline CEQA review. If the vegetation treatment project is wholly “within the scope” of the CalVTP PEIR, as documented in the PSA, the public agency may proceed with implementation after project approval. Depending on the complexity of the treatment project, a PSA may be completed in less than one month; in all cases, public review of the PSA is not required by CEQA, if the outcome of the project analysis is a within the scope finding. Typically, agencies conduct a PSA for projects proposed to be implemented in the next year or two. It may be feasible to conduct a PSA to cover a programmatic suite of projects intended to be implemented over a longer period of time.

Under this CEQA compliance approach, all standard project requirements relevant to the proposed vegetation treatment project and all feasible mitigation measures in response to significant impacts caused by the project must be incorporated from the PEIR into the later vegetation treatment project. Typically, a biological assessment, including a nesting bird survey would be performed as well as fairly extensive background literature review and intensive field surveys for cultural resource in any area of work that could require ground disturbance. Depending on the projects proposed, the cost to conduct the CAL FIRE reporting and surveys required could be substantial and onerous even for small projects; however, the process allows for streamlined CEQA review as covered projects do not need additional public review, even where the work could result in a significant unavoidable impact, provided it was covered under the EIR. Use of the PSA Checklist may be cost effective for when a CEQA Categorical Exemption does not apply such as when completion of a fuel management project would result in a significant impact on the environment (e.g., special-status plants). The PSA Checklist does not apply to infrastructure improvements.

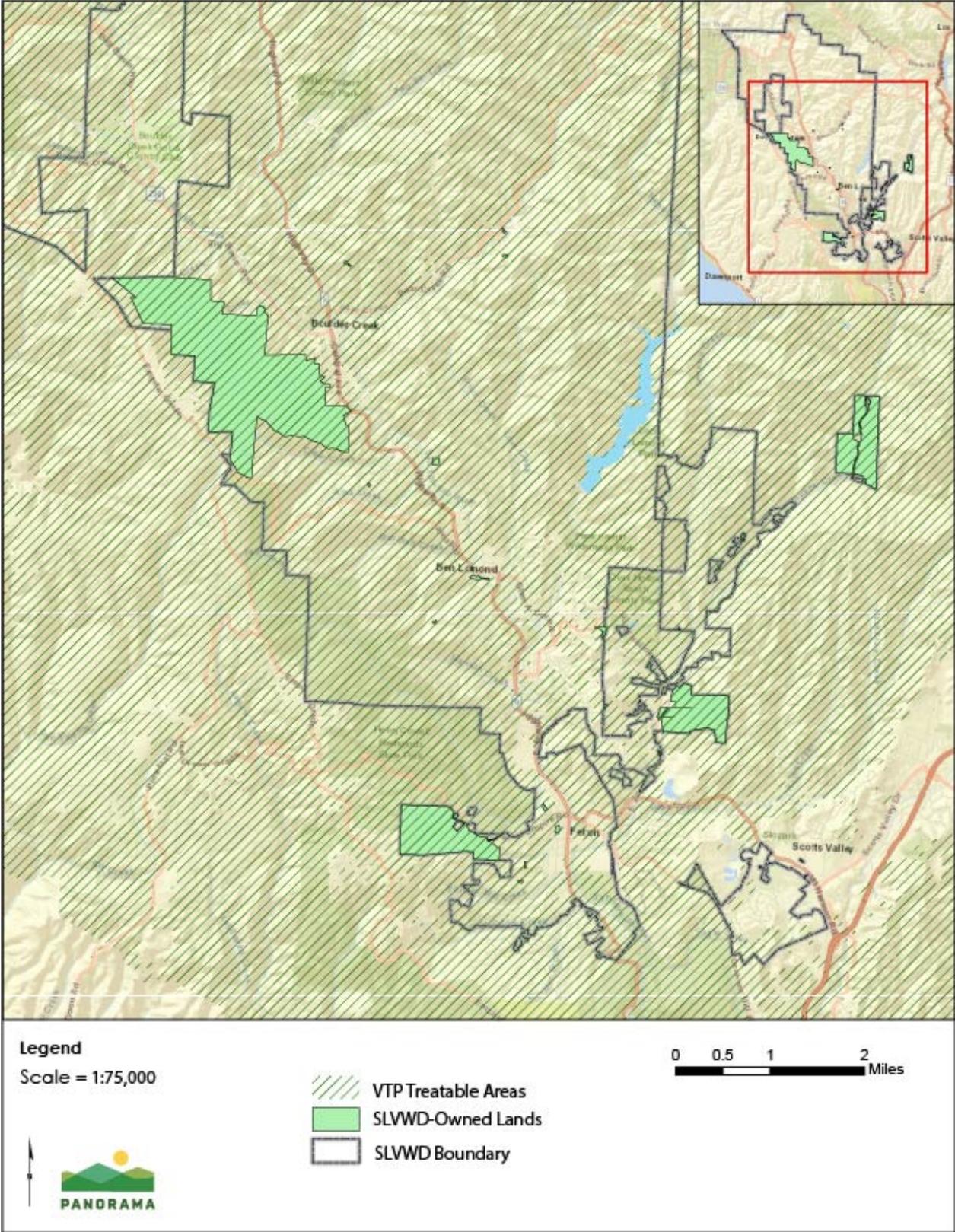
Forest Improvement Program – Forest Treatments

A project-level CEQA review must be conducted if SLVWD pursues proposed forest treatments under the California Forest Improvement Program (CFIP) once a Forest Management Plan is prepared and approved by CAL FIRE (refer to Table 6). Forest treatments that may be covered by the CFIP include vegetation thinning (e.g., pruning, pre-commercial thinning) around pipelines and roads as well as wide area thinning. Reforestation is also a treatment covered by the CFIP. The CFIP does not cover defensible space treatments (e.g., vegetation removal and thinning around 100-foot buffer) around tanks or other infrastructure (Anderson, 2020). The RPF will complete and submit the CAL FIRE Environmental Checklist to confirm that the environmental effects of the proposed forest treatments were adequately analyzed in the *Programmatic Environmental Impact Report for Proposed Administrative Regulations for the California Forest Improvement Program and Supplement* (CFIP PEIR) (CAL FIRE, 1979; CAL FIRE, 1990).

As part of the CAL FIRE Environmental Checklist, appropriate biological and archaeological review will be conducted, including surveys if needed. A Land Use Addendum may be needed for some parcels that are not currently designated as a Timberland Production Zone (TPZ) (refer to Appendix A for zoning designations by parcel).

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

Figure 14 SLVWD-Owned Lands in CalVTP Treatable Area



ENVIRONMENTAL AND PERMITTING REQUIREMENTS

Vegetation Management Program – Prescribed Burning

Prescribed burn projects in brushlands, oak woodlands, or grasslands could be conducted through the CAL FIRE Vegetation Management Program under the *Chaparral Management Program EIR* (CAL FIRE, 1981). Through this process CAL FIRE will enter into an agreement with SLVWD to take all or partial liability for the prescribed fire. Archaeological records review, Native American consultation, and a CNDDDB search are required as part of the environmental documentation, referred to as the Environmental Review Report Form.

Infrastructure Replacement or Upgrades

Infrastructure replacement or upgrades could involve converting wooden structures to steel or concrete structures that could have physical impacts on the environment. Completion of an Initial Study may be required. SLVWD would complete and submit an Initial Study to confirm that changes in the environment would be less than significant (with or without mitigation). Consultation with Santa Cruz Planning Department may be required to assess the need for a building permit for infrastructure replacement or upgrades within the County (refer to Table 3 for a list of permits and approvals that may be required depending upon the type of activity).

Table 3 Potential Permits or Approvals Needed for Fuel and Infrastructure Hardening Projects

Agency	Approval or Notification	Specific Activity
U.S. Army Corps of Engineers	Clean Water Act, Section 404, Nationwide Permit 14	Impacts to jurisdictional waters of the U.S., such as for stream crossings for equipment or infrastructure.
U.S. Fish and Wildlife Service	Endangered Species Act Biological Opinion and Take Authorization	If any activities could result in take of a threatened, endangered, or candidate species.
California Department of Fish and Wildlife	Trustee agency for CEQA review	During CEQA compliance process.
	1602 Streambed Alteration Agreement	For impacts to riparian areas or any stream crossings.
	2081 Incidental Take Permit or Consistency Determination	If any activities could result in the death of a state listed species.
California Department of Transportation	Encroachment permits	For encroachment on Caltrans right-of-way (e.g., vegetation removal adjacent to Highway 9).
California Department of Forestry and Fire Protection	Burn Permit	For any prescribed burn activities.
Monterey Bay Air Resources District	Smoke Management Plan and Smoke Management Permit	For any prescribed burn activities over 10 acres.
	Prescribed Burn Permit	For any prescribed or pile burn activities.
San Francisco Regional Water Quality Control	Section 401 Water Quality Certification	If a Section 404 permit is needed.

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

Agency	Approval or Notification	Specific Activity
Board or Monterey Regional Water Quality Control Board	National Pollutant Discharge Elimination System (NPDES) General Permit	For ground disturbing impacts over 1 acre in size.
	Waste Discharge Requirement	For impacts to waters of the state that are not waters of the U.S.
Santa Cruz County Public Works and Planning Departments	Encroachment Permit	For encroachment into roadways to perform work, for any new fire protection infrastructure that may be needed.
	Transportation Permit	For oversized or overweight loads (e.g., delivery of replacement water tank) in the unincorporated area of the County
	Building Permit	For infrastructure replacement and upgrade
	Grading Permit	<ul style="list-style-type: none"> • For excavation or fill whose volume exceeds 100 cubic yards; • Creating a cut slope greater than 5 feet high; • Creating fills greater than two feet in depth; • Fills placed on natural terrain with a slope greater than 20 percent; • Fill that alters or obstructs a drainage course; or, • Fill that will be used for structural support (includes over-excavation and re-compaction of soil beneath foundation elements)
	Significant Tree Removal Permit	For impacts on trees, sprout clump, or group of trees
San Lorenzo Valley Water District	Lead Agency for CEQA Review	For implementing fuel and forest treatments and infrastructure replacement and upgrades

6.2.3 Long-Term, Large-Scale Management Options

Status Quo Management

Status quo management will entail continuing existing management practices. Any CEQA or permitting compliance will be similar to current practices. CEQA and permitting may be conducted on a case-by-case basis, depending on the work implemented. Biological and cultural pre-work surveys are typically performed before tree removals.

Voluntary Carbon Market

No federal, state or local laws, ordinances, or other legally binding mandates require or regulate the voluntary carbon offset activities. In California, the Climate Action Reserve (CAR; a non-profit organization) developed a series of voluntary offset project protocols that were subsequently adopted in the California Compliance Carbon Offset Program. In order to participate in the voluntary carbon market, the SLVWD is required to open an account on the

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

CAR website at <http://www.climateactionreserve.org/open-an-account/>. A proposal to undertake a reforestation project will then need to be submitted to the CAR for approval. The CAR will invoice the project applicant once the proposal is submitted to the system.

According to the CAR Forest Project Protocol (CAR, 2019), reforestation projects may continue to receive credit for increase sequestration or decreased emission for a period of 100 years. Projects are required to maintain and/or increase carbon in live trees. The Forest Project Protocol also established environmental requirements for tree species, diversity of age classes, ecosystem structure, and regulatory compliance for the project implementation. Monitoring reports will be completed annually for 100 years following the final issuance of credits to the reforestation project. The reforestation project will undergo verification by an independent third party trained and approved by the CAR. Initial verification must include a site visit, and site verification must occur every 6 years thereafter.

Completion of a CEQA Checklist may be required depending upon the scope of the project. SLVWD would complete and submit a CEQA Checklist to confirm that changes in the environment would be less than significant (with or without mitigation). Potential permits and approvals are identified in Table 3, depending on the type of activity proposed (e.g., heavy equipment use near special-status species).

Commercial Timber Harvesting

Currently, commercial timber harvesting is not planned on lands owned by SLVWD, with the exception of the removal of trees deemed a hazard-hazard trees *may* be sold as part of the previously noted CALOES Hazard Tree Removal Program (Section 4.2.1). At the time of this plan draft it is unknown if there are hazard trees on SLVWD lands that will be removed by this program, nor if those trees will be sold for wood products or biomass energy production through the program to facilitate their disposal.

In the future, if commercial timber harvesting is planned, a THP or NTMP would need to be completed, preferably by a local RPF who is licensed to prepare these comprehensive and detailed plans. The THP and NTMP are environmental documents (CEQA-equivalent) that are subject to public review and would be submitted to the County of Santa Cruz and CAL FIRE for review. The County has review authority for the THP and NTMP, while the CAL FIRE has the ultimate responsibility for approval and enforcement. Within 10 days of receipt of the THP or NTMP, review team would conduct a first review on the documents and conduct a Pre-Harvest Inspection (PHI) to examine the proposed logging site. A second review of the documents would be conducted within 20 days after the PHI. A public review period would be closed 10 days following the second review. A determination would be made within 15 days following close of the public review period, unless the review period is extended. The THP has a three-year term with extensions granted by CAL FIRE (Euphrat, 2012). CAL FIRE would periodically inspect the logging operation once the THP is approved to ensure compliance with all laws and regulations. NTMP is prepared for lands with less than 2,500 total acres and with 50 or more years of harvest and yield of projections. Once approved by CAL FIRE, the NTMP is intended to be continued into the future with a notification of Notice of Timber Operations

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

(Euphrat, 2012). More information about the THP and NTMP process for Santa Cruz County can be found here:

<https://www.sccoplanning.com/PlanningHome/Environmental/TimberHarvestReview.aspx>.

6.3 Programmatic CEQA Approach

6.3.1 Overview

SLVWD will need to conduct CEQA and seek permits to cover the projects recommended in this plan. CEQA review could fall under three options:

- Categorical Exemptions for specific projects
- An IS/MND for specific projects or the overall plan
- An EIR for the overall plan

6.3.2 Categorical Exemptions

As discussed in Section 6.2.2, some plan activities may be covered under a Categorical Exemption for CEQA review, including defensible space (CEQA §15304, Class 4 Minor Alterations to Land), fuel management within 100 feet of structures and chipping (Class 4 Minor Alterations to Land or Vegetation), and piling and burning (Classes 7 and 8 Actions to Protect Resources or Environment).

6.3.3 IS/MND

An IS/MND should be prepared for projects that do not qualify for a Categorical Exemption and if significant impacts are anticipated but can be avoided or mitigated to less-than-significant levels with mitigation. An EIR should be prepared if significant impacts are anticipated and are unavoidable even with implementation of mitigation. The types of projects that may result in significant and unavoidable impacts include prescribed burning, as emissions generated by reasonably sized prescribed burns would exceed local standards. Certain portions of SLVWD-owned lands have known special-status plants and animals that may need to be fully avoided to ensure impacts are not significant. SLVWD will need to decide the scope of the projects to determine which CEQA process is the most appropriate. If SLVWD narrows the scope of the projects and types of projects to avoid significant and unavoidable impacts, an IS/MND could be prepared. At a minimum, a desktop assessment of special-status species and habitats would also be performed to identify the types of species that could occur in the treatment areas. The analysis would identify the impacts that could occur to these plant and animal species based on the types and locations of treatment methods prescribed. Mitigation would be defined that include pre-activity surveys and likely avoidance measures to ensure impacts are less than significant.

An archaeological literature review and Native American consultation would be included in the preparation of an IS/MND to identify known and potential cultural and tribal cultural resources in the areas of proposed treatments. The type of resources found would be assessed as to

ENVIRONMENTAL AND PERMITTING REQUIREMENTS

potential CEQA eligibility, and with regard to their sensitivity to impacts from vegetation management activities. Mitigation would include pre-activity surveys and protocols for handling of previously undiscovered resources will be identified.

The IS/MND process typically can take 4 to 6 months to complete, including a 30-day public review period. An IS/MND would address all key topics of concern (e.g., aesthetic resources, air quality, biological resources, cultural and historic resources), would identify potentially significant impacts, and proposed mitigation measures. All environmental impacts must be less than significant with mitigation in an MND. Some treatment projects, including mechanical methods and pile burning, can be covered potentially under an IS/MND, as the anticipated significant environmental impacts could be mitigated to a less-than-significant level. Other treatment methods are not likely qualified for an IS/MND due to potential significant and unavoidable impacts, for example, prescribed burning projects could result in significant and unavoidable emission impacts.

6.3.4 Program EIR

According to CEQA Section 15168, a Program EIR may be prepared on a series of actions that can be characterized as one large project and are related to, among other things, the issuance of general criteria to govern the conduct of a continuing program or individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar way. Given the various vegetation treatments proposed, a Program EIR would be appropriate for the Post-Fire Recovery, Critical Asset Hardening, Vegetation, and Fuels Management Plan (Plan) for streamlining all proposed treatment activities. A Program EIR could be prepared to cover all proposed vegetation treatment activities and infrastructure work in the Plan. However, the development of a Program EIR would be more expensive and time intensive compare to an IS/MND due to additional required content and longer public review process. Typical Program EIRs can be prepared in no less than one year from issuance of the Notice to Proceed to EIR certification. The Program EIR would identify the process for implementing each action, including the pre-work surveys that must be completed and avoidance measures if resources are found during surveys.

7 Estimated Cost for Implementation

Costs presented here are estimates to assist SLVWD in annual planning in the next 5 years. The costs presented in Table 4 are based on data collected for land and agencies in the San Francisco Bay Area and north central coast for the years 2020 and 2021. It is recommended to add a 5 percent increase to the estimates in each successive year to account for annual inflationary increases in costs. Pricing of actual work will be specific to the time, individual site conditions, contracted labor, demand, and other factors.

The costs in Table 4 also do not include planning costs such as for biological survey work, cultural survey work, planning coordination, and permitting. These types of soft costs can range from 10 percent to 50 percent of costs, depending on the size of project (where economies of scale are realized past approximately 10 to 20 acres). Table 5 presents some approximate costs, but these are subject to large fluctuations due to project variables.

Table 4 Estimated Costs Per Treatment (Based on 2020/2021 Prices)

Treatment Type	Description	Estimated Costs per Acre
Post-Fire Recovery Treatments		
Hazard tree removal	Removal of dead and diseased hazard trees where the tree poses a hazard to infrastructure and life.	<ul style="list-style-type: none"> • \$500 to \$10,000+ per tree (Can be higher based on need to close roads or structures around tree)
Revegetation and reforestation	Planting of vegetation and trees in high severity burn areas.	<ul style="list-style-type: none"> • \$950/ acre (Fargione, et al., 2021)
Defensible Space and Fuel Reduction		
Defensible space construction/intensive thinning	Construction of new defensible space includes more intensive thinning of understory and ladder fuels in a strip of land adjacent to important infrastructure. Work is completed using masticators, chippers, chainsaws, and can include pile burning. Work is more intensive than forest thinning/fuel reduction work.	<ul style="list-style-type: none"> • \$5,500 to over \$15,000/ acre (Depending on slope, density, type of cover and if hand thinning and chipping is used)

ESTIMATED COSTS FOR IMPLEMENTATION

Treatment Type	Description	Estimated Costs per Acre
Defensible space maintenance and cutting woody vegetation	Defensible space is a built asset requiring periodic maintenance to operate as intended. Defensible spaces are areas around infrastructure and structures where vegetation has been altered so that it has a low fuel volume and/or reduced flammability. Maintenance work is intended to maintain reduced fuel loads and stand structure that will slow fire spread and reduce flame lengths. Fuel reduction areas are maintained by re-cutting vegetation as warranted	<ul style="list-style-type: none"> • \$1,500/ acre
Mowing of fine fuels	Managing vegetation in the most risk-prone areas, including defensible space around structures. These areas, which are most risk-prone, will be maintained by re-cutting vegetation, as warranted to keep grasses at 4 inches or less in height. The work is performed primarily with power tools such as string cutters, and heavy equipment with mower on occasion. The vegetation is shredded and scattered on site as part of the cutting process with no additional treatment required.	<ul style="list-style-type: none"> • \$500/ acre
Forest thinning /fuel reduction work (less intensive than defensible space treatment)	Forest thinning/fuel reduction is performed to reduce accumulated fuels and brush density in conifer and mixed hardwood forest to reduce wildfire risk and improve overall forest function. Thinning brush is an established means of promoting the growth of retained native trees by reducing the competition for light, nutrients, and water.	<ul style="list-style-type: none"> • \$3,500 to \$8,500/ acre (depending on slope, density, access, and if hand thinning and chipping used)
Mastication and clearing along roadsides (up to 100 feet on either side)	Vegetation management around roadsides is necessary to ensure the integrity of the infrastructure. The work is performed with a combination of heavy equipment with cutting or masticating heads mounted on articulating arms and with power tools including chainsaws and brushcutters.	<ul style="list-style-type: none"> • \$1,500 to \$4,500/ acre
Eucalyptus removal	Removal of eucalyptus stands and/or individual trees where trees have been top killed by fire.	<ul style="list-style-type: none"> • ~\$90,000/ acre
Grazing of fine fuels	Grazing includes the use of livestock (sheep, goats, or cattle) to achieve vegetation management objectives including fuel load reduction, weed suppression, and habitat enhancement.	<ul style="list-style-type: none"> • \$1,000 to \$5,000/ acre
Prescribed burning	Controlled burning to reduce fuels over larger areas.	<ul style="list-style-type: none"> • \$1,500 to \$3,500/ acre plus \$3,500 to \$5,000 for a burn plan (Smoke Management Plan and Permit costs outlined below)

ESTIMATED COSTS FOR IMPLEMENTATION

Treatment Type	Description	Estimated Costs per Acre
Water Infrastructure		
Fire Hydrant Connection to Tank	Installation of a fire hydrant and associated piping to allow fire and emergency access to water in tanks.	• \$7,000/ hydrant
Valve Connection to Tank	Installation of a valve connection (e.g., check valve) to allow fire and emergency access to water in tanks.	• \$3,500/ valve and connection
Steel Tank Replacement	Replacement of redwood or poly tank with steel tank.	• \$150,000 to \$400,000/ tank
Pump House Roof Replacement	Replacement of pump house roof with fire resistant materials.	• \$12,000 to \$24,000/ roof

Table 5 Estimated Costs for Permitting, Environmental Review, and Resource Surveys (Based on 2020/2021 Prices)

Type	Description	Cost
Permitting (excluding application fees)		
Section 404, Nationwide Permit 14	This permit allows activities required for crossings of waters of the U.S. associated with the construction, expansion, modification, or improvement of linear transportation projects.	<ul style="list-style-type: none"> • \$7,500 to \$20,000 (Nationwide Permit) • \$10,000+ (Aquatic Resource Delineation Report)
Section 401 Water Quality Certification	This certification verifies compliance with water quality requirements. A federal agency may not issue a permit (e.g., Section 404 permit) to conduct any activity that may result in any discharge into waters of the U.S. unless a Section 401 Water Quality Certification is issued.	• \$10,000 to \$15,000
1602 Streambed Alteration Agreement	This agreement is required by CDFW when a project activity may substantially adversely affect fish and wildlife.	• ~\$15,000
USFWS or CDFW Incidental Take Permit (ITP)	This permit is required when activities will result in “take” (e.g., harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect) of federal or state threatened or endangered wildlife.	• \$5,000 to \$25,000+ (Surveys costs are outlined below)
Smoke Management Plan and Smoke Management Permit	Smoke Management Plan are required when a burn has the potential to impact nearby sensitive receptors (homes, schools, businesses, roads, etc.)	• ~\$6,000
Environmental Review		

ESTIMATED COSTS FOR IMPLEMENTATION

Type	Description	Cost
Categorical Exemption	Categorical exemption is defined by the State Resource Agency and is defined in the CEQA guidelines. It includes projects that generally are considered not to have potential impacts on the environment and are exempt from CEQA.	<ul style="list-style-type: none"> • \$2,500 to \$7,500
CalVTP PSA or CFIP Checklist	The PSA checklist or CFIP checklist has been prepared for a typical project and is exemplary of the analysis content and level of detail needed to provide substantial evidence that the project would be within the scope of the CalVTP PEIR or CFIP EIR.	<ul style="list-style-type: none"> • \$5,000 to \$15,000+
IS/MND	An IS/MND is prepared when a project may have significant environmental impacts, but certain mitigation measures would reduce impacts below a level of significance.	<ul style="list-style-type: none"> • \$15,000 to \$65,000
EIR	An EIR is prepared when a project may result in significant and unavoidable environmental impacts.	<ul style="list-style-type: none"> • \$100,000 to \$300,000+
Resource Surveys		
Biological Surveys	<p>Biological reconnaissance surveys are conducted to identify what species occur in a given area. Nesting bird surveys are undertaken where works (e.g., vegetation removal) that could disturb nesting birds and result in a breach of legislation are proposed within the nesting bird season (February 1st through August 15th).</p> <p>Protocol surveys are conducted for special-status plant and wildlife species including those protected under the federal and state Endangered Species Acts.</p>	<ul style="list-style-type: none"> • \$2,500 to \$15,000 (Biological Reconnaissance or Nesting Bird Surveys) • \$10,000 to \$40,000 (Protocol Surveys) <p>(Costs are highly dependent upon species in the area and size of survey area)</p>
Cultural Surveys	Cultural surveys could include pedestrian survey, records search, and literature review to identify previous site records, survey reports, National Register of Historic Places and California Register of Historical Resources listings, and other relevant documents.	<ul style="list-style-type: none"> • \$1,000 to \$5,000+ (Records Search) • \$10,000 (Survey covering approximately 50 acres)

8 Potential Funding Sources

This plan will allow SLVWD to pursue larger grant opportunities and regional partnerships for fuel and vegetation management treatments. SLVWD has developed relationships with several regional organizations. SLVWD currently attends Santa Cruz Fire Safe Council meetings and is a member of the Santa Cruz Mountains Stewardship Network. The subset of potential treatment areas included in Appendix D were provided to the Coastal Region Prioritization Group and will be part of the Collaborative Vegetation Management Map. SLVWD has submitted several of the higher priority projects (Appendix F) to the RCD and California Coastal Conservancy in pursuit of grant funding. In the coming years, it is recommended that SLVWD continue to collaborate with these organizations.

A variety of grants and low interest loans are available from federal and state agencies that may be applied for to fund the treatments proposed in this plan. Table 6 provides a summary of the applicable funding sources and other pertinent information. The grant and funding sources identified are current as of late 2020/early 2021. Additional research and outreach will need to be conducted in the future to identify application periods and ensure no updates or changes have been made. The funding sources are ordered by two main categories (1. Post-Fire Rehabilitation and Water Infrastructure Projects; 2. Forest, Fuel, and Watershed Management Projects) and by availability of funding and timeframe within which the District could acquire funds. For many of the funding sources, SLVWD may have greater success of grant approval by collaborating as part of a larger regional and multi-stakeholder opportunity, including those organizations that SLVWD has an existing relationship with.

POTENTIAL FUNDING SOURCES

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POTENTIAL FUNDING SOURCES

Table 6 Summary of Potential Funding Sources (2020/2021)

Grant	Agency	Funding Summary	Timeframe for Receipt of Funds From Date of Application	Relevant Qualifying Projects	Main Contact	Recommendations
Post-Fire Rehabilitation and Water Infrastructure Projects						
1. California Disaster Assistance Act (CDAA) Program	FEMA/ Cal OES	Non-Competitive Grant; Includes up to 75% of eligible costs	Short term	Funding for the repair, restore, or replace public property damaged or destroyed by a disaster. Provides money for in kind replacement.	Rosemary Anderson, County of Santa Cruz Emergency Services Manager (831) 713-0318 Michael Beaton, County of Santa Cruz Director of General Services (559) 312-8847 Byron Green, CalOES Santa Cruz County Representative (916) 330-0933 byron.green@caloes.ca.gov	Attend Applicant's Briefing following any subsequent disasters.
2. 406 Hazard Mitigation Grant Program	FEMA/ Cal OES	Non-Competitive Grant; No cap	Short term	Typically applies only to permanent work projects and is generally applied only on the part(s) of the facility that were damaged by the disaster. However, in certain instances, an eligible mitigation measure (e.g., fire hardening a water tank) may not be an integral part of the facility. Mitigation measures that do not exceed 15% of the total project costs are considered cost-effective and eligible. FEMA will consider these exceptions on a case-by-case basis.	John Catching, Cal OES Branch Chief Office: (916) 845-8204 Cell: (916) 265-8205 John.Catching@caloes.ca.gov	Continue to coordinate with the County by providing estimated cost of infrastructure loss/replacement to ensure that FEMA funds will be made available.
3. Emergency Watershed Protection Program (EWP)	NRCS	Non-Competitive Grant; No cap; Includes 75% of installation/construction costs and 100% of engineering costs from the date that the agreement is signed (no reimbursement)	Short term	Response to emergencies created by natural disasters. Project examples include: remove debris from stream channels, road culverts, and bridges; reshape and protect eroded banks; correct damaged drainage facilities; establish cover on critically eroding lands; repair levees and structures.	Desi Ramirez, NRCS Local Contact (530) 902-2913 Desi.Ramirez@usda.gov	Determine if the District would like to be the project sponsor following subsequent disasters and identify projects that could qualify.
4. California Infrastructure State Revolving Fund (ISRF)	SWRCB/ iBank	Loan; No cap; Includes reimbursement for previous expenses; Approximate 2% interest rate in 2020	Short term	Various infrastructure and economic development projects which may include emergency funds for water distribution system repairs.	Lina Benedict, Loan Origination Unit Manager (916) 838-4690 lina.benedict@iBank.ca.gov	Pursue loan application for remaining project costs not covered by other funding sources (e.g., CDAA, Hazard Mitigation Grant Program 406). This process can be expedited (approximate 30 to 45-day approval), if requested.
5. Drinking Water State Revolving Fund (DWSRF)	SWRCB	Loan; No cap; 1.4% interest rate in 2020	Long term	Funds for planning/design and construction of drinking water infrastructure projects, such as: treatment systems, distribution systems, interconnections, consolidations, pipeline extensions, water sources, water meters, and water storages.	Lawrence Sanchez, SWRCB (818) 925-2453 lawrence.sanchez@waterboards.ca.gov	Pursue loan application if interested. May offer lower interest rates than ISRF (above), however, this program includes more extensive application requirements (e.g., DBE requirement, complete environmental documentation prior to application, etc.) and could take up to 9 months to complete the review/approval process.

POTENTIAL FUNDING SOURCES

Grant	Agency	Funding Summary	Timeframe for Receipt of Funds From Date of Application	Relevant Qualifying Projects	Main Contact	Recommendations
6. Environmental Quality Incentives Program (EQIP)	NRCS	Competitive Grant; Caps defined for each project type	Long term	Projects to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, and increased soil health and reduced soil erosion and sedimentation. Includes funding for disaster repair projects.	Whitney Haraguchi District Conservationist (831) 227-2901 whitney.haraguchi@usda.gov	Verify District meets eligibility requirement of \$900,000/year adjusted gross income. Apply during application period (expected to include 2 or 3 "batches" per year in 2021 or following years).
7. Emergency Community Water Assistance Grants (ECWAG)	USDA	Non-Competitive Grant; Maximum grant request: \$1 million	Short term	Projects to help eligible communities prepare or recover from an emergency that threatens the availability of safe, reliable drinking water. An eligible community's population must be 10,000 or less and the MHI must be less than the State Non-Metropolitan MHI (SNMMHI).	Esther De La Cruz, Salinas Office (831) 975-7736 esther.delacruz@usda.gov	Consider applying in future years (applications accepted year-round). Note to ensure that FEMA funding is not used for the same project applied for under the ECWAG.
8. Water & Waste Disposal Loan & Grant Program	USDA	Loan; Low interest rates; Up to 40-year payback period	Long term	Example projects include drinking water sourcing, treatment, storage, and distribution.	Esther De La Cruz, Salinas Office (831) 975-7736 esther.delacruz@usda.gov	No additional funding available for 2020/2021; consider applying in future years (applications accepted year-round).
9. Integrated Regional Water Management Grant Programs (IRWMP)	DWR	Competitive Grant; Available funds vary by year	Long term	Projects must be included in an adopted Integrated Regional Water Management (IRWM) Plan. Projects may include but are not limited to: <ul style="list-style-type: none"> • Water reuse and recycling for non-potable reuse and direct and indirect potable reuse • Water-use efficiency and water conservation • Local and regional surface and underground water storage, including groundwater aquifer cleanup or recharge projects • Regional water conveyance facilities that improve integration of separate water systems • Watershed protection, restoration, and management projects, including projects that reduce the risk of wildfire or improve water supply reliability 	Tim Carson, Regional Water Management Foundation (831) 622-2000 tim@cfsc.org	SLVWD is a partner in the Santa Cruz IRWM. Recommend determining if any projects can be integrated into the IRWM project list update.
Forest, Fuel, and Watershed Management Projects						
1. California Forest Improvement Grant Program (CFIP)	CAL FIRE	Competitive Grant; Caps defined for each project type	Short to moderate term	Planning, reforestation and resource management investments that improve the quality and value of forestland. Projects are non-commercial operations typically used to modify sub-merchantable trees or ones with no commercial value. Covers 75 percent up to 90 percent, for damaged forests, of costs up to the identified cost cap.	Guy Anderson (559) 243-4109 (559) 281-847 guy.anderson@fire.ca.gov	Once the Forest Management Plan is approved by CAL FIRE, recommend identifying discrete management projects that would qualify as forest management and apply for implementation. Forest treatments that may be covered by the CFIP include vegetation thinning (e.g., pruning, pre-commercial thinning) around pipelines and roads as well as wide area thinning. The CFIP does not cover defensible space treatments (e.g., vegetation removal and thinning around 100-foot buffer) around tanks or other infrastructure (Anderson, 2020).

POTENTIAL FUNDING SOURCES

Grant	Agency	Funding Summary	Timeframe for Receipt of Funds From Date of Application	Relevant Qualifying Projects	Main Contact	Recommendations
2. Nonpoint Source Pollution Program (NPS)	SWRCB	Competitive Grant; Minimum funding request: \$250,000; Maximum request: \$800,000 (total cost of a project can exceed \$800,000 but grant amount is limited to \$800,000)	Long term; Up to 18 month review/approval process	Projects or programs that help to reduce NPS pollution within the state's NPS priority watersheds. Examples include implementing erosion control measures on forest lands to improve water quality or implementing management activities that lead to reduction and/or prevention of pollutants that threaten or impair surface and ground waters.	Jodi Pontureri, Division of Water Quality (916) 341-5306 Jodi.Pontureri@waterboards.ca.gov	Pursue grant application if interested in dedicating resources to compete for funds. Grant applications are typically due in December.
3. California Climate Investments (CCI) Fire Prevention Grant Program	CAL FIRE	Competitive Grant; No cap	Long term	Projects and activities related to hazardous fuel reduction and removal of dead, dying, or diseased trees, fire prevention planning, and fire prevention education. Projects must provide benefits to habitable structures in the State Responsibility Area (SRA). Non-SRA lands may be included within project boundaries, but project activities must provide a benefit to SRA.	Andy Hubbs (831) 335-6794 Andrew.Hubbs@fire.ca.gov	Typically, the approved projects are larger-scale efforts. Recommend teaming up with local partners (e.g., RCD, Fire Council).
4. California Climate Investments (CCI) Forest Health Grant Program	CAL FIRE	Competitive Grant; Available funds vary by year	Long term	Projects may include: forest fuels reduction; prescribed fire; pest management; reforestation; biomass utilization; conservation easements and/or land acquisition through the forest legacy program; research as a component, or stand-alone through the forest research program.	Julie Howard, Local Forest Health Representative (831) 345-4942 Julie.Howard@fire.ca.gov	Typically, the approved projects are larger-scale efforts. Recommend teaming up with local partners (e.g., RCD, Fire Council). Grant application opens March 10, 2021 and closes May 19, 2021. Grant periods are typically early to mid-year.
5. State Fire Assistance Program (SFAP)	California Fire Safe Council	Competitive Grant; Maximum request is \$200,000; mandatory cost share is 100% (federal funding can account for up to 50% of the project's cost, and remaining 50% must come from non-federal sources).	Long term	Projects may focus on fuel-hazard mitigation vegetation treatments, including chipping, thinning, burning, grazing, and mastication. Projects must be in the wildland-urban interface, protecting an officially designated Community-at-Risk (CAR) (such as the Ben Lomond community). Projects in Community Wildfire Protection Plans (CWPPs) or a similar plan, such as this one, are given priority for federal funding.	Dan Lang, Senior Grant Specialist (916) 256-3621 dlang@cafiresafecouncil.org	Suggest incorporating hazard-mitigation projects into local CWPPs or revising the CWPP to refer to an appropriate wildfire protection plan and teaming with local partners (e.g., RCD, local Fire Council) to increase strength of grant application. Grant application opens May 3, 2021 and closes June 15, 2021. Grant periods are typically early to mid-year.
6. Watershed Protection Program	SWRCB	Competitive Grant	Long term	Eligible projects include activities that: reduce chronic flooding or control water velocity and volume using nonstructural methods; protect and enhance greenbelts and riparian and wetlands habitats; prevent watershed soil erosion and sedimentation of surface waters, etc.	Leslie Laudon, Division of Financial Assistance (916) 341-5499 llaudon@waterboards.ca.gov	Consider applying in future years if funding becomes available.

POTENTIAL FUNDING SOURCES

Grant	Agency	Funding Summary	Timeframe for Receipt of Funds From Date of Application	Relevant Qualifying Projects	Main Contact	Recommendations
<p>Several funding sources were reviewed and found to not be available to the District. The list below indicates the programs that have been dismissed and a brief explanation of why the District or District projects are not eligible to apply for funding.</p> <p>Post-Fire Rehabilitation and Water Infrastructure Projects</p> <ul style="list-style-type: none"> • FSA Emergency Forest Restoration Program: <ul style="list-style-type: none"> – Only eligible to private landowners. • USDA California Community Facilities Direct Loan & Grant Program: <ul style="list-style-type: none"> – Not directly applicable to domestic water facilities; refer to other USDA rural development programs. • FEMA/Cal OES Hazard Mitigation Grant Program Section 404; and • FEMA/Cal OES Building Resilient Infrastructure Communities (previously called the Pre-Disaster Mitigation Grant): <ul style="list-style-type: none"> – Requires participation in a Local Hazard Mitigation Plan, which the District is not currently. <p>Firefighting Infrastructure/ Tank Fittings Projects</p> <ul style="list-style-type: none"> • FEMA Fire Prevention and Safety Grant Program <ul style="list-style-type: none"> – Requires all applicants to be independently eligible, even to partner with a fire agency. The District is not an eligible applicant. • FEMA Assistance to Firefighters Grant Program: <ul style="list-style-type: none"> – Does not accept partnership applications and equipment upgrades are a low priority. 				<p>Forest, Fuel, and Watershed Management Projects</p> <ul style="list-style-type: none"> • Bureau of Reclamation Cooperative Watershed Management Program (Phase II): <ul style="list-style-type: none"> – Only eligible to watershed groups, which the District is not currently. • CAL FIRE California Climate Investments (CCI) Urban & Community Forestry Grant Program: <ul style="list-style-type: none"> – Provides funding for urban projects include tree and vegetation planting to reduce GHG emissions and improve functionality of urban forests. • FEMA Fire Management Assistance Grant Program: <ul style="list-style-type: none"> – Provides assistance to states and local government to fight active fires. • NRCS Watershed Rehabilitation Program: <ul style="list-style-type: none"> – Only applies to selected watersheds and projects, which San Lorenzo Valley watershed is not currently selected for. • Rose Foundation California Watershed Protection Fund: <ul style="list-style-type: none"> – The applicant must be a 501(c)3 organization, fiscally-sponsored by a 501(c)3, or a governmental or tribal entity. • SWRCB Storm Water Grant Program (SWGPP): <ul style="list-style-type: none"> – Provides funding for projects that may include, but not limited to, green infrastructure, rainwater and storm water capture projects and storm water treatment facilities. These projects are not applicable to the District at this time. 		

9 Preparers

This section lists those individuals who either prepared or participated in the preparation of plan.

Table 7 Plan Authors

Contributor	Role
Jason Moghaddas, Registered Professional Forester [RPF# 2774], Spatial Informatics Group	Document Preparation; Fuels and Vegetation Treatments
Carl Rudeen, Spatial Informatics Group	GIS Analyses
Phil Dye, Prometheus Fire Consulting LLC	Site Visits and Assessment
Tania Treis, Panorama Environmental	Document Preparation, Quality Control, and Templates
Caitlin Gilleran, Panorama Environmental	Document Preparation
Yingying Cai, Panorama Environmental	Document Preparation

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11 Glossary of Terms

California Environmental Quality Act (CEQA): The California Environmental Quality Act is a California statute passed in 1970 and signed into law by then-Governor Ronald Reagan, shortly after the United States federal government passed the National Environmental Policy Act, to institute a statewide policy of environmental protection (OPR, 2020).

California Forest Practice Rules: California Forest Practice Rules is a series of regulations that provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field.

Carbon offsets: Carbon offsets are reductions in emission of carbon dioxide or other greenhouse gases made in order to compensate for emissions made elsewhere. Offsets are measured in tons of greenhouse gases, which comprises carbon dioxide, methane, nitrous oxide, sulfur, hydrofluorocarbons, and perfluorocarbons.

Diameter at breast height (DBH): DBH is the diameter of a tree measured at 4.5 feet above ground.

Flame length: Flame length is determined by the rate of fire spread and the heat per unit area of the fire. Factors affecting flame length are vegetation type, fuel loading, topography, and weather conditions.

Forest Management Plan (FMP): A Forest Management Plan is a guide containing details about a forest and practices that would help achieve identified forest management objectives. The plan is a living document that need to be modified as the goals and objectives, and site conditions change over time.

Girdling: Girdling refers to removing a strip of bark from the entire circumference of a tree, which results in death in many species

Hazard trees: A hazard tree is a tree that has structural defect that makes it likely to fail in whole or in part.

Licensed Timber Operator (LTO): Licensed Timber Operators are persons who have licensed under the Forest Practice Act law and are authorized to conduct forest tree cutting and removal operations.

Mastication: Mastication is a fuel reduction treatment method used in forestry management to reduce wildfire risk and reduce fuel loadings. Mastication involves reducing the size of forest vegetation and downed material by grinding, shredding, chunking or chopping material.

GLOSSARY OF TERMS

Non-Industrial Timber Management Plan (NTMP): A Non-Industrial Timber Management Plan is a type of permit for timber harvesting. It is allowed for landowners with less than 2,500 total acres of land and require uneven-aged management (selection harvest). Non-Industrial Timber Management Plan is permanent with 50 or more years of harvest and yield projections.

Pre-Harvest Inspection (PHI): A pre-harvest inspection is part of the Timber Harvesting Plan review process. A pre-harvest inspection occurs within 10 days of the date that the plan was accepted for filling. It is an on-site inspection that is normally conducted to examine the plan area and the logging site.

Prescribed burning: Prescribed burning is the intentional, controlled application of fire to a forest to accomplish the objectives of a landowner or land manager. Prescribed burning includes fires designed for site preparation purpose and for forest understory maintenance.

Registered Professional Forester (RPF): A registered professional forester is a forester that is licensed by the state to perform professional services that require application of forestry principles and techniques to manage forested landscaped. **Timber Harvest Plan (THP):** A Timber Harvest Plan is the environmental review document submitted by landowners to CAL FIRE outlining what timber they want to harvest, how it will be harvested, and the steps that will be taken to prevent damage to the environment.

Watershed Emergency Response Team (WERT): A Watershed Emergency Response Team helps communities prepare after wildfire by rapidly documenting and communicating post-fire risks to life and property posed by debris flow, flood, and rock fall hazards.

Wildfire Risk: Generally, risk is the potential for realization of adverse or beneficial consequences to high valued resources and assets (Scott et al, 2013). The fundamental components for quantifying wildfire risk include likelihood, intensity, and susceptibility to effects (Scott et al, 2013).

Wildfire Hazard: A physical situation with potential for harm to persons or damage to resources and assets. Wildfire hazard can be described quantitatively by two characteristics: (1) the probability of a fire occurring at a specific point during a specified time period, and (2) the expected distribution of intensity given that the event does occur. Wildfire hazard at a given location on the landscape is quantified through: (1) burn probability and (2) conditional wildfire intensity given that a fire does occur. Those two characteristics are combined into a single spatially resolved measure of wildfire hazard: integrated wildfire hazard. (Scott et al, 2013).

Wildland Urban Interface (WUI): The Wildland Urban Interface is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Appendix A

Legal Descriptions and Zoning Designations by Parcel for SLVWD- Owned Lands

APPENDIX A

- a) First parcel
 - i) Assessor Parcel Number: 064-083-05
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S28 T10S R2W, Mount Diablo Base and Meridian
- b) Second parcel
 - i) Assessor Parcel Number: 064-201-33
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S28 T10S R2W, Mount Diablo Base and Meridian
- c) Third parcel
 - i) Assessor Parcel Number: 064-381-20
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- d) Fourth parcel
 - i) Assessor Parcel Number: 072-242-09
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S10 T10S R2W, Mount Diablo Base and Meridian
- e) Fifth parcel
 - i) Assessor Parcel Number: 078-261-07
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S9 T10S R2W, Mount Diablo Base and Meridian
- f) Sixth parcel
 - i) Assessor Parcel Number: 079-341-02
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S32 T9S R2W, Mount Diablo base and Meridian
- g) Seventh parcel
 - i) Assessor Parcel Number: 082-021-08
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-32 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S24 T9S R3W, Mount Diablo Base and Meridian
- h) Eighth parcel
 - i) Assessor Parcel Number: 082-021-13
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-32 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- i) Ninth parcel
 - i) Assessor Parcel Number: 082-211-39
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- j) Tenth parcel

APPENDIX A

- i) Assessor Parcel Number: 084-091-13
- ii) County: Santa Cruz County
- iii) Zoning: SU - Special Use
- iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- k) Eleventh parcel
 - i) Assessor Parcel Number: 084-261-13
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- l) Twelfth parcel
 - i) Assessor Parcel Number: 084-261-14
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- m) Thirteenth parcel
 - i) Assessor Parcel Number: 084-111-17
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S36 T8S R3W, Mount Diablo Base and Meridian
- n) Fourteenth parcel
 - i) Assessor Parcel Number: 090-041-15
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S29 & 30 T9S R2W, Mount Diablo Base and Meridian
- o) Fifteenth parcel
 - i) Assessor Parcel Number: 021-101-13
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S25 T10S R2W, Mount Diablo Base and Meridian
- p) Sixteenth parcel
 - i) Assessor Parcel Number: 021-101-21
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S25 T10S R2W, Mount Diablo Base and Meridian
- q) Seventeenth parcel
 - i) Assessor Parcel Number: 064-051-03
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- r) Eighteenth parcel
 - i) Assessor Parcel Number: 065-013-34
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- s) Nineteenth parcel

APPENDIX A

- i) Assessor Parcel Number: 071-141-02
- ii) County: Santa Cruz County
- iii) Zoning: SU - Special Use
- iv) Section, Township, Range, Base & Meridian: S14 T10S R2W, Mount Diablo Base and Meridian
- t) Twentieth parcel
 - i) Assessor Parcel Number: 071-141-14
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S11 T10S R2W, Mount Diablo Base and Meridian
- u) Twenty-first parcel
 - i) Assessor Parcel Number: 072-331-38
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S10 T10S R2W, Mount Diablo Base and Meridian
- v) Twenty-second parcel
 - i) Assessor Parcel Number: 072-354-13
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S10 T10S R2W, Mount Diablo Base and Meridian
- w) Twenty-third parcel
 - i) Assessor Parcel Number: 074-111-02
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S2 T10S R2W, Mount Diablo Base and Meridian
- x) Twenty-fourth parcel
 - i) Assessor Parcel Number: 078-252-01
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S9 T10S R2W, Mount Diablo Base and Meridian
- y) Twenty-fifth parcel
 - i) Assessor Parcel Number: 082-241-13
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- z) Twenty-sixth parcel
 - i) Assessor Parcel Number: 084-061-17
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- aa) Twenty-seventh parcel
 - i) Assessor Parcel Number: 085-041-18
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S1 T9S R3W, Mount Diablo Base and Meridian
- bb) Twenty-eighth parcel
 - i) Assessor Parcel Number: 089-261-05

APPENDIX A

- ii) County: Santa Cruz County
- iii) Zoning: R-1-10 - Single-Family Residential
- iv) Section, Township, Range, Base & Meridian: S21 T9S R2W, Mount Diablo Base and Meridian
- cc) Twenty-ninth parcel
 - i) Assessor Parcel Number: 090-064-02
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S29 T9S R2W, Mount Diablo Base and Meridian
- dd) Thirtieth parcel
 - i) Assessor Parcel Number: 079-011-01
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R2W, Mount Diablo Base and Meridian
- ee) Thirty-first parcel
 - i) Assessor Parcel Number: 079-011-02
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R2W, Mount Diablo Base and Meridian
- ff) Thirty-second parcel
 - i) Assessor Parcel Number: 079-011-22
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space and R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S30, T9S, R2W and S31 T9S R2W, Mount Diablo Base and Meridian
- gg) Thirty-third parcel
 - i) Assessor Parcel Number: 079-011-26
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W, Mount Diablo Base and Meridian
- hh) Thirty-fourth parcel
 - i) Assessor Parcel Number: 081-011-07
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W, Mount Diablo Base and Meridian
- ii) Thirty-fifth parcel
 - i) Assessor Parcel Number: 081-101-03
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- jj) Thirty-sixth parcel
 - i) Assessor Parcel Number: 081-101-07
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- kk) Thirty-seventh parcel
 - i) Assessor Parcel Number: 081-361-05

APPENDIX A

- ii) County: Santa Cruz County
- iii) Zoning: TP - Timber Production
- iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- ll) Thirty-eighth parcel
 - i) Assessor Parcel Number: 081-361-06
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- mm) Thirty-ninth parcel
 - i) Assessor Parcel Number: 081-361-07
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- nn) Fortieth parcel
 - i) Assessor Parcel Number: 081-361-08
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- oo) Forty-first parcel
 - i) Assessor Parcel Number: 078-252-07
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S4 T10S R2W, Mount Diablo Base and Meridian
- pp) Forty-second parcel
 - i) Assessor Parcel Number: 078-236-01
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S9 T10S R2W, Mount Diablo Base and Meridian
- qq) Forty-third parcel
 - i) Assessor Parcel Number: 078-201-20
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S8 T10S R2W, Mount Diablo Base and Meridian
- rr) Forty-fourth parcel
 - i) Assessor Parcel Number: 078-201-04
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S8 T10S R2W, Mount Diablo Base and Meridian
- ss) Forty-fifth parcel
 - i) Assessor Parcel Number: 078-236-23
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S8 T10S R2W, Mount Diablo Base and Meridian
- tt) Forty-sixth parcel
 - i) Assessor Parcel Number: 078-201-03
 - ii) County: Santa Cruz County

APPENDIX A

- iii) Zoning: R-1-15 - Single-Family Residential
- iv) Section, Township, Range, Base & Meridian: S8 T10S R2W, Mount Diablo Base and Meridian
- uu) Forty-seventh parcel
 - i) Assessor Parcel Number: 078-201-22
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S8 T10S R2W, Mount Diablo Base and Meridian
- vv) Forty-eighth parcel
 - i) Assessor Parcel Number: 078-251-07
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S9 T10S R2W, Mount Diablo Base and Meridian
- ww) Forty-ninth parcel
 - i) Assessor Parcel Number: 078-011-20
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R2W and S6 T10S R2W, Mount Diablo Base and Meridian
- xx) Fiftieth parcel
 - i) Assessor Parcel Number: 078-252-13
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S4 T10S R2W, Mount Diablo Base and Meridian
- yy) Fifty-first parcel
 - i) Assessor Parcel Number: 078-041-15
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S5 T10S R2W, Mount Diablo Base and Meridian
- zz) Fifty-second parcel
 - i) Assessor Parcel Number: 072-042-43
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S9 T10S R2W, Mount Diablo Base and Meridian
- aaa) Fifty-third parcel
 - i) Assessor Parcel Number: 072-331-14
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S10 T10S R2W, Mount Diablo Base and Meridian
- bbb) Fifty-fourth parcel
 - i) Assessor Parcel Number: 074-131-11
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S2 T10S R2W, Mount Diablo Base and Meridian
- ccc) Fifty-fifth parcel
 - i) Assessor Parcel Number: 064-201-35
 - ii) County: Santa Cruz County

APPENDIX A

- iii) Zoning: PR - Parks, Recreation, and Open Space
- iv) Section, Township, Range, Base & Meridian: S20 T10S R2W, Mount Diablo Base and Meridian
- ddd) Fifty-sixth parcel
 - i) Assessor Parcel Number: 064-201-34
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S20 T10S R2W, Mount Diablo Base and Meridian
- eee) Fifty-seventh parcel
 - i) Assessor Parcel Number: 064-031-23
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- fff) Fifty-eighth parcel
 - i) Assessor Parcel Number: 064-011-02
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S20 T10S R2W, Mount Diablo Base and Meridian
- ggg) Fifty-ninth parcel
 - i) Assessor Parcel Number: 064-381-05
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- hhh) Sixtieth parcel
 - i) Assessor Parcel Number: 064-031-28
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- iii) Sixty-first parcel
 - i) Assessor Parcel Number: 064-031-37
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- jjj) Sixty-second parcel
 - i) Assessor Parcel Number: 064-381-16
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S20 T10S R2W and S21 T10S R2W, Mount Diablo Base and Meridian
- kkk) Sixty-third parcel
 - i) Assessor Parcel Number: 064-381-17
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- lll) Sixty-fourth parcel
 - i) Assessor Parcel Number: 064-381-06
 - ii) County: Santa Cruz County

APPENDIX A

- iii) Zoning: PR - Parks, Recreation, and Open Space and RA - Residential Agricultural
- iv) Section, Township, Range, Base & Meridian: S20 T10S R2W and S21 T10S R2W, Mount Diablo Base and Meridian
- mmm) Sixty-fifth parcel
 - i) Assessor Parcel Number: 064-021-07
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- nnn) Sixty-sixth parcel
 - i) Assessor Parcel Number: 064-021-04
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S20 T10S R2W and S21 T10S R2W, Mount Diablo Base and Meridian
- ooo) Sixty-seventh parcel
 - i) Assessor Parcel Number: 064-021-23
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- ppp) Sixty-eighth parcel
 - i) Assessor Parcel Number: 064-021-22
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S20 T10S R2W and S21 T10S R2W, Mount Diablo Base and Meridian
- qqq) Sixty-ninth parcel
 - i) Assessor Parcel Number: 064-021-18
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S16 T10S R2W and S21 T10S R2W, Mount Diablo Base and Meridian
- rrr) Seventieth parcel
 - i) Assessor Parcel Number: 064-011-01
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S16 T10S R2W, S17 T10S R2W, S20 T10S R2W, and S21 T10S R2W Mount Diablo Base and Meridian
- sss) Seventy-first parcel
 - i) Assessor Parcel Number: 074-071-06
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S2 T10S R2W, Mount Diablo Base and Meridian
- ttt) Seventy-second parcel
 - i) Assessor Parcel Number: 073-101-03
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space

APPENDIX A

- iv) Section, Township, Range, Base & Meridian: S11 T10S R2W, S14 T10S R2W, S31 T9S R1W, and S36 T9S R2W, Mount Diablo Base and Meridian
- uuu) Seventy-third parcel
 - i) Assessor Parcel Number: 077-361-03
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S10 T10S R2W, Mount Diablo Base and Meridian
- vvv) Seventy-fourth parcel
 - i) Assessor Parcel Number: 077-141-13
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S4 T10S R2W, Mount Diablo Base and Meridian
- www) Seventy-fifth parcel
 - i) Assessor Parcel Number: 077-062-30
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S4 T10S R2W, Mount Diablo Base and Meridian
- xxx) Seventy-sixth parcel
 - i) Assessor Parcel Number: 077-062-15
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S4 T10S R2W, Mount Diablo Base and Meridian
- yyy) Seventy-seventh parcel
 - i) Assessor Parcel Number: 080-031-23
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production and PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W and S36 T9S R3W, Mount Diablo Base and Meridian
- zzz) Seventy-eighth parcel
 - i) Assessor Parcel Number: 080-021-15
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W and S26 T9S R3W, Mount Diablo Base and Meridian
- aaaa) Seventy-ninth parcel
 - i) Assessor Parcel Number: 081-361-02
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W and S36 T9S R3W, Mount Diablo Base and Meridian
- bbbb) Eightieth parcel
 - i) Assessor Parcel Number: 081-361-04
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W and S36 T9S R3W, Mount Diablo Base and Meridian

APPENDIX A

- cccc) Eighty-first parcel
 - i) Assessor Parcel Number: 081-361-01
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W, Mount Diablo Base and Meridian
- dddd) Eighty-second parcel
 - i) Assessor Parcel Number: 081-361-03
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S25 T9S R3W, Mount Diablo Base and Meridian
- eeee) Eighty-third parcel
 - i) Assessor Parcel Number: 081-241-08
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W and S31 T9S R2W, Mount Diablo Base and Meridian
- ffff) Eighty-fourth parcel
 - i) Assessor Parcel Number: 081-204-03
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- gggg) Eighty-fifth parcel
 - i) Assessor Parcel Number: 081-204-07
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- hhhh) Eighty-sixth parcel
 - i) Assessor Parcel Number: 081-204-04
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- iiii) Eighty-seventh parcel
 - i) Assessor Parcel Number: 081-204-06
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- jjjj) Eighty-eighth parcel
 - i) Assessor Parcel Number: 081-204-01
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- kkkk) Eighty-ninth parcel
 - i) Assessor Parcel Number: 081-233-02
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian

APPENDIX A

- III) Ninetieth parcel
 - i) Assessor Parcel Number: 081-132-09
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- mmmm) Ninety-first parcel
 - i) Assessor Parcel Number: 081-125-05
 - ii) County: Santa Cruz County
 - iii) Zoning: C-2 - Community Commercial
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R2W, Mount Diablo Base and Meridian
- nnnn) Ninety-second parcel
 - i) Assessor Parcel Number: 087-111-17
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S36 T8S R3W, Mount Diablo Base and Meridian
- oooo) Ninety-third parcel
 - i) Assessor Parcel Number: 090-194-16
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S29 T9S R2W, Mount Diablo Base and Meridian
- pppp) Ninety-fourth parcel
 - i) Assessor Parcel Number: 082-241-20
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- qqqq) Ninety-fifth parcel
 - i) Assessor Parcel Number: 082-401-07
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential and RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- rrrr) Ninety-sixth parcel
 - i) Assessor Parcel Number: 082-331-05
 - ii) County: Santa Cruz County
 - iii) Zoning: TP - Timber Production
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- ssss) Ninety-seventh parcel
 - i) Assessor Parcel Number: 081-361-05
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- tttt) Ninety-eighth parcel
 - i) Assessor Parcel Number: 083-073-21
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S13 T9S R3W, Mount Diablo Base and Meridian
- uuuu) Ninety-ninth parcel

APPENDIX A

- i) Assessor Parcel Number: 071-031-03
- ii) County: Santa Cruz County
- iii) Zoning: RA - Residential Agricultural
- iv) Section, Township, Range, Base & Meridian: S16 T10S R2W, Mount Diablo Base and Meridian
- vvvv) Hundredth parcel
 - i) Assessor Parcel Number: 071-141-02
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use and PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S11 T10S R2W and S14 T10S R2W, Mount Diablo Base and Meridian
- wwwww) Hundred and first parcel
 - i) Assessor Parcel Number: 079-011-11
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R2W, Mount Diablo Base and Meridian
- xxxx) Hundred and second parcel
 - i) Assessor Parcel Number: 079-291-17
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S32 T9S R2W, Mount Diablo Base and Meridian
- yyyy) Hundred and third parcel
 - i) Assessor Parcel Number: 085-121-03
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S12 T9S R3W, Mount Diablo Base and Meridian
- zzzz) Hundred and fourth parcel
 - i) Assessor Parcel Number: 085-291-05
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S1 T9S R3W, Mount Diablo Base and Meridian
- aaaaa) Hundred and fifth parcel
 - i) Assessor Parcel Number: 084-131-10
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- bbbbb) Hundred and sixth parcel
 - i) Assessor Parcel Number: 084-131-06
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S18 T9S R2W, Mount Diablo Base and Meridian
- cccc) Hundred and seventh parcel
 - i) Assessor Parcel Number: 089-201-08
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: S20 T9S R2W, Mount Diablo Base and Meridian
- dddd) Hundred and eighth parcel

APPENDIX A

- i) Assessor Parcel Number: 089-211-46
- ii) County: Santa Cruz County
- iii) Zoning: RA - Residential Agricultural
- iv) Section, Township, Range, Base & Meridian: S20 T9S R2W, Mount Diablo Base and Meridian
- eeee) Hundred and ninth parcel
 - i) Assessor Parcel Number: 089-121-63
 - ii) County: Santa Cruz County
 - iii) Zoning: PF - Public and Community Facilities
 - iv) Section, Township, Range, Base & Meridian: S21 T9S R2W, Mount Diablo Base and Meridian
- ffff) Hundred and tenth parcel
 - i) Assessor Parcel Number: 089-282-14
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-10 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S21 T9S R2W, Mount Diablo Base and Meridian
- gggg) Hundred and eleventh parcel
 - i) Assessor Parcel Number: 089-291-09
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-10 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: S16 T9S R2W, Mount Diablo Base and Meridian
- hhhh) Hundred and twelfth parcel
 - i) Assessor Parcel Number: 093-041-07
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R1W, Mount Diablo Base and Meridian
- iiii) Hundred and thirteenth parcel
 - i) Assessor Parcel Number: 093-041-11
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R1W, Mount Diablo Base and Meridian
- jjjj) Hundred and fourteenth parcel
 - i) Assessor Parcel Number: 093-041-14
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R1W, Mount Diablo Base and Meridian
- kkkk) Hundred and fifteenth parcel
 - i) Assessor Parcel Number: 093-041-13
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S31 T9S R1W, Mount Diablo Base and Meridian
- llll) Hundred and sixteenth parcel
 - i) Assessor Parcel Number: 093-041-12
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use and PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R1W and S31 T9S R1W, Mount Diablo Base and Meridian
- mmmm) Hundred and seventeenth parcel

APPENDIX A

- i) Assessor Parcel Number: 093-041-10
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: S30 T9S R1W and S31 T9S R1W, Mount Diablo Base and Meridian
- nnnn) Hundred and eighteenth parcel
- i) Assessor Parcel Number: 064-041-18
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S21 T10S R2W, Mount Diablo Base and Meridian
- oooo) Hundred and nineteenth parcel
- i) Assessor Parcel Number: 072-241-23
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- pppp) Hundred and twentieth parcel
- i) Assessor Parcel Number: 072-262-08
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- qqqq) Hundred and twenty-first parcel
- i) Assessor Parcel Number: 072-262-07
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- rrrr) Hundred and twenty-second parcel
- i) Assessor Parcel Number: 021-101-20
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-10 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 38, T10S R2W, Mount Diablo Base and Meridian
- ssss) Hundred and twenty-third parcel
- i) Assessor Parcel Number: 021-071-05
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-10 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 38, T10S R2W, Mount Diablo Base and Meridian
- tttt) Hundred and twenty-fourth parcel
- i) Assessor Parcel Number: 072-272-01
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian

APPENDIX A

- uuuuu) Hundred and twenty-fifth parcel
 - i) Assessor Parcel Number: 072-331-16
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- vvvvv) Hundred and twenty-sixth parcel
 - i) Assessor Parcel Number: 072-331-15
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- wwwww) Hundred and twenty-seventh parcel
 - i) Assessor Parcel Number: 072-331-17
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- xxxxx) Hundred and twenty-eighth parcel
 - i) Assessor Parcel Number: 072-331-22
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- yyyyy) Hundred and twenty-ninth parcel
 - i) Assessor Parcel Number: 072-331-14
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- zzzzz) Hundred and thirtieth parcel
 - i) Assessor Parcel Number: 072-331-38
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- aaaaa) Hundred and thirty-first parcel
 - i) Assessor Parcel Number: 064-052-18
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 37, T10S R2W, Mount Diablo Base and Meridian
- bbbbb) Hundred and thirty -second parcel
 - i) Assessor Parcel Number: 064-201-22
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use

APPENDIX A

- iv) Section, Township, Range, Base & Meridian: Government Lot 37, T10S R2W, Mount Diablo Base and Meridian
- cccccc) Hundred and thirty-third parcel
 - i) Assessor Parcel Number: 073-101-08
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- dddddd) Hundred and thirty-fourth parcel
 - i) Assessor Parcel Number: 073-101-07
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- eeeeee) Hundred and thirty-fifth parcel
 - i) Assessor Parcel Number: 073-101-09
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential and SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- ffffff) Hundred and thirty-sixth parcel
 - i) Assessor Parcel Number: 073-101-10
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- gggggg) Hundred and thirty-seventh parcel
 - i) Assessor Parcel Number: 073-071-29
 - ii) County: Santa Cruz County
 - iii) Zoning: A - Agricultural and RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- hhhhhh) Hundred and thirty-eighth parcel
 - i) Assessor Parcel Number: 073-101-11
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- iiiiii) Hundred and thirty-ninth parcel
 - i) Assessor Parcel Number: 073-101-03
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- jjjjjj) Hundred and fortieth parcel
 - i) Assessor Parcel Number: 073-101-12

APPENDIX A

- ii) County: Santa Cruz County
- iii) Zoning: PR - Parks, Recreation, and Open Space and RA - Residential Agricultural
- iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- kkkkkk) Hundred and forty-first parcel
 - i) Assessor Parcel Number: 073-031-01
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- llllll) Hundred and forty-second parcel
 - i) Assessor Parcel Number: 082-401-07
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential and RA - Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: S19 T9S R2W, Mount Diablo Base and Meridian
- mmmmmm) Hundred and forty-third parcel
 - i) Assessor Parcel Number: 065-234-16
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 37, T10S R2W, Mount Diablo Base and Meridian
- nnnnnn) Hundred and forty-fourth parcel
 - i) Assessor Parcel Number: 065-281-03
 - ii) County: Santa Cruz County
 - iii) Zoning: A - Agricultural
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- oooooo) Hundred and forty-fifth parcel
 - i) Assessor Parcel Number: 065-013-12
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- pppppp) Hundred and forty-sixth parcel
 - i) Assessor Parcel Number: 067-532-30
 - ii) County: Santa Cruz County
 - iii) Zoning: PR - Parks, Recreation, and Open Space
 - iv) Section, Township, Range, Base & Meridian: Government Lot 38, T10S R2W, Mount Diablo Base and Meridian
- qqqqqq) Hundred and forty-seventh parcel
 - i) Assessor Parcel Number: 067-531-31
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-20 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 38, T10S R2W, Mount Diablo Base and Meridian
- rrrrrr) Hundred and forty-eighth parcel

APPENDIX A

- i) Assessor Parcel Number: 071-161-16
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-15 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- sssss) Hundred and forty-ninth parcel
- i) Assessor Parcel Number: 071-131-03
 - ii) County: Santa Cruz County
 - iii) Zoning: RA - Residential Agricultural and R-1-1AC - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- ttttt) Hundred and fiftieth parcel
- i) Assessor Parcel Number: 072-431-04
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- uuuuu) Hundred and fifty-first parcel
- i) Assessor Parcel Number: 072-431-05
 - ii) County: Santa Cruz County
 - iii) Zoning: SU - Special Use
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian
- vvvvv) Hundred and fifty-second parcel
- i) Assessor Parcel Number: 021-101-12
 - ii) County: Santa Cruz County
 - iii) Zoning: R-1-10 - Single-Family Residential
 - iv) Section, Township, Range, Base & Meridian: Government Lot 38, T10S R2W, Mount Diablo Base and Meridian
- wwwww) Hundred and fifty-third parcel
- i) Assessor Parcel Number: 064-041-18
 - ii) County: Santa Cruz County
 - iii) Zoning: RA- Residential Agricultural
 - iv) Section, Township, Range, Base & Meridian: Government Lot 41, T10S R2W, Mount Diablo Base and Meridian

Appendix B

Status of Existing Water Infrastructure, and Planned and Recommended Infrastructure Upgrades

APPENDIX B

SLVWD Facilities Not Damaged by The CZU Complex

Recommendations for upgrades are based on size, location and access, and critical use as it is not feasible in the near-term (5 to 10 years) to upgrade all facilities. SLVWD currently has plans to upgrade several tanks and boosters as shown in the table below and has budgeted for some additional upgrades to booster tanks, which will be designated with consideration for the recommendations following approval of the 2021/2022 fiscal year budget.

Facility Name	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Bear Creek booster pump station	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrant within 200 feet of this location
Bear Creek Tank	Existing steel tank	No fire truck access, very tight narrow road with no turn around for trucks fire hydrant at bottom of road
Blackstone booster pump	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrant at this location
Blair Tank	Existing steel tank	Existing hydrant at this location
Blue Tank	Existing steel tank	Existing hydrant at this location
Blueridge Tank & Booster	Planned replacement of redwood tank with steel tank	Existing Hydrants within 200 feet of this locations
Brookdale Tank	Existing steel tank	Existing hydrant within 300 feet of this location
Carrol Ave pump station	Slated for full replacement with Fire resistant materials 2022/2023	Existing Hydrant within 200 feet of this location
Charlie Tank	Existing steel tank	Existing fire connection on tank
Echo booster pump station	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrant within 200 feet of this location
Echo Tanks	<i>Recommendation:</i> Replace redwood tanks with steel tanks	Existing Hydrant at this location
El Solyo booster & tanks	<i>Recommendation:</i> Upgrade booster station to fire resistant materials	Existing Hydrant within 200 feet of this location
Fairview booster pump	<i>Recommendation:</i> Upgrade to fire resistant materials	Existing Hydrants within 200 feet of this location
Fall Creek (Raw Water)	Going to construction summer 2021	Not applicable; No access
Felton - Bennett settling overflow box	<i>Recommendation:</i> Removal of old wood structure and straight piping	No water pressure at this site for fire connection

APPENDIX B

Facility Name	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Felton - Bennett settling tank & chlorination station	<i>Recommendation:</i> Upgrade poly tank and fiberglass building to fire resistant materials	No water pressure at this site for fire connection and not accessible to fire trucks, dead end narrow road with no turn around
Felton - Bull Spring Settling tank	Concrete material	None not accessible
Felton - Upper Hillcrest pump	Site is abandoned	Existing Hydrants within 200 feet of this location
Felton Acres pump - Pine tanks booster	<i>Recommendation:</i> Recommend upgrade to fire resistant materials	Existing Hydrant at this location
Firehouse booster pump	Steel and concrete pit, no recommendations	Existing Hydrants at this location
Highland Tank	<i>Recommendation:</i> Redwood tank need to be replaced with steel tanks	Existing Hydrants within 200 feet of this location
Huckleberry pump station	<i>Recommendation:</i> Recommend upgrade to fire resistant materials	Existing Hydrants within 200 feet of this location
Huckleberry Tank	Existing steel tank	Existing hydrant close to this location
Irwin booster pump	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrants within 200 feet of this location
IT #3&4 North South Intertie	No recommendations	Existing Hydrant at this location
IT #6	No recommendations	Existing Hydrants within 200 feet of this location
Kaski Tanks	Existing steel tanks	Narrow windy private driveway with no turnaround existing hydrant at bottom of driveway
Kirby Clearwell Tank	Existing steel tank	Existing hydrant at this location
Kirby Treatment Facility Plant	No recommendations	Existing Hydrant at this location
Little Lyon Tank	Existing steel tank	Existing hydrant at this location
Lompico Booster	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrants within 200 feet of this location
Lompico booster day tank	<i>Recommendation:</i> Replace poly tank with steel tank	Existing Hydrants within 200 feet of this location
Lyon Tank	Existing steel tank	Existing hydrant at this location

APPENDIX B

Facility Name	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Madrone Tanks	Existing steel tanks	<i>Recommendation:</i> Recommend installing fire connection on tank or fire hydrant on roadway
Manana Woods PRV station	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrant at this location
McCloud Tank	Existing steel tank	<i>Recommendation:</i> Recommend installing fire connection on tank or fire hydrant on roadway
Mitchell booster pump station	<i>Recommendation:</i> Upgrade to fire resistant materials	Existing Hydrants within 200 feet of this location
Mitchell Hydropneumatic Tank & Pump	No recommendations	Existing Hydrant within 200 feet of this locations
Nina booster pump	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing Hydrant within 200 feet of this locations
Nina Tanks #1	Existing steel tank	Existing hydrant at this location
Nina Tanks #2	Existing steel tank	Existing hydrant at this location
Olympia Wells 1,2&3	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing hydrant at oly 1 within 200 feet of oly 2 and 300 feet of oly 2, no possible connections at oly 2 and 3
Pasatiempo Reservoirs	Existing concrete	No fire truck access, very tight narrow road with no turn around for trucks fire hydrant at bottom of road
Pasatiempo Well 5A	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing hydrant at bottom of access road within 300 feet
Pasatiempo Well 7	<i>Recommendation:</i> Recommend upgrade to fire resistant materials	Existing hydrant at bottom of access road within 1,000 feet
Pasatiempo Well 8	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing hydrant at backside of Probations center building less than 100 feet away
Pine Tanks	<i>Recommendation:</i> Replace two existing 10,000-gallon poly tanks with steel tanks	Tank site is not accessible to fire trucks, Poor fire flow in this area due to 2-inch mainline system
Probation Tank	Existing steel tank	Planned installation of fire hydrant outside of gated tank site
Quail Tank #1	Existing steel tank	Existing hydrant at bottom of access road within 300 feet

APPENDIX B

Facility Name	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Quail Tank #2	Existing steel tank	Existing hydrant at bottom of access road within 300 feet
Ragain Tank	No access, site is at a residence narrow steep driveway Existing 700-gallon poly tank off 2-inch main	None
Ralston booster pump station	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing hydrant within 200 feet of this locations
Ralston Tanks	<i>Recommendation:</i> Replace poly tank with steel tank	No access for fire trucks Existing hydrant at bottom of access road within 300 feet
Reader Tank	Existing steel tank	No fire truck access, very tight narrow road with no turn around for trucks fire hydrant at bottom of road
Redwood Park booster pump station	<i>Recommendation:</i> Change out roofing material to fire resistant	Existing hydrant at this location
Riverside Grove Tank	Existing steel tank	Existing hydrant at this location
South Reservoir pump station	<i>Recommendation:</i> Upgrade to fire resistant materials	Existing hydrant within 200 feet of this locations
Spring Tank	Existing steel tank	No fire truck access, very tight narrow road with no turn around for trucks fire hydrant at bottom of road
Swim Tanks & Booster (Redwood Park Tank)	Planned replacement of redwood tanks with steel tanks; Planned replacement of booster with block concrete structure	Existing Hydrants at these locations
University Reservoir	Existing concrete	Existing hydrant at this location
Upper El Soyo Tank	<i>Recommendation:</i> Tanks are two 10,000 gallon Poly recommend replacement with steel	Tank site is not accessible, walk-in location Fire hydrant is within 300 feet
West / Winner Hydropneumatic Tank & Pump	No recommendations	Existing hydrants within 200 feet of this location

APPENDIX B

SLVWD Facilities Damaged by The CZU Complex

Facility Name	Damage Status	Repair or Replacement Status	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Alder Tank	Damaged	Replaced (permanent)	No Access, Walk-in site only Existing 700-gallon poly tank off 2-inch main	None
Alta Via Distribution Piping	Damaged	Awaiting repairs	Planned buried ductile iron pipe to fire harden	Multiple fire hydrants to be installed with project
Bennett Springs Intake Line	Damaged	Awaiting repairs	--	--
Big Steel Booster Piping	Damaged	Repaired	Buried ductile iron pipe fire hardened	--
Big Steel Lyon Piping	Damaged	Repaired	Buried ductile iron pipe fire hardened	--
Big Steel Tank	Damaged	Repaired	Existing steel tank	<i>Recommendation:</i> Recommend installing fire connection on tank or fire hydrant on roadway
Blackstone tank and piping	Damaged	Tanks repaired; Piping awaiting repairs	Poly tanks installed, in process of possibly removing this site	No fire truck access, very tight narrow road with no turn around for trucks fire hydrant at bottom of road
Clear Creek Intakes	Damaged	Awaiting repairs	--	--
Eckley Tank, Booster, and Piping	Damaged	Awaiting repairs; Tank replaced; Power set replaced	<i>Recommendation:</i> Replace poly tank with steel tank; no existing pump building Planned CZU project to build fire resistant pump station	Existing hydrant within 200 feet of this locations

APPENDIX B

Facility Name	Damage Status	Repair or Replacement Status	Fire Resilient Materials (Existing/ Proposed/ Recommended)	Valve/Hydrant for Connection (Existing/ Proposed/ Recommended)
Felton-Empire Grade	Damaged trees	No repairs proposed; legacy roads could be opened potentially	--	--
Foreman Creek	Damaged	In repairs	--	--
Harmon Street 2" Piping	Damaged	Temporarily repaired	--	--
Little Lyon Tank	Damaged	Awaiting repairs	Existing steel tank	Existing hydrant at this location
Malosky Creek	Damaged	No repairs proposed	--	--
Peavine Intake and Piping	Damaged	Awaiting repairs	--	--
Riverside Grove booster pump station	Damaged	Out to bid for repairs	In process of changing out roof to fire resistant materials	Existing hydrant at this location
South Reservoir Distribution Piping	Damaged	Awaiting repairs	Planned buried ductile iron pipe to fire harden	Multiple fire hydrants to be installed with project
Sweetwater Creek	Damaged	Awaiting repairs	--	--

Appendix C

Site Visit Notes and Photo Logs

APPENDIX C

Locations: San Lorenzo Valley Water District Assets – Tanks and Booster Pumps

Date: June 9, 2020

Personnel: Phil Dye

Photo Log and Notes:

SLVWD Feature ID/Number	Picture ID	Name	Description	Land Management Notes
FA-016	126	Alder Tank	Concrete pillars supported by wooden deck	fuel clearance marginal
FA-206	127	Echo Tanks	Tanks rest on concrete pads	clearance adequate but wooden tanks might be susceptible
FA-222	128	Mitchell Booster Pump	Wooden structure adjacent to road	good fuel clearance
FA-009	129	Blue Ridge Booster Pump	Wooden structure	poor fuel clearance
FA-011	130	Blue Ridge Tank	Rests on concrete pad	needs more fuel clearance
FA-033	131	Ralston Tanks	Tanks rest on concrete pad	adequate fuel clearance
FA-021	132	Huckleberry Booster Pump	Wooden structure	poor fuel clearance
FA-039	133	Blackstone Tanks	Rests on concrete pad	poor fuel clearance
FA-040	134	Eckley Tank	Rests on concrete pad	just needs surface fuel reduction
FA-066	135	Fairview Booster Pump	Plywood shack with unsafe wooden stairs	very vulnerable to fire
FA-068	136	Highland Tank	Rests on concrete pad	good fuel clearance
FA-211	137	South Booster Pump	Wooden structure	needs additional fuel clearance
FA-099	138	South Tanks	Rest on concrete pad	needs additional fuel clearance
FA-110 and FA-111	139 and 140	Swim Tanks	Tanks rest on wooden supports	Very susceptible to fire or seismic activity. Fuel clearance fair

APPENDIX C

SLVWD Feature ID/Number	Picture ID	Name	Description	Land Management Notes
FA-254	142	El Solyo Tank	Currently resting on ground but will be moved to newly poured concrete pad on right.	Good fuel clearance
FA-253	144	El Solyo Booster Pump	Wooden structure	needs additional fuel clearance
FA-258	145	Bennett Springs Tank (Old)	Old concrete tank with wooden cover	Open space under shed to left makes in vulnerable to fire or ember wash.
FA-256	146	Bennett Springs Tanks (New)	Rests on concrete pad	Building to right contains about 40 gallons of liquid chlorine which could pose a HazMat threat if involved in fire
FA-248	148	Pine Tanks	Rests on concrete pad	Good fuel clearance
FA-255	149	Felton Acres (Booster Pump and Tank)	Shed to left is a booster pump. Tank to right is a pressure tank. There is also a workshop (~1000 ft ² – not shown) on the property	Good fuel clearance
FA-125	150	University Booster Pump	Wooden structure in a residential neighborhood	No additional clearance needed

Notes:

All tanks are either poly or redwood

Many of the booster tank stations have a propane tank nearby – some of these tanks need more fuel clearance

Representative photos of water tanks are below. Photos for all tanks and booster pumps by location are available at:

Link: <https://arcg.is/1H4zz5>

Account Name: sanlorenzo

Password: SanLorenzo#1

APPENDIX C



APPENDIX C



APPENDIX C

Locations: San Lorenzo Valley Water District Assets – Above Ground Pipeline

Date: July 9, 2020

Personnel: Phil Dye

Land Management Notes: The entire pipeline is heavily encroached with dense vegetation.

Photo Log and Notes:

SLVWD Feature ID/Number	Picture ID	Name	Description
FA-097	TH00174	Sweetwater Intake	Water enters pipeline here – steep, heavily vegetated ravine
FA-243	175	Pipeline leaving Sweetwater Intake	Note steep slopes and dense vegetation
FA-243	176	Close-up of pipeline	This photo shows how some of the pipeline has been buried over time
FA-243	177	Wooden supports	At a number of places along the pipeline’s route, it is supported by wooden braces. These braces are driven into the ground and do not sit upon concrete pads
FA-243	178	Valve	This picture was taken just so valve could be geo-tagged
FA-243	179	Pipeline sag	Pipeline sags in some places as shown here
FA-243	180	Valve	Again, this picture was taken just so valve could be geo-tagged
FA-243	181	Valve	(same as above)
FA-243	182	Pipe supported by fallen log	Note here that the pipeline is supported solely by a fallen log across the ravine
FA-243	183	Valve	Again, geo-locating the valve. Note kink in pipeline at top of photo
FA-094	184	Clear Creek Intake #1	Notice fallen trees directly above pipeline
FA-243	185	Valve and flow meter	Geo-locating valve and flow meter
FA-243	186	Wooden supports	Pipeline is supported by wooden supports. Clear Creek Intake #2 joins main line here

APPENDIX C

SLVWD Feature ID/Number	Picture ID	Name	Description
FA-243	187	Pipeline on steep slope	This photo was taken to show that much of the pipeline runs perpendicular to very steep slopes so earth movement also poses a significant risk to the pipeline in addition to fire
FA-042	188	Fire scarred Redwood	If historic fire perimeter were available, it might be possible to determine when this tree burned and by extrapolation, a guess could be made regarding fire return interval
FA-047	189	Foreman Intake	Building to right is actually a concrete tank with a wooden roof. Building to left is constructed of wood and contains banks of batteries
FA-243	190	Wooden supports	Again, photo shows wooden supports for pipeline
Unknown	191	Peavine Intake	Narrow, steep, heavily vegetated canyon
FA-243	192	Wooden supports	Another area of pipeline supported by wooden supports. Note supports in background are decaying
FA-243	193	Pipeline leaving Peavine Intake	This picture was taken to show again how pipeline is partially buried in a number of places
FA-243	194	Pipeline leaving Ralston Tanks	Steep and heavily vegetated

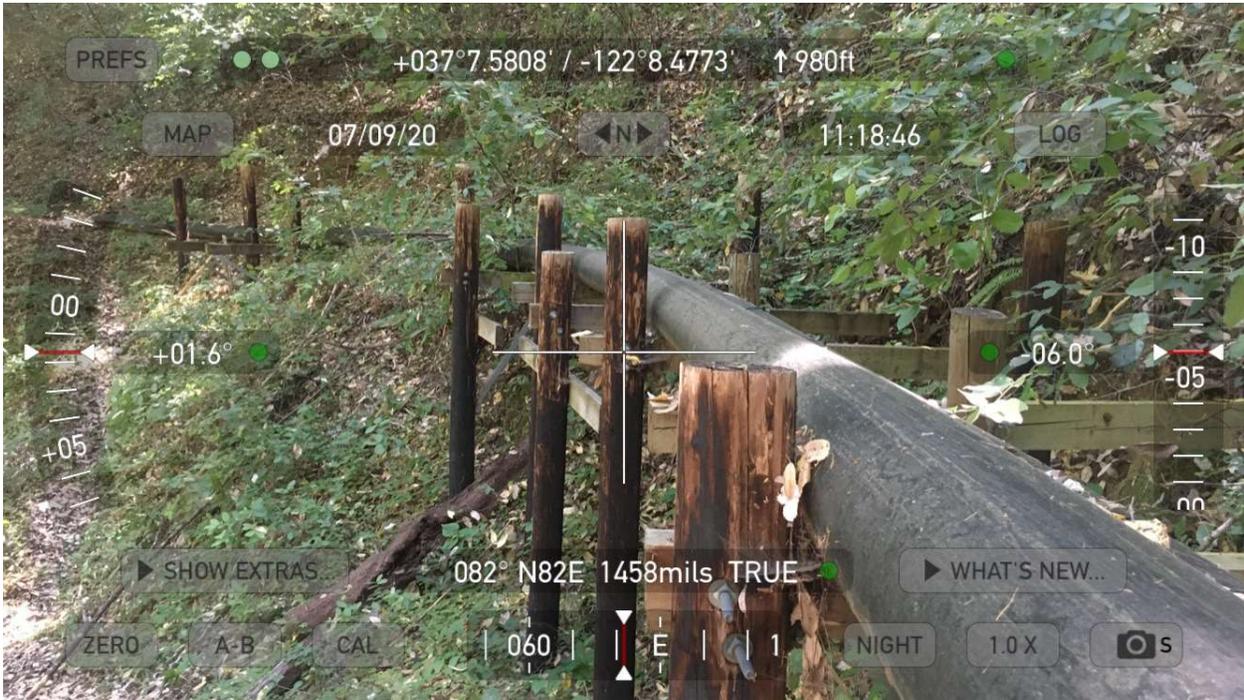
Representative photos of the above ground pipeline are on the following pages. Photos for all tanks and booster pumps by location are available at:

Link: <https://arcg.is/1H4zz5>

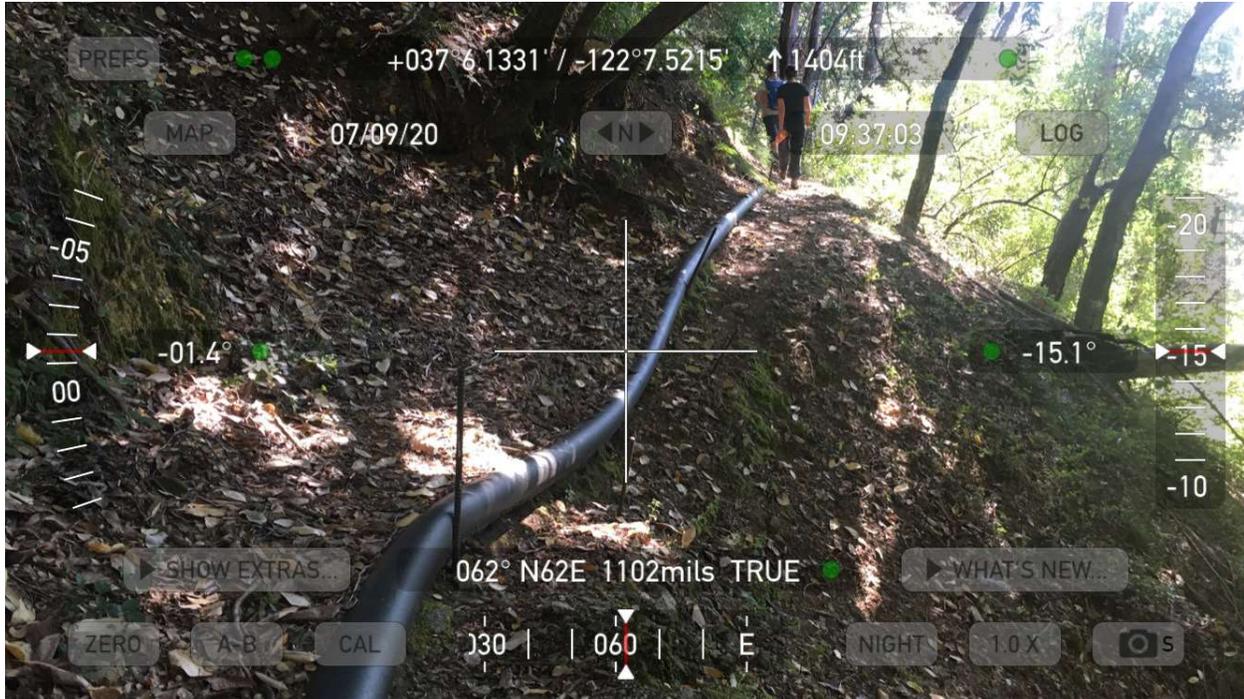
Account Name: sanlorenzo

Password: SanLorenzo#1

APPENDIX C



APPENDIX C



APPENDIX C

Preliminary Post-Fire Field Visit

Locations: San Lorenzo Valley Water District Assets – Above Ground Pipeline from the Sweetwater Intake approximately 2 miles

Date: September 3, 2020

Personnel: Jason Moghaddas, SLVWD Staff, Members of WERT Team, Steve Butler (RPF).

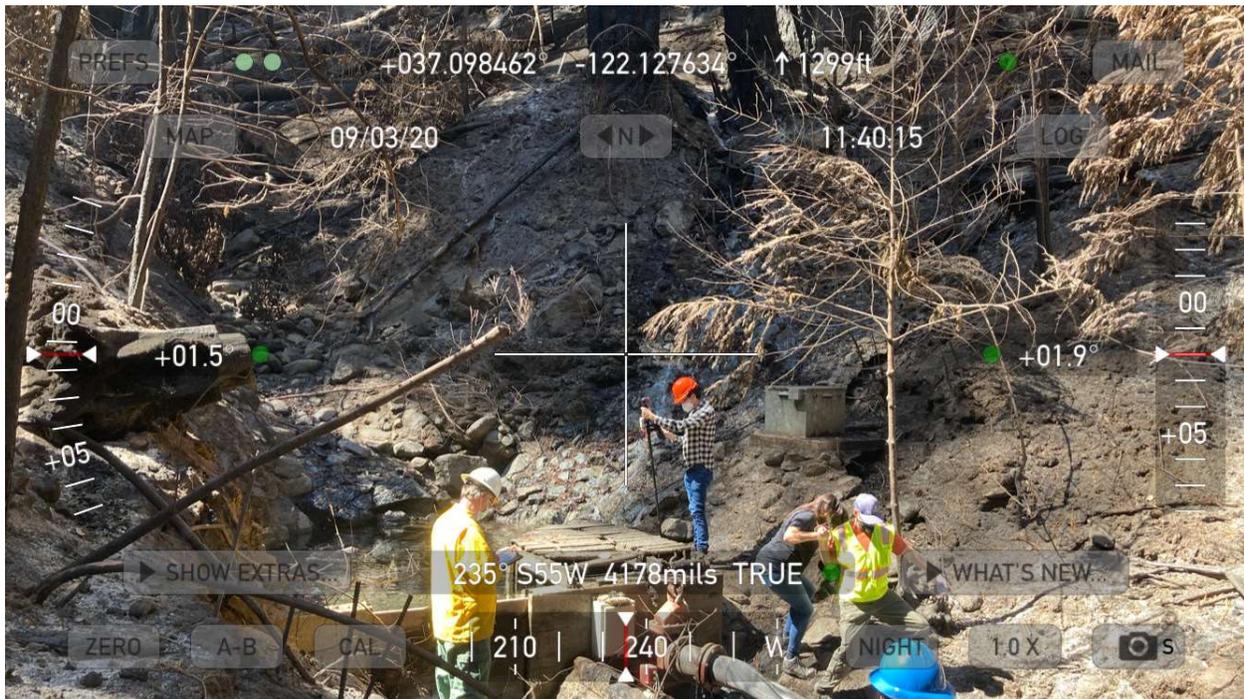
Land Management Notes: All of the pipeline area visited, including pipeline and diversions was impacted by the fire.

Photo Log and Notes:

SLVWD Feature ID/Number	Picture ID	Name	Description
FA-097	TH000002	Sweetwater Intake	Remnants of fire destroyed Sweetwater Intake with pre-fire photo (174 from July 9, 2020)
FA-243	TH000004	Destroyed pipeline leaving Sweetwater Intake	Remnants of destroyed pipeline heading north from Sweetwater Intake with pre-fire photo (175 from July 9, 2020)
FA-243	0867	Destroyed Clear Creek #2 valve system	Clear Creek Intake #2 joins main line here- pre- (176 from July 9, 2020) and post-fire
FA-243	0868	Destroyed pipeline on steep slope	Same location as pre-fire photo (187 from July 9, 2020) <i>Note arrow showing metal box in both photos for reference</i>

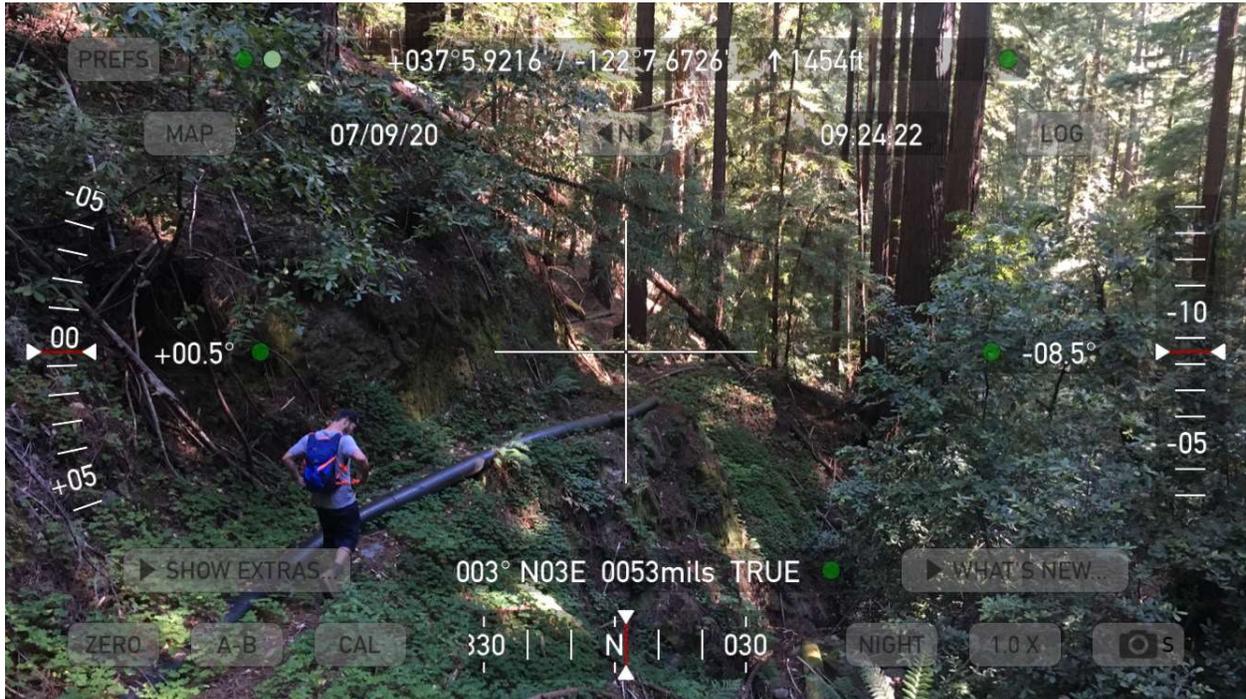
APPENDIX C

Sweetwater Intake Before and After Fire



APPENDIX C

Pipeline leaving Sweetwater Intake running to North Before and After Fire



APPENDIX C

Clear Creek Intake #2 before and after fire



APPENDIX C

Pipeline on steep slope before and after fire



APPENDIX C

Locations: San Lorenzo Valley Water District Properties and Select Tank Sites

Date: March 31, 2021

Personnel: Phil Dye

Photo Log and Notes:

Recommendations were considered in preparation of the plan. Not all recommendations are feasible or SLVWD staff provided further information on existing infrastructure negating the recommendation.

Picture ID	Name	Description	Recommendations
TH000204	Spring Tank	<p>Site was visited at the request of Ben Lomond Fire Chief Stacie Brownlee. Chief Brownlee thought it might be good to have access to this tank.</p> <p>This tank is constructed of steel resting on a concrete pad. Access is along a narrow, dirt road, which is difficult for fire engines. In addition, there is no fire department connection (FDC) that an engine could connect to at the tank.</p>	<p>If Wildland Type 3 engine access is desired, there would need to be brush clearing to at least 25' on each side of the road. Turning around may still be difficult. An FDC would also have to be installed (backflow preventer or check valve highly recommended since this is domestic water).</p>
TH000202	Madrone Tanks	<p>Site was visited at the request of Zayante Fire Chief John Stipes who requested looking into access to these tanks.</p> <p>The Madrone tanks are steel tanks sitting on an asphalt pad. The access road to the tanks is narrow and has some tight turns that might be difficult for a Type 3 engine to navigate. Also, overhead clearance on the road is poor. No FDC is present.</p>	<p>No further action recommended at this time. There is a hydrant downhill, 80 yards from the tanks at the intersection of Madrone and While-away Avenues. No further need for engines to access the tanks.</p>

APPENDIX C

Picture ID	Name	Description	Recommendations
--	Olympia Property	The Olympia property contains the site of a proposed CAL FIRE shaded fuelbreak running north/south through the property. The road from gate O-13 to the proposed fuelbreak is very overgrown currently.	SLVWD staff should work with CAL FIRE to determine width of the break and to improve access to fuelbreak via the road through the Olympia property. Road clearing (e.g., limbing trees) and cleaning up to 30 feet will need to be done beginning at gate O-13 and continuing up to the fuel break.
TH000203 (tank on the property)	Felton Empire Grade Watershed Property	Road is relatively easy to transit and Type 3 engines were on it last year during the CZU Lightning Complex. Road was used a holding line during the fire. There is a wooden water tank at the end of the road on concrete supports.	SLVWD should work to maintain access to this road and continue to clear brush to at least 25 to 50 feet on either side of the road. Clearance of at least 50 feet is recommended around the tank to prevent ignition. The water tank currently has both 2-1/2" and 6" FDCs. Installation of backflow preventers are recommended on these valves to prevent contamination of domestic water supply.
--	Ben Lomond Mountain Watershed Property	The road from Boulder Creek traveling west up to Empire Grade is very steep in parts and has been extensively water-barred during suppression repair after the CZU Lightning Complex. West of the "Three Poles" (37.113630°, -122.137735°), the road becomes impassible.	The road is over water-barred in places. To the extent practicable and without increasing erosion, a number of these water bars are recommended to be removed. This would make access for engines much better. The road also needs brushing on either side about 25 to 50 feet from the road centerline. Only a Type 6 engine is recommended due to terrain.

Representative photos of water tanks are below. Photos for all tanks and booster pumps by location are available at:

Link: <https://arcg.is/1H4zz5>

Account Name: sanlorenzo

Password: SanLorenzo#1

APPENDIX C

Locations: San Lorenzo Valley Water District Properties

Date: April 14, 2021

Personnel: Phil Dye

Photo Log and Notes:

Recommendations were considered in preparation of the plan. Not all recommendations are feasible or SLVWD staff provided further information on existing infrastructure negating the recommendation.

Figure Reference	Name	Description	Recommendations
--	Any Property	Various old logging roads intersect SLVWD properties, some of which are driveable and others are not currently.	Logging roads may be useful as a fire control line or shaded fuelbreak even if not reopened for access via vehicles.
Figure 1	Felton Empire Grade Watershed Property	Road between Felton-Empire Road and Tassett Court is completely impassible via vehicle.	Further site visits via walking would be required to assess this site.
Figure 2	Ben Lomond Mountain Watershed Property	<ol style="list-style-type: none"> The road from the Braemoor neighborhood off Empire Grade Rd down to "Three Poles" (37.113630°, -122.137735°) is currently not passable via vehicle. The road from the town of Boulder Creek along Malosky Creek is currently impassible due to lots of debris and road washouts. 	<ol style="list-style-type: none"> It is highly recommended to reopen this portion of the road. With some clearing and light grading, the road would make a good road for 4x4 pickups and could be used as a fireline. The needs brushing on either side about 25 to 50 feet from the road centerline. This road is recommended for Type 6 engines only. On the west end of the property, the road forks with one fork more north and the other more south. The south fork provides for much better access and is recommended. This road would need extensive work to restore it to serviceable condition.

APPENDIX C

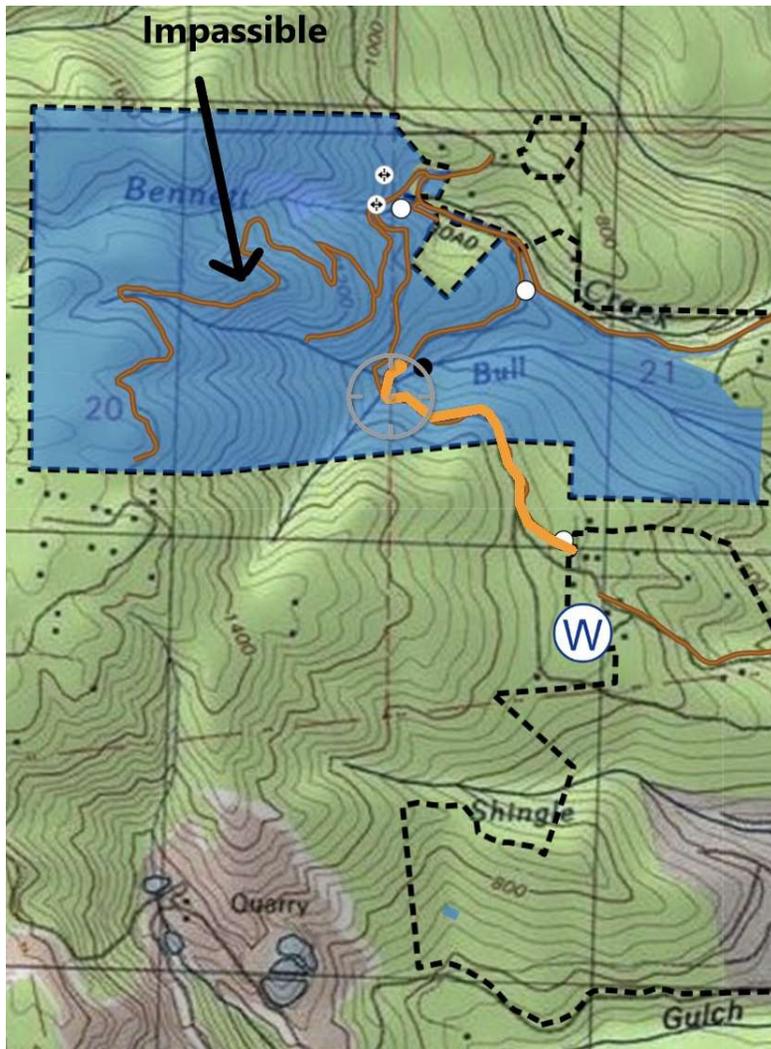


Figure 1

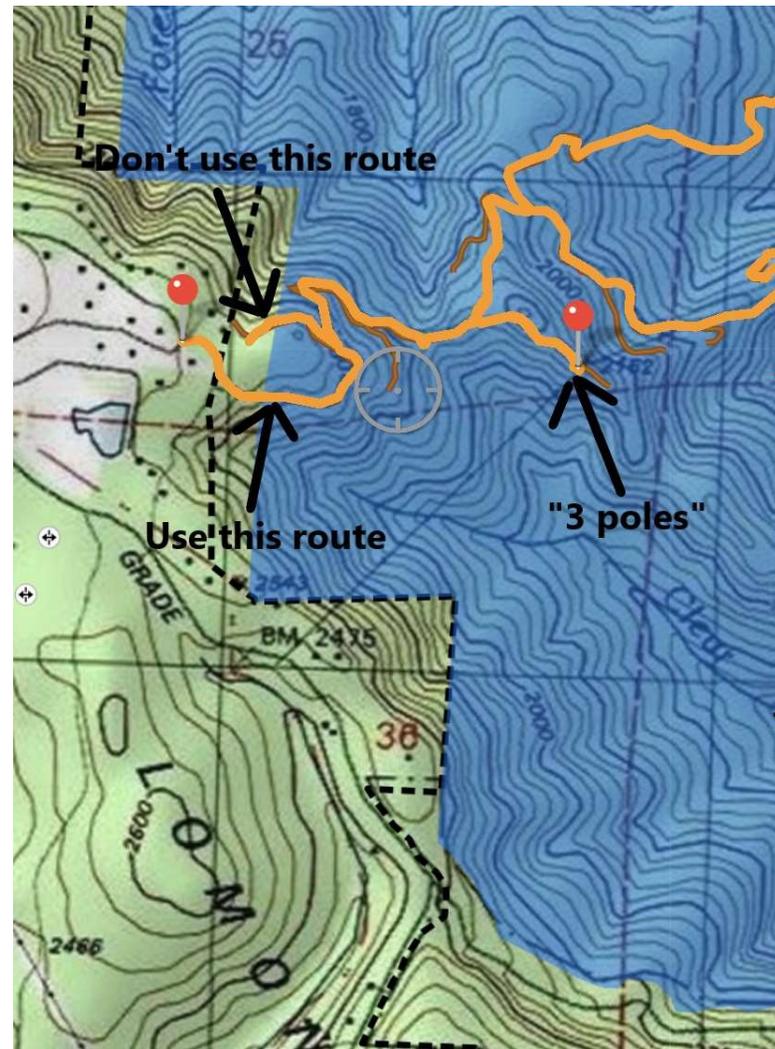


Figure 2

Appendix D

Recommended Defensible Space, Fuel Reduction, and Material Upgrades Treatment Maps

APPENDIX D

The treatment mapsets are confidential. Refer to the San Lorenzo Valley Water District for further information.

Appendix E

Acres of Recommended Defensible Space and Fuel Reduction Treatment by Parcel and Type

APPENDIX E

Acres of Recommended Defensible Space and Fuel Reduction Treatment Projects

The acres of the recommended defensible space and fuel reduction treatment areas shown in Appendix D (confidential) are identified in the following table broken down by resource type, property, and whether the area is within the boundary of CZU Complex. The treatments are a compilation of all defensible space and fuel reduction treatment recommendations laid out in the plan. The treatment areas were developed at a planning level and are prone to change depending upon on-the-ground conditions. The higher priority recommended defensible space and fuel reduction projects outlined in Appendix F are a subset from within all overall treatment areas. Refer to Section 5.4 of the plan for the prioritization process to assist SLVWD in decision-making and identifying discrete projects as part of planning.

Property/ Location	Resource	Defensible Space Treatment (acres)			
		0 to 30-foot	30 to 100-foot	100 to 200-foot	200 to 300-foot
Outside the CZU Complex Perimeter					
Ben Lomond Mountain Watershed Property	Roads	0.1	0.3	0.2	0.0
Felton Empire Grade Watershed Property	Water Tanks	0.1	0.8	2.1	2.6
	Roads	4.2	6.9	6.7	6.1
Olympia Property	Water Tanks	6.2	15.2	21.5	19.0
	Pump Houses	0.1	0.4	1.4	2.3
	Critical Infrastructure ^a	--	--	--	4.0
Zayante Property	Roads	3.7	12.8	23.8	25.3
Other SLVWD-Owned Parcels	Water Tanks	0.6	3.7	5.1	3.1
	Pump Houses	0.3	1.3	1.6	0.6
	Critical Infrastructure ^a	0.4	0.8	<0.1	--
	Roads	3.0	8.0	6.9	2.5
Non-SLVWD-Owned Parcels	Water Tanks	0.9	10.5	40.1	71.7
	Pump Houses	0.8	9.1	31.9	54.3
	Critical Infrastructure ^a	--	0.4	2.1	7.5
<i>Subtotal</i>		<i>20.4</i>	<i>70.2</i>	<i>143.5</i>	<i>199.1</i>
Within the CZU Complex Perimeter					
	Water Tanks	0.5	1.9	3.4	3.6

APPENDIX E

Property/ Location	Resource	Defensible Space Treatment (acres)			
		0 to 30-foot	30 to 100-foot	100 to 200-foot	200 to 300-foot
Ben Lomond Mountain Watershed Property	Critical Infrastructure ^a	0.3	0.8	1.1	13.9
	Aboveground Pipelines	--	--	--	--
	Roads	14.9	33.7	45.0	49.2
	Fuelbreak	2.3	5.0	6.7	6.1
Felton Empire Grade Watershed Property	Water Tanks	<0.1	0.4	1.7	3.2
	Roads	4.1	10.1	17.8	19.2
	Fuelbreak	2.0	4.5	6.1	5.9
Other SLVWD-Owned Parcels	Water Tanks	0.2	0.6	0.2	0.0
	Pump Houses	<0.1	<0.1	--	--
	Roads	0.1	0.1	<0.1	0.1
Non-SLVWD-Owned Parcels	Water Tanks	0.2	1.9	6.9	11.3
	Critical Infrastructure ^a	--	--	--	1.6
	Pump Houses	0.0	0.5	0.9	1.3
<i>Subtotal</i>		<i>24.6</i>	<i>59.4</i>	<i>89.9</i>	<i>115.3</i>
Total		45.0	129.5	233.4	314.4

Notes:

Defensible space treatments are given a hierarchy that aligns with the prioritization to remove overlapping acreages: Tanks, Pump Houses, Critical Infrastructure, Aboveground Pipelines, SLVWD Roads, Public Roads, Fuelbreak Along Property Boundary Adjacent to Residential Area.

^a Includes 17 discrete, critical infrastructure as identified by SLVWD:

- | | |
|----------------------------------|-------------------------|
| • Lyon Water Treatment Plant | • Pasatiempo Well 7 |
| • Lompico Intertie | • Sweetwater Creek |
| • North South Intertie | • Clear Creek No. 3 |
| • Lompico Booster | • Clear Creek No. 2 |
| • Kirby Treatment Facility Plant | • Clear Creek No. 1 |
| • Pasatiempo Well 6 | • Malosky Creek |
| • Olympia Well 2 | • Foreman Creek |
| • Pasatiempo Well 5A | • Clear Creek Springbox |
| • Olympia Well 3 | |

Appendix F

Recommended Higher Priority Defensible Space, Fuel Reduction, and Material Upgrades Treatment Projects

Recommended Higher Priority Defensible Space, Fuel Reduction, and Material Upgrades Treatment Projects

Description

The table below provides a suite of projects ordered by priority. Higher priority projects were developed according to the prioritization process in Section 5.4 of the Plan, recommendations from fire agency staff and fire professionals, SLVWD staff input, and ease of access. The higher priority projects consist of defensible space creation, roadside fuel reduction and fuelbreak creation, and hydrant installation projects. Prioritization was developed based on conditions at the time the plan was prepared and is subject to change based on funding availability, partnerships, and other considerations. The projects are presented as discrete but SLVWD has discretion to further subdivide projects (e.g., one hydrant from project 3. in combination with project 1.).

Refer to the maps (confidential) of each discrete higher priority project. Projects were developed at a planning level and are prone to change depending upon on-the-ground conditions. Refer to Appendix B for all planned and recommended infrastructure projects, Appendix D for locations of all fuel reduction projects shown (confidential), and Appendix E for a breakdown of the acres for all fuel reduction projects.

Defensible space construction involves intensive thinning of understory and ladder fuels in an area surrounding and in close proximity to important infrastructure. Work is completed using masticators, chippers, chainsaws, and can include pile burning. Defensible space prescriptions are more intensive than forest thinning/fuel reduction. Roadside fuelbreak construction is performed with a combination of heavy equipment with cutting or masticating heads mounted on articulating arms and with power tools including chainsaws and brushcutters.

Costs

Projects may be combined, reconfigured, or segmented further depending upon budgeting and contracting constraints. Costs presented in the table for each project are estimates to assist SLVWD in annual planning in the next 5 years. The per-acre cost may vary depending upon on-the-ground conditions (refer to Table 4 of the Plan for the variability). It is recommended to add a 5 percent increase to the estimates in each successive year to account for annual inflationary increases in costs. Actual treatment costs will be determined by current market contractor rates at the time of project bidding.

Environmental

A Registered Professional Forester (RPF) with a current Cultural Resource Survey certification is assumed to be on-call to conduct a desktop review of biological and cultural resources records for the fuel management projects. Where determined to be necessary, specialists will conduct pre-activity cultural, biological, and nesting bird surveys. Costs are extremely variable for resource surveys and are not estimated (refer to Table 4 of the Plan for the variability). A Categorical Exemption (Class 4 Minor Alterations to Land or Vegetation, CEQA Guidelines

APPENDIX F

Section 15304) will be required to address the proposed defensible space fuel management projects within 100 feet of critical water infrastructure. A Categorical Exemption (Class 8 Actions to Protect the Environment, CEQA Guidelines Section 15308) will be needed to address the shaded fuelbreaks proposed along the roads. The cost to conduct the necessary Cat Ex documents to cover all fuel management proposed is estimated at \$5,500.

Priority	Description	Acres	Estimated Cost (Based on 2020/2021 Costs)
1.	Defensible Space Around Water Infrastructure Outside CZU Complex on SLVWD-Owned Land^b		
	Creation of defensible space of up to 100 feet around the 37 water infrastructure facilities located on SLVWD-owned lands outside of the CZU Complex perimeter.	9	\$49,250.00
2.	Ben Lomond Mountain Watershed Property Roadway Fuelbreak		
	Creation of a 100-foot-wide fuelbreak along either side of the 2.2-mile road through the Ben Lomond Mountain Watershed Property.	33.4	\$167,000.00
3.	Hydrant Installation		
	Installation of hydrants at Madrone Tanks, McCloud Tank, and Big Steel Reservoir for fire and emergency access.	--	\$21,000.00
4.	Felton Empire Grade Watershed Property Roadway Fuelbreak and Defensible Space Around Water Infrastructure		
	Creation of defensible space of up to 100 feet around the 3 water infrastructure facilities located in and a 100-foot-wide fuelbreak along either side of the 0.6-mile road through the Felton Empire Grade Watershed Property.	12.7	\$64,100.00
5.	Ben Lomond Mountain Watershed Property Defensible Space Around Water Infrastructure		
	Creation of defensible space of up to 100 feet around the 11 water infrastructure facilities and directly adjacent 0.5-mile Madrone Dr. located in the Ben Lomond Mountain Watershed Property.	9.6	\$51,300.00
6.	Olympia Property Roadway Fuelbreak^a		
	Creation of a 100-foot-wide fuelbreak along either side of the 1.3- mile road through the Olympia Property.	20.0	\$105,000.00
7.	Felton Empire Grade Watershed Property Boundary Fuelbreak		
	Creation of a 100-foot fuelbreak along the boundary of the Felton Empire Grade Watershed Property adjacent to the existing residential uses.	13.1	\$65,000.00

APPENDIX F

Priority	Description	Acres	Estimated Cost (Based on 2020/2021 Costs)
----------	-------------	-------	---

Note:

Cost estimates are based on an assumed per-acre cost of \$5,500 per acre for defensible space and \$5,000 per acre for roadside and property-line fuelbreak creation, and a per-hydrant cost of \$7,000. Refer to Table 4 in the Plan for the variability in per-acre costs.

- ^a The fuelbreak extends through known sensitive habitat. Creation of the entire fuelbreak may not be feasible due to permitting. Costs do not account for any permitting or environmental review that may be needed due to special-status species.
 - ^b The water infrastructure facility within the Felton Empire Grade Watershed Property that is outside of the CZU Complex perimeter is included in priority project 4.
-

APPENDIX F

Priority project treatment maps are confidential. Refer to the San Lorenzo Valley Water District for further information.

Appendix G

Annual Planning and Reconciliation Checklists

ANNUAL PLANNING CHECKLIST

Annual Planning Checklist

Date: _____

Staff Name: _____

Time Period of Planning: _____

Checklist: Staff shall annually prepare for fuel treatments and fire hardening projects. The following checklist may be used to document the planned projects.

Project Scope	Location	Estimated Cost	Timing
Roadside defensible space			
Road maintenance/upgrades to be passable (e.g., by Wildland Type 3 Engine)			
Defensible space around adjacent structures			
Water infrastructure defensible space			
Water infrastructure upgrades (e.g., valves, hydrants, tanks)			
Hazard tree removal			

ANNUAL RECONCILIATION CHECKLIST

Annual Reconciliation Checklist

Date: _____

Staff Name: _____

Date Range of Reconciliation: _____

Checklist: Staff shall annually review the completed projects and review the following checklist noting whether the task is applicable and, if so, has been completed.

Task	Date(s) Completed?	Notes (e.g., location, personnel)
Projects Completed		
• Roadside defensible space		
• Road maintenance/upgrades to be passable (e.g., by Wildland Type 3 Engine)		
• Defensible space around adjacent structures		
• Water infrastructure defensible space		
• Water infrastructure upgrades (e.g., valves, hydrants, tanks)		
• Hazard tree removal		
Database Management		
Update data (GIS) to account for:		
• Roadside defensible space		
• Road maintenance/upgrades to be passable (e.g., by Wildland Type 3 Engine)		
• Defensible space around adjacent structures		
• Water infrastructure defensible space		
• Water infrastructure upgrades (e.g., valves, hydrants, tanks)		
• Hazard tree removal		
Agency Coordination		
Provide applicable fire agency(ies) with updated data regarding:		
• Location and extent of defensible space creation around water infrastructure		

ANNUAL RECONCILIATION CHECKLIST

Task	Date(s) Completed?	Notes (e.g., location, personnel)
• Location and extent of defensible space creation around road		
• Location and type of upgraded or new water infrastructure (e.g., new hydrant connection to tank)		

Appendix H

Copies of Identified Deed Restrictions

SETTLEMENT AGREEMENT (AFTER MEDIATION)

CASE IDENTIFICATION

Plaintiff(s): San Lorenzo Valley Water District

Defendant(s): California American Water Company

Cross-Complainant(s):

Cross-Defendant(s):

Court and Case No.: In the Superior Court of the State of California, County of Santa Cruz,
Case No. 156413

Date: May 27, 2008

SETTLEMENT AGREEMENT

The above parties, following mediation and in consultation with their own counsel, have agreed to a binding settlement of all claims and defenses asserted in the pleadings in the above-referenced case, or which could have been asserted therein, on the following terms and conditions:

1. Except as set forth in the provisions of this Agreement, and full performance thereof, each party fully releases and discharges the other of and from any and all claims, demands, and actions arising out of or related to the allegations and issues involved in the above entitled case. Each party waives the benefit of the provisions of California Civil Code § 1542, which have been explained to each party by his, her, or their respective counsel. Each party intends that this release be construed as a full and final resolution of the aforesaid allegations and issues, excepting only the obligations undertaken in this Agreement, which are not released.

2. It is possible that the parties and their attorneys will wish to prepare and execute a more formal written agreement to embody the provisions of their settlement set forth herein, but notwithstanding that event, the parties intend that this Agreement be fully binding and enforceable, in accordance with the provisions of California Code of Civil Procedure section 664.6, which is incorporated herein by reference. This Agreement shall be admissible in any court proceedings where it is relevant to the proceedings. The Court shall have continuing jurisdiction to enforce this Agreement.

3. Each party will cooperate with the other in executing and delivering documents and in doing other acts (without expense) incidental and necessary to carry out the provisions of this Agreement so that each party derives the full benefit thereof.

4. Each party shall bear his, her, or its attorneys' fees and costs of suit in the above lawsuit. Should any legal proceedings be filed for or because of breach of this agreement, the prevailing party shall be entitled to reasonable attorneys' fees from the losing party in said proceedings.

5. Plaintiff will amend its complaint in eminent domain to condemn only the operating assets in defendant's Felton Water operations.

6. The parties agree to a Stipulated Judgment in favor of plaintiff in the eminent domain proceeding in accordance with the provisions of Paragraph 5, above. Said judgment will provide for payment by plaintiff to defendant of \$13,400,000, of which \$2,900,000 is in the form of an assumption of the outstanding balance due and owing in the 1997 Safe Drinking Water Bond Act Loan, thus resulting in a net payment by plaintiff to defendant of \$10,500,000 in cash.

7. The parties agree that the agreed sum of \$13,400,000 ^{REFERENCED IN PARAGRAPH 6 ABOVE} ~~paid by plaintiff to defendant pursuant to this Agreement~~ represents the fair market value of the operating assets utilized by defendant in its Felton Water operations.

8. Defendant shall donate to the plaintiff its non-operating assets, including an approximately 250-acre parcel of real property currently owned by defendant, and commonly known as the Felton Empire Road property. The deed from the defendant to the plaintiff conveying said property shall be in the form of a gift deed and shall contain restrictions on use as follows: The property shall not be used for commercial timber harvesting and shall be retained for water production and supply, and for conservation and open space subject to the right of the plaintiff to maintain said property in accordance with best conservation practices, which can contain such practices as thinning of trees for forest maintenance and other such actions not inconsistent with the above limitations on use. Defendant will cooperate in any request by plaintiff in transferring its restrictive rights in the property to a public agency or qualified 501(c)(3) nonprofit corporation eligible to hold a conservation easement under California law. Any such transfer will be at no expense to defendant.

9. On date of close, revenues, accounts receivable (including unbilled revenue) and expenses shall be prorated between the parties in accordance with generally accepted accounting principles, provided, however, that revenues of defendant consisting of the surcharge payments and allocable to repayment of the State of California Loan aforesaid shall be turned over to plaintiff without proration.

10. At least 30 days prior to date of close, plaintiff will advise defendant as to which employees, if any, it chooses to offer employment as an employee after date of close. As to any employee not retained, plaintiff shall pay a severance payment of one month's salary after date of close. Each party shall work in good faith to accomplish a smooth transition with respect to defendant's employees.

11. The parties shall prepare and issue a joint press release providing information to the public about this transaction.

12. On the date of close, defendant shall turn over to plaintiff not only all tangible operating assets, but also intangible assets, including, without limitation, its licenses and permits, system diagrams and maps, and all such similar intangible assets used in the Felton Water operations.

13. This contract is subject to the approval of plaintiff's Board of Directors, which approval shall be obtained within two weeks of the date of this Agreement. Closing of this transaction shall take place no later than 60 days after Board approval, unless extended by mutual agreement of the parties.

14. Should the approval of the California Public Utilities Commission be required for this transaction, the parties shall cooperate in applying for such approval as soon as possible.

15. Each party shall bear its own attorneys' fees and costs.

Plaintiff
By: 1007 C. [Signature]
Its: President Board of Directors
Dated: 5/27/08

[Signature]

Plaintiff Attorney
Dated: 5/27/08

Plaintiff
By: _____
Its: _____
Dated: _____

Defendant

By: Daniel L. Kelleher

Its: External Affairs American Water

Dated: May 27, 2008

Dated: _____

Dated: _____

Dated: May 27, 2008

John Connor
Defendant Attorney

Defendant

By: _____

Its: _____

Defendant

By: _____

Its: _____

Edmund L. Repalik
Mediator (As to Form and Content Only)

RECORDING REQUESTED BY

Santa Cruz Title Company

MAIL TAX STATEMENTS TO
AND WHEN RECORDED MAIL

San Lorenzo Valley Water District
C/O John Mueller
13060 Highway 9
Boulder Creek, CA 95006
Escrow or Loan No. 09553024-AFR

Recorded | REC FEE 13.00
Official Records | TAX 1925.00
County of | SURVEY MONUMENT 10.00
Santa Cruz
GARY E. HAZELTON
Recorder

| JEB
08:00AM 15-Jun-2006 | Page 1 of 3



SPACE ABOVE THIS LINE FOR RECORDER'S USE

APN: 081-361-01,03,04,05,06,07,08, 081-241-08

GRANT DEED

The undersigned grantor(s) declare(s):
Documentary transfer tax is \$ 1,925.00

- computed on full value of property conveyed, or
- computed on full value less value of liens and encumbrances remaining at time of sale.
- Unincorporated area: City of _____, and

FOR A VALUABLE CONSIDERATION, receipt of which is hereby acknowledged.
Sempervirens Fund Inc., a California Non-Profit Public Benefit Corporation

hereby GRANT(S) to **San Lorenzo Valley Water District**

the following described real property in the _____ of, County of **Santa Cruz**, State of California:

See Exhibit "A" Attached hereto and made a part hereof... "Grantor reserves the timber rights regarding all timber located on the property. Grantee shall only have the right to cut trees if they pose a safety risk, interfere with existing rights of way or must be removed to prevent erosion or landslides. The commercial value of trees so removed shall belong to Grantor or its successor.

The parties agree that it is their mutual intention that the right to harvest timber from the property for commercial purposes be forever extinguished by this transfer. The parties further agree to commence immediately to develop a

Dated: June 13, 2006

STATE OF CALIFORNIA
COUNTY OF SANTA CRUZ

} SS.

Sempervirens Fund Inc.

By: _____

[Handwritten Signature]

On June 14, 2006 before me,
A. Rieth, (insert Name of Notary Public) a Notary
Public, personally appeared

Brian Steen
personally known to me (or proved to me on the basis of satisfactory
evidence) to be the person(s) whose name(s) is/are subscribed to the
within instrument and acknowledged to me that he/she/they executed
the same in his/her/their authorized capacity(ies), and that by
his/her/their signature(s) on the instrument the person(s), or the entity
upon behalf of which the person(s) acted, executed the instrument

WITNESS my hand and official seal.

Signature _____



MAIL TAX STATEMENT AS DIRECTED ABOVE

This form furnished by **SANTA CRUZ TITLE COMPANY**

Exhibit A

SITUATE IN THE COUNTY OF SANTA CRUZ, STATE OF CALIFORNIA AND DESCRIBED AS FOLLOWS:

PARCEL ONE:

THE SOUTH HALF OF THE SOUTHEAST QUARTER OF SECTION 25, TOWNSHIP 9 SOUTH, RANGE 3 WEST, M.D.B.& M.

EXCEPTING THEREFROM THE SOUTHWEST QUARTER THEREOF.

PARCEL TWO:

THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 9 SOUTH, RANGE 2 WEST, M.D.B.& M.

PARCEL THREE:

COMMENCING AT THE SIXTEENTH SECTION CORNER ON THE WEST BOUNDARY OF THE SOUTHEAST QUARTER SECTION 30, TOWNSHIP 9, SOUTH, RANGE 2 WEST, M.D.B.& M., ON THE SOUTHERLY LINE OF LAND CONVEYED TO CARDINET BY DEED RECORDED IN VOLUME 304 OF OFFICIAL RECORDS AT PAGE 466, SANTA CRUZ COUNTY RECORDS, RUNNING THENCE EASTERLY ALONG THE SOUTHERLY LINE OF SAID LAND OF CARDINET 350 FEET, A LITTLE MORE OR LESS, TO A POINT FROM WHICH THE SOUTHWEST CORNER OF LAND OF BLACKMER BEARS NORTH 5 DEGREES 49' WEST 240 FEET DISTANT, SAID POINT BEING ALSO THE MOST WESTERN CORNER OF LANDS CONVEYED TO JOSEPH M. PAPER BY DEED RECORDED IN VOLUME 447 OF OFFICIAL RECORDS AT PAGE 36, SANTA CRUZ COUNTY RECORDS; THENCE ALONG THE SOUTHWESTERN BOUNDARY OF SAID LANDS SOUTHEASTERLY IN A STRAIGHT LINE 170 FEET, MORE OR LESS, TO THE SOUTHWEST CORNER THEREOF ON THE WESTERLY PRODUCTION OF THE NORTH BOUNDARY OF LANDS CONVEYED TO AUGUST LASS BY DEED RECORDED IN VOLUME 207 OF OFFICIAL RECORDS AT PAGE 447, SANTA CRUZ COUNTY RECORDS; THENCE ALONG SAID LAST MENTIONED LINE EAST 88 FEET TO THE NORTHWEST CORNER OF SAID LANDS; THENCE SOUTH 60 FEET TO THE SOUTHWEST CORNER THEREOF; THENCE EAST ALONG THE BOUNDARY OF SAID LANDS AND THE PRODUCTION THEREOF TO THE NORTHWEST CORNER OF LAND CONVEYED TO VERONICA B. WATSON ET AL., RECORDED JUNE 16, 1949 IN VOLUME 725 OF OFFICIAL RECORDS AT PAGE 236, SANTA CRUZ COUNTY RECORDS; THENCE ALONG THE WESTERN BOUNDARY THEREOF, SOUTH 5 DEGREES 50' EAST 200 FEET TO THE NORTH BOUNDARY OF LANDS CONVEYED TO W. MARSHALL BY DEED RECORDED APRIL 5, 1946 IN VOLUME 649, OF OFFICIAL RECORDS AT PAGE 162, SANTA CRUZ COUNTY RECORDS; THENCE ALONG THE NORTHERN AND WESTERN BOUNDARIES OF SAID LAND OF MARSHALL, SOUTH 84 DEGREES 10' WEST 156 FEET, AND SOUTH 5 DEGREES 50' EAST 469.9 FEET TO THE MOST SOUTHERN CORNER THEREOF; THENCE LEAVING SAID LANDS SOUTH 20 DEGREES 45' WEST 3.72 FEET TO AN IRON PIPE; THENCE SOUTH 44 DEGREES 03' WEST 180.15 FEET AN IRON PIPE FROM WHICH A FOUND IRON PIPE AT THE MOST WESTERN CORNER OF LANDS CONVEYED TO W. MARSHALL BY DEED RECORDED APRIL 5, 1946 IN VOLUME 649 OF OFFICIAL RECORDS AT PAGE 164, SANTA CRUZ COUNTRY RECORDS, BEARS SOUTH 45 DEGREES 57' EAST 40.00 FEET DISTANT, 249.96 FEET TO AN IRON PIPE; THENCE SOUTH 28 DEGREES 15' EAST (AT 41.98 FEET AN IRON PIPE) 63.32 FEET TO AN IRON PIPE; THENCE NORTH 77 DEGREES 24' EAST 52.12 FEET TO AN IRON PIPE; THENCE SOUTH 5 DEGREES 50' EAST 340.00 FEET, MORE OR LESS, TO THE SOUTH LINE OF SAID SECTION 30; THENCE WEST ALONG SAID SECTION LINE TO THE ONE-QUARTER SECTION CORNER ON THE SOUTH LINE OF SAID SECTION 30; THENCE NORTHERLY ALONG THE QUARTER SECTION LINE TO THE POINT OF BEGINNING.

EXCEPTING FROM THE ABOVE DESCRIBED LANDS, THAT PORTION DESCRIBED AS FOLLOWS:

BEING A PART OF THE LANDS CONVEYED TO GEO. W. SCOTT, ET UX., BY DEED RECORDED IN VOLUME 999, AT PAGE 430 OF OFFICIAL RECORDS OF SANTA CRUZ COUNTY, AND MORE PARTICULARLY BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE LANDS CONVEYED TO W. MARSHALL BY DEED RECORDED IN VOLUME 649, AT PAGE 162, OFFICIAL RECORDS OF SANTA CRUZ COUNTY; THENCE ALONG THE WESTERN BOUNDARY OF SAID LANDS SOUTH 5 DEGREES 50' EAST 458.75 FEET TO A POINT; THENCE PARALLEL WITH AND 10 FEET NORTHERLY FROM THE NORTHERLY LINE OF A 40 FOOT ROAD, SOUTH 44 DEGREES 03' WEST 132.07

FET TO A POINT FROM WHICH A IRON PIPE BEARS SOUTH 5 DEGREES 50' EAST 13.08 FEET DISTANT; THENCE NORTH 5 DEGREES 50' WEST 553.09 FEET TO A 1/2" IRON PIPE; THENCE NORTH 84 DEGREES 10' EAST 100.00 FEET TO THE PLACE OF BEGINNING.

EXCEPTING A RIGHT OF WAY 10 FEET IN WIDTH, THE SOUTHEASTERLY LINE OF WHICH IS THE SOUTHEASTERLY LINE OF THE ABOVE DESCRIBED PARCEL OF LAND.

APN: 081-361-01 (PORTION OF PARCEL ONE)
081-361-03 (PORTION OF PARCEL ONE)
081-361-04 (PORTION OF PARCEL ONE)
081-361-05 (PORTION OF PARCEL TWO)
081-361-06 (PORTION OF PARCEL TWO)
081-361-07 (PORTION OF PARCEL TWO)
081-361-08 (PORTION OF PARCEL TWO)
081-241-08 (PARCEL THREE)

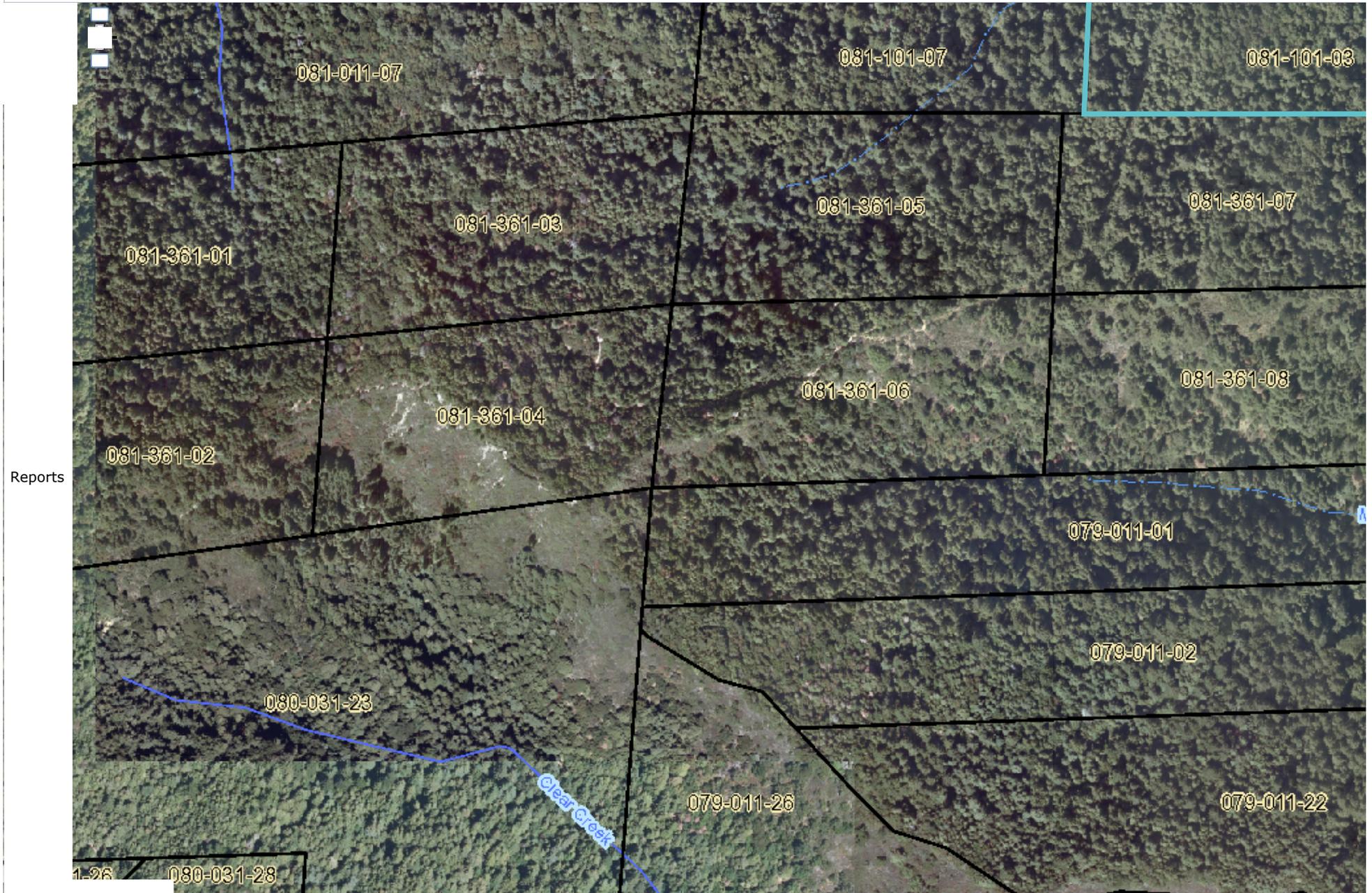
" Grantor reserves the timber rights regarding all timber located on the property. Grantee shall only have the right to cut trees if they pose a safety risk, interfere with existing rights of way or must be removed to prevent erosion or landslides. The commercial value of trees so removed shall belong to Grantor or its successor.

The parties agree that it is their mutual intention that the right to harvest timber from the property for commercial purposes be forever extinguished by this transfer. The parties further agree to commence immediately to develop a mutually agreeable conservation easement to memorialize such intentions in detail.

Search Select Draw Tools **Print** Base Map 2007 Image Terrain 2003 Image USGS QUADS None

Format Choose Page Layout Legend Scalebar Enter Map Title

PDF Letter (11x8.5) Landscape No Feet Map Title 



Results		Parcel Info		Land Use	Biotic and Water Resources	Special Districts	Jurisdictional, Elections, and Census	Hazards and GeoPhysical
Attribute	Value			Attribute	Value			
Click APN for Assessor Info:	08110103			Sect Town Range	T9S-R2W,SEC30			
Click Map# for APN Map:	08110			Tax Code Areas	90-103			
Click for Permit Data:	Permit Data			Map Book	081			
Estimated/Approximate Acreage	49.440			Multiple Site Address				
Estimated/Approximate sq Feet	2153597			Home Owner Exemption (Yes/No)				
Situs Address				Assessor's Use Code	801			



Malosky

Santa Cruz County



Legend

- Malosky Visit 6-14-19
- Highways
- Streets
- Malosky



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community