SAN JOSE WATER COMPANY

Los Gatos Creek Watershed Maintenance Program Manual

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Table of Contents

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Appendices

List of Figures

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Deleted: 4

Deleted: Mitigation Activitie

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Deleted: 6.4.1 Wetland and Aquatic Habitat Mitigation: Lake Kittredge Wetlands Creation Project 6-8¶
6.4.2 Wetland and Aquatic Habitat Mitigation: Red-legged Frog Habitat Enhancement at Hooker Intake 6-11¶
6.4.3 Riparian Habitat Mitigation: Tree and Shrub Planting and Invasive Vegetation Removal 6-11¶

Deleted: Jurisdictional Wetland and Other Waters Impact Area AssumptionsProgram Mitigation and Monitoring Plan

Deleted: 4

Deleted: 5

Deleted: Figure 3-1a. Upper Los Gatos Creek Facilities – Upper Los Gatos Creek (upstream of Lake Elsman) 3-3¶
Figure 3-1b. Upper Los Gatos Creek Facilities – Hooker Gulch 3-4¶
Figure 3-1c. Upper Los Gatos Creek Facilities – Hendry's Creek 3-5¶
Figure 3-1d. Upper Los Gatos Creek Facilities – Cavanee Creek 3-6¶
Figure 3-1e. Upper Los Gatos Creek Facilities – Briggs Creek, Beardsley Creek, and Trout Creek 3-7¶

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List of Tables

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Deleted: 2b. Culvert Locations 4-5747
Deleted: 2c. Culvert Locations 4-5848
Deleted: F
Deleted: igure 6-1. Lake Kittredge Wetlands and Aquatic Resources Mitigation Site 6-910¶
Deleted: 7
Deleted: 6
Deleted: 22
Deleted: 17
Deleted: 23
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Deleted: 2
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Chapter 1

Introduction

1.1 San Jose Water Company

Founded in 1866, the San Jose Water Company (SJWC) provides high-quality potable water and exceptional customer service to more than 1 million people in Santa Clara County, including the communities of San Jose, Los Gatos, Monte Sereno, Saratoga, Campbell, and Cupertino. SJWC also provides services to other utility districts, including operations and maintenance support, billing, and backflow testing. SJWC's water supply includes a combination of surface water from the Los Gatos and Saratoga Creek Watersheds, groundwater from aquifers in the Santa Clara Valley, and treated imported surface water purchased from the Santa Clara Valley Water District (SCVWD). SJWC's operating goal is to provide high-quality water to its customers.

1.2 Los Gatos Creek Watershed Maintenance Program and Manual

To support its surface supply sources, SJWC operates and maintains several facilities and manages several thousand acres of watershed lands within the Los Gatos Creek Watershed. The Los Gatos Creek Watershed Maintenance Program (Maintenance Program or Program) is a long-term and ongoing SJWC program. The Maintenance Program was developed to identify and improve facility maintenance and land management under SJWC direction.

The purpose of this *Los Gatos Creek Watershed Maintenance Program Manual* (Manual) is to describe SJWC's routine maintenance activities in the Los Gatos Creek Watershed and to clearly outline the regulatory and compliance environment that guides program activities. This Manual also describes SJWC facilities, natural resources at SJWC facilities and in the watershed, programmatic guidance to avoid and minimize potential environmental impacts, mitigation approaches, and Program monitoring and reporting activities.

In addition, this Manual provides a descriptive basis for the Program to support compliance with the California Environmental Quality Act (CEQA) and other resource agency permitting requirements.

While the standard operating procedures and guidelines described in this Manual are intended to provide the Program with consistent approaches, the Maintenance Program is also envisioned to be flexible and is subject to periodic updates to reflect improved understanding of resource conditions, maintenance technologies, and management practices over time.

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1.3 Maintenance Program Goals and Objectives

Program Goals

SJWC's routine maintenance activities are designed to meet the following Program goals:

- Protect the quality of SJWC's source water supplies.
- Maintain the structural and functional integrity of SJWC facilities.
- Reduce reliance on imported water supplies.

Program Objectives

The following Program objectives are implemented to meet the Program goals:

1. Maintain existing water impoundment, water supply intake, flood control, and roadway facilities in the upper Los Gatos Creek Watershed to ensure that they continue to perform their operational functions.
2. Prevent roadway flooding, reduce safety hazards, and minimize potential threats to the structural integrity of roadways and facilities within the watershed by maintaining culverts and clearing debris blockages at roadside culverts.
3. Remove sediment at SJWC facilities in the upper Los Gatos Creek Watershed where sediment accumulation reduces functional capacity, reduces flow conveyance, or increases the flood hazard and safety risk.
4. Consider, maintain, and, where possible, enhance and improve habitat function of creek systems near SJWC facilities in the upper Los Gatos Creek Watershed.
5. Manage vegetation at SJWC facilities in the upper Los Gatos Creek Watershed to keep facilities clear of debris and vegetation so that they can be operated in a manner that is consistent with the preservation of habitat functions of the creeks and channels.
6. Manage vegetation at SJWC facilities to reduce fuel loads, protect facilities and structures, and disrupt the future movement of wildfires.
7. Avoid and minimize potential impacts to the environment by identifying criteria and thresholds to guide the determination of when maintenance work is necessary.
8. Avoid and minimize potential impacts to habitats and special-status species by incorporating detailed appraisals of habitat, species, and resource conditions while developing maintenance plans.

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1.4 Program Area and Facility Locations

The general Program area includes the upper Los Gatos Creek Watershed, defined as the watershed upstream of the Trout Creek confluence with Los Gatos Creek. **Figure 1-1** shows a map of the entire Los Gatos Creek Watershed with the upper watershed highlighted in color. **Figure 1-2** includes a larger scale map of the upper Los Gatos Creek Watershed, highlighting SJWC facilities included in the Maintenance Program. In total, SJWC facilities within the Los Gatos Creek Watershed include five reservoirs (impoundments), seven intake structures, water distribution pipelines, several access roads, nearly 100 roadside culverts, and approximately 6,000 acres of land. The Maintenance Program is focused to provide regular and routine maintenance to these facilities. Key facilities in the Maintenance Program are listed in **Table 1-1**.

Table 1-1. Key Facilities in Maintenance Program

Reservoirs/Impoundments:	Lake Williams Lake Elsman Lake Cozzens Lake Kittredge Lake Ranch Reservoir
Water Supply Intakes:	Ostwald Intake Hooker Intake Howell Intake Hendry Intake Upper and Lower Cavanee Intake Beardsley Intake Trout Creek Intake Aldercroft Heights County Water District (AHCWD) Extraction Well
Culverts and Road Crossings:	37 culverts along John Nicholas Trail Road 30 culverts along Cathermola Road 33 culverts along Sears Road 7 culverts along Ellege Road 21 culverts along Hooker Bypass Road 2 culverts along Hooker Intake Road 2 culverts along Ryland Intake Road 1 culvert along Beardsley Intake Road 1 culvert along Trout Intake Road 1 culvert along Vina Drive

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The Montevina Water Treatment Plant (MWTP) is SJWC's primary surface water treatment facility for the upper Los Gatos Creek Watershed. Maintenance activities for the MWTP facility are not included in this Maintenance Program. SJWC also maintains a creek diversion and intake on Saratoga Creek and the Saratoga Water Treatment Plant (SWTP), located off Highway 9 in Saratoga. The Saratoga Creek facility was added to the Maintenance Program in 2022. Additional SJWC facilities may be added to the Program in the future.

As described below and in other chapters of the Manual, some maintenance activities may be implemented anywhere on SJWC property. For example, road maintenance or fire and vegetation fuel management activities may occur throughout the Program area as the need arises. For this reason, the Manual distinguishes between activities with a direct regulatory nexus (e.g., jurisdictional waters) and conversely, activities requiring BMPs or additional resource protection measures to comply with federal, state, or local regulation (e.g., upland activities).

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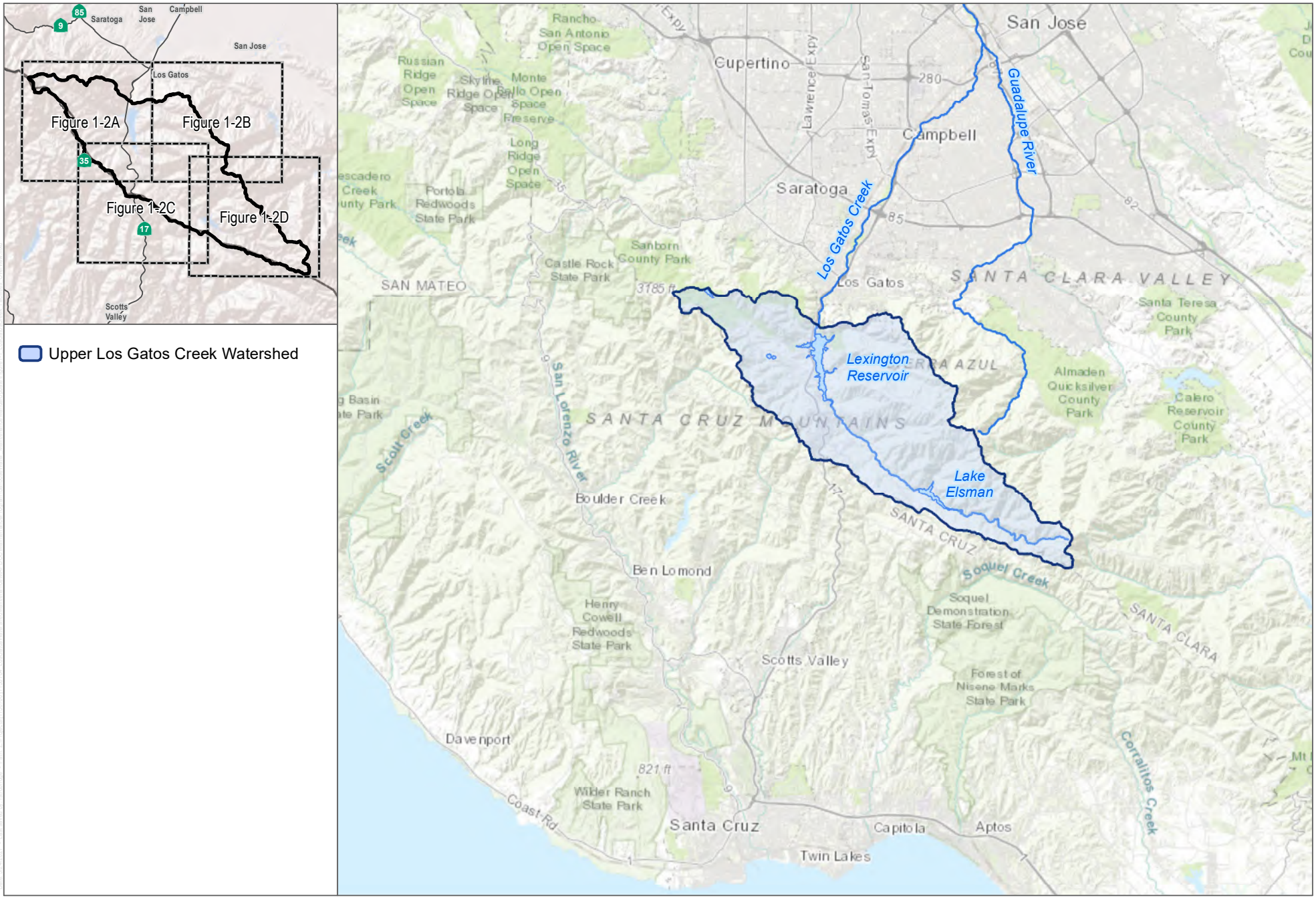

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FIGURE 1-1

Upper Los Gatos Creek Watershed Location Overview

San Jose Water Company Maintenance Manual Update

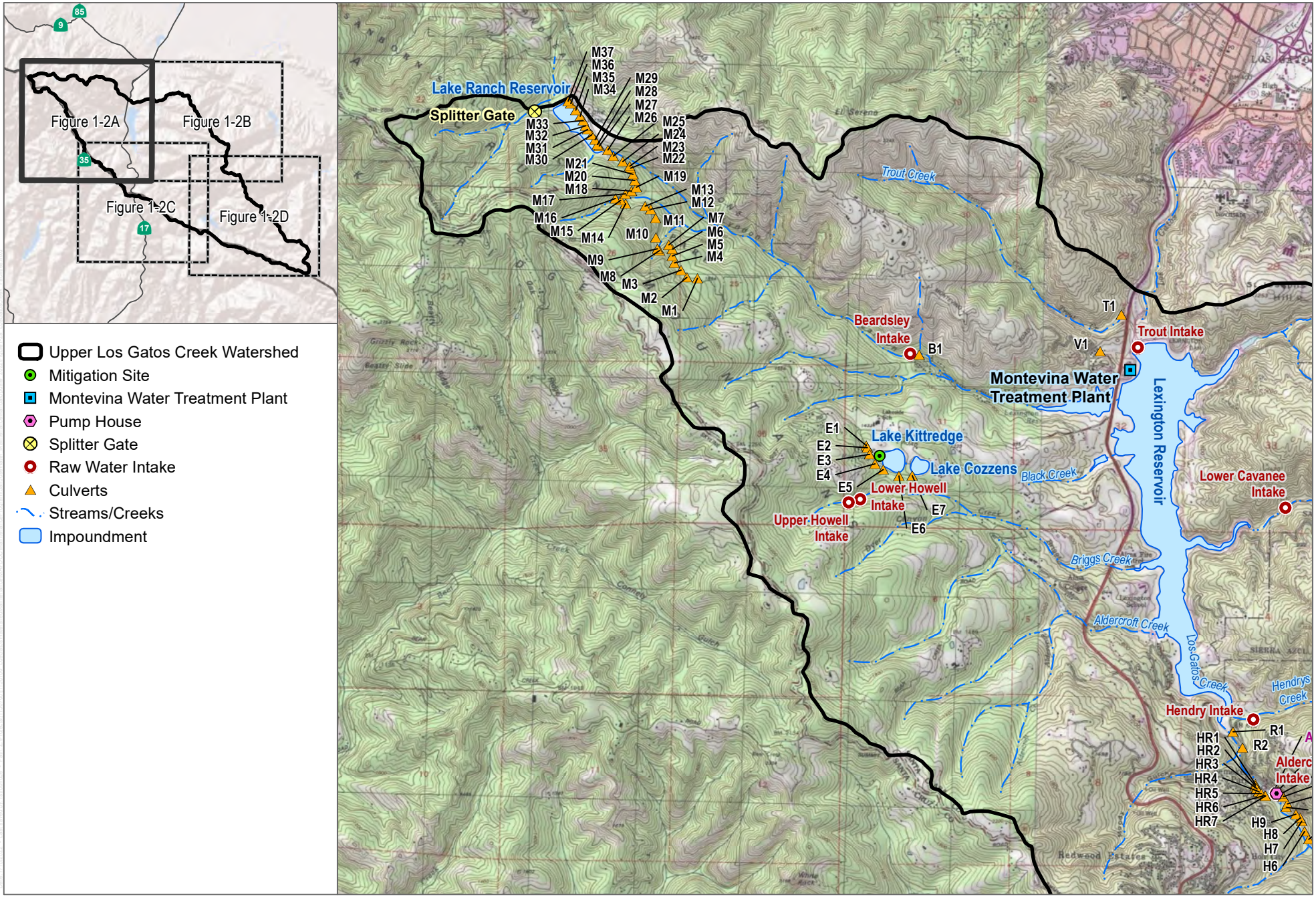

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FIGURE 1-2A

Upper Los Gatos Creek Watershed and Facilities

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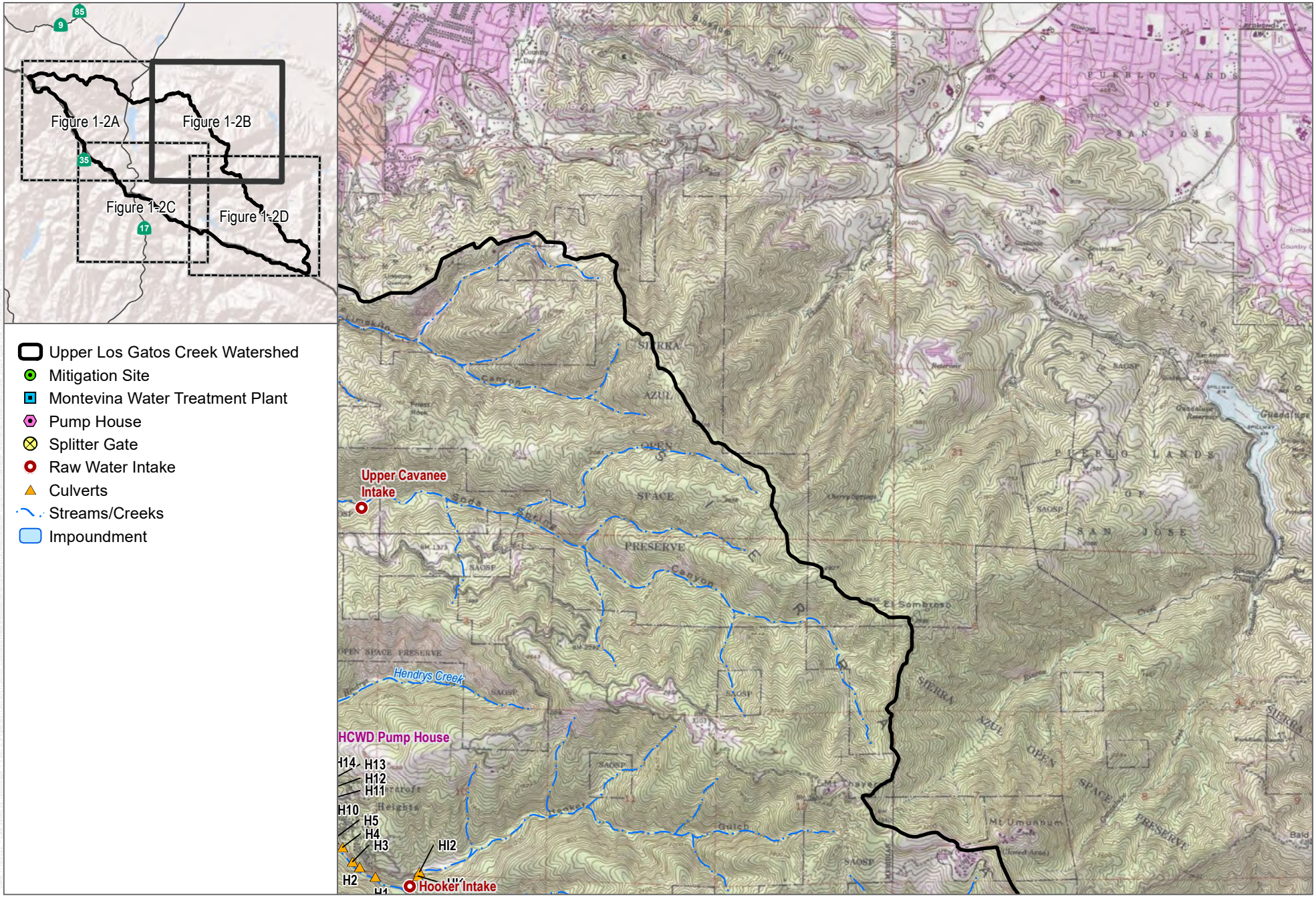

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FIGURE 1-2B

Upper Los Gatos Creek Watershed and Facilities

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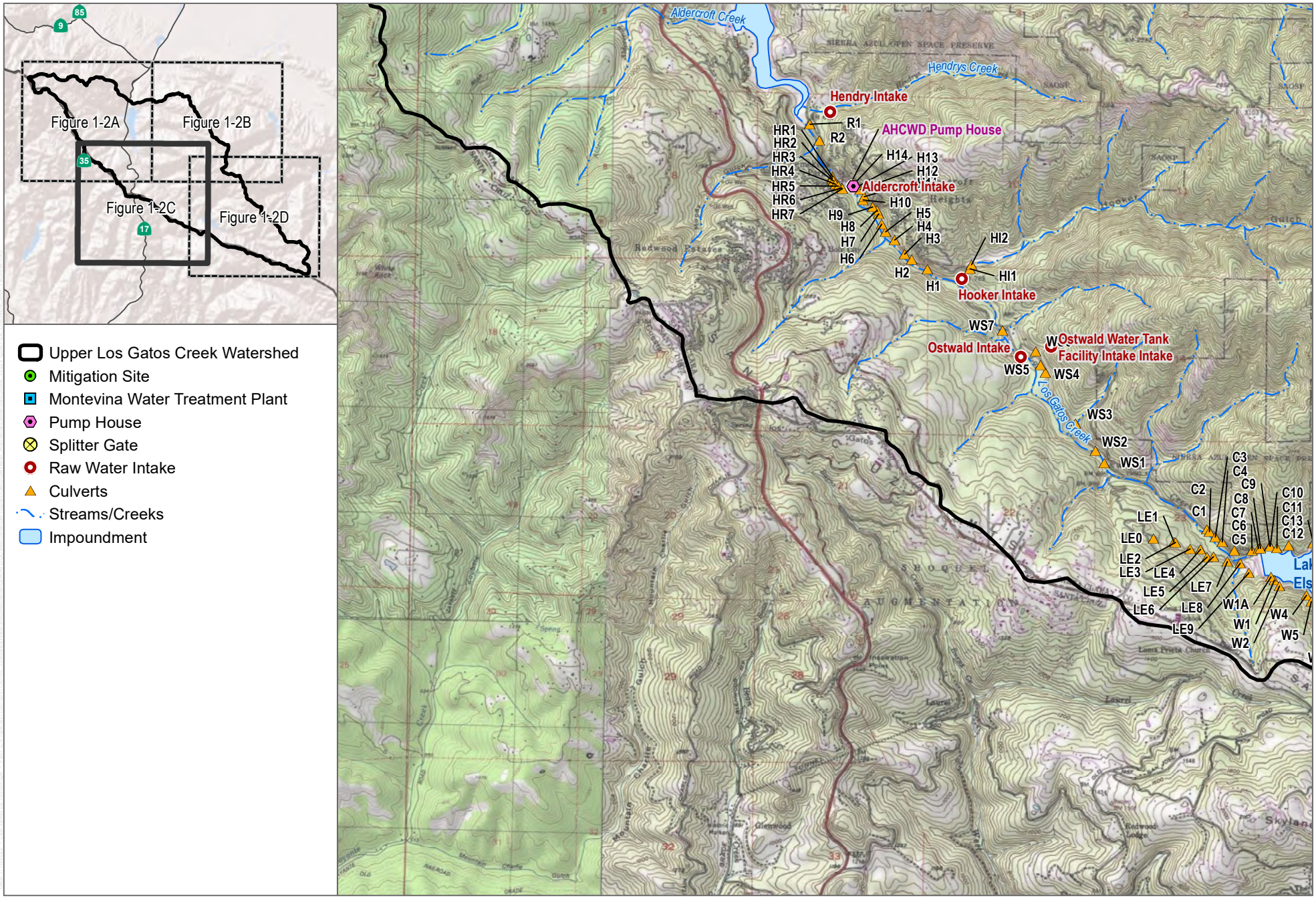

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FIGURE 1-2C

Upper Los Gatos Creek Watershed and Facilities

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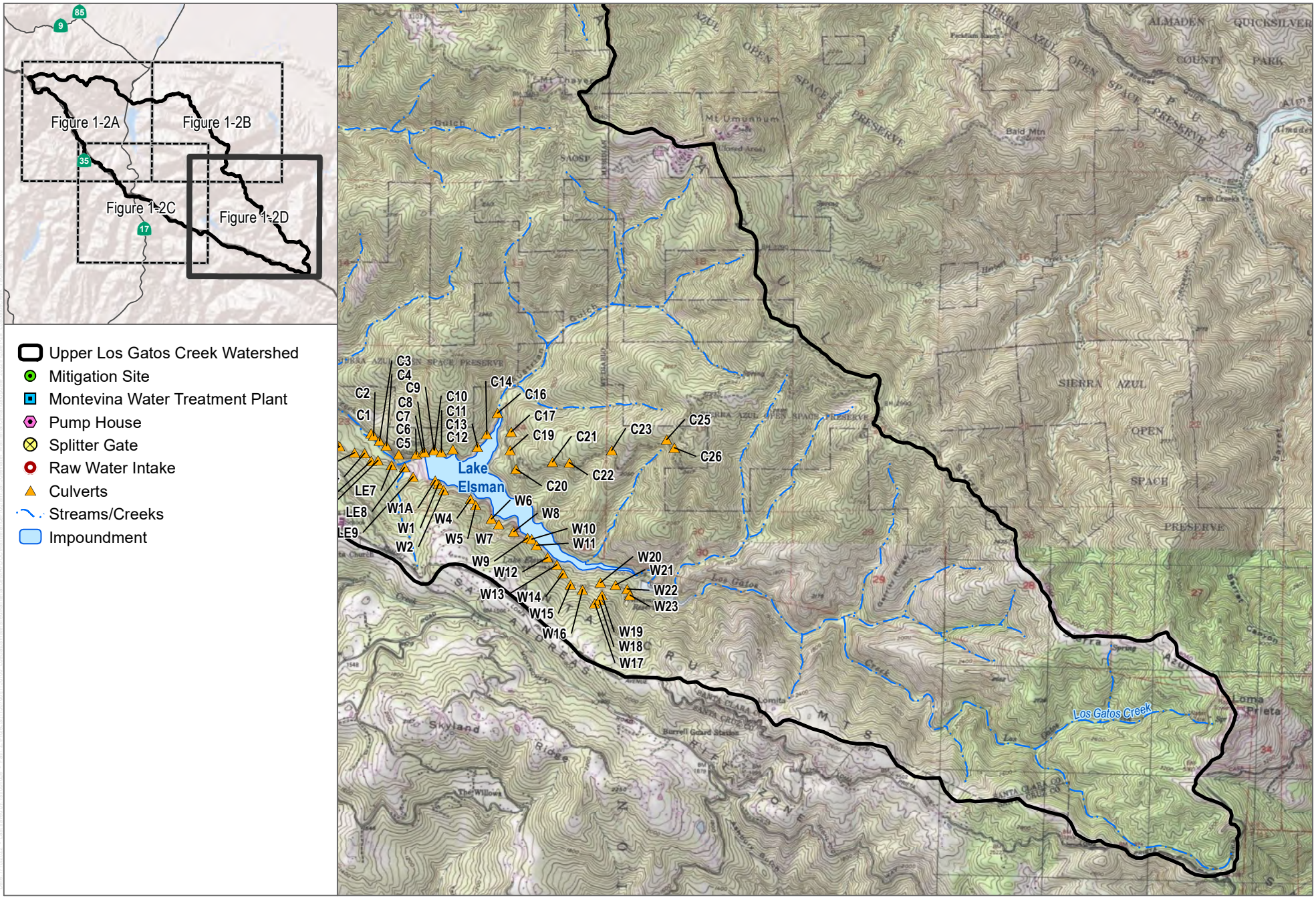

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FIGURE 1-2D

Upper Los Gatos Creek Watershed and Facilities

San Jose Water Company Maintenance Manual Update

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1.5 Summary of Routine Maintenance Activities

Table 1-2 provides a summary of Maintenance Program activities associated with the various Program facilities that may involve work within jurisdictional waters.

Table 1-2. Summary of Waters Maintenance Activities Conducted at Program Facilities

Program Facility	Maintenance Activity and Frequency
Reservoirs/Impoundments	Sediment and debris removal at the Lake Elsman spillway, intakes, and culvert outfalls (every other year) Dam maintenance: ▪ Repair damage from burrowing animals (annual basis) ▪ Vegetation management along dam/reservoir margins (as-needed basis)
Water Supply Intakes	Sediment removal (as-needed basis) Debris removal on an annual basis Flashboard repair (as-needed basis) Intake gate repair (as-needed basis) Vegetation maintenance on an as-needed basis (trimming, downed tree removal)
Roads, Culverts, Crossings	Sediment removal (as-needed basis) Debris removal (as-needed basis) Culvert repair or replacement (as-needed basis) Vegetation maintenance on an as-needed basis (trimming, downed tree removal) Road maintenance on an as-needed basis (grading, gravel, paving)

Table 1-3 provides a summary of Maintenance Program activities associated with the various Program facilities that would be completed in upland areas and would not involve work within jurisdictional waters. Upland maintenance activities outside of jurisdictional areas will be completed as needed year-round with applicable program BMPs implemented. A summary of uplands maintenance work completed each year will be provided as a stand-alone addition to the annual reporting submitted to agencies for their edification as a courtesy.

Table 1-3. Summary of Uplands Maintenance Activities Conducted at Program Facilities

Program Facility	Maintenance Activity and Frequency
Reservoirs/Impoundments	Dam maintenance: ▪ Vegetation removal, weed cutting, herbicide spraying (as-needed basis) ▪ Repair dam hardware on an as-needed basis (pipes, valves, etc.)

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<#>Vegetation removal, weed cutting, herbicide spraying (as-needed basis)¶
<#>Repair damage from burrowing animals (annual basis)¶
<#>Repair dam hardware on an as-needed basis (pipes, valves, etc.) ¶

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	Access road maintenance (as-needed basis)
Water Supply Intakes	Vegetation maintenance on an as-needed basis (trimming, downed tree removal)
Roads, Culverts, Crossings	Vegetation maintenance on an as-needed basis (trimming, downed tree removal) Road maintenance on an as-needed basis (grading, gravel, paving)
Watershed Management	Providing fire-defensible space around facilities and structures (as-needed basis) Cutting firebreaks (as-needed basis) Fire fuel management (as-needed basis)
Minor Activities	Fence repairs (as-needed basis)

1.6 Activities Not Covered in this Manual

The Maintenance Program does not include the following stream maintenance activities:

- Emergency repair work
- Maintenance work for large construction projects contained in SJWC's Capital Improvement Plan (CIP)
- Maintenance work that would increase the water supply capacity of a facility beyond the designed (as-built) capacity
- Maintenance work conducted on non-SJWC private property by other land owners
- Maintenance work performed by other agencies

Routine watershed maintenance does not include projects that would alter the designed flood conveyance capacity of a channel. Large construction projects and CIP improvements are not considered routine stream maintenance and are not included in this Manual.

A situation is considered an "emergency" if it is a sudden, unexpected occurrence involving a clear and imminent danger that demands immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services (Public Resources Code Section 21060.3). Although emergency situations are not covered by the permits authorizing the routine maintenance activities of this Manual, SJWC makes every effort to follow the guidance provided in this Manual when implementing activities under emergency conditions.

1.7 Manual Overview

This Manual includes the following chapters:

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Chapter 1 – Introduction

Chapter 2 – Regulatory Framework – This chapter describes environmental laws, statutes, and regulations that are applicable to the Maintenance Program. Chapter 2 also describes the state and federal agencies that oversee these laws and statutes.

Chapter 3 – Program Setting – This chapter describes the physical setting and biological resources in the upper Los Gatos Creek Watershed with an emphasis on the natural resources present at locations where SJWC plans to conduct its routine maintenance activities.

Chapter 4 – Resource Characterizations at Maintenance Facilities – This chapter describes the specific site and natural resource conditions at SJWC facilities identified for routine maintenance activities. For each facility, the primary maintenance activities are identified and the watershed and physical setting, biological conditions, and a summary of impact avoidance and minimization approaches are described.

Chapter 5 – Maintenance Activities, Impact Avoidance and Minimization, and Best Management Practices – This chapter provides detailed descriptions of routine maintenance activities conducted at SJWC's facilities, including impact avoidance and minimization measures to reduce potential environmental impacts. This chapter includes specific triggers and criteria to guide the determination of when maintenance should occur.

Chapter 6 – Impact Mitigation – This chapter describes the SJWC's approach to mitigate for environmental impacts that cannot be avoided or minimized to less-than-significant levels.

Chapter 7 – Maintenance Program Administration and Reporting – This chapter describes Program management activities, including monitoring and annual reporting duties.

Chapter 8 – Acronyms and Abbreviations – This chapter describes all acronyms or abbreviations found within this Manual.

Chapter 9 – References – References used within this Manual are listed in this chapter.

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Chapter 2

Regulatory Framework

This chapter describes environmental regulations and permitting processes that SJWC will follow in obtaining regulatory authorizations to conduct routine maintenance activities at SJWC facilities in the Los Gatos Creek Watershed.

Agencies with regulatory authority over maintenance activities include the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), California Regional Water Quality Control Board (RWQCB) Region 2 – San Francisco Bay, and California Department of Fish and Wildlife (CDFW). This chapter also describes compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The sections that follow address each agency, its regulatory authority, and its permitting process. **Table 2-1** summarizes maintenance activities as they are regulated by each agency. **Table 2-2** provides a list of upland maintenance activities that occur outside of regulatory agency jurisdiction.

Table 2-1. Regulatory Agency Jurisdiction by Maintenance Activity

Maintenance Activity	USACE[1]	CDFW[2]	RWQCB[3]	USFWS[4]
Stream Bank Stabilization	X	X	X	X
Sediment and Debris Removal	X	X	X	X
Culvert Repair or Replacement	X	X	X	X
Repair of Existing Structures	X	X	X	X
Stream Gauge Maintenance	X	X	X	X
Fish Ladder/Fish Screen Maintenance	X	X	X	X
Animal Control and Burrow Hole Repair		X	X	X

Notes:

"X" denotes that regulatory authorization may be needed for the work activity.

1. *Applies to work within Waters of the U.S. – generally below the Ordinary High Water Mark.*
2. *Only applies to work within areas subject to Fish and Game Code Section 1600 et seq.*
3. *Only applies to work within Waters of the State – generally below Top of Bank.*
4. *Only applies in species-specific areas.*

Table 2-2. Upland Maintenance Activities outside of Regulatory Agency Jurisdiction

Maintenance Activity
Vegetation Management:
Downed Tree Management
Hand Pruning

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Maintenance Activity
Weed Cutting Herbicide Use
Repair/Installation of Fences and Gates
Road Grading for Improved Drainage and Reduced Erosion
Upland Forest Health Management

2.1 U.S. Army Corps of Engineers

2.1.1 Clean Water Act – Section 404

Section 404 of the Clean Water Act (CWA) prohibits the discharge of dredged and fill materials into waters of the United States, including wetlands, without prior USACE authorization. "Discharge of dredged material" and "discharge of fill material" are defined in Title 33, Section 323.2 of the Code of Federal Regulations (33 CFR Section 323.2). "Waters of the United States," including "wetlands," are defined in 33 CFR Section 328.3. USACE jurisdiction in wetlands and other waters of the United States is briefly summarized below.

Wetlands

USACE regulates wetlands, defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. USACE jurisdiction extends to the limits of wetlands, which are delineated following the methodologies outlined in USACE's 1987 *Wetland Delineation Manual* and its 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. Wetlands (both tidal and non-tidal) are present in many portions of the Program area where maintenance activities may occur.

Non-wetland Waters of the United States

In non-tidal waters without wetlands present, USACE jurisdiction extends to the ordinary high water mark; when non-isolated wetlands are present, the jurisdiction extends beyond the ordinary high water mark to the boundary of those wetlands. In the Program area, non-tidal, non-wetland waters include rivers, creeks, ditches, ponds, and lakes.

Non-regulable Discharges of Dredge Material

As described in 33 CFR Section 323.2, "incidental fallback" is not considered a discharge of dredge material for the purposes of CWA. While no regulatory definition of incidental fallback currently exists, in general, it refers to the small volumes of dredge material that become redeposited within waters of the United States during dredging or excavation activities. For

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instance, when using a clamshell dredge, some small portion of the sediment collected by the clamshell falls out of the clamshell and becomes redeposited within waters of the United States.

As a result, the incidental fallback associated with excavating sediment from a stream channel using long-reach excavators or similar equipment from a top-of-bank location or within the channel would not be regulated by USACE under CWA Section 404. This assumes that the removed sediment would not be stockpiled in the channel or within waters of the United States. In contrast, equipment that moves dredged material from one place to another within waters of the United States before removal of the dredged material (for instance, a bulldozer) would be subject to regulation under CWA Section 404.

2.1.2 CWA Section 404 Regional General Permit

USACE will issue a Regional General Permit (RGP) for maintenance activities conducted under the Maintenance Program, under the authority of CWA Section 404 (33 U.S. Code [USC] Section 1344) and in accordance with provisions of general permit authorizations (33 CFR Section 323.2[h]) for activities that are substantially similar in nature and cause only minimal individual and cumulative environmental impacts. The RGP will be valid for 5 years from the date of issuance and may be renewed at USACE's discretion.

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Compliance with additional laws and regulations, including consultations with other federal and state agencies, may be required by USACE before its issuance of the RGP. These laws and regulations may include the following:

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- Endangered Species Act (ESA)
- Fish and Wildlife Coordination Act (FWCA)
- Migratory Bird Treaty Act (MBTA)
- Bald and Golden Eagle Protection Act (BGEPA)
- Section 106 of the National Historic Preservation Act (NHPA)
- Section 401 of CWA
- National Environmental Policy Act (NEPA)

USACE will initiate ESA and NHPA consultations with the appropriate federal agency partners as part of the RGP permit process. ESA compliance will be achieved through a Section 7 consultation process as requested by USACE with USFWS (as described in Section 2.1.4, Federal Endangered Species Act – Section 7 Consultation). FWCA compliance will be achieved through an FWCA report prepared by USFWS. NHPA compliance (as described in Section 2.1.3, National Historic Preservation Act – Section 106) will be achieved through adherence to Best Management Practices (BMPs) CUL-1 through CUL-6 (described in Chapter 5, Table 5-4). CWA Section 401 compliance will be completed through programmatic 401 Water Quality Certifications from the San Francisco Bay RWQCB (as described in Section 2.3.2, Clean Water Act

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Section 401). NEPA compliance will be achieved by USACE's preparation of an Environmental Assessment (EA) as part of the RGP issuance process. A finding of no significant impact (FONSI) is anticipated for the EA.

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In April 2008, USEPA and USACE issued regulations governing compensatory mitigation for activities authorized by USACE permits (40 CFR Part 230, 33 CFR Parts 325 and 332). The 2008 "Mitigation Rule" adopted standards to improve the planning, implementation, and management of compensatory mitigation projects through several means:

- emphasizing a watershed approach in selecting locations for those projects;
- requiring measurable, enforceable ecological performance standards and regular monitoring;
- stipulating timing requirements for mitigation project implementation; and
- specifying the components of a complete compensatory mitigation plan (including assurances of long-term protection of compensation sites, financial assurances, and identification of the parties responsible for specific project tasks).

The Mitigation Rule advised that compensatory mitigation projects (i.e., permittee-responsible compensatory mitigation, mitigation banks, and in-lieu fee mitigation) require written mitigation plans with the following components: objectives; site selection criteria; site protection instruments (e.g., conservation easements); baseline information (for impact and compensation sites); credit determination methodology; mitigation work plan; maintenance plan; ecological performance standards; monitoring requirements; long-term management plan; adaptive management plan; and financial assurances. SJWC will provide compensatory mitigation for impacts to waters of the United States in accordance with the Mitigation Rule, as described in Chapter 6, *Impact Mitigation*.

2.1.3 National Historic Preservation Act – Section 106

Section 106 of the NHPA of 1966, as amended, requires federal agencies to take into account the effects of their undertakings on cultural resources, including historic properties and historic and prehistoric archaeological sites. The NHPA authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places (NRHP), and the Secretary has established an Advisory Council on Historic Preservation (ACHP) as an independent federal entity. Section 106 of the NHPA requires federal agencies to afford the ACHP a reasonable opportunity to comment before licensing or approving the expenditure of funds on any undertaking that may affect properties listed, or eligible for listing, in the NRHP, and it requires federal agencies to coordinate with the State Historic Preservation Officer in the state where the proposed action will take place.

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When issuing an RGP to SJWC to discharge fill into waters of the United States under the authority of CWA Section 404, USACE must comply with Section 106 of the NHPA because an RGP would be an undertaking by USACE as defined under Interim Guidance for Implementing Title 33, CFR Part 325, Appendix C, and under Title 36, CFR Part 800.16(y). Title 33, CFR Part 325, Appendix C establishes the procedures to be followed by USACE to fulfill NHPA requirements.

All earth-disturbing activities, such as bank stabilization and sediment removal activities that are conducted under the Maintenance Program within waters of the United States and regulated by USACE will require compliance with Section 106 of the NHPA. USACE will ensure that SJWC meets its compliance requirements by conditioning the RGP to require the implementation of the relevant cultural resource avoidance measures and BMPs listed in Table 5-4 of Chapter 5, *Maintenance Activities, Impact Avoidance and Minimization, and Best Management Practices*. BMPs CUL-4, "Review of Projects with Native Soil," and CUL-6, "Discovery of Cultural Remains or Historic or Paleontological Artifacts," include several measures to avoid and minimize potential impacts to cultural and paleontological resources. These BMPs describe the protocol for notification and response actions if cultural resources are encountered.

2.1.4 Federal Endangered Species Act – Section 7 Consultation

The federal ESA was enacted in 1973 to protect plant and wildlife species as determined by USFWS to be at risk of extinction. Species are protected through listing under the ESA as either threatened or endangered. An endangered species is at risk of extinction throughout all or a significant portion of its range (ESA Section 3[6]). A threatened species is likely to become endangered within the foreseeable future (ESA Section 3[19]).

In Chapter 3 of this Manual, Table 3-5 lists special-status plants and Tables 3-6 and 3-7 identify special-status wildlife that may occur in the Los Gatos Creek Watershed Maintenance Program area, including those that are recognized by federal and state agencies as threatened or endangered.

ESA Section 9 prohibits the "take" of any fish or wildlife species listed under the ESA as endangered. Take of threatened species is also prohibited under ESA Section 9 unless otherwise authorized by federal regulations. Take, as defined by the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the species, including significant habitat modification." In addition, ESA Section 9 prohibits the "removal or reduction to possession" of any listed plant species "under federal jurisdiction" (i.e., on federal land).

The ESA includes three mechanisms that provide exceptions to the ESA Section 9 take prohibitions: ESA Section 7 consultation, ESA Section 10, and issuing ESA Section 4(d) rules. ESA Section 7 consultation is most relevant to SJWC's maintenance activities because it allows for take coverage of federal actions. This will be the mechanism by which incidental take coverage is obtained to conduct maintenance activities. ESA Section 7 provides a means for authorizing

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take of threatened and endangered species by federal agencies under certain circumstances, including actions that are conducted, permitted, or funded by a federal agency.

Under ESA Section 7, USACE will consult with USFWS to ensure that the proposed federal action (which is USACE's issuance of the RGP) will not jeopardize the continued existence of endangered or threatened species or result in adverse modification of designated critical habitat. Because maintenance activities "may affect" listed species and designated critical habitat, SJWC will prepare a Biological Assessment (BA) for distribution to USFWS by USACE, evaluating the nature and magnitude of the expected effects. Under the ESA, California red-legged frog (*Rana draytonii*) and its habitat are listed as threatened and Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*) is listed as endangered. No take of Santa Clara Valley dudleya is anticipated; there is no need to request take coverage for this species.

On June 18, 2014, USFWS issued a Programmatic Biological Opinion (PBO) to the USACE for projects issued permits under CWA Section 404 and Section 10 of the Rivers and Harbors Act that may affect the threatened California red-legged frog in nine San Francisco Bay Area Counties, including Santa Clara County (USFWS 2014). Based on coordination with USFWS during Section 404 permitting for SJWC's Maintenance Program, USFWS has determined that Program maintenance activities do not meet the suitability criteria of this PBO as the amount of habitat disturbance would exceed the threshold for coverage under the PBO, and the PBO only covers Nationwide Permits, not RGPs. Nonetheless, SJWC will implement avoidance and minimization measures from the PBO to avoid or minimize impacts on individuals that may occur from maintenance activities

2.2 U.S. Fish and Wildlife Service

2.2.1 Migratory Bird Treaty Act

The MBTA (16 USC 703-712), administered by USFWS, implements four treaties between the United States and Canada, Mexico, Japan, and Russia, respectively, to manage and conserve migratory birds that cross national borders. The MBTA makes it unlawful in any manner, unless expressly authorized by permit in accordance with federal regulations, to pursue, hunt, take, capture, kill, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export at any time, or in any manner, any migratory bird, or any part, nest, or egg of any such bird. The definition of "take" is any act to "pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture or collect." This includes most actions, direct and indirect, that can result in take or possession, whether it is temporary or permanent, of any protected species. Although harassment and habitat modification do not themselves constitute take under the MBTA or the California Fish and Game Code (F&G Code), such actions that result in direct loss of birds, nests, or eggs, including nest abandonment or failure, are considered take under such regulations. A list of migratory birds

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protected under the MBTA is available in 50 CFR Section 10.13. On December 8, 2004, the U.S. Congress passed the Migratory Bird Treaty Reform Act (Division E, Title I, Section 143 of the Consolidated Appropriations Act, 2005, PL 108–447), which excludes all migratory birds that are non-native or have been human-introduced to the United States or its territories. It defines a native migratory bird as a species present within the United States and its territories as a result of natural biological or ecological processes. USFWS published a list of the bird species excluded from the MBTA on March 15, 2005 (70 Federal Register 12710).

All native bird species occurring in the Program area are protected by the MBTA. Maintenance activities, such as vegetation management, may require the removal of vegetation at work sites where migratory birds are nesting. Compliance with the MBTA will be met through the implementation of BMPs requiring pre-activity surveys before any breeding-season maintenance activities are implemented so that take of migratory birds is avoided.

2.2.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 protects eagles from commercial exploitation and safeguards their continued survival in the United States. This law provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds. USFWS, which enforces the Bald and Golden Eagle Protection Act, can issue permits for the take of eagles under limited circumstances. However, no such permit will be needed for SJWC's maintenance activities, which will avoid any such impacts through implementation of BMP BIO-6, "Nesting Bald Eagle, Golden Eagle, and Osprey Avoidance."

2.2.3 Federal Endangered Species Act

As described in Section 2.1.5, Federal Endangered Species Act – Section 7 Consultation, the ESA protects plant and wildlife species determined by USFWS to be at risk of extinction. USFWS is responsible for protection of listed plants and wildlife other than marine species and anadromous fishes, which are protected by the National Marine Fisheries Service (NMFS). Chapter 3, Section 3.3 describes listed species and critical habitat that may occur in the Program area.

As described in Section 2.1.5, Federal Endangered Species Act – Section 7 Consultation, USACE will consult with USFWS concerning potential effects of maintenance activities on the listed species identified above, including preparation of a BA describing these effects. Based on guidance received from USFWS, a project-specific biological opinion (BO) will be obtained.

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2.3 San Francisco Bay Regional Water Quality Control Board

2.3.1 The Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act (Porter-Cologne Act) was enacted in 1969, and, together with the federal CWA, provides regulatory guidance to protect water quality and water resources. The Porter-Cologne Act established the State Water Resources Control Board (SWRCB) and divided California into nine regions, each overseen by an RWQCB. The Porter-Cologne Act established regulatory authority over "waters of the State," which are defined as "any surface water or groundwater, including saline waters, within the boundaries of the State" (California Water Code, Division 7, Section 13050). More specifically, the SWRCB and its nine RWQCBs have jurisdiction over the bed and banks of a stream channel, its riparian corridor, and its beneficial uses.

The Porter-Cologne Act also assigns responsibility for implementing CWA Sections 303, 401, and 402 to the SWRCB and RWQCBs. Under Section 303, the RWQCBs, in conjunction with USEPA, are responsible for developing and implementing Total Maximum Daily Loads (TMDLs) to address water quality impairments.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) for the protection of water quality in each of California's nine regions. A basin plan is unique to each region and must identify beneficial uses, establish water quality objectives for the reasonable protection of the beneficial uses, and establish a program of implementation for achieving the water quality objectives. To provide currency, basin plans must be updated every 3 years. The basin plans also must comply with Section 303 of the federal CWA, which requires states to establish their own water quality standards. Basin plans provide the technical basis for the RWQCBs to determine waste discharge requirements (WDRs), take enforcement actions, and evaluate grant proposals.

As described in Section 2.5.2, Clean Water Act – Section 401, regulatory compliance for projects occurring within waters of the United States is met through water quality certification, granted by the RWQCBs. For projects occurring within Porter-Cologne Act jurisdiction (i.e., State jurisdiction) but outside waters of the United States (in streams, this is the area above the ordinary high water mark, or "isolated" waters such as wetlands), WDRs or waiver of WDRs are required. WDRs are issued by the RWQCB that has jurisdiction over the region in which the project will occur.

The San Francisco Bay RWQCB (Region 2) has jurisdictional authority to implement the Porter-Cologne Act in Santa Clara County. All waters of the United States in the Program area also are considered waters of the State and thus are subject to RWQCB jurisdiction under the Porter-Cologne Act. Maintenance Program compliance with the Porter-Cologne Act will occur through establishment of WDRs, which will be combined with CWA Section 401 Water Quality Certification, as described below.

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2.3.2 Clean Water Act – Section 401

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of dredged or fill materials into surface waters of the United States (including wetlands) must obtain Section 401 Water Quality Certification so that any such discharge will comply with the applicable provisions of CWA, including Sections 301, 302, 303, 306, and 307 and State water quality standards. Section 401 Water Quality Certification is issued by the State in which the discharge will originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge will originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a CWA Section 404 permit) also must comply with CWA Section 401. The goal of CWA Section 401 is to include evaluation of water quality when considering activities associated with dredging or placement of fill materials into waters of the United States.

SJWC will apply for Section 401 Water Quality Certification for maintenance activities affecting waters of the United States within the jurisdiction of the San Francisco Bay RWQCB.

2.3.3 Clean Water Act – Section 303 and the Total Maximum Daily Load Program

Under CWA Section 303(d), states are required to identify "impaired water bodies" (those that do not meet established water quality standards); identify the pollutants causing impairment; establish priority rankings for waters on the list; and develop a schedule for development of control plans to improve water quality. Each RWQCB must update the Section 303(d) list every 2 years. Water bodies are placed on the list when they have no further assimilative capacity for the identified pollutant, and the Section 303(d) list identifies priorities to develop pollution control plans for each listed water body and pollutant. The pollution control plans required by CWA Section 303(d) List are TMDLs.

CWA Section 303 is overseen by USEPA and is administered by the SWRCB and its nine RWQCBs. Once a TMDL is developed and approved by USEPA, the SWRCB, and the relevant RWQCB, the implementation plan (if included in the TMDL) can be enacted. The San Francisco Bay RWQCB has prepared, or is in the process of preparing, TMDLs that must be approved by USEPA before they can be implemented. USEPA has approved the following TMDLs that apply to Santa Clara County and the Los Gatos Creek Watershed: San Francisco Bay Mercury (RWQCB 2006), San Francisco Bay Polychlorinated Biphenyls (PCBs) (RWQCB 2008), and Urban Creeks Pesticide Toxicity (RWQCB 2005).

Los Gatos Creek is identified as being impaired by diazinon, which is an insecticide that was commonly used for ant and cockroach control. Diazinon was restricted from residential use in the United States in 2004 but is still legal for agricultural uses. USEPA developed a TMDL to address diazinon and other pesticide toxicity in urban creeks in 2007. The San Francisco Bay RWQCB implements and enforces this TMDL, primarily through the National Pollutant Discharge Elimination System (NPDES) and its stormwater management program. Additional information

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on TMDLs are available at this RWQCB website: www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/TMDLs.

The Maintenance Program does not include use of diazinon or PCBs, and mercury contamination is not present in the Los Gatos Creek Watershed; however, the Maintenance Program will comply with applicable requirements detailed in adopted TMDLs.

2.4 California Department of Fish and Wildlife

2.4.1 California Endangered Species Act

The California Endangered Species Act (CESA) is defined in F&G Code Section 2080 *et seq.* CESA was originally enacted in 1970 to designate wildlife, fish, and plants as "endangered" or "rare." In 1984, CESA was amended and species were reclassified as "endangered" or "threatened." As of January 1985, all "rare" wildlife species were reclassified as "threatened" and the term "rare" was eliminated from the code. The classification of "rare" was maintained for plants listed under the California Native Plant Protection Act (Sections 1900-1913), but those plants are subject only to the protections of that act and not CESA.

CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, as well as their habitats that are threatened with extinction and those experiencing a significant decline that, if not halted, will lead to a threatened or endangered designation, will be protected or preserved. The CESA sets forth procedures by which individuals, organizations, or CDFW can submit petitions to the Fish and Game Commission requesting that a species, subspecies, or variety of plant or wildlife be added to, deleted from, or changed in status on the state lists of threatened or endangered species.

Like the federal ESA, the CESA also allows for incidental take of listed species. Take is defined under the F&G Code (Section 86) as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The incidental take permit process is outlined in the CESA (F&G Code Section 2081). Section 2081(b) provides a means by which agencies or individuals may obtain authorization for incidental take of state-listed species. Take must be incidental to, and not the purpose of, an otherwise lawful activity. Requirements for an F&G Code Section 2081(b) permit include the identification of impacts on listed species; development of mitigation measures that minimize and fully mitigate impacts; development of a monitoring plan; and assurance of funding to implement mitigation and monitoring.

Chapter 3, Section 3.3 describes listed species and critical habitat that may occur in the Program area. A state-listed species potentially occurring in the Program area is the bald eagle (*Haliaeetus leucocephalus).* Take of this species will be avoided, however, because maintenance activities will not occur in locations (e.g., suitable bald eagle nesting habitat) or in ways in which take can occur. Therefore, an Incidental Take Permit application to CDFW will not be required.

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2.4.2 Lake and Streambed Alteration Program

California's Lake and Streambed Alteration Program is regulated under F&G Code Section 1600 *et seq.* Under Section 1602, CDFW regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. F&G Code Section 1602 requires state or local governmental agencies, public utilities, and private individuals to notify CDFW and enter into a streambed or lakebed alteration agreement before construction of a project that will:

- substantially divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake;
- substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or
- result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

F&G Code Section 1602 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including perennial, intermittent, and ephemeral rivers, streams, or lakes in the state. In general, however, this language is construed as applying to work within an active floodplain and/or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife. F&G Code Section 1602 typically does not apply to drainages that lack a defined bed and banks, such as swales, or to wetlands, such as vernal pools.

CDFW has regulatory jurisdiction over the bed, bank, and channel of a stream, lake, or pond, as stated in F&G Code Sections 1600-1616. Under F&G Code Section 1602, CDFW administers the Lake and Streambed Alteration Program and may issue a Streambed Alteration Agreement (SAA) for projects within their jurisdiction. SAAs typically are issued through an application process (submittal of a notification package) and include restrictions on construction periods and locations, along with avoidance, minimization, and mitigation measures for potential impacts on habitat associated with waters of the State. Because CDFW has discretionary approval authority, it is a responsible agency under CEQA (see further discussion in Section 2.6, California Environmental Quality Act). As such, projects must fully comply with CEQA before CDFW can finalize an SAA.

All creeks, lakes, and ponds in the Program area, as well as associated riparian vegetation, are subject to CDFW jurisdiction under F&G Code Sections 1600-1616. Because maintenance activities will affect these areas, SJWC will submit an application to CDFW, and CDFW is expected then to issue an SAA.

SJWC may request that CDFW issue a Routine Maintenance Agreement (RMA), which is a programmatic, long-term permitting mechanism under the Lake and Streambed Alteration Program. RMAs are commonly 5-year agreements and cover a set list of maintenance activities to maintain channel capacity, including sediment removal, trash and debris clearing, fallen tree

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removal, vegetation management, minor erosion repairs, herbicide applications, and minor bridge repairs. The applicant must identify the watercourses where routine maintenance activities would occur, commit to impact avoidance and minimization measures for special-status species, and submit annual notification and maintenance reports to CDFW along with annual fees. The RMA application process is the same as the process for an SAA, with the addition of a completed Routine Maintenance form (Attachment D of the SAA notification form).

2.4.3 Migratory Bird Treaty Act

In California, the MBTA is regulated under F&G Code Sections 3503, 3503.5, and 3513. Section 3503 makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take, possess, or destroy birds of prey or the nest or eggs of a bird of prey; Section 3503.5 prohibits the take, possession, or destruction of any nests, eggs, or birds in the orders Falconiformes (New World vultures, hawks, eagles, ospreys, and falcons, among others) or Strigiformes (owls); and Section 3513 prohibits the take or possession of any migratory non-game bird or part thereof, as designated in the MBTA. As described in Section 2.4.1 above, disturbance that causes nest abandonment and/or loss of reproductive effort is considered take by CDFW.

All native bird species in the Program area are protected by the F&G Code. Maintenance activities, such as vegetation management, may require the removal of vegetation in areas where migratory birds are nesting. Compliance with the F&G Code will be met through implementation of BMPs requiring pre-activity surveys before any breeding-season maintenance activities, which will be implemented before maintenance activities begin so that take of migratory birds is avoided.

2.4.4 Native Plant Protection Act

The Native Plant Protection Act (F&G Code Sections 1900–1913) requires permits for collecting, transporting, or selling plant species that are designated rare or endangered by the Fish and Wildlife Commission. The California Native Plant Society has developed a set of lists of native plants in California, categorized according to rarity. Plants on List 1A, List 1B, and List 2 meet the definitions of F&G Code Section 1901 and F&G Code Sections 2060 and 2067 (CESA) as rare or endangered species.

Table 3-5 in Chapter 3 lists native, special-status plant species occurring or potentially occurring in the Program area. Measures to avoid, minimize, and mitigate impacts to these species are identified in the Maintenance Program EIR and BMP measures for Program work within jurisdictional areas are identified in Chapter 5, Table 5-1, 5-2, and 5-3 of this Manual.

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2.5 National Environmental Policy Act

NEPA requires federal agencies to include in their decision-making process appropriate and careful consideration of all environmental effects of a proposed action and its possible alternatives. Documentation of the environmental impact analysis and efforts to avoid or minimize the adverse effects of proposed actions must be made available for public notice and review. This analysis is documented in either an EA with a FONSI or an environmental assessment (EA) with a finding that preparation of an Environmental Impact Statement (EIS) is required. NEPA compliance will be achieved for the Maintenance Program by USACE through preparation of an EA as part of the RGP process. Issuance of a FONSI is anticipated.

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2.6 California Environmental Quality Act

CEQA (Public Resource Code Section 21000 *et seq.*) is the cornerstone of environmental law and policy in California. CEQA requires public agencies to assess and publicly disclose the environmental implications of proposed actions through the preparation of appropriate documents. The primary objectives of CEQA include:

- ensuring that the potential environmental impacts of a project are disclosed to decision makers and the public;
- ensuring that environmental damage is avoided, reduced, or compensated for by the implementation of carefully designed mitigation measures;
- making the public aware of the reasons for an agency's approval of a project that is found to have significant, unavoidable, and unmitigable environmental impacts;
- fostering cooperation between agencies in the review of projects; and
- enhancing public involvement in the planning and review of projects that may affect local communities and their natural environment.

CEQA applies to discretionary activities proposed, implemented, or approved by California public agencies, including state, regional, county, and local agencies. The public agency with principal responsibility for carrying out or approving a project that may have a significant effect on the environment is the lead agency for CEQA compliance, and this agency is responsible for preparing the environmental documentation for that project.

For the Maintenance Program, Santa Clara County will serve as lead agency for the preparation of an Environmental Impact Report (EIR) that will evaluate the environmental impacts of maintenance activities.

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Chapter 3

Program Setting

The purpose of this chapter is to provide a summary description of the Los Gatos Creek Watershed and the Maintenance Program area, SJWC facilities to be maintained, and the natural resources (including sensitive habitats, special-status species, and invasive species) in the watershed. Detailed facility descriptions are provided in Chapter 4. This environmental setting and the facility descriptions of Chapter 4 provide the basis to better understand how maintenance activities (described further in Chapter 5) may affect natural resources and how measures can be used to avoid and minimize potential environmental effects (Chapter 6).

3.1 Watershed Conditions

3.1.1 Overview

Most of the Los Gatos Creek Watershed is located in the northern portion of the central Santa Cruz Mountains, a rugged and steep range that extends from the northern end of the San Francisco Peninsula south to the Watsonville area (see Chapter 1, *Introduction,* Figure 1-1). The headwaters of the Los Gatos Creek Watershed are found approximately 11 miles southeast of the Town of Los Gatos. Los Gatos Creek joins the Guadalupe River downstream in the City of San Jose. As described in Chapter 1, under the Maintenance Program, all SJWC maintenance activities occur in the upper Los Gatos Creek Watershed, defined as being upstream of the Trout Creek confluence with Los Gatos Creek (just downstream of Lexington Reservoir).

In terms of structure, the Los Gatos Creek Watershed has a prominent, northwest-southeast–trending ridge marking the southern boundary of the watershed (see Chapter 1, Figure 1-1). The eastern watershed boundary comprises a ridge that links several peaks, including Mount Thayer, Mount Umunhum, and Loma Prieta Mountain. Elevations in the upper Los Gatos Creek Watershed range from 560 feet above mean sea level (amsl) at the Trout Creek confluence with Los Gatos Creek (downstream of the Lexington Reservoir) to 3,791 feet amsl at Loma Prieta Mountain.

The watershed structure, topography, and drainage patterns are strongly influenced by its geologic structure and faulting; the resistance of the underlying geologic materials to erosion; the slope, aspect, and watershed orientation to dominant storm patterns; and the distribution of annual precipitation. The primary creeks and channels of the upper watershed join the main stem of Los Gatos Creek (or Lexington Reservoir) at various locations across the watershed. Lexington Reservoir is positioned in the main valley of the watershed, with a north-south orientation. Lexington Reservoir is the receiving water body for Beardsley Creek (also known as Lyndon Canyon), Briggs Creek, and Aldercroft Creek on the west side of the lake and Limekiln, Cavanee (also known as Soda Springs Canyon), and Hendry's Creeks on the east side of the lake

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(see Chapter 1, Figure 1-2). Hooker Gulch joins Los Gatos Creek upstream of the Lexington Reservoir. The primary subwatersheds of the upper Los Gatos Creek Watershed are described in more detail below. More detailed maps of the subwatershed areas showing tributary creeks and SJWC facilities are shown in **Figures 1-2a through 1-2d**, provided again below for reference. The locations of SJWC facilities are introduced in the paragraphs below but are described in more detail in Chapter 4, *Resource Characterizations at Maintenance Facilities*.

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Figure 1-2a. Upper Los Gatos Creek Watershed and Facilities

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Figure 1-2b. Upper Los Gatos Creek Watershed and Facilities

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Figure 1-2c. Upper Los Gatos Creek Watershed and Facilities

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Figure 1-2d. Upper Los Gatos Creek Watershed and Facilities

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3.1.2 Primary Subwatersheds

Upper Los Gatos Creek (Upstream of Lake Elsman)

The region upstream of Lake Elsman represents the southern and easternmost headwaters of the watershed (Figure 1-2d). This subwatershed has a drainage area of 9.9 square miles, with a maximum elevation of 3,791 feet amsl at Loma Prieta Mountain to the east, and a minimum elevation of 1,145 feet amsl at the Lake Elsman spillway. Approximately 45 percent of the contributing watershed is forested, with the other areas consisting mostly of grassland and mixed grassland/forest.

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Hooker Gulch

Hooker Gulch is positioned about half-way between Lake Elsman (2.5 miles upstream) and Lexington Reservoir (1.5 miles downstream). The Hooker Gulch subwatershed is approximately 2.4 square miles in area, with a maximum elevation of 3,483 feet amsl at Mount Thayer to the east and a minimum elevation of 760 feet amsl at the confluence with Los Gatos Creek (Figure 1-2c). SJWC owns and operates a dam and intake facility for its water supply operations at the downstream end of Hooker Gulch (about 1,000 feet upstream of the Hooker Gulch confluence with Los Gatos Creek; Figure 1-2c). Roughly 40 percent of the Hooker Gulch subwatershed is covered in forest, with the other areas consisting mostly of grassland and mixed grassland/forest.

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Hendry's Creek

The outlet (mouth) of Hendry's Creek occurs just upstream of the upper extent of the Lexington Reservoir (Figure 1-2c). SJWC owns and operates a small weir and intake facility at lower Hendry's Creek, about 2,100 feet upstream of the confluence with the Lexington Reservoir. The Hendry's Creek subwatershed is approximately 1.76 square miles in area, with a maximum elevation of 2,690 feet amsl at the eastern edge of the watershed, and a minimum elevation of 700 feet amsl at the confluence with Los Gatos Creek. Approximately 43 percent of the Hendry's Creek subwatershed is forested, with the other areas consisting mostly of grassland and mixed grassland/forest.

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Cavanee Creek

Cavanee Creek (also known as Soda Springs Creek) is a direct tributary to Lexington Reservoir from the eastern side of the watershed (Figure 1-2a, 1-2b). Before reservoir construction, Cavanee Creek was a direct tributary to Los Gatos Creek, similar to Hendry's Creek and Hooker Gulch upstream in the watershed. The Cavanee Creek subwatershed is approximately 7.41 square miles in area, with a maximum elevation of 3,483 feet amsl at Mount Thayer at the southeastern edge of the watershed, and a minimum elevation of 877 feet amsl near the creek mouth. Approximately 45 percent of the Cavanee Creek subwatershed is covered in forest.

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SJWC's 2011 Watershed Sanitary Survey describes that the Soda Springs Canyon subwatershed has an extreme fire hazard rating. A 1985 fire burned 14,000 acres in the watershed.

Briggs Creek

Briggs Creek drains a portion of the watershed area west of Lexington Reservoir and also supplies water to Lake Cozzens and Lake Kittredge (also known as Howell Reservoir) farther upstream, both of which are owned and maintained by SJWC (Figure 1-2a). These lakes were built in the 19th century for water supply purposes; they are now used for recreation and are no longer used as a water supply source. They are located "off line" of Briggs Creek, whereby a diversion provides Briggs Creek water to these reservoirs and a channel downstream of Lake Cozzens provides any lake discharges back to Briggs Creek.

Beardsley Creek

Similar to Cavanee and Briggs Creeks, Beardsley Creek (also known as Lyndon Canyon Creek) was previously a direct tributary to Los Gatos Creek but now flows directly into the western arm of Lexington Reservoir (Figure 1-2a). SJWC owns and operates a weir and intake facility along Beardsley Creek, approximately one-third of the watershed distance upstream of Lexington Reservoir. About 6.48 square miles of watershed area is upstream of the intake facility. Approximately 56 percent of the Beardsley Creek subwatershed upstream of the intake is forested, and its headwaters are encompassed by Sanborn-Skyline County Park. SJWC also owns and operates the Lake Ranch Reservoir in the headwaters of the Beardsley Creek subwatershed. The Beardsley Creek subwatershed has a maximum elevation of 3,005 feet amsl at "The Peak" at the western edge of the watershed and a minimum elevation of approximately 645 feet amsl at the Lexington Reservoir spillway. SJWC's Lake Ranch Reservoir provides runoff storage in the upper portion of the Beardsley Creek subwatershed.

Trout Creek

Trout Creek is a tributary that joins Los Gatos Creek downstream of Lexington Reservoir (Figure 1-2a). SJWC owns and operates a weir, intake, and pump facility at lower Trout Creek. The Trout Creek subwatershed is approximately 1.2 square miles in area, with a maximum elevation of 2,501 feet amsl at the northwestern edge of the watershed, an elevation of 627 feet amsl at the Trout Creek Intake Facility, and a minimum elevation of approximately 462 feet amsl at the confluence with Los Gatos Creek. Because the Trout Creek intake sits below the MWTP in elevation, a pump is used to convey the raw water to the MWTP through a 16-inch-diameter pipe. Approximately 45 percent of the Trout Creek subwatershed is forested, with the other areas consisting mostly of grassland and mixed grassland/forest.

3.1.3 Geology

The geology of the upper Los Gatos Creek Watershed is shown in **Figure 3-1**. The regional structure and geology of the watershed and the Santa Cruz Mountains area is largely defined by the San Andreas Fault Zone. The watershed upstream of Lake Elsman consists mostly of

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sedimentary rocks of the Eocene Epoch, but there are also several areas of Quaternary hillslope deposits and alluvium. Moving downstream, the geology changes to include plutonic, volcanic, and marine sedimentary rocks of the Mesozoic Era, Great Valley Complex, and younger Tertiary (Eocene Epoch) sedimentary rocks (Graymer et al. 2006). Farther downstream, the subwatershed areas to Los Gatos Creek and Lexington Reservoir are mostly composed of Franciscan Complex rocks, either coherent or mélange associated with the region's active tectonic setting, or Cretaceous sedimentary rocks of the Franciscan Complex with alluvial-derived sediments. There are also patches of Great Valley sequence volcanics and Quaternary hillslope and landslide deposits throughout the upper Los Gatos Creek Watershed (Graymer et al. 2006). The Beardsley Creek subwatershed is physically aligned with the San Andreas Fault Zone. This explains the northwest-southeast linear alignment of the canyon and stream course. The San Andreas Fault Zone creates an abrupt fault contact between rock materials of different types on either side of the fault, which can have implications for groundwater movement and streamflow.

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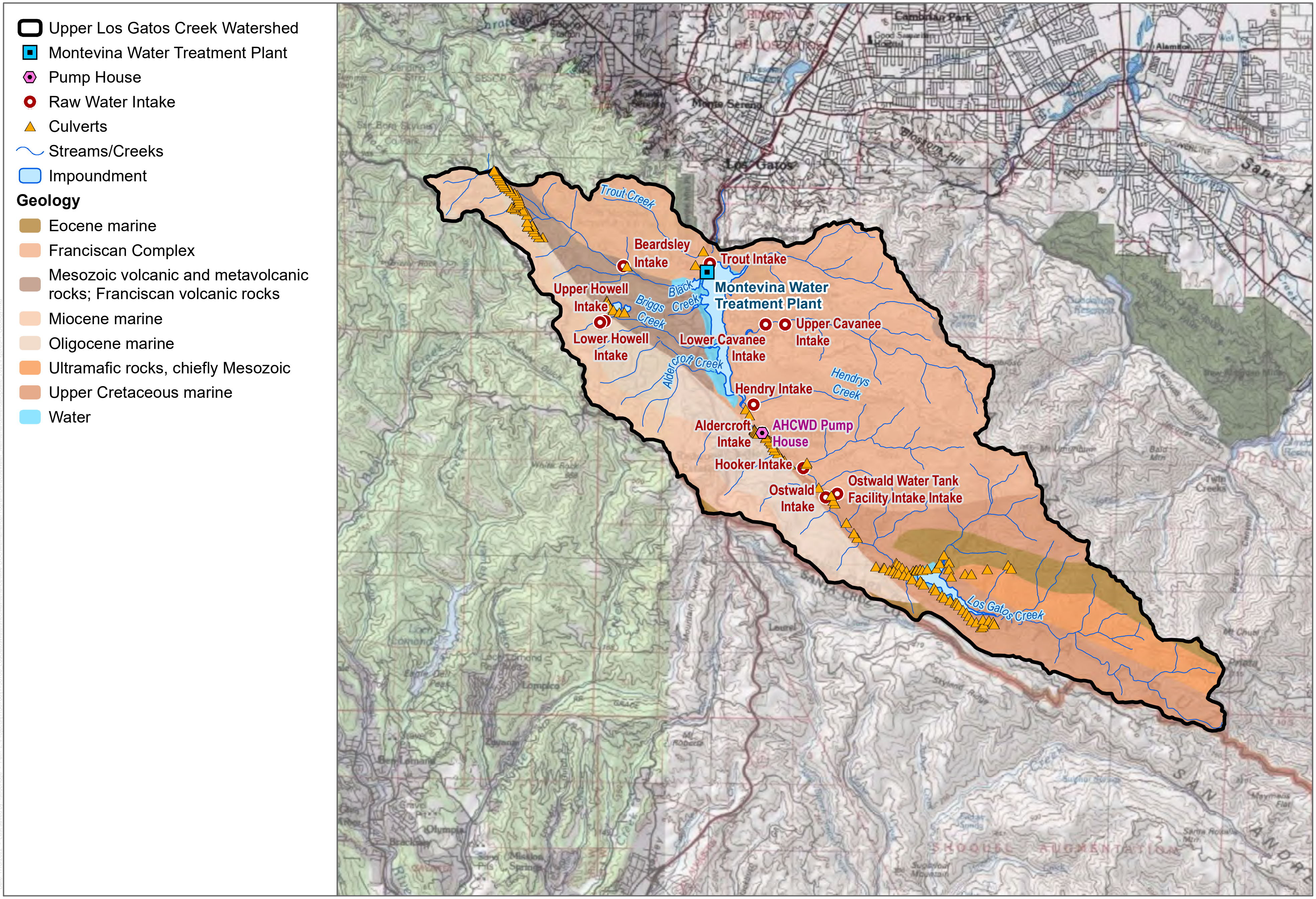

SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles; USGS 2020

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FIGURE 3-1

Geology

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3.1.4 Soils

According to U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) soils mapping, there are six designated soil associations in Santa Clara County that may be present in the Los Gatos Creek Watershed (see **Figure 3-2**). The Montara association (15 to 50 percent slopes) and Maymen-Los Gatos-Gaviota association (30 to 75 percent slopes, severely eroded) are the two major soil associations found in the watershed and are made up of upland soils developed on sedimentary, basic igneous, and serpentine rock. Other soil types are the Sunnyvale-Castro-Clear Lake association, which includes deep, level, somewhat poorly to poorly drained soils; the Zamora-Pleasanton association and Arbuckle-Pleasanton association, which include moderately well to somewhat excessively drained, medium- to fine-textured soils of the alluvial plains and fans; and the Keefers-Hillgate association (2 to 9 percent slopes), which is dominated by soils with slowly to very slowly permeable sub-soils of the older alluvial fans and terraces (NRCS 2014).

Much of the upper Los Gatos Creek Watershed has poorly infiltrating soils. About 98 percent of the upper watershed draining to Lake Elsman has poorly infiltrating, hydrographic Type D soils with high runoff potential (NRCS 2014). More than 76 percent of the Hooker Gulch subwatershed has poorly infiltrating, hydrographic Type D soils; the remaining 24 percent of Hooker Gulch soils are Type B and C soils (NRCS 2014).

The upper Cavanee Creek subwatershed has better rainfall infiltration properties relative to other locations of the eastern and southern watershed, with 70 percent of the soils having moderately good-infiltrating, hydrographic Type B soils; 15 percent having slow–infiltrating, hydrographic Type C soils; and 15 percent having poorly infiltrating, hydrographic Type D soils with high runoff potential (NRCS 2014).

About 80 percent of the Beardsley Creek subwatershed has moderately infiltrating, hydrographic Type B soils. This relatively better infiltration capacity (compared to other areas in the upper Los Gatos Creek Watershed) is likely due to the greater soil porosity derived from the high proportion of Great Valley Sequence volcanic base rock in this subwatershed. Poorly infiltrating, hydrographic Type D soils with high runoff potential comprise only about 15 percent of the Beardsley Creek subwatershed, and slow–infiltrating, hydrographic Type C soils represent the remaining 5 percent (NRCS 2014).

About 84 percent of the Trout Creek subwatershed has poorly infiltrating, hydrographic Type D soils with high runoff potential. About 15 percent of the subwatershed has slow–infiltrating, hydrographic Type C soils, and less than 1 percent of the drainage area has moderately well infiltrating, hydrographic Type B soils (NRCS 2014).

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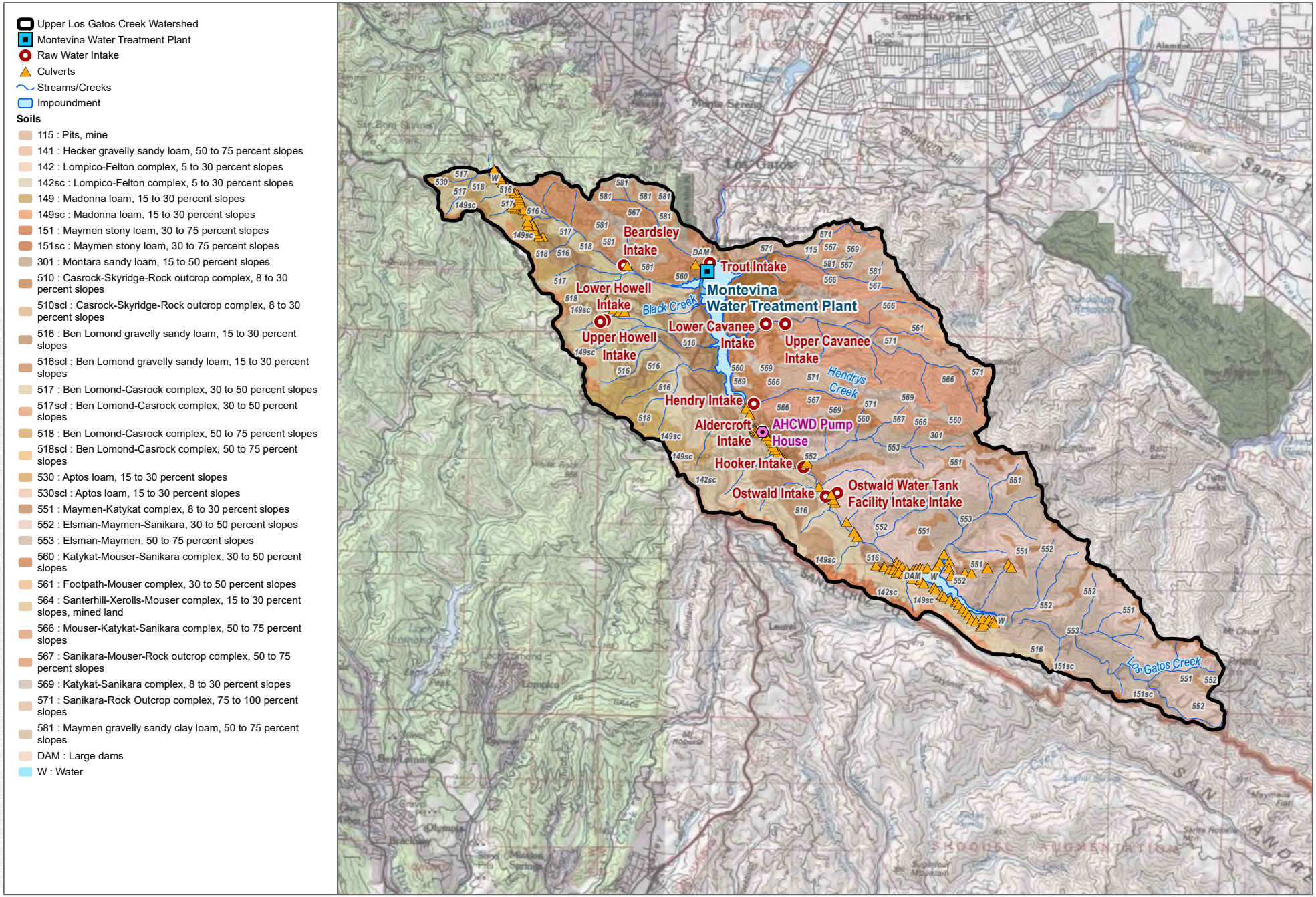

SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles; USDA NRCS

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FIGURE 3-2

Soils

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3.1.5 Land Use

Land Ownership

SJWC owns approximately 35 percent of the upper Los Gatos Creek Watershed lands (5,900 acres). Approximately 62 percent left in open space (10,679 acres) is owned largely by the Midpeninsula Regional Open Space District (MROSD), SCVWD, and Santa Clara County. The remaining 3 percent (500 acres) of the watershed is owned privately. **Figure 3-3** shows land uses and ownership in the watershed.

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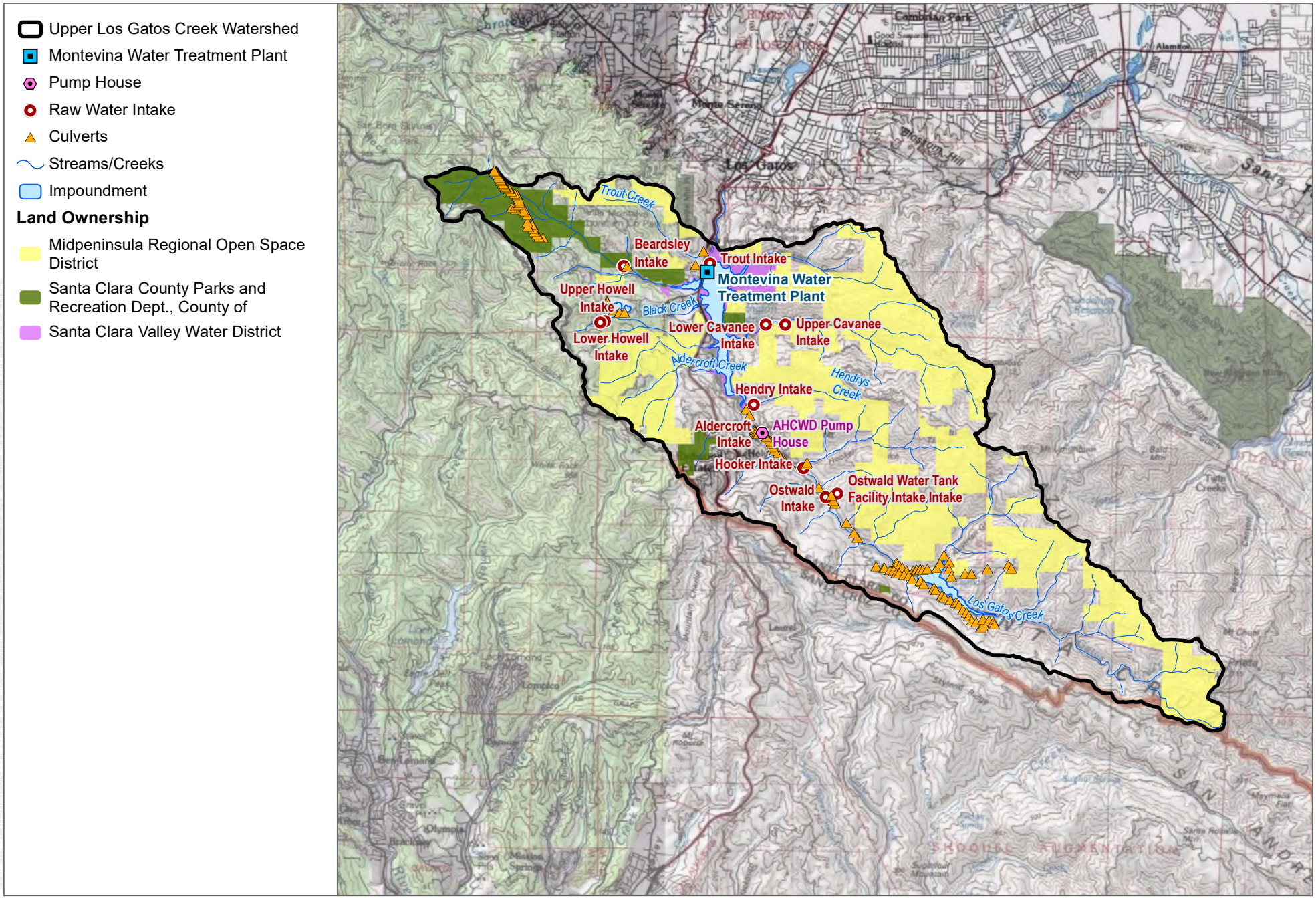

SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles; CPAD 2020

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FIGURE 3-3

Land Ownership

San Jose Water Company Maintenance Manual Update

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Settlement Areas

Five small residential communities are present in the upper Los Gatos Creek Watershed: Aldercroft Heights, Holy City, Chemeketa Park, Lake Canyon, and Redwood Estates. With the exception of Redwood Estates and Holy City, these communities do not receive water supply services from SJWC but use local springs and wells to provide potable supply.

Aldercroft Heights is a residential area with isolated homes on large lots. Nearby Chemeketa Park and Redwood Estates (on opposite sides of Highway 17) have higher density residences. Chemeketa Park includes about 150 homes and is accessed by Highway 17. Redwood Estates is also accessed from Highway 17. The roads are narrow and winding. Most residential parcels are not landscaped but retain the redwood forest land cover. Holy City is mostly abandoned and unoccupied, with only a few remaining buildings. Lake Canyon has 52 residences.

Major Land Uses

The watershed area is zoned for hillside and open space land uses (Santa Clara County 1994). Hillside land use is defined in the Santa Clara County General Plan (Policy LU-18) as follows:

> *[M]ountainous lands unplanned or unsuitable for city development shall be preserved in an open space condition with uses which support and enhance a rural character, which protect and promote wise use of natural resources, and which avoid the risks imposed by natural hazards found in these areas.*

Recreational land use is identified for a large portion of the watershed. As mentioned previously, 62 percent (10,679 acres) of the upper Los Gatos Creek Watershed is open space land owned by the MROSD, SCVWD, and Santa Clara County, and a large portion of this area is available for recreational opportunities. Open space and park areas (shown in Figure 3-3) include Lexington Reservoir, which is owned and operated by SCVWD; four open space preserves operated by MROSD (Bear Creek Redwoods Open Space Preserve, Felton Station Open Space Preserve, El Sereno Open Space Preserve, and the Sierra Azul Open Space Preserve); and Sanborn County Park, which is operated by the Santa Clara County Parks Department.

Recreation at Lexington Reservoir is managed by the Santa Clara County Parks Department. Recreational activities include non-power or electric motor boating, picnicking, fishing, bicycling, jogging, and hiking. Gasoline-powered boats, swimming, and wading are not allowed in Lexington Reservoir because of its use for potable water supply.

Bear Creek Redwoods Open Space Preserve is located west of Lexington Reservoir along Highway 17. The preserve covers 1,432 acres and contains 10.3 miles of trails. Recreational activities include hiking and horseback riding (currently by permit only).

Felton Station Open Space Preserve, also located west of Lexington Reservoir, is owned and operated by MROSD. Currently, this preserve is closed to the public.

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El Sereno Open Space Preserve is located northwest of Lexington Reservoir. The preserve covers 1,415 acres and contains 7.4 miles of trails. Recreational activities include hiking, horseback riding, and bicycling. Portions of the preserve are open to dogs on leashes.

Sierra Azul Open Space Preserve is located east of Lexington Reservoir. This is the largest preserve owned and operated by MROSD, covering 18,446 acres and containing 24.4 miles of trails. Recreational activities include hiking, horseback riding, bicycling, and dog walking.

Sanborn County Park, located northwest of Lexington Reservoir, is owned and operated by the Santa Clara County Parks Department. The park covers approximately 3,688 acres and contains more than 15 miles of trails. Recreational activities at Sanborn County Park include hiking, picnicking, camping, and fishing. The park contains an outdoor amphitheater, family campsites, and RV water and electricity hook-ups.

3.1.6 Precipitation Patterns

Similar to the general rainfall pattern in Northern California, precipitation in the Los Gatos Creek Watershed generally occurs between October and April, with the remainder of the year being fairly dry. Precipitation is almost always in the form of rain. The steep slopes and ridges of the Santa Cruz Mountains create orographic rainfall effects, with higher peaks receiving more precipitation as clouds are lifted over the summit. A rain shadow effect is also observed on the lee (or sheltered) side of the mountains, which receive less rainfall as watershed elevations descend into the Santa Clara Valley below. Historic rainfall conditions indicate a large variation in the mean annual rainfall across the watershed (**Table 3-1**).

Table 3-1. Upper Los Gatos Watershed Annual Precipitation

Subwatershed Area	Mean Annual Precipitation (in)
Los Gatos Creek headwaters upstream from Lake Elsman	54.3
Los Gatos Creek Watershed upstream from the Ostwald Intake	52.4
Hooker Gulch	53.5
Hendry's Creek	45.1
Cavanee Creek	51.4
Beardsley Creek (Lyndon Canyon)	46.9
Trout Creek	38.1

**Source: U.S. Geological Survey (USGS) 2014.*

3.1.7 Streamflow

Streamflow in Los Gatos Creek is perennial, even during extended dry seasons, and is influenced by releases and flow management at Lake Elsman in the upper watershed. **Table 3-2** provides estimated peak discharges at various locations in the upper Los Gatos Creek Watershed, based on regional regression equations.

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Table 3-2. Estimated Peak Discharges in the Watershed

Location	Peak Discharge Event (cfs)*			Comments
	2-year	5-year	10-year	
Hooker Gulch	180	390	530	In wetter years streamflow is perennial, but during prolonged dry periods the stream may dry out and become more intermittent.
Hendry's Creek	80	180	250	Because of steep mountainous terrain, rainfall results in rapid runoff from the smaller tributaries that join the main channel. In very wet years streamflow may be perennial, but in average or dry years the flows are more typically seasonal, intermittent, or ephemeral.
Cavanee Creek	240	530	750	This is typically a perennial flowing stream.
Beardsley Creek	160	370	530	Streamflow is generally perennial, and the presence of volcanic base rocks may contribute to better infiltration and stronger base streamflows that persist further into the drier months.
Trout Creek	60	140	210	Streamflow is generally perennial during wet years but is more seasonal and intermittent during drier years.

**Peak discharge estimates are based on regional regression analysis and not actual gaged flow.*

Note: cfs = cubic feet per second

Source: USGS 2014, StreamStats Program.

3.1.8 Groundwater Recharge

SJWC does not operate groundwater recharge or pumping facilities in the upper Los Gatos Creek Watershed. Private residences and communities operate groundwater wells for water supply. Information is not available regarding private groundwater pumping or other subsurface discharges or diversions from the surrounding watershed lands to Lexington Reservoir. However, considering the minimal development in the watershed, there are likely to be few, if any, threats to groundwater supply or quality in the upper Los Gatos Creek Watershed.

3.1.9 Water Quality

Most of the upper Los Gatos Creek Watershed is undeveloped and protected by the Sierra Azul Open Space Preserve, other open space preserves, and private lands that are closed to the public. Lands that are open to public recreation do no substantially affect water quality. Therefore, water quality in Los Gatos Creek and its tributaries is very good and is minimally influenced by anthropogenic contaminants. The Sierra Azul Open Space Preserve has restrictions on vehicles, pets, and camping that protect the quality of Cavanee Creek. The presence of

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rainbow trout in Cavanee (Soda Springs) Creek is an indicator that water in this drainage is of high quality because trout are extremely sensitive to water quality contamination.

Most of the drainage area to Lake Williams and Lake Elsman is undeveloped, and no public access is permitted to the reservoirs or watershed area. Therefore, the water in Lake Williams and Lake Elsman is considered of high quality and is minimally influenced by anthropogenic contaminants. Elevated concentrations of iron and manganese are occasionally detected in anoxic sediments at Lake Elsman. It is likely that lakebed sediment at Lake Williams exhibits similar conditions.

During warm summer days, water quality may degrade in standing pools and reservoirs, such as the pool that forms behind the Ostwald inflatable dam. As the water temperature increases, dissolved oxygen concentrations decline and levels of nutrients and bacteria increase. Nutrients are a particular concern because of the potential for biological fouling of intake structures and development of taste and odor issues in the water. Algal control measures have been implemented periodically at the Ostwald Intake and some of the reservoirs; however, the most recent occurrence of this practice was in 2007.

Natural erosion and sediment transport processes are the primary influences on water turbidity in tributaries and the main Los Gatos Creek during storm events. Some fire roads on the steeper ridges can exacerbate hillslope erosion, if there are drainage problems. Anthropogenic activities that pose the highest risk in the watershed and can adversely affect the raw water quality of Lexington Reservoir and SJWC's supply are septic systems and discharges to the creek, such as waste from potable water treatment systems. Because of these risks, SJWC closely monitors the quality of water received at each intake.

SJWC relies on the San Francisco Bay RWQCB and the California Department of Public Health to monitor discharges to the creek and the water treatment activities of the communities upstream of Lexington Reservoir. In addition, SJWC relies on the Santa Clara County Public Health Department to regulate and monitor septic system activities.

The San Francisco Bay RWQCB, the state agency in charge of protecting water quality, has identified beneficial uses for the Los Gatos Creek Watershed as shown in **Table 3-3**.

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Table 3-3. Beneficial Uses in the Upper Los Gatos Creek Watershed

Water Body	MUN	FRSH	GWR	COMM	COLD	MIGR	RARE	SPWN	WARM	WILD	REC-1	REC-2
Los Gatos Creek	E	E	E		E	P	E	P	E	E	E	P
Lexington Reservoir	E		E	E	E			E	E	E	E	E
Soda Springs Creek		E			E				E	E	E	E
Lake Elsman	E				E				E	E	E*	E
Austrian Gulch Creek		E			E			E	E	E	E	E

Note: E = existing beneficial use; E = water quality objectives apply, water contact recreation is prohibited or limited to protect public health; P = potential beneficial use; MUN = municipal and domestic water supply; FRSH = freshwater replenishment; GWR = groundwater recharge; COMM = commercial and sport fishing; MIGR = fish migration; RARE = preservation of rare and endangered species; SPWN = fish spawning; WARM = warm freshwater habitat; WILD = wildlife habitat; REC-1 = water contact recreation; REC-2 – noncontact water recreation.*

Source: San Francisco Bay RWQCB 2013.

No water quality impairments in the upper Los Gatos Creek Watershed are identified on the current list compiled by SWRCB under Section 303(d) of the federal Clean Water Act (SWRCB 2010). Los Gatos Creek was identified as impaired by diazinon, which is a pesticide (ant killer) that has been banned from residential use since 2004. A San Francisco Bay-wide TMDL was prepared by the SFBRWQCB and approved by USEPA in 2007 to address diazinon in urban runoff and storm sewers (RWQCB 2005). The TMDL primarily applies to urban areas and does not directly affect waters in the upper Los Gatos Creek Watershed.

3.2 SJWC Water Supply System and Facilities Overview

3.2.1 Water Supply System Overview

The SJWC service area covers approximately 138 square miles and serves a population of approximately 1 million people in greater San Jose and Santa Clara County. SJWC serves residential, municipal, industrial, business, and water customers, as well as residential fire services and other water companies.

Typically, approximately 10 percent of SJWC's net annual water supply is derived from surface water runoff in the upper Los Gatos Creek Watershed. The remaining 90 percent is derived from groundwater sources and water wholesale agreements. SJWC's primary facilities in the watershed include reservoirs and impoundments where water is stored; intakes where water is diverted from stream channels; pipelines in which water is conveyed to the treatment plant; and MWTP, sited near Lexington Reservoir, where watershed-derived water is treated for further distribution. MWTP is a major source of water supply to approximately 100,000 people in the communities of Los Gatos, San Jose, and Monte Sereno. The plant is also capable of delivering

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water to customers residing in Campbell, Saratoga, and parts of western San Jose. The Saratoga Water Treatment Plant (SWTP) provides an alternate seasonal supply for approximately 30,000 people in Saratoga and parts of western San Jose.

The key impoundments and reservoirs in SJWC system are Williams Reservoir, Lake Elsman, and Lake Ranch Reservoir. The primary intakes are the Ostwald, Hooker, Hendry, Cavanee, Beardsley, and Trout intakes (Figures 1-2a through 1-2d). SJWC owns Lake Elsman and has a storage license for this source. SJWC also has pre-1914 water rights for Los Gatos Creek. Full water right entitlement is used at each source, with the following restrictions:

- At Lake Elsman, when there is water in storage, SJWC must release a minimum of 1 cubic foot per second (cfs) (448 gallons per minute [gpm]) to Los Gatos Creek;
- A minimum of 2 cfs (896 gpm) must be released from the Ostwald Dam at all times; and
- These minimum releases can be reduced only if there is no impoundment in Lake Elsman and the natural flow in Austrian Gulch Creek is less than 2 cfs (SJWC 2011).

3.2.2 Water Reservoirs (Impoundments)

SJWC owns and operates five impoundments in the upper Los Gatos Creek Watershed. Each is described below.

Lake Williams is a small reservoir immediately upstream of Lake Elsman and feeds into Lake Elsman through a stream channel. SJWC owns Lake Williams and has a storage license for this water source. Lake Williams has an estimated capacity of 51.5 million gallons (mg); however, as a result of a large watershed fire in 1961, Lake Williams mostly filled with sediment and has not provided significant water storage since that time. Lake Williams has a surface area of approximately 3 acres; there is no record of depth measurement.

Lake Elsman captures runoff from a watershed area of 9.9 square miles upstream of the Austrian Dam and has a maximum storage capacity of 6,153 acre-feet (2,005 mg). When full, Lake Elsman has a surface area of 109 acres and a maximum depth of 149 feet. Typically, the lake fills during the wet winter months due to runoff from the watershed land above the lake. During the dry summer season, releases from Lake Elsman are made to Los Gatos Creek downstream, where water is then diverted from the Ostwald Intake by pipeline to MWTP.

Lake Ranch Reservoir straddles the upper Saratoga and Lyndon Canyon Watersheds. The reservoir collects runoff directly from the hillslopes that surround the reservoir, as well as from the unnamed tributary of Saratoga Creek whose flows can be diverted into the reservoir. Because the reservoir is located in an upper watershed position, its catchment area is relatively small, less than 1 square mile (approximately 571 acres). Lake Ranch Reservoir has a storage capacity of 215 acre-feet (70 mg) and is SJWC's second largest raw water storage reservoir after Lake Elsman. The reservoir has a surface area of about 23 acres and the water surface elevation

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is approximately 1,840 feet amsl when full. The reservoir has outlets on both its northwest and southeast sides. This enables SJWC to release to both SWTP to the northwest and MWTP to the southeast, primarily by means of the Beardsley Intake Facility. This operational flexibility allows maximum utilization of the Lake Ranch/McKenzie supply. The reservoir is accessible to the public through trails in Sanborn County Park. Recreational activities at the reservoir include picnicking and fishing, but no wading or swimming (i.e., direct contact with water) is allowed.

Lake Kittredge (Howell Reservoir) and Lake Cozzens occupy a small plateau area in the Briggs Creek watershed. Lake Kittredge is a small reservoir (approximately 8.7 acres) located immediately adjacent to (and upslope of) Lake Cozzens, which covers approximately 5.8 acres. Runoff to supply the reservoirs is diverted from upper tributaries of Briggs Creek. Both reservoirs were built in the late 19th century for local water supply purposes. Lake Cozzens is downstream of Lake Kittredge, and it only fills as Kittredge overflows. The water level at Lake Cozzens is managed to meet regulatory requirements of the California Department of Water Resources, Division of Safety of Dams (DSOD). When runoff is available beyond what the lakes can handle, runoff is diverted to the Briggs Creek channel. Currently, Lake Kittredge and Lake Cozzens function as an emergency water supply source and are used as a venue for SJWC events and employee recreation. No swimming is allowed at either lake. The lakes are used exclusively by SJWC and the local landowners immediately around the lake, and are not accessible to the public.

Lexington Reservoir is not owned by SJWC but represents a significant impoundment on the watershed, with a capacity of 19,834 acre-feet (6,500 mg). SJWC gained limited access to Lexington raw water through contracts with SCVWD between 2006 and 2008, but has no future plans to use Lexington as a raw water source.

3.2.3 Managing Diversions at Water Intakes

In the winter months, the surface water system is supplied primarily by the creek intakes while Lake Elsman is filling from winter runoff. As the creeks supplying the intakes begin to dry up in late spring and early summer, SJWC begins releasing water stored in Lake Elsman. This reservoir releases water that is impounded at the Ostwald Intake downstream, where water is diverted in the summer season. Up to 17.9 million gallons per day (mgd) can be delivered through a 30-inch-diameter pipeline to MWTP from the Ostwald Intake. **Table 3-4** below shows typical diversions at SJWC intakes under example dry-year (2008) and wet-year (2010) conditions and maximum daily diversion capacities at each intake.

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Table 3-4. Representative Yearly Flows and Maximum Capacity at SJWC Intakes

Intake	Dry Year (2008)		Wet Year (2010)		Maximum Capacity (mgd)
	Flow/Year (mg/yr)	Percent Produced (%)	Flow/Year (mg/yr)	Percent Produced (%)	
Beardsley	342.56	14.9	243.71	5.1	6.9
Hendry	0.00	0.0	112.30	2.3	2.4
Hooker	250.22	10.9	595.36	12.4	14.7
Lower Cavanee	148.52	6.5	336.66	7.0	4.8
Ostwald	1,289.79	56.0	3,331.07	69.3	17.9
Trout	65.40	2.8	141.58	2.9	2.5
Upper Cavanee	85.75	3.7	48.29	1.0	1.1
Total	**2,301.21**	**100.0**	**4,808.97**	**100**	**50.3**

Source: SJWC 2011

In typical (average) years, Lake Elsman and Lake Ranch are used to supplement the natural runoff during the dry season to support MWTP. During very dry years, when water from these sources is not available, SJWC can pump additional groundwater from outside of the Los Gatos Creek Watershed and/or buy and import water. If water quality at a particular intake is poor, the affected intake is taken offline and other intakes are put online to compensate. Intakes serving MWTP are taken offline during high turbidity events (>15 nephelometric turbidity units [NTU]) or when there is insufficient flow. The intakes are monitored remotely for turbidity and taken online or offline depending on raw water quality and need. The creeks are not managed except to maintain flows (removing obstructions) and perform routine maintenance at intakes. Lexington Reservoir permits a degree of settling for the turbid water entering the reservoir through the creek system, and maintains a fairly constant turbidity except following extreme storm events. SJWC does not have a standing agreement to take water from Lexington Reservoir, which is managed by SCVWD.

SJWC posts "No Trespassing" signs and has fences with locked and alarmed gates around all intakes. Security guards continuously patrol the watershed, including all intakes, to prevent vandalism and illegal trespassing.

3.2.4 Montevina Water Treatment Plant

MWTP is the larger of two surface water treatment plants owned and operated by SJWC. Built in 1970, MWTP is located adjacent to Lexington Reservoir and Highway 17. The plant utilizes direct filtration, consisting of a flow-through flocculation-coagulation process and deep bed monomedia filters. MWTP has two treated water storage reservoirs (clear wells) with capacities of about 1.2 and 7.0 mg. MWTP is able to treat water with turbidities up to 15 NTU and has a maximum operating capacity of 30 mgd. MWTP utilizes a Supervisory Control and Data Acquisition (SCADA) system to monitor and control plant processes. MWTP's SCADA system has automatic and manual control functionality for the treatment processes. A common filter-to-

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waste basin (off-spec basin) was added in 2002 to provide operators the ability to divert effluent that does not meet water quality standards just before it enters the clear wells, but after the common filter effluent weir. This improvement added an additional layer of redundancy to ensure that treated water delivered to customers will meet state and federal regulations at all times.

3.3 Biological Resources — Key Habitats and Species

3.3.1 Natural Communities and Habitats

Vegetation communities and habitats within the upper Los Gatos Creek Watershed are shaped by the ecological forces at work in the region. Topography, soil, climate, the frequency of natural disturbance, and human management are all factors that affect the type and pattern of communities present. The watershed is characterized by a Mediterranean-like climate of mild, wet winters and hot, dry summers. Riparian areas along creeks and stream channels are typically dominated by California bay (*Umbellularia californica*) forest, coast redwood (*Sequoia sempervirens*) forest, or red alder (*Alnus rubra*) forest. Mixed evergreen forest extends up the mesic, north-facing slopes, while chaparral and northern coastal scrub occur on the more xeric south- and southwest-facing slopes. There are also small areas of oak woodland and grassland. Northern coastal scrub and chaparral together cover approximately 38 percent of the watershed, mixed evergreen forest covers approximately 24 percent, and redwood forest covers approximately 21 percent. The remaining communities each cover approximately 5 percent or less of the watershed (Davis et al. 1998). As described above, no natural lakes occur within the watershed, but several reservoirs are present.

Because the watershed is large and contains some communities that may not be subject to disturbance by maintenance activities, this Manual addresses only the community types that have the potential to be directly affected by maintenance activities. These communities have been divided into five general categories: aquatic/wetland, forest/woodland, riparian, scrub/shrubland, and grassland. The function and composition of each type of community is described below.

Aquatic and Wetland Communities

Aquatic and wetland communities are periodically to perennially inundated. These communities perform many important environmental functions, such as recycling nutrients, purifying water, attenuating floods, and recharging groundwater. In addition, they serve as habitat for many aquatic species. Aquatic and wetland communities present in the watershed's maintenance areas include freshwater wetlands and open water (including reservoirs and creeks/streams).

Freshwater Wetlands

Freshwater wetlands are generally found along the margins of creeks and reservoirs in the watershed. Species composition varies depending on microhabitat conditions, including

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frequency of inundation, shading, and substrate. In impounded or slowly moving waterbodies with gently sloping banks and little to no shading (e.g., Lake Ranch Reservoir, Lake Kittredge, and Lake Cozzens), freshwater wetlands are dominated by perennial emergent vegetation, including southern cattail (*Typha domingensis*), broad-leaved cattail (*T. latifolia*), and hard-stemmed tule (*Scirpus acutus* var. *occidentalis*). Along channels with dense canopy cover and low levels of disturbance (e.g., near Ostwald Intake), freshwater wetlands are dominated by mostly native, shade-tolerant species, including western coltsfoot (*Petasites frigidus* var. *palmatus*), giant chain fern (*Woodwardia fimbriata*), common horsetail (*Equisetum arvense*), American stinging nettle (*Urtica dioica* ssp. *gracilis*), and elk clover (*Aralia californica*). In disturbed areas with little canopy cover (e.g., Austrian Dam spillway pools), freshwater wetlands are dominated by mostly non-native, herbaceous annual and short-lived perennial species, including smartweeds (*Persicaria* spp.), willowherbs (*Epilobium* spp.), tall flatsedge (*Cyperus eragrostis*), annual rabbitsfoot grass (*Polypogon monspeliensis*), stinging nettle (*U. dioica* ssp. *dioica*), and cocklebur (*Xanthium strumarium*). These wetlands are periodically scoured out during storm events but rapidly re-establish once conditions return to normal.

Freshwater marshes in the watershed provide habitat for numerous bird species, including ducks, gulls, terns, herons, egrets, and other water birds. American coots (*Fulica americana*), pied-billed grebes (*Podilymbus podiceps*), and several species of ducks breed in freshwater wetlands in and around emergent vegetation. Passerine species that breed in freshwater marshes include marsh wren (*Cistothorus palustris*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), and red-winged blackbird (*Agelaius phoeniceus*). Amphibians such as the native Pacific chorus frog (*Pseudacris regilla*) and western toad (*Anaxyrus boreas*), as well as the non-native American bullfrog (*Lithobates catesbeianus*), are also present in this habitat.

Open Water

Aquatic or open water communities are permanently or semi-permanently flooded and support less than 5 percent vegetation in emergent or submerged states. Reservoirs and creeks/streams compose the open water communities in the watershed. These communities are described in detail below.

Reservoirs

Several reservoirs are located in the watershed and are the focus of periodic maintenance activities. These reservoirs are Lake Elsman, Williams, Lake Kittredge, Lake Cozzens, and Lake Ranch Reservoirs. Water quality and biotic conditions within the reservoirs vary depending on site-specific characteristics. Areas with rocky, steeply sloping banks (e.g., Lake Elsman) tend to have clearer water and support little aquatic vegetation. Relatively shallow areas with gently sloping banks (e.g., Lake Ranch Reservoir) tend to support more extensive aquatic vegetation, including Pacific mosquito fern (*Azolla filiculoides*), Brazilian waterweed (*Egeria densa*), least duckweed (*Lemna minuta*), short-spike water-milfoil (*Myriophyllum sibiricum*), hornwort (*Ceratophyllum demersum*), and filamentous algae.

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Reservoirs influence the biological resources present in reaches both above and below them; they alter downstream hydrology by reducing spring runoff events and dampening flood peaks and frequency, and they retain sediment, preventing natural sediment dispersal throughout the watershed. However, they also provide habitat for a variety of wildlife species. Gulls exhibit movements between foraging areas at inland reservoirs and the South Bay, and ospreys (*Pandion haliaetus*) and terns forage for fish in a number of the reservoirs. Common resident birds that occur at reservoirs throughout the watershed include water birds such as the double-crested cormorant (*Phalacrocorax auritus*), great egret (*Ardea alba*), and mallard (*Anas platyrhynchos*). Numerous species of wintering ducks, such as the northern shoveler (*A. clypeata*), lesser scaup (*Aythya affinis*), and bufflehead (*Bucephala clangula*), also occur in these habitats during fall and winter. Shorebirds such as the spotted sandpiper (*Actitis macularius*) forage and roost at the edges of these habitats during migration and winter. Amphibian species that breed in reservoirs throughout the watershed include the Pacific chorus frog, bullfrog, and western toad. Western pond turtles (*Actinemys marmorata*) are also known to occur in a number of reservoirs (e.g., Lake Cozzens, Lake Kittredge, and Lexington Reservoir) (EcoSystems West 2006 as cited in Ecosystems West 2010a; California Natural Diversity Database [CNDDB] 2014).

Various fish species are also present in the reservoirs. Fish species known to have been introduced into Lexington Reservoir include largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), pumpkinseed (*L. gibbosus*), crappie (*Pomoxis* sp.), catfish (*Ictalurus* sp.), and carp (*Cyprinus carpio*). Native fish that are likely present in the reservoir include prickly sculpin (*Cottus asper*), rainbow trout (*Oncorhynchus mykiss*), and Sacramento sucker (*Catostomus occidentalis*).

Creek Channels

The watershed includes Los Gatos Creek and 10 named tributaries, six of which may be affected by maintenance activities (i.e., Los Gatos Creek, Trout Creek, Beardsley Creek, Hooker Gulch, Hendry's Creek, and Cavanee Creek) (Figures 1-2a through 1-2d). Hydrology within these creeks is generally perennial; however, flow volumes vary considerably throughout the year, and the geomorphology of the creek channels is largely shaped by storm events. The creek beds are typically dominated by cobbles and pebbles, with coarse sand occupying the pore spaces. These area are typically sparsely vegetated (< 5 percent cover) with western coltsfoot, common horsetail, and other hydrophytic plant species.

Amphibians such as the western toad, Pacific chorus frog, and the non-native bullfrog are present in creeks channels in the watershed. The native western pond turtle is also present in some reaches. Water birds, such as the mallard, green heron (*Butorides virescens*), great egret, and belted kingfisher (*Megaceryle alcyon*), forage in these waters. Bats, including the Yuma myotis *(Myotis yumanensis*) and big brown bat (*Eptesicus fuscus*), forage aerially on insects over these channels. Fish also use the creek and stream channels in the watershed, including native fishes such as rainbow trout, prickly sculpin, and Sacramento sucker.

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Forest and Woodland Communities

Forested communities within the SJWC maintenance areas are structurally similar and support dense stands of mature trees that form overlapping canopies. The understory species composition is similar across types, and there is considerable overlap in tree species composition. However, these communities can be distinguished by the relative abundance of different tree species, which is largely controlled by moisture gradients and soil characteristics. Woodland communities differ from forests in having more open canopies, and they generally occur in the transition zone between forests and scrub or grassland communities. Many processes in forest and woodland communities, such as erosion, nutrient cycling, input of organic material, evaporative water loss, and movement of wildlife, result in direct interactions with neighboring aquatic and riparian communities. In addition, the conditions of the upslope vegetation and soil can critically affect the capability of a watershed to retain moisture and modulate surface and subsurface runoff into streams (Shilling et al. 2005).

Within the maintenance areas, forests and woodlands produce mast crops that are an important food source for many birds as well as mammals, including the western scrub-jay (*Aphelocoma californica*), Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), mule deer (*Odocoileus hemionus*), and western gray squirrel (*Sciurus griseus*). Hollow trees and logs provide denning sites for mammals such as the coyote (*Canis latrans*) and striped skunk (*Mephitis mephitis*); cavities in mature trees are used by cavity-dwelling species such as the acorn woodpecker, northern flicker (*Colaptes auratus*), great horned owl (*Bubo virginianus*), raccoon (*Procyon lotor*), and Yuma myotis. In addition, raptors such as the red-tailed hawk (*Buteo jamaicensis*) construct nests in the upper canopy of mature trees. San Francisco dusky-footed woodrats (*Neotoma fuscipes annectens*) also are frequently found in these habitats, and the deer mouse (*Peromyscus maniculatus*) and California mouse (*P. californicus*) nest and forage there as well. Common amphibians and reptiles include the California slender salamander (*Batrachoseps attenuatus*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), southern alligator lizard (*Elgaria multicarinata*), and common kingsnake (*Lampropeltis getula*).

Mixed Evergreen Forest

Mixed evergreen forest is the most abundant community type in the SJWC maintenance areas and generally occurs on mesic north-facing slopes. In most areas, disturbance is minimal and habitat quality is high. The tree species composition is diverse and variable, consisting of a mix of evergreen hardwood, deciduous hardwood, and coniferous species. Douglas fir (*Pseudotsuga menziesii* var. *menziesii*), California bay (*Umbellularia californica*), and redwood (*Sequoia sempervirens*) often co-dominate. Pacific madrone (*Arbutus menziesii*), coast live oak (*Quercus agrifolia*), California black oak (*Q. kelloggii*), and tanoak (*Lithocarpus densiflorus*) are also common in upland settings. A key characteristic of this community is that no one tree species is dominant; instead, several species generally share dominance. As any one species becomes more dominant, this community becomes transitional with other forested habitat types,

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including redwood forest, mixed oak woodland, California bay forest, and red alder riparian forest (described below).

In areas with very dense canopy cover, a shrub layer is largely absent from the understory. Nonetheless, occasional shrubs can be found in areas where gaps occur in the canopy; these include California hazelnut (*Corylus cornuta* var. *californica*), birchleaf mountain mahogany (*Cercocarpus betuloides*), California coffeeberry (*Frangula californica* ssp. *californica*), toyon (*Heteromeles arbutifolia*), and common snowberry (*Symphoricarpos albus* var. *laevigatus*). Poison oak (*Toxicodendron diversilobum*), Pacific blackberry (*Rubus ursinus*), thimbleberry (*R. parviflorus*), and honeysuckle (*Lonicera hispidula*) are also present. Characteristic herbs, ferns, and grasses include California polypody (*Polypodium californicum*), wood fern (*Dryopteris arguta*), trail plant (*Adenocaulon bicolor*), five-finger fern (*Adiantum aleuticum*), sweet cicely (*Osmorhiza berteroi*), California brome (*Bromus carinatus* var. *carinatus*), star-flower (*Trientalis latifolia*), Torrey's melic grass (*Melica torreyana*), California hedge-nettle (*Stachys bullata*), yerba buena (*Clinopodium douglasii*), and sword fern (*Polystichum munitum*).

Redwood Forest

Redwood forest is similar to mixed evergreen forest, and the two communities often transition gradually from one to the other, with redwood forest generally occupying slightly more mesic areas, often along creeks and streams. Although redwood is the dominant tree species, many of the common components of mixed evergreen forest occur in reduced abundance as associates. Common associate tree species include Douglas-fir, California bay, bigleaf maple (*Acer macrophyllum*), and tanoak. The understory of redwood forest is largely similar to that of mixed evergreen forest.

Mixed Oak Woodland

Mixed oak woodland tends to occur in the transition zone between northern coastal scrub and mixed evergreen forest. This habitat is dominated by coast live oak, California black oak, and Pacific madrone. The canopy is generally open and the understory supports a diverse assemblage of mostly native shrubs, including coyote brush (*Baccharis pilularis*), sticky monkey flower (*Mimulus aurantiacus*), poison oak, toyon, and California sagebrush (*Artemisia californica*). The herbaceous layer is composed of a mix of native and invasive grasses and forbs. Native species include Torrey's melic grass (*Melica torreyana*), California brome (*Bromus carinatus*), small fescue (*Festuca microstachys*), blue wildrye (*Elymus glaucus*), naked-stemmed buckwheat (*Eriogonum nudum*), stiffbranch bird's beak (*Cordylanthus rigidus* spp. *rigidus*), clarkia (*Clarkia* sp.), yarrow (*Achillea millefolium*), and tarweed (*Madia* sp.). Non-native species include softchess (*Bromus hordeaceus*), wild oats (*Avena fatua*), Italian thistle (*Carduus pycnocephalus*), and yellow star-thistle (*Centaurea solstitialis*).

California Bay Forest

The California bay forest community is also similar to mixed evergreen forest, but is distinguished by having California bay as the principal dominant tree species. Coast live oak,

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California sycamore (*Platanus racemosa*), and bigleaf maple are common associate tree species. The understory is often sparsely vegetated but supports occasional, locally dense growths of poison oak, Pacific blackberry, wood fern, and California maidenhair fern (*Adiantum jordanii*). Openings generally have a dense cover of shrubs, including native birchleaf mountain mahogany, holly-leaved cherry (*Prunus ilicifolia* ssp. *ilicifolia),* coyote brush, and non-native French broom (*Genista monspessulana*).

Riparian Communities

Riparian communities occur at the interfaces between terrestrial and aquatic communities. In California, riparian habitats generally support exceptionally rich animal communities even though they occupy a limited amount of the land cover. The importance of riparian areas far exceeds their minor proportion of the total acreage in the Los Gatos Creek Watershed because of their prominent location within the landscape and the intricate linkages between terrestrial and aquatic communities (Gregory et al. 1991). The presence of year-round water and abundant invertebrates provide foraging opportunities for many species, and the diverse habitat structure provides cover and nesting opportunities.

The maturity and structural diversity of the riparian habitats in the watershed support a high diversity and density of vertebrate species, particularly birds. The wider, more mature riparian corridors provide suitable foraging and breeding habitat for several functional groups of birds, including insectivores (e.g., warblers, flycatchers), seed-eaters (e.g., finches), raptors, and cavity-nesters (e.g., swallows and woodpeckers), in addition to a variety of common amphibians, reptiles, and mammals. Among the numerous species of birds that use riparian habitats within the watershed for breeding are the Pacific-slope flycatcher (*Empidonax difficilis*), black-headed grosbeak (*Pheucticus melanocephalus*), warbling vireo (*Vireo gilvus*), and yellow warbler (*Dendroica petechia*). Raptors such as red-shouldered hawks (*Buteo lineatus*) and Cooper's hawks (*Accipiter cooperii*) nest within riparian corridors and forage in adjacent habitats. Riparian habitats are also used heavily by migrants and wintering birds.

Several species of reptiles and amphibians occur in riparian corridors within the watershed. Leaf litter, downed tree branches, and fallen logs provide cover for the arboreal salamander (*Aneides lugubris*), California newt (*Taricha torosa*), and Pacific chorus frog, among others. Several lizard species may also occur here, including the western fence lizard, western skink (*Eumeces skiltonianus*), and southern alligator lizard. Mammals such as the ornate shrew (*Sorex ornatus*), California vole (*Microtus californicus*), Audubon's cottontail (*Sylvilagus audubonii*), San Francisco dusky-footed woodrat, and raccoon use these riparian habitats. In addition, after more than 150 years of extirpation from the Santa Clara Valley, the beaver (*Castor canadensis*) can again be found in riparian habitats in the watershed. Individuals were introduced into the Los Gatos Creek Watershed near the confluence of Los Gatos Creek and Lexington Reservoir in the late 1990s, and it is believed that individuals from that population have since dispersed farther into the watershed. The impoundments created by beavers can provide valuable wildlife habitat for

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a variety of species; however, the beaver's dam-building activity can also result in flooding from blocked structures, such as culverts, and damage to trees.

Within the maintenance areas, riparian communities are represented by red alder riparian forest. In addition, both redwood forest and California bay forest (described above) occur in the watershed as riparian habitats.

Red Alder Riparian Forest

In the maintenance areas, red alder riparian forest generally occupies areas immediately adjacent to creeks. This community is similar in overall species composition to redwood forest (described above), but is characterized by the dominance of red alder, which most often occurs in moist areas. Associated herbs include American stinging nettle, common horsetail, and several sedges (*Carex* spp.)

Scrub and Shrubland Communities

Northern coastal scrub, chaparral, and serpentine chaparral communities are characterized by drought-tolerant, shrub-dominated landscapes that are exposed to intense sunlight. These habitat types form dense stands of shrubs with little understory and are prone to intense and regular fire cycles. After a fire event, these habitat types recover quickly and support extraordinary blooms of annual forbs. Although structurally similar, these communities can be distinguished based on different suites of dominant shrub species, as described below.

Because northern coastal scrub, chaparral, and serpentine chaparral communities are typically dry and provide relatively low and homogeneous structure, wildlife species diversity in these areas is often low. Nevertheless, various animal species occur in these habitats; the following description of wildlife use pertains to all the chaparral/coastal scrub communities described below.

Amphibians are usually absent or scarce in these habitats due to the very dry conditions, and many other wildlife species occurring here either derive moisture directly from food or synthesize their water metabolically from seeds (e.g., California pocket mouse [*Chaetodipus californicus*]). Mammals that use chaparral and coastal scrub habitats for cover include the coyote, bobcat (*Lynx rufus*), and brush rabbit (*Sylvilagus bachmani*). Nests of San Francisco dusky-footed woodrats are often present where oaks and/or poison oak are mixed with coyote brush scrub. Bird species that nest in chaparral and coastal scrub habitats include the California thrasher (*Toxostoma redivivum*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), California quail, wrentit (*Chamaea fasciata*), lesser goldfinch (*Carduelis psaltria*), and Anna's hummingbird (*Calypte anna*). Reptiles that occur in these habitats include the gopher snake, western rattlesnake (*Crotalus viridis*), southern alligator lizard, striped racer (*Masticophis lateralis*), and western fence lizard.

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Northern Coastal Scrub

The northern coastal scrub community is dominated by early-colonizing native shrubs, including coyote brush, California sagebrush, sticky monkey flower, and black sage (*Salvia mellifera*). In heavily disturbed areas, non-native invasive shrub species, such as French broom and Spanish broom (*Spartium junceum*), are common. The herbaceous layer is similar to that of mixed oak woodland.

Northern Mixed Chaparral

Chaparral resembles northern coastal scrub but is dominated by evergreen, sclerophyllous (i.e., having hard, leathery leaves) species, including chamise (*Adenostoma fasciculatum*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), and bigberry manzanita (*Arctostaphylos glauca*). Many of the species commonly found in northern coastal scrub also occur as associates, including coyote brush, sticky monkey flower, California sagebrush, and toyon. The herbaceous community is similar to that of mixed oak woodland.

Serpentine Chaparral

Serpentine chaparral is distinguished from northern mixed chaparral by the presence of serpentine soils and serpentine-adapted plant species, most notably leather oak (*Quercus durata*). Serpentine soils form from weathered ultramafic rocks and provide relatively inhospitable conditions for plant growth (e.g., low calcium-to-magnesium ratio, lack of essential nutrients, and high concentration of heavy metals) (Kruckeberg 1984). Plant species found on serpentine soils are adapted to or able to tolerate these harsh soil conditions in areas where other plant species cannot grow as easily. Therefore, serpentine soils are generally less invaded by non-native species and support many special-status plants that are endemic to serpentine soils. Common native herbaceous species include foothill needlegrass (*Stipa lepida*), soap plant (*Chlorogalum pomeridianum*), navarretia (*Navarretia* sp.), coyote mint (*Monardella* sp.), naked-stemmed buckwheat, golden-carpet buckwheat (*Eriogonum luteolum* var. *luteolum*), and stiffbranch bird's beak.

Grasslands

Grasslands have limited distribution in the Los Gatos Creek Watershed but occur occasionally in forest and woodland openings and in disturbed areas. Habitat quality varies from high-quality areas dominated by native species to highly disturbed, ruderal areas dominated by non-native invasive species (weeds). Wildlife use of grasslands in the SJWC maintenance areas is limited by the small extent of the habitat, the abundance of non-native and invasive species, and isolation of grassland habitat remnants from more extensive grasslands. As a result, some of the wildlife species associated with extensive grasslands, such as grasshopper sparrows (*Ammodramus savannarum*) and Bryant's savannah sparrows (*Passerculus sandwichensis alaudinus*), are absent from the small patches of grassland within the maintenance areas. Nevertheless, bird species such as mourning doves (*Zenaida macroura*) and white-crowned sparrows (*Zonotrichia leucophrys*) and rodents such as deer mice and California voles all forage on the seed crop this habitat provides. These species, in turn, attract predators such as the western rattlesnake,

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American kestrel (*Falco sparverius*), red-tailed hawk, and coyote. Reptiles such as western fence lizards, southern alligator lizards, western skinks, gopher snakes, western rattlesnakes, and common kingsnakes also frequent these habitats.

Ruderal Grassland

Ruderal habitats are habitats whose vegetation composition is largely the result of heavy and/or repeated disturbance (e.g., the Austrian Dam face). Typically, these areas are primarily vegetated with non-native invasive species, although native species may also occur. Ruderal grassland is dominated by a mixture of annual grasses and forbs, including ripgut brome (*Bromus diandrus*), wild oats, Italian ryegrass (*Festuca perennis*), black mustard (*Brassica nigra*), Italian thistle, prickly lettuce (*Lactuca serriola*), Jersey cudweed (*Pseudognaphalium luteo-album*), yellow star-thistle, and bristly ox-tongue (*Helminthotheca echioides*).

California Annual Grassland

California annual grassland contains a diverse mix of native and non-native species. Although this habitat is dominated by annual species, perennial grasses are locally abundant in some areas. Common native species include Torrey's melic grass, California brome, small fescue, blue wildrye, naked-stemmed buckwheat, stiffbranch bird's beak, clarkia, yarrow, and tarweed. Non-native species include softchess, wild oats, and yellow star-thistle. Some areas support small but dense patches of French broom.

3.3.2 Special-status Plant and Animal Species

For the purpose of this Manual, special-status species have been defined as described below. Impacts on these species are regulated by some of the federal, state, and local laws and ordinances described in Chapter 2.

"Special-status" plants are plant species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species;
- Listed under CESA as threatened, endangered, rare, or a candidate species; or
- Listed by the California Native Plant Society (CNPS) as rare or endangered on Lists 1A, 1B, 2A, 2B, 3, or 4.

"Special-status" animals are animal species that are:

- Listed under FESA as threatened, endangered, proposed threatened, proposed endangered, or a candidate species;
- Listed under CESA as threatened, endangered, or a candidate threatened or endangered species;

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- Designated by CDFW as a California species of special concern; or
- Listed in the California Fish and Game Code as a fully protected species (birds at Section 3511, mammals at Section 4700, reptiles and amphibians at Section 5050, and fish at Section 5515).

Special-status Plants

Based on observations during site visits and focused surveys, no special-status plants species were determined to be present in the any of the routine maintenance areas (i.e., maintenance areas at reservoirs/impoundments, water intakes, and culverts and crossings). **Table 3-5** identifies 17 special-status plant species that are known to occur or may occur in the fuel management areas. Their distribution, legal status, general habitat requirements, and known occurrences in the vicinity of the maintenance areas are also provided. **Figure 3-4** includes photos of some of these plants.

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Special-status Animals

Table 3-6 identifies 14 special-status wildlife species that are known to occur or may occur in the maintenance areas. Their distribution, legal status, general habitat requirements, and known occurrences in the vicinity of the maintenance areas are also provided. In addition, **Table 3-7** identifies the specific maintenance areas where impacts on each species could occur. Detailed information concerning special-status species that may be adversely affected by maintenance activities is provided following **Table 3-7.**

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Table 3-5. Special-status Plant Species with Potential to Occur in Fuel Management Areas

Common Name (Scientific Name)	Status1	Habitat Association	Potential to Occur in Fuel Management Areas
Federally Listed or State-Listed Endangered and Threatened Plant Species			
Santa Clara Valley dudleya (*Dudleya abramsii* ssp. *setchellii*)	FE, CRPR Rank 1B.1	Cismontane woodland, valley and foothill grassland/serpentinite, rocky	**May Be Present.** The closest known population is located at Almaden Quicksilver County Park, approximately 5 miles northeast of Lake Elsman (CNDDB 2015). Serpentine chaparral near the access road on the north side of Lake Elsman may provide suitable habitat.
CNPS-Listed Plant Species			
Bent-flowered fiddleneck (*Amsinckia lunaris*)	CRPR Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland	**May Be Present.** The closest known population is located in Scotts Valley, approximately 5.7 miles southwest of the maintenance areas (CNDDB 2015). Woodland openings and grassland habitats in the fuel management areas may provide suitable habitat.
Brewer's calandrinia (*Calandrinia breweri*)	CRPR Rank 4.2	Chaparral, coastal scrub/sandy or loamy, disturbed sites, and burns	**May Be Present.** Chaparral habitats in the fuel management areas (e.g., near the access road on the north side of Lake Elsman) provide suitable habitat for this annual species that is adapted to disturbance. The species is considered very unlikely to occur, however, due to its limited distribution throughout its geographic range and the marginal quality of the habitat present in the fuel management areas, which has been degraded by on-going vegetation management practices.
Santa Cruz Mountains pussypaws (*Calyptridium parryi* var. *hesseae*)	CRPR Rank 1B.1	Chaparral, cismontane woodland/sandy or gravelly, openings	**May Be Present.** Chaparral habitats in the fuel management areas (e.g., near the access road on the north side of Lake Elsman) provide suitable habitat.
Mt. Hamilton fountain thistle (*Cirsium fontinale* var. *campylon*)	CRPR Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/ serpentinite seeps	**May Be Present.** The closest known population is located near Mount Umunhum, approximately 2 miles north of Lake Elsman (CNDDB 2015). Seeps near the serpentine chaparral north of Lake Elsman may provide suitable habitat.

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Common Name (Scientific Name)	Status1	Habitat Association	Potential to Occur in Fuel Management Areas
Brewer's clarkia (*Clarkia breweri*)	CRPR Rank 4.2	Chaparral, cismontane woodland, coastal scrub/often serpentinite	**May Be Present.** Serpentine chaparral in the fuel management areas (e.g., near the access road on the north side of Lake Elsman) provides suitable habitat. The species is considered very unlikely to occur, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Santa Clara red ribbons (*Clarkia concinna* ssp. *automixa*)	CRPR Rank 4.3	Chaparral, cismontane woodland	**May Be Present.** There are two records of this annual species in the vicinity of the maintenance areas (CNDDB 2015). Chaparral (e.g., near the access road on the north side of Lake Elsman) and woodland openings in the fuel management areas provide suitable habitat. The species is considered very unlikely to occur, however, because of the marginal quality of the habitat within the fuel management areas, which is degraded due to ongoing vegetation management practices.
San Francisco collinsia (*Collinsia multicolor*)	CRPR Rank 1B.2	Closed-cone coniferous forest, coastal scrub/ sometimes serpentinite	**May Be Present.** The closest known occurrence record is located in the vicinity of Almaden Quicksilver County Park, approximately 5 miles northeast of Lake Elsman (CNDDB 2015). Chaparral and scrubland habitats near fuel management areas (e.g., near the access road on the north side of Lake Elsman) may provide suitable habitat.
Fragrant fritillary (*Fritillaria liliacea*)	CRPR Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland/often serpentinite	**May Be Present.** The closest known record is located in Almaden Quicksilver County Park, approximately 5 miles northeast of Lake Elsman (CNDDB 2015). Grassland and woodland openings in fuel management areas may provide suitable habitat. The species is considered very unlikely to occur, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.

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Common Name (Scientific Name)	Status1	Habitat Association	Potential to Occur in Fuel Management Areas
Phlox-leaf serpentine bedstraw (*Galium andrewsii* ssp. *gatense*)	CRPR Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest/serpentinite, rocky	**May Be Present.** Serpentine chaparral on the north side of Lake Elsman provides suitable habitat. This annual species is considered very unlikely to occur in the fuel management areas, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Loma Prieta hoita (*Hoita strobilina*)	CRPR Rank 1B.1	Chaparral, cismontane woodland, riparian woodland/usually serpentinite, mesic	**May Be Present.** There are several known records in the vicinity of the maintenance areas, including one within 0.5 mile of Trout Creek Intake (CNDDB 2015). Mesic chaparral and woodland openings within the fuel management areas provide suitable habitat. The species is considered very unlikely to occur, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Serpentine leptosiphon (*Leptosiphon ambiguus*)	CRPR Rank 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland/ usually serpentinite	**May Be Present.** Serpentine chaparral near the access road on the north side of Lake Elsman may provide suitable habitat. The species is considered very unlikely to occur in the fuel management areas, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Woolly-headed lessingia (*Lessingia hololeuca*)	CRPR Rank 3	Broadleafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland/ clay, serpentinite	**May Be Present.** Serpentine chaparral near the access road on the north side of Lake Elsman may provide suitable habitat for this species. The species is considered very unlikely to occur in the fuel management areas, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.

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Common Name (Scientific Name)	Status1	Habitat Association	Potential to Occur in Fuel Management Areas
Smooth lessingia (*Lessingia micradenia* var. *glabrata*)	CRPR Rank 1B.2	Chaparral, cismontane woodland/serpentinite, often roadsides	**May Be Present.** Several occurrence records are located in the vicinity of Almaden Quicksilver County Park, approximately 5 miles northeast of Lake Elsman (CNDDB 2015). Serpentine chaparral near the access road on the north side of Lake Elsman provides suitable habitat. This annual species is considered very unlikely to occur in the fuel management areas, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Woodland woolythreads (*Monolopia gracilens*)	CRPR Rank 1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland/ serpentine	**May Be Present.** Serpentine chaparral near the access road on the north side of Lake Elsman may provide suitable habitat. This species is considered very unlikely to occur in the fuel management areas, however, due to its limited distribution throughout its geographic range and because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.
Santa Cruz Mountains beardtongue (*Penstemon rattanii* var. *kleei*)	CRPR Rank 1B.2	Chaparral, lower montane coniferous forest, north coast coniferous forest	**May Be Present.** This species is known from only six occurrences in the Santa Cruz Mountains (CNPS 2015). Two records are located in the vicinity of the maintenance areas, to the east and southeast of Lake Elsman (CNDDB 2015). Chaparral near fuel management areas (e.g., near the access road on the north side of Lake Elsman) provides suitable habitat.

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Common Name (Scientific Name)	Status1	Habitat Association	Potential to Occur in Fuel Management Areas
Most beautiful jewel-flower (*Streptanthus albidus* ssp. *peramoenus*)	CRPR Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland/ serpentinite	**May Be Present.** This annual species is widely distributed throughout the county, and an unidentified plant in the *Streptanthus* genus found in the area during previous surveys (Ecosystems West 2010a) was likely most beautiful jewel-flower. Suitable habitat is present in serpentine chaparral to the north of Lake Elsman. This species is considered very unlikely to occur in fuel management areas, however, because of the marginal quality of the habitat, which is degraded due to ongoing vegetation management practices.

[1]Status Codes:

Federal

FE Listed as endangered under the federal Endangered Species Act

CRPR = California Rare Plant Rank

1B Plants rare, threatened, or endangered in California and elsewhere

3 Plants about which information is needed-a review list

4 Plants of limited distribution-a watch list

0.1 seriously endangered in California

0.2 fairly endangered in California

0.3 not very endangered in California

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Photo 1. Santa Clara Valley dudleya

Photo 2. Bent-flowered fiddleneck

Photo 3. Brewer's calandrinia

Photo 4. Mt. Hamilton fountain thistle

Photo 5. Santa Clara red ribbons

Photo 6. Fragrant fritillary

Horizon WATER and ENVIRONMENT

Figure 3-4 *(1 of 2)*
Photos of Special-status Plant Species with Potential to Occur in Fuel Management Areas

Photo 7. Phlox-leaf serpentine bedstraw

Photo 8. Loma Prieta hoita

Photo 9. Smooth lessingia

Photo 10. Woodland woolythreads

Photo 11. Most beautiful jewel-flower

Horizon WATER and ENVIRONMENT

Figure 3-4 *(2 of 2)*
Photos of Special-status Plant Species with Potential to Occur in Fuel Management Areas

Table 3-6. Special-status Wildlife Species with Potential to Occur in Maintenance Areas

Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
Federal or State Endangered and Threatened Plant Species			
Bay checkerspot butterfly (*Euphydryas editha bayensis*)	FT	Native grasslands on serpentine soils; larval host plants are *Plantago erecta* and/or *Castilleja* sp.	**Absent.** The proposed Project Area is not within the currently known distribution of this species (USFWS 1998) and suitable habitat is not present.
Central California coast steelhead (*Oncorhynchus mykiss*)	FT	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats	**Absent.** Lenihan Dam, as well as Camden Avenue Drop Structure, Page Dam, and Vasona Dam downstream on Los Gatos Creek, function as complete barriers to dispersal of steelhead into the proposed Project Area. Non-anadromous rainbow trout occur upstream of Lexington Reservoir in the watershed.
California tiger salamander (*Ambystoma californiense*)	FT, SE/CSSC	Vernal or temporary pools in annual grasslands or open woodlands	**Absent.** Suitable temporary pools in open habitats are not present in the proposed Project Area. The nearest recorded occurrence is approximately 5 miles east of Lexington Reservoir at Almaden Quicksilver County Park (CNDDB 2015).

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
California red-legged frog (*Rana draytonii*)	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation	**Present.** Species has been recorded in Los Gatos Creek within the watershed (CNDDB 2015), at a small pond behind the dam at the Ostwald Intake (H.T. Harvey & Associates 1997), and at Lake Kittredge/Lake Cozzens (EcoSystems West 2010b). Suitable habitat is present along numerous creeks within the watershed. None were recorded, however, during focused surveys in spring and summer 2014 along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam (H. T. Harvey & Associates 2014). In addition, the areas in which this species has been recorded in the Los Gatos Creek watershed have been fairly limited, suggesting a small and sparsely dispersed population. Therefore, this species is not expected to occur regularly or in abundance at maintenance sites or fuel management areas, except possibly in the few areas where it has been recorded previously.
Bald eagle (*Haliaeetus leucocephalus*)	SE, SP	Occurs mainly along seacoasts, rivers, and lakes; nests in tall trees or in cliffs, occasionally on electrical towers; feeds mostly on fish	**Absent as Breeder.** Bald eagles are known to have nested in Santa Clara County only in five locations: at Anderson Reservoir, Coyote Reservoir, near Calaveras Reservoir, at San Felipe Lake along Highway 152, and along Pacheco Creek near Casa de Fruta (Bousman 2007a; Ventana Wildlife Society 2012). Suitable wintering habitat is present, however, around Lexington Reservoir, Lake Elsman, and Lake Williams. Given recent records of this species around Lexington Reservoir and increases in this species' population in recent decades, it could nest in the watershed in the future, likely near a reservoir, and potentially where it could be disturbed by fuel management activities.

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
California Species of Special Concern			
Foothill yellow-legged frog (*Rana boylii*)	CSSC	Partially shaded shallow streams and riffles with a rocky substrate; occurs in a variety of habitats in the Coast Ranges	**Absent.** Creeks in the proposed Project Area provide ostensibly suitable habitat for this species. It has not been recorded in the watershed since the early 1970s, however, with the most recent recorded observation near a maintenance area occurring in 1972 at Hendry's Creek, 1.5 miles east of the Hendry Intake (H. T. Harvey & Associates 1999). During focused surveys for the California red-legged frog conducted in spring and summer 2014 along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam, no yellow-legged frogs were detected (H. T. Harvey & Associates 2014). Furthermore, no yellow-legged frogs have been detected along other nearby watersheds (such as Stevens and Saratoga Creeks) in recent decades, despite considerable survey effort. Given the lack of recent records from the vicinity of the proposed Project Area and nearby watersheds and negative results of 2014 surveys, this species is not expected to occur at the maintenance sites and fuel management areas.

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
Western pond turtle (*Actinemys marmorata*)	CSSC	Permanent or nearly permanent water in a variety of habitats	**Present.** Suitable habitat is present along numerous creeks and reservoirs within the watershed, including those within the maintenance areas, and the species has been recorded at Lake Cozzens (EcoSystems West 2006, as cited in Ecosystems West 2010a), Beardsley Intake Access Area (EcoSystems West 2003), Lower Cavanee Intake Access Area (CNDDB 2015), and Oswald Intake Access Area (EcoSystems West 2010b). None were recorded, however, during herpetological surveys in spring and summer 2014 along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam. Therefore, this species is likely present only in small numbers.
Long-eared owl (*Asio otus*)	CSSC	Riparian bottomlands with tall, dense willows and cottonwood stands, as well as dense live oak and California bay along upland streams; forages primarily in adjacent open areas	**May Be Present.** Rare resident and occasional winter visitor in Santa Clara County (Bousman 2007b). Historical breeding records are known from the Santa Clara Valley floor, and one recent nest was recorded at Ed Levin County Park, west of Calaveras Reservoir (Noble 2007). Could potentially breed in oak woodlands, riparian habitats, and other wooded habitats in and adjacent to maintenance sites and fuel management areas, although it is expected to occur only in very low numbers.
Vaux's swift (*Chaetura vauxi*)	CSSC	Nests in snags in coastal coniferous forests or, occasionally, in chimneys; forages aerially	**Absent as Breeder**. In the region, the species nests primarily in snags within Santa Cruz Mountain forests outside of the watershed and in residential chimneys in the foothills of the Santa Cruz Mountains, such as Los Gatos, Los Altos, Los Altos Hills, Cupertino, and Campbell (Rottenborn 2007). Nevertheless, individuals may forage over maintenance sites and fuel management areas during migration.

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
Olive-sided flycatcher (*Contopus cooperi*)	CSSC (nesting)	Breeds in mature, primarily coniferous forests with open canopies, along forest edges in more densely vegetated areas, in recently burned forest habitats, and in selectively harvested landscapes	**May Be Present.** This species breeds widely, though in low densities, in the Santa Cruz Mountains, and the woodlands at maintenance sites and fuel management areas provide suitable breeding and foraging habitat.
Loggerhead shrike (*Lanius ludovicianus*)	CSSC (nesting)	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats	**Absent.** Suitable habitat is not present in the maintenance areas.
Purple martin (*Progne subis*)	CSSC (nesting)	In the Santa Cruz Mountains, nests in old woodpecker cavities in utility poles and pine snags	**Absent.** Although woodpecker cavities are present in trees in the proposed Project Area, this species is not known to nest in the Santa Cruz Mountains away from a few scattered ridgeline locations, such as near the summits of Loma Prieta and Mt. Umunhum (Bousman 2007f). In the region, it is not known to nest in habitats such as those present in proposed maintenance sites or fuel management areas.
Yellow warbler (*Dendroica petechia*)	CSSC (nesting)	Nests in riparian woodlands	**May Be Present.** Alder and willow riparian habitats throughout the watershed, including within maintenance sites and fuel management areas, provide suitable nesting and foraging habitat; however, the species is expected to breed in relatively low densities.
Tricolored blackbird (*Agelaius tricolor*)	CSSC (nesting colony)	Nests near fresh water in dense emergent vegetation	**Absent.** The species has not been recorded breeding in the Santa Cruz Mountains in Santa Clara County (Rottenborn 2007b), and suitable habitat is not present within the proposed Project Area.

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats	**Absent.** Suitable habitat is not present at maintenance sites and fuel management areas due to the absence of very large, hollowed-out tree trunks, caves, or buildings with cavernous attics. This species is very scarce in the Santa Cruz Mountains, occurring primarily in mines and other anthropogenic caves and tunnels.
Pallid bat (*Antrozous pallidus*)	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees	**May Be Present.** No known maternity roosts of pallid bats are present in the watershed. The species may forage throughout at maintenance sites and fuel management areas, and larger, older oak trees in open-canopy woodlands provide suitable roosting habitat; however, maternity colonies are not expected to occur along the stream channels in the maintenance areas, as a review of all maintenance sites did not identify suitable sites for presence of maternity colonies.
Western red bat (*Lasiurus blossevillii*)	CSSC	Roosts in foliage in forest or woodlands, especially in or near riparian habitat	**Present.** The species occurs occasionally as a migrant and winter resident, but does not breed in the watershed. The species has been recorded at the Beardsley Intake Facility (EcoSystems West 2003), and small numbers may roost in foliage in trees throughout the maintenance sites and fuel management areas.
San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*)	CSSC	Nests in a variety of habitats, including riparian areas, oak woodlands, and scrub	**Present.** Riparian and woodland habitats throughout the watershed provide suitable nesting habitat for this species. While abundant in the region, only a few nests are present at maintenance sites, such as near the Hooker Intake (EcoSystems West 2010a).

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Common Name (Scientific Name)	Status[1]	Habitat Association	Potential to Occur in Maintenance Areas
State Fully Protected Species			
American peregrine falcon (*Falco peregrinus anatum*)	SP	Forages in many habitats; nests on cliffs and tall bridges and buildings	**Absent as Breeder.** An adult female was observed attending two fledged young near Lake Elsman in 1996 (Bousman 2007c), and suitable nesting habitat may be present on cliffs high in the watershed; however, suitable nesting habitat is not present within or very close to the maintenance areas. Non-breeders are present in the watershed in small numbers in fall and winter and may occur anywhere throughout the watershed as foragers or migrants, though always at low densities.
Golden eagle (*Aquila chrysaetos*)	SP	Breeds on cliffs or in large trees (rarely on electrical towers); forages in open areas	**Absent as Breeder.** In the Santa Cruz Mountains, this species breeds only sparsely in areas, such as the watershed, that have only limited open grassland. Although a few pairs breed at the edges of the Santa Clara Valley at elevations within the watershed (Bousman 2007c), suitable breeding habitat is not present at the maintenance sites. The species may occur at maintenance sites as a rare forager, however, and it could potentially breed near fuel management areas.
Ringtail (*Bassariscus astutus*)	SP	Cavities in rock outcrops and talus slopes, as well as hollows in trees, logs, and snags that occur in riparian habitats and dense woodlands, usually in close proximity to water	**May Be Present.** Ostensibly suitable habitat is present at forested maintenance sites and fuel management areas, but few confirmed records exist. The species has been observed near Lexington Reservoir (D. Johnston, pers. comm., 2014).

[1]Status Codes:

Federal		*State*	
FE	*Endangered under the Endangered Species Act*	*SE*	*Endangered under the California Endangered Species Act*
FT	*Threatened under the Endangered Species Act*	*ST*	*Threatened under the California Endangered Species Act*
		SP	*California Fully Protected*
		CSSC	*California Species of Special Concern*

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Table 3-7. Potential Occurrence of Special-status Species by Maintenance Area

Common Name	Maintenance Area										
	Beardsley	Cavanee	Cozzens	Elsman	Hendry	Hooker	Kittredge	Lake Ranch	Ostwald	Trout	Williams
California red-legged frog	X	X	X	X	X	X	X	X	X	X	X
Foothill yellow-legged frog											
Western pond turtle	X	X	X	X	X	X	X	X	X	X	X
Bald eagle*											
Golden eagle*											
American peregrine falcon*											
Long-eared owl*	X	X			X	X			X	X	X
Vaux's swift*											
Olive-sided flycatcher*	X	X	X	X	X	X	X	X	X	X	X
Yellow warbler*	X	X			X	X			X	X	X

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Common Name	Maintenance Area										
	Beardsley	Cavanee	Cozzens	Elsman	Hendry	Hooker	Kittredge	Lake Ranch	Ostwald	Trout	Williams
Pallid bat											X
Western red bat	X	X			X	X			X	X	X
San Francisco dusky-footed woodrat		X			X	X			X	X	X
Ringtail	X	X			X	X			X	X	X

**Although this species could potentially perch within any of the maintenance areas, only those at which the species could potentially nest close enough to maintenance activities to be adversely affected are indicated with an "X".*

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3.3.3 Detailed Descriptions of Special-Status Species

California Red-legged Frog (*Rana draytonii*). Federal Listing Status: Threatened; State Listing Status: Species of Special Concern. The California red-legged frog (Photo 1) was listed as threatened throughout its entire range on May 23, 1996 by USFWS) (USFWS 1996). A recovery plan addressing the species was approved by USFWS on May 28, 2002 (USFWS 2002). Revised critical habitat was designated on March 17, 2010 (USFWS 2010); no designated critical habitat is located within the Los Gatos Creek Watershed. The species' current distribution includes isolated locations in the Sierra Nevada and the San Francisco Bay Area, and along the central coast (USFWS 2002). The California red-legged frog inhabits perennial freshwater pools, streams, and ponds throughout the Central California Coast Range and isolated portions of the western slope of the Sierra Nevada (Fellers 2005). Its preferred breeding habitat consists of deep perennial pools with emergent vegetation for attaching egg clusters (Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994). Non-breeding frogs may be found adjacent to streams and ponds in grasslands and woodlands, and may travel up to 2 miles from their breeding locations across a variety of upland habitats (Bulger and Scott 2003; Fellers and Kleeman 2007).

Photo 1. California red-legged frog

CNDDB records, as well as museum records and various survey reports, indicate that the California red-legged frog has occupied aquatic habitats within the watershed since at least the 1800s (CNDDB 2015; H. T. Harvey & Associates 1997). Red-legged frogs have been recorded near proposed maintenance areas, including at a small pond behind the dam at the Ostwald Intake in 1989 (CNDDB 2015), along Los Gatos Creek approximately 0.8 mile downstream of Austrian Dam (CNDDB 2015), and at Lake Kittredge and Lake Cozzens in 2006 (EcoSystems West 2006 as cited in EcoSystems West 2010b). Focused daytime and nighttime surveys for California red-legged frogs conducted at Lake Kittredge and Lake Cozzens in 2010 detected no occurrences of this species, however, but did identify an abundance of aquatic predators, including large-mouth bass, green sunfish (*Lepomis cyanellus*), bullfrogs, and Louisiana swamp crayfish (*Procambarus clarkii*) in both lakes (EcoSystems West 2010b). The distribution and abundance of California red-legged frogs within stream channels away from these lakes is largely unknown.

Focused daytime and nighttime surveys for California red-legged frogs were conducted by H. T. Harvey & Associates herpetologists during the 2014 breeding season along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam. These surveys detected no California red-legged frogs but an abundance of aquatic red-legged frog predators, including

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bullfrogs and trout (*Oncorhynchus mykiss*). The areas in which this species has been recorded in the Los Gatos Creek watershed have been fairly limited, suggesting a small and sparsely dispersed population. Thus, the species is not expected to occur regularly or in abundance on SJWC lands, except possibly in the few areas where it has been recorded.

In the absence of much more intensive and widespread surveys, the potential for at least occasional occurrence of the California red-legged frog cannot be dismissed at any of the maintenance areas. If the California red-legged frog does occur in maintenance areas, it is expected to make greatest use of the aquatic channels/reservoirs and the riparian habitat immediately adjacent to them. It may forage or take refuge anywhere in the riparian habitats along the channels, but use of drier, more upland areas is expected to occur only during dispersal.

Foothill Yellow-legged Frog (*Rana boylii*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Ideal habitat for the foothill yellow-legged frog (Photo 2) consists of streams with riffles and cobble-sized rocks, with slow water flow (Jennings and Hayes 1994). Suitable breeding habitat is composed of stream reaches with consistently slow-moving flows surrounded by upland non-breeding habitat. Adults often bask on exposed rock surfaces near streams. During periods of inactivity, especially during cold weather, individuals seek cover under rocks in the streams or on shore within a few yards of water.

Photo 2. Foothill yellow-legged frog

CNDDB records, as well as museum records and various survey reports, indicate that the foothill yellow-legged frog has occupied aquatic habitats within, or in close proximity to, SJWC facilities since at least the 1800s (CNDDB 2015; H. T. Harvey & Associates 1999). However, the most recent recorded observation of the foothill yellow-legged frog near SJWC lands occurred in 1972 at Hendry's Creek, 1.5 miles east of the Hendry Intake (H. T Harvey & Associates 1999). During focused surveys for California red-legged frogs during the 2014 breeding season along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam, H. T. Harvey & Associates herpetologists looked for yellow-legged frogs as well, but none were detected. In addition, recent surveys for other projects in nearby watersheds, such as the Stevens Creek and Saratoga Creek watersheds, have not detected foothill yellow-legged frogs despite considerable survey effort. As a result, it appears that this species has been extirpated from these watersheds. Given the lack of recent records from the vicinity of maintenance areas and nearby watersheds and negative results of 2014 surveys, this species is not expected to occur in the maintenance areas.

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Western Pond Turtle (*Actinemys marmorata*). Federal Listing Status: None; State Listing Status: Species of Special Concern. The western pond turtle (Photo 3) occurs in ponds, streams, and other wetlands. Ponds or slack-water pools with suitable basking sites (such as logs) are an important habitat component for this species, and western pond turtles do not occur commonly along high-gradient streams. Females lay eggs in upland habitats, in clay or silty soils in unshaded (often south-facing) areas up to 0.25 mile from aquatic habitat (Jennings and Hayes 1994). Juveniles feed and grow in shallow aquatic habitats (often creeks) with emergent vegetation and ample invertebrate prey. Nesting habitat is typically found within 600 feet of aquatic habitat (Jennings and Hayes 1994), but if no suitable nesting habitat can be found close by, adults may travel overland considerable distances to nest.


Photo 3. Western pond turtle

Within the watershed, perennial creeks, many intermittent creeks, and most ponds have some potential to support the western pond turtle. Suitable habitat is present in the creeks and reservoirs within the maintenance areas, and the species has been recorded at Lake Cozzens (EcoSystems West 2006, as cited in Ecosystems West 2010a), Beardsley Intake Access Area (EcoSystems West 2003), Lower Cavanee Intake Access Area (CNDDB 2015), and the Oswald Intake Access Area (EcoSystems West 2010b). During red-legged frog surveys along Los Gatos Creek from the confluence of Hooker Gulch upstream to Austrian Dam in 2014, H. T. Harvey & Associates herpetologists did not observe any western pond turtles, suggesting that they are present in low densities. Nevertheless, this species has the potential to occur in any aquatic habitat near maintenance areas.

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Bald Eagle (*Haliaeetus leucocephalus*). Federal Listing Status: None; State Listing Status: Endangered, Fully Protected. Ideal habitat for bald eagles (Photo 4) is composed of remote, forested landscape with old-growth or mature trees and easy access to an extensive and diverse prey base. Bald eagles forage in fresh and salt water where their prey species (fish) are abundant and diverse. They build nests in tall, sturdy trees at sites that are relatively close to aquatic foraging areas and isolated from human activities. The eagle breeding season extends from January through August (Buehler 2000).


Photo 4. Bald eagle

Bald eagles are known to nest in Santa Clara County in only five locations: in a gray pine (*Pinus sabiniana*) at Anderson Reservoir, in a gray pine at Coyote Reservoir, on an electrical transmission tower (and subsequently a valley oak [*Quercus lobata*]) near Calaveras Reservoir, in a eucalyptus (*Eucalyptus* sp.) tree at San Felipe Lake along Highway 152, and in a western sycamore tree along Pacheco Creek near Casa de Fruta (Bousman 2007a; Ventana Wildlife Society 2012).

Currently, bald eagles are known from the Los Gatos Creek Watershed only as non-breeding visitors, primarily at Lexington Reservoir. However, given the species' population increases in recent decades, it is possible that this species could begin nesting in the watershed in the future, likely near a reservoir, and potentially where it could be disturbed by fuel management activities.

Long-eared owl (*Asio otus*). Federal Listing Status: None; State Listing Status: Species of Special Concern (Nesting). Long-eared owls (Photo 5) frequent dense riparian and live oak thickets near meadow edges and nearby woodland and forest habitats, but may also be found in dense conifer stands at higher elevations. This species forages over open areas, where it hunts for rodents and small birds. It breeds from valley foothill hardwood up to ponderosa pine habitats from early March to late July.

Photo 5. Long-eared owl

The long-eared owl is a rare resident and occasional winter visitor in Santa Clara County (Bousman 2007b). There are no known nesting locations in the watershed (Noble 2007), but because the species is known to nest in a variety of wooded habitat types, it could potentially breed in oak woodlands, riparian habitats, and other wooded habitats in and adjacent to maintenance areas. Although most maintenance areas

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provide potential habitat, this species is expected to occur in very low numbers and few, if any, of the maintenance areas, given its rarity in the region.

Olive-sided flycatcher (*Contopus cooperi*). Federal Listing Status: None; State Listing Status: Species of Special Concern (Nesting). Olive-sided flycatchers (Photo 6) are associated with coniferous forest habitats and breed in mature forests with open canopies, along forest edges in more densely vegetated areas, in recently burned forest habitats, and in selectively harvested landscapes (Altman and Sallabanks 2000; Robertson and Hutto 2007). They nest in tall trees, arriving at their breeding territories beginning in mid-May and remaining until late July. This species breeds widely, though in low densities, in the Santa Cruz Mountains. The mixed evergreen forest and redwood forests within the maintenance areas provide suitable breeding habitat, but due to its sparse distribution, the olive-sided flycatcher is expected to occur at few maintenance areas, and only in low numbers.

Photo 6. Olive-sided flycatcher

Yellow Warbler (*Setophaga petechia*). Federal Listing Status: None; State Listing Status: Species of Special Concern (Nesting). In California, the yellow warbler (Photo 7) occupies wooded riparian habitats along the coast, on both eastern and western slopes of the Sierra Nevada, and throughout the northern portion of the state (Heath 2008). This species prefers riparian corridors with an overstory of mature cottonwoods and sycamores, a midstory of box elder and willow, and a substantial shrub understory (Bousman 2007e), particularly in areas with more open space adjacent to the riparian habitat. Yellow warblers construct open-cup nests in upright forks of shrubs or trees in dense willow thickets or other dense vegetation (Lowther et al. 1999). The yellow warbler is an uncommon breeder in wooded riparian habitats, occurring primarily in association with alders and willows in the watershed, and is an abundant migrant during the spring and fall. Riparian habitats throughout the watershed, including within maintenance areas, provide suitable nesting and foraging habitat. Because of its sparse distribution, however, the yellow warbler is expected to occur at few maintenance areas, and only in low numbers.

Photo 7. Yellow warbler

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Western Red Bat (*Lasiurus blossevillii*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Western red bats (Photo 8) are strongly associated with intact cottonwood and sycamore valley riparian habitats at low elevations (Pierson et al. 2006). Both day and night roosts are usually located in the foliage of trees; red bats in the Central Valley show a preference for large trees and extensive, intact riparian habitat (Pierson et al. 2006). Day roosts often are located along the edges of riparian areas, near streams, grasslands, and even urban areas (Western Bat Working Group 2005). During the breeding season, western red bats establish individual tree roosts and occasionally small maternity colonies in riparian habitats (Zeiner et al. 1990). Little is known about the habitat use of western red bats during the non-breeding season (Pierson et al. 2006). The red bat requires habitat mosaics or edges that provide close access to foraging sites as well as cover for roosting (Zeiner et al. 1990).


Photo 8. Western red bat

Western red bats are expected to be regular migrants and winter residents in the watershed, but they are not known or expected to breed here. Individual male and female bats may occur as occasional migrants during the fall and spring or as foragers during the winter, and non-breeding individual males may occur during the summer. No breeding females occur in the watershed during the summer. Western red bats may roost in the foliage in trees virtually anywhere throughout the maintenance areas, but are expected to roost primarily in wooded riparian areas. The species has been recorded at the Beardsley Intake facility (EcoSystems West 2003).

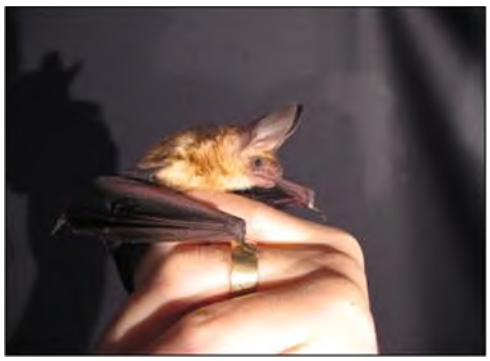
Photo 9. Pallid bat

Pallid Bat (*Antrozous pallidus*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Pallid bats (Photo 9) are most commonly found in oak savannah and in open, dry habitats with rocky areas, trees, buildings, or bridge structures that are used for roosting (Zeiner et al. 1990; Ferguson and Azerrad 2004). Coastal colonies commonly roost in deep crevices in rocky outcroppings, in buildings, under bridges, and in the crevices, hollows, and exfoliating bark of trees. Night roosts are often established in open buildings, porches, garages, highway bridges, and mines. Colonies can range in size from a few individuals to more than 100 (Barbour

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and Davis 1969), and they usually consist of at least 20 individuals (Wilson and Ruff 1999). Pallid bats typically winter in canyon bottoms and riparian areas. After mating during the late fall and winter, females leave to form maternity colonies, often on ridgetops or other warm locales (Johnston et al. 2006). Pallid bat roosts are very susceptible to human disturbance.

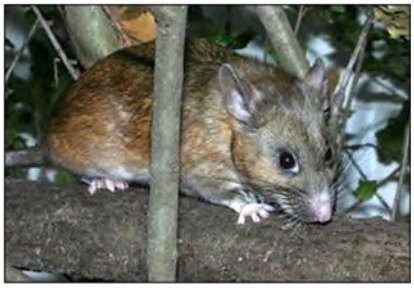

Photo 10. San Francisco dusky-footed woodrat

The species may forage throughout the maintenance areas, and large (i.e., greater than 12 inches diameter at breast height), old oak trees in open-canopy woodlands provide suitable roosting habitat. However, maternity colonies are not expected to occur along the stream channels in the maintenance areas, as a review of all maintenance sites did not identify suitable sites for presence of maternity colonies. There are no known maternity roosts of pallid bats in the watershed.

San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*). Federal Listing Status: None; State Listing Status: Species of Special Concern. Woodrats (Photo 10) prefer riparian and oak woodland forests with dense understory cover, or thick chaparral habitat (Lee and Tietje 2005). Dusky-footed woodrats build large, complex nests of sticks and other woody debris, which may be maintained by a series of occupants for several years (Carraway and Verts 1991). Woodrats also are very adept at making use of human-made structures and can nest in electrical boxes, pipes, wooden pallets, and even portable storage containers. Woodrat nest densities increase with canopy density and with the presence of poison oak (Carraway and Verts 1991).

Riparian and woodland habitats throughout the watershed provide suitable nesting habitat for this species. Their nests have been documented in numerous locations along Los Gatos Creek within the watershed, including near the Hooker Intake, Lower Cavanee Intake Access Area, Oswald Intake Access Area, and along the access road from Lake Elsman to Williams Reservoir (EcoSystems West 2010a).

Ringtail (*Bassariscus astutus*). Federal Listing Status: None; State Listing Status: Fully Protected. Ringtails (Photo 11) occur in forests and shrublands, often in close association with rocky areas or riparian habitats. The species nests in rock recesses, hollow trees, logs, snags, abandoned burrows, and woodrat nests. The status of this species in Santa Clara County is not well known. Although this species' strictly nocturnal habits may be at least partially responsible for the lack of information on its distribution in the watershed, it is likely very rare because of the lack of sightings and the scarcity of roadkill records (e.g., compared to the nocturnal American badger [*Taxidea taxus*], which is much more frequently detected as roadkill). Ringtails have been recorded near Lexington Reservoir (D. Johnston, pers. obs.), however, and it is likely that ringtails are present in small numbers in wooded areas near the maintenance areas.

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3.3.4 Invasive Wildlife and Plants and Noxious Weeds

Photo 11. Ringtail San Diego Zoo Global

For more than two centuries, people have brought non-native plants and wildlife into the region, either accidentally (e.g., as stowaways in cargo shipments) or intentionally (e.g., imported for food, ornament, or sport or as pets), and many of these species have now been introduced into the wild. Such species that cause harm and, once established, spread quickly from their point of introduction are often called "invasive" species.

Invasive species affect native species and habitats in several ways, such as by altering nutrient cycles and hydrologic cycles, creating changes in sediment deposition and erosion, dominating habitats and displacing native species, competing with native species for resources, preying on native species, transmitting diseases, and hybridizing with native species (Bossard et al. 2000). In California, approximately 3 percent of the plant species growing in the wild are considered invasive, but they inhabit a much greater proportion of the landscape (California Invasive Plant Council 2014). Their effects on natural communities may also lead to direct effects on human activities, such as clogging waterways and water delivery systems, weakening flood protection structures, damaging crops, and diminishing sport fish populations (California Department of Fish and Game [CDFG 2008]).

Invasive species present complex management issues because they can continue to spread and invade new areas even when they are no longer being actively introduced

Invasive Plants

Common characteristics of invasive plant species that allow them to out-compete native vegetation and establish more quickly on newly exposed substrates (e.g., eroding river banks, wildfire scars, and flood-scoured floodplains and bars) include the following:

- More than one seed dispersal mechanism with prodigious quantities of seed production;
- Longer season of viable seed release, dispersal, and germination potential;
- Dormant seed or rhizome viability over many years;
- Greater range of tolerance of inundation, scour, or dry season soil moisture deficits; and
- Fast growth rates, stump sprouting, and fast recovery from top removal

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Plant pests are defined by law, regulation, and technical organizations and are regulated by many different sources, including the California Department of Food and Agriculture (CDFA) and the USDA. The CDFA uses an action-oriented pest-rating system (CDFA 2012). The rating assigned to a pest by the CDFA does not necessarily mean that a species with a low rating is not a problem; rather, the rating system is meant to prioritize response by the CDFA and county agricultural commissioners. The California Invasive Plant Council (Cal-IPC) has developed a list of plant pests specific to California wildlands, based on information submitted by land managers, botanists, and researchers throughout the state and on published sources. The term "noxious weed" is used by government agencies to indicate non-native plants that have been defined as pests by law or regulation.

Major invasive plant species of the watershed are discussed in more detail below. The following CDFA designations reflect the importance of the pest:

A A pest of known economic or environmental detriment that is either not known to be established in California or is present in a limited distribution that allows for the possibility of eradication or successful containment

B A pest of known economic or environmental detriment that, if present in California, is of limited distribution

C A pest of known economic or environmental detriment that, if present in California, is usually widespread

The Cal-IPC (2014) ranks invasive plants based on the level of ecological impact in California as follows:

High – Species has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure

Moderate – Species has substantial and apparent ecological impacts on physical processes, plant and animal communities, and vegetation structure

Limited – Species is invasive but ecological impacts are minor on a statewide level, or there was not enough information to justify a higher score

Invasive Plants in the Los Gatos Creek Watershed

Yellow star-thistle (*Centaurea solstitialis*): Cal-IPC Rating – High. Yellow star-thistle is a winter annual that has invaded 12 million acres in California (Cal-IPC 2014). It inhabits a variety of habitats, including grasslands, woodlands, and disturbed areas. It propagates by seed, and a single plant can produce nearly 75,000 seeds (Cal-IPC 2014).

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French broom (*Genista monspessulana*): Cal-IPC Rating – High. French broom is a perennial shrub found throughout the coast of California. It was introduced as a landscape ornamental but is an aggressive invader and forms dense stands in disturbed areas. French broom produces copious amounts of seed and can resprout from the root crown, making it extremely difficult to control (Cal-IPC 2014).

English ivy (*Hedera helix*): Cal-IPC Rating – High. English ivy is a perennial, evergreen, woody vine. It is found throughout the coast of California and grows vigorously in forest understories, inhibiting the regeneration of native understory plants (Cal-IPC 2014).

Spanish broom (*Spartium junceum*): Cal-IPC Rating – High. Spanish broom is a deciduous shrub found throughout the western part of California. It was introduced as a landscape ornamental and was used to prevent erosion along highways. Spanish broom produces copious amounts of seed and can resprout from the root crown, making it extremely difficult to control (Cal-IPC 2014).

Periwinkle (*Vinca major*): Cal-IPC Rating – Moderate. Periwinkle is a spreading perennial vine or ground cover that has escaped from garden cultivation and is spreading rapidly in coastal California (Cal-IPC 2014). Riparian zones are particularly sensitive and material often travels along streams, creating new invasions (Cal-IPC 2014).

Invasive Wildlife

As described above, the introduction of non-native wildlife species can be detrimental to native species assemblages. The distribution and abundance of non-native wildlife species in the watershed is poorly known, but species known to occur include bullfrogs, crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), red-eared sliders (*Trachemys scripta elegans*), green sunfish, largemouth bass, and red fox (*Vulpes vulpes*) (EcoSystems West Consulting Group 2010a). A few of the more common introduced/invasive wildlife and fish species present, or with a high potential to be introduced, are discussed below.

The American bullfrog has been introduced accidentally and intentionally (e.g., for food in the 1920s by commercial frog farmers) throughout the world and is now established throughout most of the western United States, including the Los Gatos Creek Watershed (California Herps 2011). Their large size, mobility, generalized eating habits (their prey includes native amphibians as well as other aquatic and riparian vertebrates [Graber 1996]), and aggressive behavior have made bullfrogs extremely successful invaders and a threat to biodiversity (AmphibiaWeb 2008).

It has been suggested that, where western pond turtles and non-native turtles co-occur, there may be a negative impact on the western pond turtles (particularly by red-eared sliders) through competition and possibly the introduction of disease (Spinks et al. 2003; Thomson et al. 2010). Spinks et al. (2003) observed that, where they co-occur, the larger red-eared sliders seem to dominate the more desirable basking spots (secluded areas with floating or protruding woody debris), whereas western pond turtles are more scattered and bask on the less desirable open

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banks. They attributed this to the ability of the larger red-eared sliders to displace western pond turtles from the more desirable basking spots. The extent to which non-native turtles affect the western pond turtle population has not been specifically studied, but it can be assumed that larger non-native turtles, specifically red-eared sliders, probably outcompete the smaller western pond turtle for resources required by both species.

Non-native species such as feral house cats (*Felis felis*), red foxes, Norway rats (*Rattus norvegicus*), and muskrats (*Ondatra zibethicus*) are known to occur in the watershed and are significant predators of native birds.

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Chapter 4

Resource Characterizations at Maintenance Facilities

This chapter includes site and natural resource descriptions for the specific SJWC facilities that will receive routine maintenance through the Program. Site and resource characterizations are provided for impoundments, intake facilities, and culvert locations.

4.1 Impoundments

4.1.1 Lake Williams

Lake Williams is a small reservoir immediately upstream of Lake Elsman and feeds into Lake Elsman through a stream channel (see Chapter 1, Figure 1-2). SJWC owns Lake Williams and has a storage license to this water source. Lake Williams is one of five SJWC facilities that are regulated by DSOD. Lake Williams has a capacity of 51.5 mg. However, as a result of a large watershed fire in 1961, Lake Williams has mostly filled with sediment and has not provided significant water storage since that time. Lake Williams has a surface area of approximately 3 acres, and there is no record of depth measurement.

Maintenance Activities

Maintenance activities at Lake Williams would be limited to vegetation management along the dam face (mostly involving weed and grass removal), tree pruning around the dam, and filling burrows along the dam face. SJWC does not conduct any other routine maintenance activities at Lake Williams. Although the dam is regulated by DSOD, no dam-related maintenance activities are prescribed for this facility. The road from Lake Elsman to Lake Williams does require periodic maintenance, including grading and culvert repair. These activities are described separately in Section 4.3, Culverts and Road Crossings.

Watershed and Physical Setting

Lake Williams shares the same watershed as Lake Elsman. The maximum elevation in the watershed is found at Loma Prieta Peak (elevation 3,791 feet amsl). Approximately 44 percent of the contributing watershed is covered in forest. The geology of the watershed upstream of Lake Williams comprises mostly sedimentary rocks of the Eocene Epoch, but there are also several areas of Quaternary hillslope deposits and alluvium (Graymer et al. 2006). The Los Gatos Creek Watershed upstream of Lake Williams has generally steep slopes. The mean basin slope is steeper than 43 percent (rise/run) in the watershed upstream of the lake. Mean annual precipitation in the watershed upstream is approximately 54.3 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the reservoir. The Elsman-Maymen soil unit covers approximately 88 percent of the watershed. About 98

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percent of the Upper Los Gatos Creek Watershed that drains to Lake Williams has poorly infiltrating, hydrographic Type D soils with high runoff potential (NRCS 2014).

Most of the lake's drainage area to Lake Williams is undeveloped, and there is no public access to the reservoir or watershed area. Therefore, the water in Lake Williams is of high quality and is minimally influenced by anthropogenic contaminants. In the lakebed of Lake Elsman, elevated concentrations of iron and manganese are detected in anoxic sediments. It is likely that lakebed sediment in Lake Williams exhibits similar conditions.

Biological Conditions

Vegetation Composition

The area around Lake Williams is dominated by mixed evergreen forest (**Photo 1**). The mixed evergreen forest is dominated by Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and includes tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), coast redwood (*Sequoia sempervirens*), and California bay (*Umbellularia californica*).

Photo 1. Lake Williams (Nov. 2013)

Riparian Habitat

Occasional patches of riparian trees, including red alder (*Alnus rubra*) and willow (*Salix* sp.), are present along the banks of Lake Williams; however, no riparian vegetation is present within the planned maintenance footprint.

Instream Habitat

Not applicable.

Wetlands

No wetlands are present at this site.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species at this site. Lake Williams provides suitable breeding and foraging habitat for the California red-legged frog (*Rana draytonii*), federally listed as threatened. The nearest recorded occurrence of this species is approximately 2.1 miles downstream along Los Gatos Creek (CNDDB 2014). Lake Williams and the surrounding uplands also provide suitable breeding, foraging, and basking habitat for the western pond turtle (*Actinemys marmorata*), a California species of special concern.

The woodlands surrounding the lake provide potential habitat for several California species of special concern, including nesting habitat for the yellow warbler (*Setophaga petechia*), olive-

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sided flycatcher (*Contopus cooperi*), and long-eared owl (*Asio otus*); roosting habitat for migrant/wintering western red bats (*Lasiurus blossevillii*); and breeding habitat for the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*).

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.
- No sediment removal occurs in the reservoir.
- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

4.1.2 Lake Elsman

SJWC owns Lake Elsman and has a storage license for this water source (see Chapter 1, Figure 1-2). Lake Elsman is located downstream of Lake Williams along the Los Gatos Creek drainage corridor and has a maximum storage capacity of 6,153 acre-feet (2,005 mg). When full, Lake Elsman has a surface area of 109 acres and a maximum depth of 149 feet. Water quality is excellent. Typically, the lake fills during the wet winter months due to runoff from the watershed lands above the lake. During the summer season, releases from Lake Elsman are made to Los Gatos Creek downstream, where water is then diverted from the Ostwald Intake by pipeline to MWTP. In accordance with SJWC's water diversion license from SWRCB, Austrian Dam is required to release a minimum flow of 1 cfs to Los Gatos Creek if and whenever there is storage behind the dam (SWRCB 1976).

Photo 2. Elsman Reservoir, shown at a lower water level following summer releases and a dry year (Nov. 2013).

Maintenance Activities

Maintenance activities at Lake Elsman include managing vegetation along the dam face, maintaining the roads along the dam face, periodically removing sediment from the base of the spillway, maintaining dam facility hardware, and maintaining the roads and culverts that surround the lake. Austrian Dam is one of five SJWC facilities that are regulated by DSOD, and vegetation management maintenance activities

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are prescribed by DSOD. Dam face vegetation management mostly involves weed control, typically using hand tools or weed-cutters. Periodically, direct application of herbicides on the dam face is necessary to remove robust, herbaceous weed growth (**Photo 2**). If small shrubs are found on the dam face, they are removed. No sediment removal activities occur from the bottom of the reservoir. Sediment removal occurs periodically (typically every other year) at the base of the spillway and downstream of the emergency culvert outlets, as needed for dam safety. As shown in **Photo 3**, some sediment collects at the base of the spillway. This sediment is generally not derived from Lake Elsman itself, but is delivered from the tributary creek that discharges at the base of the spillway (Photo 3). An access road leads to the pool at the base of the spillway where sediment is periodically loaded on a haul truck and removed. Since 2009, sediment has been removed from the base of the spillway one time. The sediment was beneficially reused within the watershed for road grading and construction staging.

Sediment removal at the outlets of the emergency culverts will be removed periodically to maintain culvert function and to support CRLF habitat downstream of the culvert outlets. Sediment at these culvert sites has collected over time, likely transported from a tributary to the northeast, Cathermola Road runoff, and the surrounding area downstream of the dam. To remove sediment at the culvert outlets, an existing access road would be utilized from the existing dam access road, along the toe of the dam to access the site. SJWC expects to remove sediment from these culverts every 2-5 years throughout the timeframe of the Program. Excavated sediment would be placed on a haul truck and beneficially reused for construction fill in the watershed, such as for road bedding material. Maintenance of dam facility hardware includes the periodic inspection and repair of various pipes and valves that are used at the reservoir. The maintenance of roads and culverts around Lake Elsman is described separately in Section 4.3.

Photo 3. Austrian Dam (Nov. 2013).

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Watershed and Physical Setting

Photo 4. Gullying on Austrian Dam (Feb. 2016)

Lake Elsman is located in the upper Los Gatos Creek Watershed. The lake captures runoff from a watershed area of 9.9 square miles upstream of the Austrian Dam. Lake Williams, also owned and operated by SJWC, is 0.25 mile upstream of Lake Elsman and feeds directly into Lake Elsman through a stream channel. Due to a large watershed fire in 1961, Lake Williams is mostly filled with sediment and has not provided significant storage since that time. The maximum elevation in the watershed upstream of Lake Elsman is at Loma Prieta Peak (elevation of 3,791 feet amsl). Approximately 44 percent of the contributing watershed is covered in forest. The geology of the watershed upstream of Lake Elsman comprises mostly sedimentary rocks of the Eocene Epoch, but there are also several areas of Quaternary hillslope deposits and alluvium (Graymer et al. 2006).

The Los Gatos Creek Watershed upstream of Lake Elsman has generally steep slopes. The mean basin slope is steeper than 43 percent (rise/run) in the watershed upstream of the lake. Mean annual precipitation in the watershed upstream is approximately 54.3 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the reservoir. The Elsman-Maymen soil unit covers approximately 88 percent of the watershed. About 98 percent of the Upper Los Gatos Creek Watershed that drains to Lake Elsman has poorly infiltrating, hydrographic Type D soils with high runoff potential (NRCS 2014).

Streamflow downstream of Lake Elsman along Los Gatos Creek is typically perennial, even during extended dry seasons.

If and whenever there is water in storage at Lake Elsman, SJWC is required to release a minimum of 1 cfs (448 gpm) downstream of the dam into Los Gatos Creek. Additionally, a minimum of 2 cfs (896 gpm) is released past the Ostwald Intake. These minimum flow release requirements can be reduced only if there is no impoundment (storage) in Lake Elsman and the natural flow in Austrian Gulch Creek (tributary to Lake Elsman) is flowing at less than 2 cfs (in accordance with CDFW requirements).

Lake water quality is excellent and no algaecides have been applied in the last several years. Most of the lake's drainage area is undeveloped and there is no public access to the reservoir or watershed area. Therefore, the quality in both Lake Elsman and Lake Williams is high and is only minimally influenced by anthropogenic contaminants. Lake Elsman does stratify during the summer, but the impacts of fall turnover are minimal for two reasons: (1) the distance between releases at Lake Elsman and the Ostwald Intake downstream is long enough to re-oxygenate the

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water; and (2) releases from Lake Elsman are generally reduced severely in the fall months when lake levels drop, thereby avoiding fall turnover effects. Naturally occurring iron and manganese in the general area are detected in the lower anoxic (hypolimnion) layer of the lake when it is stratified. SJWC adjusts the intake depth to avoid discharging water with elevated concentrations of metals from the lake hypolimnion downstream to Los Gatos Creek.

Biological Conditions

Vegetation Composition

This site supports a diversity of habitats, including grassland, scrub, and forest types (Photos 2-4). Mixed evergreen forest is the most abundant habitat and occurs on the south side of the reservoir, on mesic north-facing slopes. Mixed evergreen forest is dominated by Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and includes tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), coast redwood (*Sequoia sempervirens*), and California bay (*Umbellularia californica*). On the north side of the reservoir, the drier, south-facing slopes support a mix of coastal scrub, chaparral, serpentine chaparral, and mixed evergreen forest/scrub transitional habitat. Coastal scrub, chaparral, and serpentine chaparral are structurally similar but support different suites of dominant shrub species. Coastal scrub is characterized by coyote brush (*Baccharis pilularis*), sticky monkey flower (*Mimulus aurantiacus*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and California sagebrush (*Artemisia californica*). Chaparral contains many of the same species as coastal scrub, though in smaller numbers, but is dominated by chamise (*Adenostoma fasciculatum*), bigberry manzanita (*Arctostaphylos glauca*), and buck brush (*Ceanothus cuneatus*). Serpentine chaparral is very similar to regular chaparral but contains a higher percentage of chamise and supports serpentine-adapted species, including leather oak (*Quercus durata*). Serpentine chaparral also supports native herbaceous species such as foothill needlegrass (*Stipa lepida*), soap plant (*Chlorogalum pomeridianum*), navarretia (*Navarretia* sp.), coyote mint (*Monardella* sp.), and naked-stemmed buckwheat (*Eriogonum nudum*). Mixed evergreen forest/scrub transition habitat contains a mix of coastal scrub and chaparral species, but it also supports scattered trees and saplings, including Douglas fir and Pacific madrone. The dam face itself is ruderal grassland that is dominated by non-native species, including wild oats (*Avena* spp.), purple false brome (*Brachypodium distachyon*), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). Several small wetlands can also be found in pools that have formed near the downstream end of the dam spillway. These wetlands are dominated by common horsetails (*Equisetum arvense*), cattails (*Typha* sp.), tall flatsedge (*Cyperus eragrostis*), stinging nettle (*Urtica dioica*), rushes (*Juncus* sp.), and red alder (*Alnus rubra*) saplings.

Riparian Habitat

Elsman Reservoir is steep-sided and supports little riparian vegetation along its banks. Furthermore, no riparian vegetation is present in proposed maintenance areas along the dam face or within the proposed sediment removal area at the base of the spillway. Alder riparian forest can be found, however, along creek channels that connect with the reservoir; these are located downstream of the spillway and on the north side of the reservoir. The north bank of

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the reservoir, near the chaparral habitat, also supports a small stand of black cottonwood (*Populus trichocarpa*) and a small patch of willow riparian habitat dominated by arroyo willow (*Salix lasiolepis*). Both the willow riparian habitat and the black cottonwood stand are very unusual in that they appear to be supported by subsurface moisture and seepage, perhaps related to faulting in the vicinity.

Instream Habitat

Not applicable.

Wetlands

Several small wetlands dominated by common horsetails, cattails, tall flatsedge, stinging nettle, rushes, and red alder saplings are located along the edges of pools that have formed downstream of the Austrian Dam spillway (**Photo 5**). These wetlands are located within the maintenance footprint and would likely be affected by vegetation clearing and sediment removal.

Photo 5. Wetlands downstream of Austrian Dam spillway (Nov. 2013).

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. Wetlands downstream of the Austrian Dam spillway provide suitable breeding and foraging habitat for the California red-legged frog (*Rana draytonii*), federally listed as threatened, and the species has been recorded approximately 0.6 mile downstream of the Austrian Dam on Los Gatos Creek (CNDDB 2014). The horsetails, cattails, rushes, and other emergent vegetation within these wetlands provide suitable structures for red-legged frog egg cluster attachment. Lake Elsman is not suitable for use by breeding red-legged frogs, however, due to its variable water levels, lack of emergent vegetation for egg mass attachment, and predatory fish. In addition, Lake Elsman provides suitable foraging and dispersal habitat for the western pond turtle (*Actinemys marmorata*), a California species of special concern. The site also provides potential habitat for up to one pair of nesting olive-sided flycatchers (*Contopus cooperi*), a California species of special concern.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

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- No sediment removal occurs from the lake.
- Prior to conducting mechanical sediment removal work, cofferdams would be installed to isolate the work area and flows would be diverted around the work area in accordance with BMP GEN-14 (Dewatering Measures). An excavator and loader would be operated in upland areas adjacent to the channel when practicable or in the channel to remove sediment.
- Sediment removal materials will be off-hauled to an upland area and would either be re-used in the watershed or taken to a nearby landfill.
- Sediment removal work would occur only in late summer and early fall, typically September and October, during the driest period in the creek.
- Pre-construction surveys are required for red-legged frogs and western pond turtles. If these resources are detected, they would be avoided if practicable (i.e., special-status plants) or relocated if necessary (i.e., red-legged frogs and western pond turtles).

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4.1.3 Lake Cozzens

Lake Cozzens (**Photo 6**) is a small reservoir (approximately 5.8 acres) located in the Briggs Creek watershed west of Lexington Reservoir and State Route 17 (see Chapter 1, Figure 1-2). Lake Cozzens is immediately adjacent to (and downslope of) Lake Kittredge. Both reservoirs were built in the late 19th century for local water supply purposes. Lake Cozzens is one of five SJWC facilities that are regulated by DSOD, and maintenance activities at Lake Cozzens are prescribed by DSOD. Currently, Lake Cozzens functions as an emergency water supply source and is not accessible to the public. The lake is used as a venue for SJWC events and employee recreation; however, no swimming is allowed at Lake Cozzens. The lake is used exclusively by SJWC and the landowners immediately around the lake.

Photo 6. Lake Cozzens (Dec. 2013).

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Maintenance Activities

Maintenance activities at Lake Cozzens are limited to vegetation management along the dam face (mostly involving weed and grass removal), tree pruning around the dam, and filling burrows along the dam face. This work typically occurs on an annual basis. As shown in **Photo 7**, the maximum allowable water level at Lake Cozzens is at least 5 feet below the overflow elevation. This reduces strain and pressure on the earthen dam. SJWC also maintains the dam access road for proper grading and drainage, as shown in Photo 7.

Watershed and Physical Setting

Lake Cozzens and Lake Kittredge occupy a small plateau area in the Briggs Creek watershed. Runoff to supply the reservoirs derives from upper tributaries of Briggs Creek that are diverted to supply the lakes. Because the lakes are managed for recreation and water levels are kept at reduced levels, when more ample runoff is available beyond what the lakes require, it is kept in the Briggs Creek channel. Most of the drainage area to these lakes is developed with rural, large-plot residential housing, an elementary school, and some agricultural uses (vineyards and tree farms). In terms of water quality, both lakes are likely high in quality and minimally influenced by anthropogenic contaminants.

Biological Conditions

Vegetation Composition

This site supports a diversity of habitats, including ruderal grassland, mixed oak woodland, and mixed evergreen forest (**Photos 8-9**). Mixed evergreen forest occurs on the south side of the reservoir, on mesic north-facing slopes. Mixed evergreen forest is dominated by Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and includes tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), coast redwood (*Sequoia sempervirens*), and California bay (*Umbellularia californica*). On the northern and eastern sides of the reservoir, including on the dam itself, black oak woodland is the dominant habitat type. Black oak woodland is dominated by black oak (*Quercus kelloggii*) with some Pacific madrone (*Arbutus menziesii*).

Photo 7. Lake Cozzens (Dec. 2013)

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The woodland understory and banks of the reservoir, between the top of bank and current water levels, support mostly ruderal grassland and occasional, generally small wetlands along the shoreline. Ruderal grassland is dominated by non-native species, including wild oats (*Avena* spp.), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). The site includes several small bulrush (*Schoenoplectus* sp.) and cattail (*Typha* sp.) wetlands, mostly along the western shoreline of the reservoir.

Photo 9. Bulrush wetland along Lake Cozzens shoreline (Dec. 2013).

Riparian Habitat

This site supports no riparian habitat. The banks are generally steeply sloping and support only herbaceous vegetation.

Instream Habitat

Not applicable.

Wetlands

No wetlands are present along the dam faces where maintenance activities are proposed. Several small cattail and bulrush wetlands are located along the western shoreline of the reservoir (Photo 9). These wetlands are dominated by perennial species and are expected to remain relatively stable and in the same location over time.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species at this site. Lake Cozzens provides suitable breeding and foraging habitat for the California red-legged frog (*Rana draytonii*), federally listed as threatened, and the species has been recorded in Lake Cozzens (EcoSystems West 2003; EcoSystems West 2006, as cited in EcoSystems West 2010b). Although the abundance of aquatic predators of California red-legged frogs (e.g., large-mouth bass [*Micropterus salmoides*], green sunfish [*Lepomis cyanellus*], bullfrogs [*Rana catesbeiana*], and crayfish [*Procambarus clarkii*]; EcoSystems West 2010b) in the lake reduces the likelihood that the species could breed successfully there, the cattail wetlands provide suitable structures for red-legged frog egg cluster attachment. In addition, the reservoir banks, including the dam faces, provide suitable upland refugia and cover for California red-legged frog. Similarly, the reservoir and surrounding uplands provide suitable breeding, foraging, and basking habitat for western pond turtle (*Actinemys marmorata*), a California species of special concern, which has been recorded in Lake Cozzens (EcoSystems West 2006, as cited in Ecosystems West 2010b). The site also provides potential habitat for up to one pair of nesting olive-sided flycatchers (*Contopus cooperi*), a California species of special concern.

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Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.
- No sediment removal occurs from the lake.
- Pre-construction surveys are required for red-legged frogs and western pond turtles. If these resources are detected, they would be relocated if necessary and/or buffered.

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4.1.4 Lake Kittredge

Lake Kittredge (**Photo 10**) is a small reservoir (approximately 8.7 acres) located in the Briggs Creek watershed west of Lexington Reservoir and Highway 17 (see Chapter 1, Figure 1-2). Lake Kittredge is one of five SJWC facilities that are regulated by DSOD, and maintenance activities at Lake Kittredge are prescribed by DSOD. Lake Kittredge is immediately adjacent to (and upslope of) Lake Cozzens. Both reservoirs were built in the late 19th century for local water supply purposes. Currently, Lake Kittredge functions as an emergency water supply source and is not accessible to the public. The lake is used as a venue for SJWC events and employee recreation. However, no swimming is allowed at Lake Kittredge. The lake is used exclusively by SJWC and the landowners immediately around the lake.

Photo 10. Lake Kittredge (Dec. 2013).

Maintenance Activities

Maintenance activities at Lake Kittredge are limited to vegetation management along the dam face (mostly involving weed and grass removal), tree pruning around the dam (**Photo 11**), and filling burrows along the dam face. SJWC also maintains the dam access road for proper grading and drainage, as shown in Photo 11. These vegetation management and access road maintenance activities typically occur on an annual basis. Additionally, a spring diversion box located near the lake, along Ellege Road, is maintained periodically to remove sediment and debris. A maximum of 1 cubic yard of accumulated sediment and debris is removed from the diversion box manually, primarily during the winter months.

Watershed and Physical Setting

Lake Cozzens and Lake Kittredge occupy a small plateau area in the Briggs Creek watershed. Runoff to the reservoirs derives from upper tributaries of Briggs Creek that are diverted to supply the lakes. Because the lakes are managed for recreation and water levels are kept low, when more ample runoff is available beyond what the lakes require, it is kept in the Briggs Creek channel. Most of the drainage area to these lakes is developed with rural, large-plot residential housing, an elementary school, and some

Photo 11. Pruned trees along the dam base at Lake Kittredge (Dec. 2013).

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agricultural uses (vineyards and tree farms.) In terms of water quality, both lakes are likely high in quality and minimally influenced by anthropogenic contaminants.

Biological Conditions

Vegetation Composition

This site supports a diversity of habitats, including ruderal grassland, mixed oak woodland, and mixed evergreen forest (Photos 9-11). Mixed evergreen forest occurs on the south side of the reservoir, on mesic north-facing slopes. The mixed evergreen forest is dominated by Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and includes tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), coast redwood (*Sequoia sempervirens*), and California bay (*Umbellularia californica*). On the northern and eastern sides of the reservoir, including on the dam itself, black oak woodland is the dominant habitat type. Black oak woodland is dominated by black oak (*Quercus kelloggii*) with some Pacific madrone (*Arbutus menziesii*).

The woodland understory and banks of the reservoir, between the top of bank and current water levels, support mostly ruderal grassland and occasional, generally small, wetlands along the shoreline. Ruderal grassland is dominated by non-native species, including wild oats (*Avena* spp.), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). The site includes several cattail (*Typha* sp.) wetlands, mostly along the northern shoreline of the reservoir.

Riparian Habitat

This site supports no riparian habitat. The banks of the lake support only herbaceous vegetation, and in most areas a dirt road divides the reservoir from the adjacent woodland and forest habitats.

Instream Habitat

Not applicable.

Wetlands

No wetlands are present along the dam faces where maintenance activities are proposed. Several small cattail wetlands are located along the shoreline of the reservoir (**Photo 12**). These wetlands are dominated by perennial plant species and are expected to remain relatively stable and in the same location over time.

Photo 12. Wetlands along edge of Lake Kittredge (Dec. 2013).

Special-Status Species with Potential to Occur

There is no suitable habitat for rare plant species at this site. Lake Kittredge provides suitable breeding and foraging habitat for the

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California red-legged frog (*Rana draytonii*), federally listed as threatened, and the species has been recorded in Lake Kittredge (EcoSystems West 2003; EcoSystems West 2006, as cited in EcoSystems West 2010b). Although the abundance of aquatic predators of California red-legged frogs (e.g., large-mouth bass [*Micropterus salmoides*], green sunfish [*Lepomis cyanellus*], bullfrogs [*Rana catesbeiana*], and crayfish [*Procambarus clarkii*]; [EcoSystems West 2010b]) in the lake reduces the likelihood that the species could breed successfully there, the cattail wetlands provide suitable structures for red-legged frog egg cluster attachment. In addition, the reservoir banks, including the dam faces, provide suitable upland refugia and cover for California red-legged frog. Similarly, the reservoir and surrounding uplands provide suitable breeding, foraging, and basking habitat for western pond turtle (*Actinemys marmorata*), a California species of special concern, which has been recorded in Lake Kittredge (EcoSystems West 2006, as cited in EcoSystems West 2010b). The site also provides potential habitat for up to one pair of nesting olive-sided flycatchers (*Contopus cooperi*), a California species of special concern.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.
- No sediment removal occurs in the reservoir.
- Pre-construction surveys are required for red-legged frogs and western pond turtles. If these resources are detected, they would be relocated if necessary and/or buffered.

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4.1.5 Lake Ranch Reservoir

Lake Ranch Reservoir (Lake McKenzie) has a storage capacity of 215 acre-feet (70 mg) and is SJWC's second largest raw water storage reservoir, after Lake Elsman (see Chapter 1, Figure 1-2). The reservoir has a surface area of about 23 acres when full. Lake Ranch Reservoir is one of five SJWC facilities that are regulated by DSOD, and maintenance activities at Lake Ranch Reservoir are prescribed by DSOD. Lake Ranch Reservoir occupies a linear valley formed by the San Andreas Fault Zone (**Photo 13**). This upper watershed valley forms a topographic saddle that straddles two watersheds: Saratoga Creek

Photo 13. Lake Ranch Reservoir looking northwest toward Saratoga Creek Watershed end of reservoir; photo taken from the Lyndon Canyon Outlet side of the reservoir (Dec. 2013).

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Watershed to the northwest and Lyndon Canyon Watershed to the southeast (which drains to Lexington Reservoir). Lake Ranch Reservoir has outlets on both its northwest and southeast sides, enabling SJWC to release to the SWTP to the northwest or the MWTP to the southeast by means of the Beardsley Intake Facility. Water is primarily released to the MWTP, but SJWC retains flexibility to also release to Saratoga Creek as conditions require. The reservoir facility includes a "splitter" gate upstream of the reservoir along an unnamed tributary stream segment of upper Saratoga Creek (**Photo 14**). This gate enables SJWC to either divert headwater flows into the reservoir or allow them to flow downstream into the Saratoga Creek Watershed. When the reservoir is full, the water depth is 14 feet at the Lyndon Canyon end and 12 feet at the Saratoga Creek Outlet side of the reservoir. The reservoir is accessible to the public through trails in Sanborn County Park. Recreational activities at the reservoir include picnicking and fishing, but no wading or swimming is allowed.

Maintenance Activities

Principal maintenance activities at Lake Ranch Reservoir are vegetation management along the dam faces at both ends of the reservoir (mostly involving weed and grass removal), tree pruning around the dam, filling burrows along the dam faces, debris (leaf litter) and vegetation management at the "splitter" gate (Photo 14), and maintaining the reservoir outlet gates in good working order. At the splitter gate, SJWC would shovel accumulated debris by hand and place in the stream channel downstream of the diversion. These activities are typically conducted on an annual basis. Lake Ranch Reservoir is one of five SJWC facilities regulated by DSOD, and these maintenance activities are prescribed by DSOD. SJWC does not remove sediment from the Lake Ranch Reservoir.

Watershed and Physical Setting

As described above, Lake Ranch Reservoir straddles the upper Saratoga Creek and Lyndon Canyon Watersheds. The reservoir collects runoff directly from the hillslopes that surround the reservoir, as well as from the unnamed tributary of Saratoga Creek, whose flows can be diverted into the reservoir. Because the reservoir is located in an upper watershed position, its catchment area is not large, less than 1 square mile (approximately 571 acres). When full, the lake surface elevation is approximately 1,840 feet in elevation. The highest point in the watershed is found at "The Peak" west of the reservoir at elevation 2,886 feet amsl.

Photo 14. Creek "splitter" gates northwest of Lake Ranch Reservoir (Dec. 2013).

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Photo 15. Lake Ranch Reservoir looking southeast toward Lyndon Canyon end of reservoir (Dec. 2013).

Because most of the watershed is undeveloped and protected within the Sanborn-Skyline County Park and private lands, water quality in the Lake Ranch Reservoir is minimally influenced by anthropogenic contaminants. Only picnicking and fishing are allowed in Lake Ranch Reservoir (Lake McKenzie); no boating, swimming, or body contact of any kind is permitted. Recreational activities at the Lake Ranch Reservoir and surrounding trails do not significantly affect water quality; however, due to seasonal warm water temperatures, algae can develop at the reservoir during the spring and summer months. The impact of this algal growth is minimized by managing releases early in the season. Future coordination with the Santa Clara County Park District is recommended to ensure that the trails are properly maintained to prevent erosion and sediment transport to the reservoir.

Biological Conditions

Vegetation Composition

The reservoir site supports a diversity of habitats, including grassland, scrub, and forest types (Photo 13). Mixed evergreen forest occurs on the southwest side of the reservoir, on mesic north-facing slopes (**Photos 13 and 15**). Mixed evergreen forest is dominated by Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) and includes tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), coast redwood (*Sequoia sempervirens*), and California bay (*Umbellularia californica*). On the northeast side of the reservoir, the drier, south-facing slopes support a mix of coastal scrub and mixed oak woodland (Photos 12 and 14). Coastal scrub is characterized by coyote brush (*Baccharis pilularis*), sticky monkey flower (*Mimulus aurantiacus*), poison oak (*Toxicodendron diversilobum*), toyon (*Heteromeles arbutifolia*), and California sagebrush (*Artemisia californica*). Mixed oak woodland is dominated by black oak (*Quercus kelloggii*) and coast live oak (*Quercus agrifolia*) and intergrades with coastal scrub. The dam faces and banks of Lake Ranch Reservoir, between the top of bank and current water levels, support ruderal grassland and occasional, generally small wetlands along the shoreline. Ruderal grassland is dominated by non-native species, including wild oats (*Avena* spp.), yellow star-thistle (*Centaurea solstitialis*), and black mustard (*Brassica nigra*). Several small wetlands along the waterline support hydrophytic species, including tall flat sedge (*Cyperus eragrostis*), smartweed (*Persicaria* sp.), and rough cocklebur (*Xanthium strumarium*). The site also includes several cattail (*Typha* sp.) wetlands, including a very large wetland complex in the northwest corner of the reservoir.

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Riparian Habitat

Lake Ranch Reservoir supports willow (*Salix* sp.) riparian habitat in both the southwest and northwest corners of the reservoir. In addition, a riparian corridor along the unnamed tributary of Saratoga Creek flows into Lake Ranch Reservoir from the southwest. No riparian habitat is present along the dam faces where maintenance activities are proposed.

Instream Habitat

The streambed area where the splitter gates are located, southwest of the Lake Ranch Reservoir, is composed of well-draining pebbles and cobbles and supports little to no hydrophytic vegetation (Photo 14). The width of the active floodplain varies from approximately 3 to 10 feet. Approximately 500 feet west of the reservoir, flow from the unnamed tributary is controlled by a splitter gate as described above (Photo 14). The splitter controls whether water flows east into the Los Gatos Creek Watershed or north into the Saratoga Creek Watershed. Hydrology in the creek is perennial.

Wetlands

No wetlands occur adjacent to the dam faces where maintenance activities are proposed. However, several small wetlands occur elsewhere along the waterline of the Lake Ranch Reservoir (**Photo 16**). These wetlands support hydrophytic species, including tall flat sedge, smartweed, and rough cocklebur. Several cattail wetlands (Photo 15) are also present, including a very large wetland complex in the northwest corner of the reservoir (Photo 16).

Photo 16. Wetlands along edge of Lake Ranch Reservoir (Dec. 2013).

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. The Lake Ranch Reservoir provides suitable breeding and foraging habitat for the California red-legged frog (*Rana draytonii*), federally listed as threatened, and the species has been recorded approximately 2.3 miles to the northeast near Saratoga Creek (CNDDB 2014). In addition, the reservoir banks, including the dam faces, provide suitable upland refugia and cover for California red-legged frog. Similarly, the reservoir and surrounding uplands provide suitable breeding, foraging, and basking habitat for western pond turtle (*Actinemys marmorata*), a California species of special concern, which has been recorded in the Lake Ranch Reservoir (CNDDB 2014). The site also provides potential habitat for up to one pair of nesting olive-sided flycatchers (*Contopus cooperi*), a California species of special concern.

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Impact Avoidance and Minimization for Maintenance Activities

- Pre-construction surveys are required for red-legged frogs and western pond turtles. If these resources are detected, they would be relocated if necessary and/or buffered.
- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

No sediment removal occurs in the reservoir.

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4.2 Intakes

4.2.1 Ostwald Intake Facility

The Ostwald Intake Facility is located on Los Gatos Creek downstream of Lake Elsman (see Chapter 1, Figure 1-2). The facility includes an inflatable rubber dam, concrete dam base, wooden intake manifold, intake gates, leaf screening mechanism, and discharge pipe (**Photo 17**). The purpose of the facility is to capture flows along Los Gatos Creek and divert them to the MWTP through the 30-inch conveyance pipe in Los Gatos Creek. This pipe also conveys raw water from other tributaries and watershed sources.

Photo 17. Ostwald Intake Facility (Dec. 2013).

The Ostwald Intake Facility was built in 1964 and is the largest source of raw water for the MWTP. Typically, the Ostwald Intake Facility provides about 55 percent of the MWTP's source water in a dry year (2008), and about 70 percent in a wet year (2010). In general, the main intake gate is operated remotely, but it can be operated manually. The Ostwald Intake Facility has a daily capacity of 17.9 mgd. SJWC must maintain a minimum flow of 2 cfs (or 896 gpm) downstream of the Ostwald Intake Facility if and whenever there is storage at Austrian Dam, as required in the Diversion and Use of Water License issued by SWRCB (1976). This minimum

Photo 18. Discharge pipe maintaining 2 cfs downstream of Ostwald Intake (Oct. 2013).

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flow requirement is facilitated through a pipe that discharges to the creek downstream of the dam (**Photo 18**).

Photo 19. Inflated rubber dam on Los Gatos Creek provides an adequate pool elevation for the Ostwald Intake (Oct. 2013).

Maintenance Activities

Water is diverted from Los Gatos Creek through the Ostwald Intake Facility year-round when there is natural streamflow or released water from Lake Elsman. Under normal conditions, the rubber dam is inflated to provide a pool elevation that can supply the intake by gravity (**Photo 19**). The dam is lowered occasionally during storm events when water cannot be effectively treated due to high turbidity. The dam is also lowered to allow creek flows to transport accumulated sediment downstream naturally. Routine maintenance activities at the Ostwald Intake Facility include annual clearing of debris from the intake gates. The bottom portion of the wooden boards that protect the base of the intake gate area are rotting and need repair and replacement, as shown in **Photo 20**. To facilitate replacement of these wooden boards, SJWC would also remove approximately 5-10 cy of sediment that has accumulated at the upstream end of the wooden boards and then place the sediment downstream of the rubber dam in the channel. This work would occur during the dry season and involve use of hand tools. Since there would still be flow in the channel, dewatering activities would be needed and either a cofferdam or sand bag would be installed.

Periodic mechanical sediment removal may occur at the Ostwald facility to enhance upstream and downstream habitat for special-status amphibians and fishes, improve water quality and to support broader ecological objectives for the downstream reach. Sediment management also ensures water infrastructure protection and sustainable water supply including provision of regulatory bypass and ecological flows.

Sediment accumulates behind the existing balloon dam structure and becomes entrenched in an approximately 10,000 square foot instream pool situated upstream and adjacent to the balloon dam and intake. As the sediments aggrades over time, they become recalcitrant and as a result unable to transport naturally downstream during high flows.

SJWC anticipates one initial sediment removal effort to address legacy sediments totaling approximately 1,000 cubic yards. Following the initial sediment removal, additional sediment removal project will be considered every 2-5 years on a smaller scale. These projects will be limited to 250-800 cubic yards depending on resource management and water supply monitoring outcomes and sediment accumulation rates.

Manual sediment removal will occur periodically at this facility. Sediment would be relocated to the channel immediately downstream of weirs/dams and would be conducted using hand tools

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(shovels) and would only involve moving sediment past the weir/dam structure. Typically, this amounts to less than 2 cubic yards annually, with sediment being moved less than 10 feet downstream past the weir/dam. All sediment would be kept in the stream system.

Watershed and Physical Setting

Photo 20. Wooden boards that protect the intake manifold at Ostwald Intake are rotting and in need of repair and replacement (Oct. 2013).

The Ostwald Intake Facility is located along Los Gatos Creek, about 2 miles downstream of Lake Elsman, about 0.5 mile upstream of Hooker Gulch's confluence with Los Gatos Creek, and about 2 miles upstream of Lexington Reservoir (see Chapter 1, Figure 1-2). At the Ostwald Intake, the Los Gatos Creek Watershed has a drainage area of 13.3 square miles, with a maximum elevation of 3,791 feet amsl at Loma Prieta Peak to the east and a minimum elevation of 829 feet amsl at the facility itself. Approximately 45 percent of the contributing watershed is covered in forest. The geology of the watershed upstream of the Ostwald Intake Facility is mostly composed of plutonic, volcanic, and marine sedimentary rocks of the Mesozoic Era Great Valley Complex and younger Tertiary (Eocene) sedimentary rocks (Graymer et al. 2006).

The Los Gatos Creek Watershed upstream of the Ostwald Intake Facility has generally steep slopes. The mean basin slope is steeper than 41 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the watershed upstream is approximately 52.4 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the mainstem Los Gatos Creek. Approximately 88 percent of the upper Los Gatos Creek subwatershed that drains to the Ostwald Intake Facility has poorly infiltrating, hydrographic Type D soils with high runoff potential; the remaining 12 percent of the subwatershed has Type B and C soils (NRCS 2014). The estimated peak 2-year, 5-year, and 10-year discharges on Los Gatos Creek at the Ostwald Intake Facility are 846 cfs, 1,820 cfs, and 2,480 cfs, respectively, based on regional regression analysis (USGS 2014). The detention of water in the Lake Elsman reservoir upstream, however, most likely affects these estimated instantaneous peak discharges. Streamflow in Los Gatos Creek is perennial, even during extended dry seasons, and is also influenced by releases and flow management at Lake Elsman.

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Photo 21. Inflatable dam at Ostwald Intake (Dec. 2013).

In terms of stream channel geomorphology at the Ostwald Intake Facility, the inflatable dam creates a pool environment when inflated. The channel width at the inflatable dam is about 70 feet wide on the bed, with 20-foot-long trapezoidal streambanks on either side (**Photo 21**). Fine sediment settles on the channel bed behind the dam. During the active winter flow season, when the dam is deflated, larger storms carry the finer sediment downstream. Downstream of the intake and inflatable dam (Photo 21), the Los Gatos Creek channel is generally a cobble bed stream in which the low-flow portion of the channel (typically the perennial wetted channel) is approximately 15-20 feet wide and composed of angular cobbles and some small boulders (**Photo 22**). Downstream of the facility, the channel corridor provides depositional bench and floodplain features on either side of the active channel (Photo 22). Woody debris and logs were not observed in the channel at the Ostwald Intake Facility or in the downstream reach.

Photo 22. Stream channel and bank/bench area downstream of the Ostwald Intake (Nov. 2013).

Similar to the other intake facilities in the watershed, turbidity at the Ostwald Intake Facility is monitored continuously. Water quality in Los Gatos Creek at the Ostwald Intake Facility generally reflects the quality of water released from Lake Elsman upstream. During warm summer days, water quality degrades in the standing pool behind the inflated dam as the water temperature increases, dissolved oxygen concentrations decline, and nutrients and bacteria increase. Nutrients are a particular concern because of the potential for biological fouling of intake structures and development of tastes and odor issues in the water.

Biological Conditions

Vegetation Composition

The dominant habitat type at this site is mixed evergreen forest (**Photo 23**). Coast redwood (*Sequoia sempervirens*) and Douglas fir (*Pseudotsuga menziesii* var. *menziesii*) are the dominant tree species, with red alder (*Alnus rubra*) and bigleaf maple (*Acer macrophylla*) common along the stream corridor. Scattered California bay (*Umbellularia californica*) and Pacific madrone (*Arbutus menziesii*) trees are also present. Common understory species include California blackberry (*Rubus ursinus*) and sword fern (*Polystichum* sp.). Greater periwinkle (*Vinca major*), an invasive species, is common in disturbed areas. Downstream of the dam, the streambed and

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low benches support scattered hydrophytes, including giant chain fern (*Woodwardia fimbriata*), common horsetail (*Equisetum arvense*), stinging nettle (*Urtica dioica*), western coltsfoot (*Petasites frigidus* var. *palmatus*), and elk clover (*Aralia californica*).

Riparian Habitat

The riparian corridor along the stream channel is approximately 20 feet wide on each bank. It is dominated by mature coast redwood, red alder, and bigleaf maple trees with an understory dominated by California blackberry and ferns. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes upstream from the intake, but is more distinctive on the downstream side of the inflatable dam.

Photo 23. Mixed evergreen forest upstream of Ostwald Intake (Nov. 2013).

Instream Habitat

As described above, an inflatable dam controls water flow at this site (Photo 21). A concrete apron and narrow band of rock riprap occupy the streambed immediately downstream of the dam. Downstream of this area, the streambed is composed of large cobbles and gravel. The active floodplain is approximately 80 feet wide at the dam and immediately downstream. Farther downstream, beyond the concrete apron and riprap, the active floodplain narrows to approximately 25 feet.

Wetlands

The creek bed downstream of the concrete apron supports occasional patches of dense hydrophytic vegetation (covering approximately 5 percent of the total creek bed), including giant chain fern, common horsetail, stinging nettle, western coltsfoot, and elk clover, that likely meet the jurisdictional definition of wetlands. No wetlands are present within the site's maintenance footprint, however.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site.

Los Gatos Creek in the vicinity of the Ostwald Intake Facility provides potential nonbreeding habitat for California red-legged frog (*Rana draytonii*), federally listed as threatened, and the species has been recorded immediately upstream of the Ostwald Intake site (CNDDB 2014). The pool formed by the dam provides only marginally suitable breeding habitat for this species, however, due to a lack of emergent vegetation, root wads, or other structures on which red-legged frogs could attach egg clusters.

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The site provides potential habitat for several California species of special concern, including western pond turtle (*Actinemys marmorata*); up to one pair each of nesting yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*); and small numbers of migrant/wintering western red bats (*Lasiurus blossevillii*). The woodlands on the site provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, no nests were observed during site visits. Thus, woodrats likely occur in low numbers, if at all, on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.
- Sediment removal work does not occur along the mainstem Los Gatos Creek at the Ostwald Intake Facility.
- Prior to conducting mechanical sediment removal work, cofferdams would be installed to isolate the work area and flows would be diverted around the work area in accordance with BMP GEN-14 (Dewatering Measures). An excavator and loader would be operated in upland areas adjacent to the channel when practicable or in the channel to remove sediment.
- Sediment removal materials will be off-hauled to an upland area and would either be re-used in the watershed or taken to a nearby landfill.
- Sediment removal work would occur only in late summer and early fall, typically September and October, during the driest period in the creek.
- Wooden boards at the base of the Ostwald Intake Facility will be repaired and replaced only under dry conditions, with the dam deflated and a protective barrier in place to keep the facility dewatered and dry during the repair process.
- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary.

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4.2.2 Hooker Intake Facility

Photo 24. Hooker Intake Facility (May 2013).

The Hooker Intake Facility is located at the downstream end of Hooker Gulch Creek (see Chapter 1, Figure 1-2). The facility includes a concrete dam, intake gates, and a leaf screening house (**Photo 24**). The purpose of the facility is to capture flows along Hooker Gulch and divert them to an intake pipe. The diversion pipe travels downstream and joins the main Los Gatos Creek 30-inch conveyance pipe that provides raw water to the MWTP. The facility was built in 1953 and typically provides about 10-12 percent of SJWC's surface water supply from the Los Gatos Creek Watershed system. Turbidity is continuously monitored and a pneumatic ram–operated butterfly valve located on the downstream piping is operated remotely to control intake flows. The Hooker Intake Facility has a daily capacity of 14.7 mgd. The length of the reverse arc dam is 50 feet. The elevation of the crest of the dam is 790 feet amsl, the intake pipe orifice is about 5 feet below the dam crest, and the dam is about 15 feet high from base to crest.

Maintenance Activities

Photo 25. Sediment deposited upstream of Hooker Intake Facility (May 2013).

Water is diverted from Hooker Gulch through the intake facility during the winter months when there is natural streamflow. The facility is not used in the dry months from late spring through fall. Maintenance activities at the Hooker Intake Facility include annual sediment removal upstream of the facility (**Photo 25**), light pruning of branches around the facility, and periodic clearing of debris from the intake gates. Other minor maintenance activities include in-kind replacement of hardware such as a ladder, railing, and sluice gates at the intake facility. Sediment has not been removed from the facility since the 1990s. As shown in Photo 25, sediment has accumulated behind the dam, and approximately 661 cubic yards of sediment currently needs to be removed. The frequency of future sediment removal will depend on the magnitude and frequency of winter storm events. It is anticipated that sediment removal at the Hooker Intake Facility will occur no more than four times during a 10-year period. Following the initial sediment removal of 661 cubic yards, future sediment removal projects will be restricted to a 500-cubic-yard limit. A threshold of 250 cubic yards of reduced storage capacity will be required to initiate any subsequent sediment removal work. Sediment accumulation of less than 250 cubic yards will

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not trigger maintenance. Appendix A provides an engineering design, plans, and specifications to conduct the initial sediment removal at Hooker Intake Facility. Due to settling and aging, a portion of the right base of the concrete dam has cracked. The facility may require longer-term repair and retrofit to address this structural issue. SJWC is monitoring the dam's condition.

Watershed and Physical Setting

Hooker Gulch is a tributary to Los Gatos Creek, positioned about half-way between Lake Elsman (2.5 miles upstream) and Lexington Reservoir (1.5 miles downstream) (see Chapter 1, Figure 1-2). The Hooker Gulch subwatershed is approximately 2.3 square miles in area, with a maximum elevation of 3,483 feet amsl at Mount Thayer to the east and a minimum elevation of 760 feet amsl at the confluence of Hooker Gulch with Los Gatos Creek (about 1,000 feet downstream of the intake facility). Approximately 40 percent of the Hooker Gulch subwatershed is covered in forest, with the other areas mostly grassland and mixed grassland/forest. The geology of the Hooker Gulch subwatershed comprises Franciscan Complex rocks, either coherent or mélange, associated with the region's active tectonic setting (Graymer et al. 2006).

The Hooker Gulch subwatershed hillslopes are steep; the mean basin slope is steeper than 45 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the basin is approximately 53.5 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the main Hooker Gulch creek. More than 76 percent of the Hooker Gulch subwatershed has poorly infiltrating, hydrographic Type D soils (NRCS 2014), and the remaining 24 percent have Type B and C soils. The estimated peak 2-year, 5-year, and 10-year discharges at the Hooker Intake Facility are 176 cfs, 386 cfs, and 533 cfs, respectively, based on regional regression analysis (USGS 2014). In wetter years, streamflow in Hooker Gulch is perennial, but during prolonged dry periods the stream may dry out and become more intermittent.

Photo 26. Stream channel downstream of Hooker Gulch Intake and Dam (Nov. 2013).

In terms of the stream channel geomorphology, the Hooker Gulch channel is generally a cobble bed stream, in which the low-flow portion of the channel (typically the perennial wetted channel) is approximately 5-10 feet wide and comprised of angular cobbles (**Photo 26**). The channel bed may include some small boulders as well. Upstream of the dam at the Hooker Intake Facility, sand and pebble-sized sediment are deposited. The dam at the intake facility creates a depositional area of approximately 7,800 square feet, extending approximately 150 feet upstream of the dam and 52 feet wide. More than 150 feet upstream of the dam, the channel is no longer a depositional basin and has a single thread channel form (**Photo 27**). In the reach immediately

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downstream of the dam toward the Los Gatos Creek confluence, some channel erosion/incision is observed. Further downstream, the channel corridor widens and includes depositional bench and floodplain features (**Photo 28**). Both upstream and downstream of the intake facility, woody debris and logs are present in the channel, providing instream depositional and habitat complexity features.

Photo 27. Channel upstream of intake

Water quality conditions at Hooker Gulch are generally good. There are few to no anthropogenic influences in Hooker Gulch because the entire watershed is privately owned and undeveloped. Natural erosion and sediment transport processes, including erosion from fire roads and gullies are likely the primary influences of water turbidity during storm events. If a standing pool of water develops behind the dam during warm summer days, water quality degrades as the water temperature increases, dissolved oxygen concentrations decline, and levels of nutrients and bacteria increase. Algal blooms may form and persist until the next runoff flushing event.

Biological Conditions

Vegetation Composition

The dominant vegetation type at this site is dense California bay (*Umbellularia californica*) forest (Photo 28). California bay is the dominant tree species; other tree species include bigleaf maple (*Acer macrophylla*), coast live oak (*Quercus agrifolia*), and Douglas fir (*Pseudotsuga menziesii* var. *menziesii*). The creek banks are dominated by California blackberry (*Rubus ursinus*) and California wood fern (*Dryopteris arguta*). Other common understory species include sword fern (*Polystichum* sp.), California barberry (*Berberis pinnata*), toyon (*Heteromeles arbutifolia*), pink honeysuckle (*Lonicera hispidula*), and starry false lily of the valley (*Maianthemum stellatum*). The streambed supports scattered hydrophytes, including tall flatsedge (*Cyperus eragrostis*), stinging nettle (*Urtica dioica*), and shortspike hedgenettle (*Stachys pycnantha*). Several non-native invasive species are present in the riparian corridor, including patches of greater periwinkle (*Vinca major*), English ivy (*Hedera helix*), and Himalayan blackberry (*Rubus armeniacus*).

Photo 28. Channel and floodplain bench downstream of intake (Oct. 2013).

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Photo 29. Upland area identified for sediment disposal (Oct. 2013).

North of the riparian corridor, along the proposed access route, several large gaps in the tree canopy support annual grassland and disturbed broom scrub habitats (**Photo 29**). This is an upland area identified for placement of dredged sediment. The annual grassland contains a diverse mix of native and non-native species. Native species include Torrey's melic grass (*Melica torreyana*), California brome (*Bromus carinatus*), small fescue (*Festuca microstachys*), blue wildrye (*Elymus glaucus*), naked-stemmed buckwheat (*Eriogonum nudum*), stiffbranch bird's beak (*Cordylanthus rigidus* spp. *rigidus*), clarkia (*Clarkia* sp.), yarrow (*Achillea millefolium*), and tarweed (*Madia* sp.). Non-native species include softchess (*Bromus hordeaceus*), wild oats (*Avena fatua*), yellow star-thistle (*Centaurea solstitialis*), and English plantain (*Plantago lanceolata*). The disturbed broom scrub habitat is dominated by French broom (*Genista monspessulana*).

Riparian Habitat

The riparian corridor along the stream channel banks is approximately 20 feet wide on each bank. It is dominated by mature California bay and bigleaf maple trees with an understory dominated by California blackberry. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes in most areas.

Instream Habitat

The streambed is composed of well-draining pebbles and cobbles and supports only scattered (< 5 percent cover) hydrophytic vegetation (**Photo 30**). The width of the active floodplain varies from approximately 40 feet upstream of the intake structure to 10-20 feet on the downstream side.

Photo 30. Upstream side of Hooker Intake and dam (Nov. 2013).

Wetlands

No jurisdictional wetlands are present within the maintenance area. Although hydrophytic vegetation is present within the Hooker Gulch streambed, it is relatively sparse (< 5 percent cover) and is likely scoured out on a seasonal basis during periods of high flow.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. Hooker Gulch and the associated riparian woodlands provide potential nonbreeding habitat

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for California red-legged frog (*Rana draytonii*), federally listed as threatened. The species has been recorded approximately 0.5 mile downstream of the Hooker Intake Facility, along the mainstem Los Gatos Creek (CNDDB 2014). However, the Hooker Intake Facility site (located on a smaller tributary upstream of the mainstem Los Gatos Creek) provides only marginally suitable breeding habitat for this species due to a lack of deep, perennial pools with emergent vegetation.

The site also provides potential habitat for several California species of special concern, including western pond turtle (*Actinemys marmorata*); up to one pair each of nesting yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*); and very small numbers of migrant/wintering western red bats (*Lasiurus blossevillii*). The riparian woodlands on the site provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, because only one nest was observed during site visits, the species is thought to occur in low numbers on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

- Following initial sediment removal of 661 cubic yards, future sediment removal projects will be restricted to a 500-cubic-yard limit. A threshold of 250 cubic yards of reduced storage capacity will be required to initiate any subsequent sediment removal work. Sediment accumulation of less than 250 cubic yards will not trigger maintenance.

- Sediment removal work will occur only in late summer and early fall, typically September and October, during the driest period in the creek.

- All removed sediment will be placed locally on an upland disposal site adjacent to Hooker Gulch. Placed sediment will be stable.

- Logs less than 10 feet long that are removed from intake gates can be relocated to downstream of the dam. Logs more than 10 feet long can be cut and relocated downstream of dam. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.

- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San

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Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

4.2.3 Hendry Intake Facility

Photo 31. Hendry Intake Facility, looking downstream (Dec. 2013).

The Hendry Intake Facility (see Chapter 1, Figure 1-2) includes a small concrete weir, intake gate, leaf and debris screening filters, and downstream pipeline (**Photo 31**). During winter months when there is flow in Hendry's Creek, flashboards are inserted into the slotted weir (**Photo 32**). The flashboards create a small pool that supplies flows to the intake gate. Captured flows pass the debris and leaf screens and enter a 12-inch-diameter pipe that flows downstream adjacent to Hendry's Creek. Piped Hendry's Creek flows join the main Los Gatos Creek 30-inch-diameter conveyance pipe near the confluence of Hendry's Creek with Los Gatos Creek and are conveyed to the MWTP.

The intake facility was built in 1954 and typically provides water only during wetter years. In the wet year of 2010, the facility provided only about 2.3 percent of SJWC's surface water supply from the Los Gatos Creek Watershed system. During dry years, no water is diverted. The flashboard and intake gate are operated manually. When the flashboards are installed and a pool of water is available, the Hendry Intake Facility has a capacity of 2.4 mgd.

Photo 32. Flashboard weir at Hendry Intake Facility (Dec. 2013).

Maintenance Activities

As described above, water is diverted from Hendry's Creek into the intake facility only during the winter months of wet years when there is natural streamflow. The facility is not used in the dry months from late spring through fall, and is not used during dry years when flows are non-existent or ephemeral. Maintenance activities at the Hendry Intake Facility are minor. If any sediment is deposited behind the flashboard dams, following the seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovel) are used to manually move the sediment less than 10 feet, just downstream of the weir. All sediment is kept in the creek. Deposited sediment is estimated to be less than 2 cubic yards annually. Other routine maintenance includes the annual

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inspection of the intake gate, leaf/debris screens, and hardware to ensure that the facility is operating properly.

Watershed and Physical Setting

Hendry's Creek is a tributary to Los Gatos Creek. The outlet (mouth) of Hendry's Creek is just upstream of the upper extent of the Lexington Reservoir (see Chapter 1, Figure 1-2). The Hendry's Creek subwatershed is approximately 1.1 square miles in area, with a maximum elevation of 2,690 feet amsl at the eastern edge of the watershed and a minimum elevation of 700 feet amsl at the confluence with Los Gatos Creek. Approximately 43 percent of the Hendry's Creek subwatershed is covered in forest. The geology of the Hendry's Creek subwatershed is composed of Cretaceous sedimentary rocks of the Franciscan Complex (Graymer et al. 2006).

Photo 33. Stream channel upstream of Hendry Intake of intake, looking upstream (Dec 2013).

The Hendry's Creek subwatershed hillslopes are steep; the mean basin slope is steeper than 51 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the basin is approximately 45.1 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the mainstem Hendry's Creek. Approximately 59.8 percent of the Hendry's Creek subwatershed has poorly infiltrating, hydrographic Type D soils with high runoff potential; the remaining 40 percent has Type B and C soils (NRCS 2014). The estimated peak 2-year, 5-year, and 10-year discharges at the Hendry Intake Facility are 81 cfs, 179 cfs, and 251 cfs, respectively, based on regional regression analysis (USGS 2014). In very wet years, streamflow in Hendry's Creek may be perennial, but in average or dry years the flows are more typically seasonal, intermittent, or ephemeral.

In terms of the stream channel geomorphology, the Hendry's Creek channel is generally a gravel bed stream in which the low-flow portion of the channel (typically the perennial wetted channel) is approximately 3-5 feet wide with a bed composed of sand, gravel, and angular cobbles (**Photo 33**). In the reach immediately downstream of the intake facility, some channel erosion/incision is observed.

Water quality in this small drainage is minimally influenced by anthropogenic contaminants. The drainage area is undeveloped except for the Lupin Lodge near the creek mouth and a few single-family homes along the southern ridge of the watershed. Septic systems from these facilities are

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monitored closely by the Santa Clara County Public Health Department. Runoff from Weaver Road, a rural residential road that runs along the southern/eastern ridge around the watershed, may contribute sediment and contaminants from vehicles; however, water quality in the creek is not likely affected by these relatively low-impact developments.

Photo 34. Looking upstream from Hendry Intake Facility (Dec. 2013).

Biological Conditions

Vegetation Composition

The dominant habitat type at this site is California bay (*Umbellularia californica*) forest (**Photo 34**). California bay is the dominant tree species; other tree species include bigleaf maple (*Acer macrophylla*), coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The creek banks are primarily composed of barren rock/soil with a dense layer of leaf litter and support only sparse vegetation, including California blackberry (*Rubus ursinus*), California wood fern (*Dryopteris arguta*), and invasive greater periwinkle (*Vinca major*).

Riparian Habitat

The riparian corridor at this location is relatively narrow because the stream is located between a dirt roadway and a steep hillside. The width of the riparian corridor varies from approximately 5 to 15 feet on each side of the stream. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes in most areas.

Instream Habitat

The streambed is composed of well-draining pebbles and cobbles and supports little to no hydrophytic vegetation. The width of the active floodplain varies from approximately 5 to 10 feet.

Wetlands

No jurisdictional wetlands are present within the maintenance area.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. Hendry's Creek and the associated riparian woodlands provide potential nonbreeding habitat for California red-legged frog (*Rana draytonii*), federally listed as threatened. The species has been recorded in a pool on Hendry's Creek near Lexington Reservoir (H. T. Harvey & Associates 1997) and approximately 1.7 miles upstream of the Hendry Intake Facility, along the mainstem Los Gatos Creek (CNDDB 2014). Suitable breeding habitat for the California red-legged frog is not present within the maintenance area, however, due to a lack of deep, slow-water

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pools with emergent vegetation, root wads, or other structures on which red-legged frogs could attach egg clusters.

The site provides potential habitat for several California species of special concern, including western pond turtle (*Actinemys marmorata*); up to one pair of nesting yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*); and very small numbers of migrant/wintering western red bats (*Lasiurus blossevillii*). The riparian woodlands on the site provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, because no nests were observed during site visits, the species likely occurs in low numbers, if at all, on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.
- Any sediment relocation will occur only with hand tools (shovels) and will only involve moving sediment past the weir structure. Typically, this amounts to less than 2 cubic yards annually.
- Trapped logs less than 10 feet long can be relocated directly downstream of the intake facility. Logs more than 10 feet long can be cut and relocated downstream of the intake facility but kept in the creek. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.
- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

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4.2.4 Lower/Upper Cavanee Intake Facilities

The Lower and Upper Cavanee Intake Facilities are located on Cavanee Creek, which drains directly into the Lexington Reservoir (see Chapter 1, Figure 1-2). There are two intake facilities at Cavanee Creek: the Lower Cavanee Intake (**Photo 35**); and the Upper Cavanee Intake (**Photo 36**). The Lower Cavanee Intake is the primary intake facility and includes a multi-paneled sluice gate dam and concrete base, intake gate, leaf and debris screening mechanism, access

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boardwalk, and equalization basin (Photos 35 and 37). The Upper Cavanee Intake Facility consists of only a concrete weir (Photo 36). A debris rack is located upstream of the Lower Cavanee Intake Facility (**Photo 38**).

As necessary, the sluice gate is lowered during winter months at the lower facility to provide a shallow pool that supplies the intake pipes seen in Photo 38. At the lower facility, captured flows pass the debris and leaf screens and enter a 12-inch-diameter pipe that flows to the equalization basin. Cavanee Creek water ultimately joins the main Los Gatos Creek 30-inch-diameter conveyance pipe downstream near the Lexington Reservoir and is conveyed to the MWTP.

The lower and upper intake facilities were built in 1955. The Upper and Lower Cavanee Intake Facilities have a daily capacity of 1.1 mgd and 4.8 mgd, respectively. Taken together, the Cavanee intakes supply only about 10 percent of SJWC's surface water supply from the Los Gatos Creek Watershed. The Lower Cavanee Intake Facility is the primary intake of the two facilities, accounting for about 90 percent of the diverted flows in normal and wet years from the two intakes.

Photo 36. Concrete weir without flashboards in place at Upper Cavanee Intake (Dec. 2013).

Photo 35. Lower Cavanee Intake Facility, looking upstream (Dec. 2013).

Maintenance Activities

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The Cavanee Intake Facilities are not used in the dry months from late spring through fall. These facilities are used only during winter months when there is streamflow. Maintenance activities at the Cavanee Intake Facilities are minor. At the Lower Cavanee Intake Facility, routine maintenance is focused on annual inspection of the sluice gate weirs and confirming the proper functioning of the intake gate, leaf/debris screens, and other hardware to ensure that the facility is operating properly. Any sediment that is deposited behind the sluice gate dam is allowed to be transported downstream when the flashboards are removed under natural flow conditions. If necessary, any sediment is relocated with hand tools (shovels) less than 10 feet downstream; this sediment is estimated to be less than 2 cubic yards annually. No sediment removal or other maintenance activities occur at the Upper Cavanee Intake Facility, where the concrete weir operates as is (Photo 36).

Photo 37. Intake gate and leaf screening facility at Lower Cavanee Intake Facility (Dec. 2013).

Photo 38. Debris rack in near ground to right, Lower Cavanee Intake Facility in background (Dec. 2013).

Watershed and Physical Setting

Cavanee Creek is a direct tributary to the Lexington Reservoir. Before reservoir construction, Cavanee Creek was a tributary to Los Gatos Creek, similar to Hendry's Creek and Hooker Gulch upstream in the watershed (see Chapter 1, Figure 1-2). The Cavanee Creek subwatershed (also known as Soda Springs Canyon) upstream of the facility is approximately 3.8 square miles in area, with a maximum elevation of 3,483 feet amsl at Mount Thayer at the southeastern edge of the watershed, and a minimum elevation of 877 feet amsl at the Lower Intake Facility. Approximately 45 percent of the Cavanee Creek subwatershed is covered in forest. SJWC's 2011 Watershed Sanitary Survey indicates that the Soda Springs Canyon subwatershed has an extreme fire hazard rating. A 1985 fire burned 14,000 acres in the watershed. The geology of the Cavanee Creek subwatershed is composed of Franciscan Complex mélange, Franciscan Complex sedimentary rocks, Great Valley sequence volcanic rocks, and Quaternary hillslope and landslide deposits (Graymer et al. 2006).

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The Cavanee Creek subwatershed hillslopes are steep; the mean basin slope is steeper than 42 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the basin is approximately 51.4 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the mainstem Cavanee Creek. The upper Cavanee Creek subwatershed has better rainfall infiltration properties than other locations of the eastern and upper Los Gatos Creek Watershed. Approximately 70 percent of the soils have moderately well-infiltrating, hydrographic Type B soils, 15% have slow-infiltrating Type C soils, and 15 percent have poorly infiltrating, hydrographic Type D soils with high runoff potential (NRCS 2014). The estimated peak 2-year, 5-year, and 10-year discharges at the Cavanee Intake Facility are 236 cfs, 533 cfs, and 746 cfs, respectively, based on regional regression analysis (USGS 2014). Cavanee Creek is typically a perennially flowing stream.

In terms of the stream channel geomorphology, the overall form and structure of Cavanee Creek at the intake facility sites is largely controlled by bedrock outcrops and large boulders that provide a very stable longitudinal stream profile. The channel occupies a narrow, V-shaped valley bottom and has an active alluvial bed composed of sediment sizes from sand to large boulders. Some sediments are deposited behind the debris rack (Photo 38). Between the Lower and Upper Cavanee Intake Facilities, large boulders create a mountainous step-pool sequence with multiple small channels and rapids. Immediately upstream of the Lower and Upper Cavanee Intake Facilities, the low-flow portion of the channel (typically the perennial wetted channel) is approximately 5-7 feet wide with a bed composed of sand, gravel, and angular cobbles. Narrow depositional bands are observed on either side of the wetted channel. These depositional features are likely temporary and are reshaped or replaced annually with larger flows.

Because most of the watershed is undeveloped and is protected by the Sierra Azul Open Space Preserve and private lands that are closed to the public, water quality in Cavanee Creek is very good and is minimally influenced by anthropogenic contaminants. Within the Sierra Azul Open Space Preserve, restrictions on vehicles, pets, and camping protect the quality of Cavanee Creek. The presence of rainbow trout (*Oncorhynchus mykiss*) in the creek, as described below, is an indicator that water in this drainage is of high quality because trout are extremely sensitive to water contamination. Potential wildfire in the watershed upstream of the intakes, which is considered a high-risk situation, would likely increase erosion, increase suspended sediments, and thereby have an adverse impact on water quality.

Biological Conditions

Vegetation Composition

The Lower Cavanee Intake Facility is dominated by California bay (*Umbellularia californica*) forest in the uplands and red alder (*Alnus rubra*) along the riparian corridor (Photo 38). Other tree species include bigleaf maple (*Acer macrophylla*), coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The creek banks are primarily composed of barren rock/soil with a dense layer of leaf litter, and they support only sparse vegetation, including

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California blackberry (*Rubus ursinus*) and California wood fern *(Dryopteris arguta*). The creek edge and several low terraces support dense cover of an unknown sedge (*Carex* sp.).

Riparian Habitat

The riparian corridor is approximately 20 feet wide on each bank. It is dominated by red alder and bigleaf maple trees with an understory dominated by California blackberry and ferns. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes in most areas.

Instream Habitat

The streambed is composed of well-draining pebbles and cobbles and supports only scattered (< 5 percent cover) hydrophytic vegetation in the bed itself. The width of the active floodplain varies from approximately 10 to 15 feet.

Wetlands

The edges of the creek and several low terraces support dense cover of hydrophytic vegetation (mostly sedges). These areas likely meet the jurisdictional definition of wetlands, but no such areas are located adjacent to the flashboard weirs, intake gate, or leaf/debris screens where maintenance activities would occur.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. Cavanee Creek and the associated riparian woodlands provide suitable nonbreeding habitat for California red-legged frog (*Rana draytonii*), federally listed as threatened. The species has been recorded approximately 2.6 miles to the south along Los Gatos Creek (CNDDB 2014). Because of a lack of deep, slow-water pools with emergent vegetation, root wads, or other structures on which red-legged frogs could attach egg clusters, however, the site does not provide suitable breeding habitat for this species. The presence of rainbow trout, an aquatic predator of red-legged frog, in the creek (EcoSystems West 2010b) further reduces the quality of the habitat for the species.

The site provides habitat for several California species of special concern, including western pond turtle (*Actinemys marmorata*); up to one pair each of nesting yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*); and very small numbers of western red bats (*Lasiurus blossevillii*). The riparian woodlands on the site also provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, because no nests were observed during site visits, this species likely occurs in low numbers, if at all, on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify

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which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

- No sediment removal or instream work occurs at Upper Cavanee Intake Facility.
- Minor sediment removal work may occur at Lower Cavanee Intake Facility. This will be conducted with hand tools and typically will only involve moving up to 2 cubic yards of sediment manually below the flashboard gates. The sediment will then be carried by streamflows in natural transport farther downstream.
- Other routine maintenance at the facility involves inspecting the flashboards, intake hardware, and leaf screening mechanism for proper functioning.
- Periodically (depending on the frequency of large storm events), logs are removed from behind the debris rack. Logs less than 10 feet long can be removed from the debris rack and relocated downstream of the intake facility. Logs more than 10 feet long can be cut and relocated downstream of the Lower Cavanee Intake Facility but kept in the stream. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.
- Periodically (approximately every 2-5 years), sediment may be cleared from behind the debris rack. This typically involves moving sediment to around the debris rack, using shovels and hand tools, where it can then be transported downstream by streamflows.
- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

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4.2.5 Beardsley Intake Facility

The Beardsley Intake Facility includes a small concrete weir, flashboard notch, intake gate, leaf and debris screening filters, holding pool, and downstream pipeline (**Photos 39 and 40**). During winter months when there is flow in Beardsley Creek (also known as Lyndon Canyon Creek), a flashboard can be manually inserted into the slotted weir to create a water depth that can supply flow to the intake gate. Captured flows are held in the

Photo 39. Notched weir of the Beardsley Creek Intake Facility (Oct. 2013).

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storage pool and then pass the debris and leaf screens (Photo 43) before entering a conveyance pipe down Lyndon Canyon to the MWTP.

The intake facility was built in approximately 1960. In the wet year of 2010, the facility provided only about 5.1 percent of SJWC's surface water supply from the Los Gatos Creek Watershed system. During the dry year of 2008, the intake was used more, as other sources were unavailable, and provided 14.9 percent of SJWC's surface water supply from the watershed. The Beardsley Intake Facility has a capacity of 6.9 mgd if that much water is available for diversion.

Photo 40. Storage pool, intake gate, and leaf/debris screening device (Oct. 2013).

Maintenance Activities

As described above, water is diverted from Beardsley Creek into the intake facility only during the winter months. The facility is not used in the dry months from late spring through fall. Maintenance activities at the Beardsley Intake Facility are minor. If any sediment is deposited behind the flashboard dams, following the seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment past the weir. Deposited sediment is estimated to be less than 2 cubic yards annually. Most often the pool upstream of the weir remains clear and open (**Photo 41**).

Photo 41. Creek behind Beardsley weir with intake gate mechanism to left (Oct. 2013).

Mechanical sediment removal may also be conducted periodically. Sediments requiring mechanical treatment are typically large, cobble and pebble sediments derived from upstream clastic sources. These sediments aggrade in the small instream basin below the diversion structure along with smaller grain sediments and fines. The sediments are occasionally entrenched and immobile and develop rigid impenetrable surfaces covering approximately 1000 square feet of instream area including the deeper pool directly upstream of the diversion gates.

Management activities are planned to increase opportunities for sediment mobilization and to mitigate habitat and water resources impacts associated with the aggraded sediments. Initial

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removal of approximately 50 cubic yards of sediment will address legacy impacts and sediments. Additional mechanical removal of 5-10 cubic yards of sediment may be required every 3-5 years.

Other routine maintenance includes the annual inspection of the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

Watershed and Physical Setting

Beardsley Creek (Lyndon Canyon Creek) is a historic tributary to Los Gatos Creek but now flows directly into the western arm of the Lexington Reservoir (see Chapter 1, Figure 1-2). The Beardsley Creek subwatershed is approximately 2.8 square miles in area, with a maximum elevation of 3,005 feet amsl at "The Peak" at the western eastern edge of the watershed and a minimum elevation of approximately 906 feet amsl at the intake facility. Approximately 56 percent of the Lyndon Canyon subwatershed upstream of the intake is forested, and its headwaters are encompassed by Sanborn-Skyline County Park. SJWC's Lake Ranch Reservoir provides runoff storage in the upper portion of the watershed. Geologically, the Lyndon Canyon subwatershed is physically aligned with the San Andreas Fault Zone. This explains the northwest-southeast linear alignment of the canyon and stream course. In terms of rock material, the watershed is largely composed of older Great Valley Sequence volcanic rocks, Cretaceous sedimentary rocks of the Franciscan Complex, younger Eocene Franciscan Complex mélange, and more recent Eocene sedimentary rocks (Graymer et al. 2006). The San Andreas Fault Zone creates an abrupt fault contact between rock materials of different types on either side of the fault, which can have implications for groundwater movement and streamflow.

The Lyndon Canyon subwatershed hillslopes are steep; the mean basin slope is steeper than 41 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the basin is approximately 46.9 inches. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the mainstem Beardsley Creek. About 80 percent of the Beardsley Creek subwatershed has moderately well-infiltrating, hydrographic Type B soils. This relatively good infiltration capacity compared to other areas in the Los Gatos Creek Watershed is likely due to the greater soil porosity derived from the high proportion of Great Valley Sequence volcanic base rock in this subwatershed. Poorly infiltrating, hydrographic Type D soils with high runoff potential comprise only about 15 percent of the subwatershed, and slow-infiltrating Type C soils represent the remaining 5 percent (SSURGO, NRCS 2014). The estimated peak 2-year, 5-year, and 10-year discharges at the Beardsley Intake Facility are 161 cfs, 371 cfs, and 528 cfs, respectively, based on regional regression analysis (USGS 2014). Streamflow in Beardsley Creek is generally perennial and, as described above, the presence of volcanic base rocks may contribute to better infiltration and stronger base streamflows that persist further into the drier months.

In terms of the stream channel geomorphology, the Beardsley Creek channel is generally a steep gravel bed stream in which the low-flow portion of the channel (typically the perennial wetted

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channel) is approximately 10-12 feet wide upstream of the intake (**Photo 42**). The stream bed is composed of sand, gravel, and angular cobbles. In the reach immediately upstream of the intake facility, small depositional benches flank the low-flow channel and a mid-channel bar is observed. The elevation of the benches is estimated to be in the range of a 1- to 2-year return discharge, with an estimated peak flow rate of about 161 cfs.

Photo 42. Stream channel upstream of Beardsley Intake (Oct. 2013).

Because most of the watershed is undeveloped and protected by a county park and private lands, water quality in Beardsley Creek is minimally influenced by anthropogenic contaminants. As stated in SJWC's 2011 Watershed Sanitary Survey, the Beardsley Creek Intake Facility is adversely affected by an ongoing landslide that increases the turbidity of the water received at the MWTP (SJWC 2011). Only picnicking and fishing are allowed in the Lake Ranch Reservoir (Lake McKenzie) in the upper watershed; no boating, swimming, or body contact of any kind is permitted. Recreational activities at the Lake Ranch Reservoir and surrounding trails do not significantly affect water quality. However, future coordination with the Santa Clara County Park District is recommended to ensure that the John Nicholas Trail, which traverses the upper watershed, is properly maintained to prevent trail erosion and sediment transport to the creek. Equally, coordination with private landowners downstream from the Beardsley Creek Intake Facility could prevent water contamination from spills of hazardous waste from household use and vehicles.

Biological Conditions

Vegetation Composition

The dominant habitat type at this site is dense California bay (*Umbellularia californica*) forest (Photo 42). California bay is the dominant tree species; other tree species include bigleaf maple (*Acer macrophylla*), coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The creek banks are primarily composed of barren rock/soil with a dense layer of leaf litter and support only sparse vegetation, including California blackberry (*Rubus ursinus*) and California wood fern (*Dryopteris arguta*).

Riparian Habitat

The riparian corridor is approximately 10-20 feet wide on each bank. It is dominated by mature California bay trees with a sparsely vegetated understory. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes in most areas. No riparian vegetation would be affected by the planned maintenance activities.

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Instream Habitat

The streambed is composed of well-draining pebbles and cobbles and supports little to no hydrophytic vegetation (Photo 42). The width of the active floodplain ranges from approximately 40 feet upstream of the intake structure to 20 feet on the downstream side.

Wetlands

No jurisdictional wetlands are present within the maintenance area.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site. Beardsley Creek and the associated riparian woodlands provide potential nonbreeding habitat for California red-legged frog (*Rana draytonii*), federally listed as threatened. The species has been recorded approximately 4.4 miles southeast of the site along Los Gatos Creek (CNDDB 2014). The concrete-lined off-channel holding pool on the site lacks emergent vegetation, root wads, or other structures on which red-legged frogs could attach egg clusters, however, and no other deep, slow-water pools are present. Thus, the site does not provide suitable breeding habitat for California red-legged frog. The presence of bullfrogs (*Rana catesbeiana*), an aquatic predator of the red-legged frog (EcoSystems West 2010b), further reduces the quality of the habitat for red-legged frogs.

The site provides habitat for several California species of special concern, including dispersal and foraging habitat for western pond turtle (*Actinemys marmorata*), which has been recorded in the Lake Ranch Reservoir approximately 2.3 miles upstream of the site and the Lexington Reservoir approximately 0.7 mile downstream (CNDDB 2014). It also provides breeding habitat for up to one pair each of yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*) and roosting habitat for very small numbers of migrant/wintering western red bats (*Lasiurus blossevillii*). The woodlands on the site provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, because no nests were observed during site visits, woodrats likely occur in low numbers, if at all, on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

- Any sediment relocation to the channel immediately downstream of the weir will occur only with hand tools (shovels) and will only involve moving sediment past the weir structure. Typically, this amounts to less than 2 cubic yards annually.

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- Prior to conducting mechanical sediment removal work, cofferdams would be installed to isolate the work area and flows would be diverted around the work area in accordance with BMP GEN-14 (Dewatering Measures). An excavator and loader would be operated in upland areas adjacent to the channel when practicable or in the channel to remove sediment.
- Sediment removal materials will be off-hauled to an upland area and would either be re-used in the watershed or taken to a nearby landfill.
- Sediment removal work would occur only in late summer and early fall, typically September and October, during the driest period in the creek.
- Trapped logs less than 10 feet long can be relocated directly downstream of the intake facility. Logs more than 10 feet long can be cut and relocated downstream of the intake facility. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.
- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

4.2.6 Trout Creek Intake Facility

The Trout Creek Intake Facility includes a small concrete weir, flashboard notch, intake gate, leaf and debris screening filters, pump house, and downstream pipeline (**Photos 42 and 43**). During winter months when there is flow in Trout Creek, flashboards can be manually inserted into the slotted weir to create a water depth that can supply flow to the intake gate. Diverted flows are piped to the MWTP. Because Trout Creek sits lower in elevation than the MWTP, pumping is required to lift the water to the treatment plant. The pump house for the Trout Creek Intake Facility is seen in Photo 43.

Photo 43. Trout Creek Intake Facility weir and intake in distance, pump house to left (Oct. 2013).

The current intake facility was built in 1957. In the wet year of 2010, the facility provided only about 5.1 percent

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of SJWC's surface water supply from the Los Gatos Creek Watershed system. The Trout Creek Intake Facility is a relatively small source of surface water for SJWC, normally contributing less than 3 percent of the overall amount from among the various Los Gatos Creek Watershed sources. The Trout Creek Intake Facility has a daily capacity of 2.5 mgd if that much water is available for diversion. In average or wet years, flows in Trout Creek are perennial. In very dry years, flows may be more seasonal or intermittent.

Maintenance Activities

Photo 44. Trout Creek Intake Facility weir and downstream pool (Oct. 2013).

As described above, water is diverted from Trout Creek into the intake facility only during the winter months. The facility is not used in the dry months from late spring through fall. Maintenance activities at the Trout Creek Intake Facility are minor. If any sediment is deposited behind the flashboard dam, then following seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment manually past the weir (**Photo 44**). The amount of removed sediment is less than 1 cubic yard annually. Most often the pool upstream of the weir remains clear and open (Photo 44).

Mechanical sediment removal will occur periodically at the Trout intake. Mechanical sediment removal would be limited to a small area directly adjacent and upstream of the diversion gates. This area comprises roughly 500 square feet of instream depressional area where streamflow pools, and accumulates under natural sedimentation regimes. Over time, this area entrains coarse sediments, which aggrade and become immobile. To restore functional flows and sediment transport, this area requires periodic mechanical sediment removal to facilitate restoration of pool depths and downstream sediment transport processes. Initial removal will focus on excess sediment impacting the instream pool area. Approximately 20 cubic yards of sediment removal is planned for this preliminary effort. Following the initial removal, as-needed sediment removal may be required periodically. Subsequent removal will entail significantly smaller amounts of sediment removal, estimated between 5-10 cubic yards every 3-5 years.

Other routine maintenance includes the annual inspection of the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

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Watershed and Physical Setting

Photo 45. Stream channel upstream of Trout Creek Intake (Oct. 2013).

Trout Creek is a tributary that joins Los Gatos Creek downstream of the Lexington Reservoir (see Chapter 1, Figure 1-2). The Trout Creek Intake Facility is located up Trout Creek canyon to the west of the Lexington Reservoir. The Trout Creek subwatershed is approximately 1.2 square miles in area, with a maximum elevation of 2,501 feet amsl at the western edge of the watershed and a minimum elevation of approximately 690 feet amsl at the intake facility. Approximately 45 percent of the Trout Creek subwatershed upstream of the intake is covered in forest. Geologically, the Trout Creek subwatershed is almost entirely composed of Cretaceous sedimentary rocks of the Franciscan Complex, with alluvial-derived sediments filling the tightly V-shaped canyon bottom (Graymer et al. 2006).

The Trout Creek subwatershed hillslopes are steep; the mean basin slope is steeper than 47.5 percent (rise/run) in the watershed upstream of the intake. Mean annual precipitation in the basin is approximately 38.1 inches; this is notably less than in other subwatershed areas of the Los Gatos Creek Watershed because of the lower elevation and more interior location that experiences some rain shadow effect. With the steep mountainous terrain, rainfall results in rapid runoff down the smaller tributaries to the mainstem Trout Creek. About 84 percent of the Trout Creek subwatershed has poorly infiltrating, hydrographic Type D soils with high runoff potential. About 15 percent of the subwatershed has slowly infiltrating, hydrographic Type C soils, and less than 1 percent of the drainage area has moderately well-infiltrating, hydrographic Type B soils (NRCS 2014). The estimated peak 2-year, 5-year, and 10-year discharges at the Trout Creek Intake are 58 cfs, 140 cfs, and 207 cfs, respectively, based on regional regression analysis (USGS 2014). Streamflow in Trout Creek is generally perennial during wet years, but is more seasonal and intermittent during drier years.

In terms of the stream channel geomorphology, the Trout Creek channel is generally a steep gravel bed stream in which the low-flow portion of the channel (typically the perennial wetted channel) is approximately 8-10 feet wide upstream of the intake. The stream bed is composed of sand, gravel, and angular cobbles. In the reach immediately upstream of the intake facility, the channel bed and banks are not strongly defined and merge/transition with the steep canyon walls to the north and a slightly elevated depositional bar to the south (**Photo 45**).

Because most of the watershed is undeveloped and protected by public open space and private lands, water quality in Trout Creek is generally good and is minimally influenced by anthropogenic contaminants. The Midpeninsula Open Space District's El Sereno Open Space Preserve encompasses the headwaters of Trout Creek and extends along the northern ridgeline

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of the creek's drainage area. Trails for hiking, biking, and equestrians are maintained within the preserve. Single-family residences are located on the southern ridge along Montevina Road. Recreational use within the El Sereno Open Space Preserve does not significantly affect water quality. Failure of septic systems from homes may affect the quality of water in Trout Creek; however, observations made by SJWC staff indicate that septic systems in the area are in good repair.

Biological Conditions

Vegetation Composition

The dominant habitat type at this site is dense California bay (*Umbellularia californica*) forest (Photo 45). California bay is the dominant tree species; other tree species include bigleaf maple (*Acer macrophylla*), coast live oak (*Quercus agrifolia*), and California sycamore (*Platanus racemosa*). The creek banks are primarily composed of barren rock/soil with a dense layer of leaf litter and support only sparse vegetation, including California blackberry (*Rubus ursinus*) and California wood fern (*Dryopteris arguta*).

Riparian Habitat

The riparian corridor is approximately 20 feet wide on each bank. It is dominated by mature California bay trees with a sparsely vegetated understory. The riparian corridor is poorly defined, blending in seamlessly with the upland forest on adjacent slopes in most areas.

Instream Habitat

The streambed is composed of well-draining pebbles and cobbles, and it supports little to no hydrophytic vegetation (Photo 45). The width of the active floodplain varies, ranging from approximately 7-10 feet upstream of the intake structure to 10-12 feet on the downstream side (following a 3-foot vertical drop).

Wetlands

No jurisdictional wetlands are present within the facility site.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site.

Trout Creek provides potential nonbreeding habitat for California red-legged frog (*Rana draytonii*), federally listed as threatened. The species has been recorded approximately 4.0 miles upstream of the Trout Creek Intake Facility, along the mainstem Los Gatos Creek and approximately 4.4 miles to the northwest along Saratoga Creek (CNDDB 2014). Breeding habitat is not present within the maintenance footprint, however, due to a lack of deep, slow-moving pools with emergent vegetation, root wads, or other structures on which red-legged frogs could attach egg clusters.

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The site provides potential habitat for several California species of special concern, including western pond turtle (*Actinemys marmorata*); up to one pair each of nesting yellow warblers (*Setophaga petechia*), olive-sided flycatchers (*Contopus cooperi*), and long-eared owls (*Asio otus*); and very small numbers of migrant/wintering western red bats (*Lasiurus blossevillii*). The woodlands on the site provide suitable habitat for San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*); however, because no nests were observed during site visits, woodrats likely occur in low numbers, if at all, on the site.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

- Any sediment relocation to immediately downstream of the weir will occur only with hand tools (shovels) and will only involve moving sediment past the weir structure. Typically, this amounts to less than 1 cubic yard annually.

- Prior to conducting mechanical sediment removal work, cofferdams would be installed to isolate the work area and flows would be diverted around the work area in accordance with BMP GEN-14 (Dewatering Measures). An excavator and loader would be operated in upland areas adjacent to the channel when practicable or in the channel to remove sediment.

- Sediment removal materials will be off-hauled to an upland area and would either be re-used in the watershed or taken to a nearby landfill.

- Sediment removal work would occur only in late summer and early fall, typically September and October, during the driest period in the creek.

- Trapped logs less than 10 feet long can be relocated directly downstream of the intake facility. Logs more than 10 feet long can be cut and relocated downstream of the intake facility but kept in the creek. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.

- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

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4.2.7 Howell Intake Facility

Photo 46. Howell Intake Facility (Dec. 2018).

Howell Intake is composed of two intakes located approximately 250 feet apart along Briggs Creek. The lower intake is being studied as a part of SJWC's Raw Water Intake Bypass Flow Study (RWIBFS) project that began in 2019 and will be completed in 2021. The purpose of the RWIBFS is to determine bypass flow from water intake locations needed to maintain special status species habitat, interim bypass flows during the study duration, and long-terms operations and bypass flows for intake facilities. The Howell Intake is located towards the upstream end of Briggs Creek. The facility was built in 1935 and includes a masonry dam, a slide gate, a wooden intake box covered with a louvered screen, and a rock-lined collection pond located 250 feet upstream of the dam. The upper intake predates the lower intake by several decades and was likely established in the late 1800's to early 1900's. Modernization of the upper intake was completed in 1971. This component of the Howell Intake includes a small instream weir composed of rock and sediment. The weir maintains a 10square-foot collection pool that feeds the diversion intake.

The purpose of the facility is to capture flows along Briggs Creek and provide raw water to SJWC's Howell Filter Plant, which serves approximately 20

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Photo 47. Howell Intake Facility (Dec. 2018).

customers. A 2-inch galvanized steel pipe draws from the collection pond and travels approximately 1,050 feet downstream to the filter plant. A 10-inch HDPE pipe enclosed in a 24-inch corrugated metal casing draws from the screened intake box and travels downstream along the same alignment as the 2-inch galvanized steel pipe, but releases into Lake Kittredge (sometimes referred to as Howell Reservoir), located 200 feet downstream of the filter plant. At the filter plant, flow is manually read, turbidity is continuously monitored, and a pneumatic ram-operated butterfly valve is operated remotely to bring the 2-inch intake in or out of service. Briggs Creek is a seasonal stream and is typically only operational between December and July (with an average diversion rate < 0.1 cfs).

Photo 48. Upper Howell natural instream weir (Dec. 2018).

Photo 49. View upstream of Howell Intake Facility (Dec. 2018).

Maintenance Activities

As described above, water is diverted from Briggs Creek into the intake facility only during December through July as flows allow. The facility is not used in the dry months, typically from late spring through fall. Maintenance activities at the Howell Intake Facility are minor. If any sediment is deposited behind the flashboard dam, then following seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the

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sediment manually past the weir. The amount of removed sediment is less than 1 cubic yard annually. Most often the rock-lined collection pool upstream of the weir remains clear and open when enough rainfall occurs to allow the pool to form. Periodic repair (reconfiguring rocks or placement of sediment) of the instream natural weir is conducted to maintain adequate water levels in the upper intake collection pool. Other routine maintenance includes the annual inspection of the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

Photo 50. View downstream of Howell Intake Facility (Dec. 2018).

Watershed and Physical Setting

Briggs Creek is a seasonal stream that is tributary to the Lexington Reservoir (see Chapter 1, Figure 1-2A). The Upper Howell Intake Facility is located up Briggs Creek to the west of Lexington Reservoir. The vicinity of Briggs Creek has a maximum elevation of 1,916 feet amsl and a minimum elevation of approximately 646 feet amsl. Approximately 70% of the area upstream of the intake is forested. The vicinity of Briggs Creek is geologically composed of Quaternary alluvium and Tertiary sedimentary rock (Graymer et al. 2006).

The Briggs Creek stream channel varies from 5 to 12 feet wide downstream of the intake with an average 8 feet wide and has a low to moderate gradient, ranging from 2% to 5% in the vicinity and immediately downstream of the intake. The banks are generally moderate to high gradient. Mean annual precipitation in the basin ranges from approximately 40 to 60 inches. A majority of the Briggs Creek subwatershed has high infiltration rate, hydrologic Type A soils with low runoff potential consisting of mainly deep, well drained to excessively drained sands or gravelly sands (NRCS 2014). As discussed previously, Briggs Creek is a seasonal stream that generally supports flows from December through July, dependent on rainfall. During the dry season, there may be no visible surface streamflow at the intake structure.

In regards to the stream channel geomorphology, channel substrates downstream of the intake consist primarily of cobble, gravel and sand, with a few boulders. Alluvium is relatively thick in some areas of the stream channel. Stream habitats downstream of the intake consisted mostly of runs and a few riffles. Pools do not tend to form, likely due to the large amount of alluvium (gravel and sand) in the channel.

Because most of the watershed is undeveloped and protected by public open space and private lands, water quality in Briggs Creek is generally good and is minimally influenced by anthropogenic contaminants. The Midpeninsula Open Space District's Bear Creek Redwoods Preserve extends southwest of the southern edge of Briggs Creek's drainage area. Trails for

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hiking, biking, and equestrians are maintained within the preserve. Single-family residences are located to the south along Chase Road and to the north by Lake Cozzens. Recreational use within the Bear Creek Redwoods Preserve does not significantly affect water quality. Failure of septic systems from homes may affect the quality of water in Briggs Creek; however, observations made by SJWC staff indicate that septic systems in the area are in good repair.

Biological Conditions

Vegetation Composition

The dominant vegetation community type at this site is Coast Redwood Forest. This vegetation community has a State Rarity Ranking of S3, meaning CDFW considers this a sensitive natural community. Canopy cover at the site is comprised of coast redwood, California bay, and white alder; and varied from 70 – 100% coverage. Margin vegetation along the creek banks is generally sparse, although several species of fern and sedges are present within and adjacent to the channel in some locations

Riparian Habitat

The riparian corridor varies from 0 to 10 feet wide along each bank and is dominated by mature California bay trees, coast redwood, and scattered ferns with a sparsely vegetated understory. The riparian corridor is poorly defined, and is generally similar to the upland forest on adjacent slopes in most areas.

Instream Habitat

The streambed at and immediately upstream of the diversion consists of a deep deposit of primarily well-drained cobble, gravel, and fines (sand and silt) with little or no pool habitat. Hydrophytic vegetation is not present at or immediately upstream of the diversion. Habitat within 100 feet downstream of the diversion contains mostly sediment and rocks and lacks pools. Suitable pool habitat for California giant salamander is not present within 100 feet upstream or downstream of the diversion. The width of the active floodplain varies, ranges from approximately 10 to 15 feet upstream of the intake structure to 3 to 6 feet downstream of the diversion (following an 8- to 10-foot vertical drop below the diversion).

Wetlands

No jurisdictional wetlands are present within the facility site.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site.

No aquatic species have been observed at the Howell Intake or in the general vicinity of the intake during site reconnaissance or during subsequent stream surveys conducted in the spring and fall downstream of the intake and the survey conducted 500 feet upstream of the intake during the fall. Potentially suitable habitat is not present for California red-legged frog (*Rana*

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draytonii), foothill yellow-legged frog (*Rana boylii*), western pond turtle (*Actinemys marmorata*) or rainbow trout (*Oncorhynchus mykiss*) at or in the vicinity of the diversion or within the evaluated reach (~ 200 ft) downstream of the intake. However, potentially suitable habitat for California giant salamander (*Dicamptodon ensatus*) is present approximately 100 feet and greater both upstream and downstream of the diversion.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

- Any sediment relocation to immediately downstream of the weir will occur only with hand tools (shovels) and will only involve moving sediment past the weir structure. Typically, this amounts to less than 1 cubic yard annually.

- Trapped logs less than 10 feet long can be relocated directly downstream of the intake facility. Logs more than 10 feet long can be cut and relocated downstream of the intake facility but kept in the creek. Any woody debris will be placed in a safe location that will not lead to bank erosion or create an obstruction to a structure. If no such safe location is available downstream of the intake facility, then the removed tree/log will be placed in an upland location.

- Pre-construction surveys are required for red-legged frogs, western pond turtles, and woodrats. If these resources are detected, they would be avoided if practicable (i.e., San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).

4.2.8 Aldercroft Heights County Water District Extraction Well (Aldercroft Intake)

Aldercroft Heights County Water District (AHCWD) pumps water from the Aldercroft Heights Extraction well, a shallow well set in the Los Gatos Creek alluvium (in the floodplain) located approximately 2,500 feet upstream from the Aldercroft Heights bridge. Based on monthly pumping data recorded since January 2009, the average pumping rate from the well is 11 gallons/minute (0.025 cfs), with a maximum pumping rate of 22 gpm (0.050 cfs) and a minimum pumping rate of 1 gpm (0.002 cfs). The purpose of the facility is to provide water for the community of Aldercroft Heights north of Los Gatos Creek. AHCWD has an agreement with SJWC to access this water, and AHCWD is in charge of repairing/maintaining this system and its

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Photo 51. Aldercroft Heights Extraction Well pump house (Aug. 2021)

Photo 52. Aldercroft Heights Extraction Well pump house (Aug. 2021)

lines. SJWC provides annual reporting through DWR. While this is not an in-stream feature, it is assumed that all water from the well is extracted from the Los Gatos Creek system (precluding the notion that there could be adjacent groundwater contributions).

Maintenance Activities

Maintenance activities at the Aldercroft Heights Extraction well are minor. Periodic repair of the pump (maintenance, replacement of pump components) would be conducted to maintain the equipment. Other routine maintenance includes inspections of equipment to ensure that the facility is operating properly and vegetation management (mowing/hand removal of herbaceous vegetation, tree pruning).

Photo 50. View of Lower Los Gatos Creek downstream of Aldercroft Heights Extraction Well

Watershed and Physical Setting

The Aldercroft Heights Extraction well is located off of Los Gatos Creek, about 1.3 miles upstream of the Lexington Reservoir (see Chapter 1, Figure 1-2). Los Gatos Creek is a seasonal stream that is tributary to the Lexington Reservoir.

Based on streamflow data collected upstream and downstream of the well, the well appears to have a negligible effect on streamflow and aquatic habitat, even during the low-flow period of the year.

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Biological Conditions

Vegetation Composition

The dominant vegetation community type at this site is Coast Redwood Forest. This vegetation community has a State Rarity Ranking of S3, meaning CDFW considers this a sensitive natural community. Canopy cover at the site is comprised of coast redwood, California bay, and white alder. Ground vegetation in the area of the well is generally covered with himalayan blackberry and periwinkle (*Vinca sp.*).

Photo 50. Aldercroft Heights Extraction Well pump pillar (Aug. 2021).

Riparian Habitat

The riparian corridor varies from 0 to 10 feet wide along each bank and is dominated by mature California bay trees, coast redwood, and scattered ferns with a sparsely vegetated understory. The riparian corridor is generally similar to the upland forest on adjacent slopes in most areas. The extraction well is located at a distance from Los Gatos Creek such that no impacts to riparian resources are anticipated.

Instream Habitat

In general, the lower section of the Los Gatos Creek stream channel in the vicinity of the extraction well consists of a few shallow pools with woody debris prior to reaching Lexington Reservoir's high-water line at Aldercroft Heights Bridge. Downstream of the bridge the channel opens up significantly into a broad gravel/cobble run that extends into Lexington Reservoir. In regards to the stream channel geomorphology, this section of Los Gatos Creek consists of a broad sandy/gravelly channel.

Wetlands

No jurisdictional wetlands are present within the facility site.

Special-status Species with Potential to Occur

There is no suitable habitat for rare plant species within the proposed maintenance area at this site.

The extraction well is located at such a distance from Los Gatos Creek that no impacts to aquatic resources or aquatic species are anticipated.

Impact Avoidance and Minimization for Maintenance Activities

- A complete set of BMPs is provided in Chapter 5, Tables 5-1, 5-2 and 5-3 of the Manual for work within jurisdictional areas. Tables 5-4, 5-5, and 5-6 are provided to identify

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which biological resource protection BMPs may be necessary at SJWC facilities. Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

4.3 Culverts and Road Crossings

SJWC owns and maintains several access roads in the upper Los Gatos Creek Watershed. These access roads include both paved and unpaved lengths. Drainage across and beneath these access roads typically occurs through culverts. In several locations, culverts are severely damaged, blocked, buried, or otherwise not functioning properly. The focus of maintenance activities will be 135 culvert and road crossing sites along the following ten access roads:

- John Nicholas Trail (37 sites);
- Cathermola Road (30 sites);
- Sears Road (33 sites);
- Ellege Road (7 sites);
- Hooker Bypass Road (21 site);
- Hooker Intake Road (2 sites);
- Ryland Intake Road (2 sites);
- Beardsley Intake Road (1 site);
- Trout Intake Road (1 site); and
- Vina Drive (1 site).

John Nicholas Trail is a public trail within Sanborn County Park; no vehicle access is permitted. Cathermola Road, Sears Road, Hooker Bypass Road, Hooker Intake Road, Ryland Intake Road, Beardsley Intake Road, and Trout Intake Road are private roads that are gated and not publicly accessible. Ellege Road is a private road that provides vehicle access to six residences near Upper Lake Howell (Lake Kittredge) and Lower Lake Howell (Lake Cozzens). Chapter 5, Section 5.3, Culverts and Road Crossings describes the general maintenance activities pertaining to culverts and road crossings. This section provides site characterizations for the targeted culvert maintenance projects. For each planned maintenance site, the description below provides the specific location, photographs, project description, and summary of biological resources. Appendix B provides engineering designs, plans, and specifications for a range of routine culvert repairs and treatments that are anticipated within the maintenance program.

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Figures 4-1a through 4-1g show an expanded view of the culvert locations identified as requiring maintenance activities. Road maintenance activities would be implemented to meet Santa Clara County Fire Department "secondary access road" standards (SCCFD 2009).

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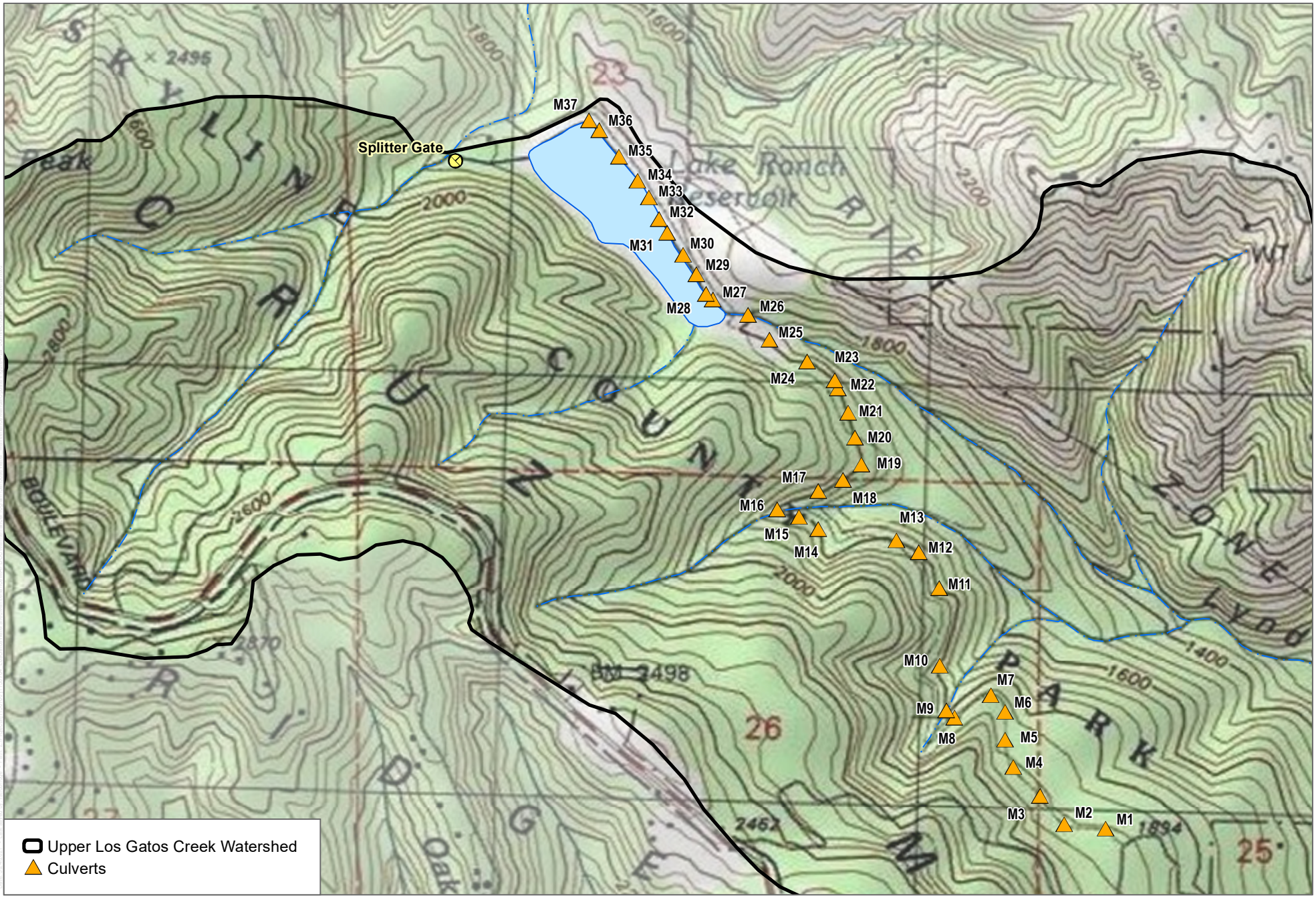

SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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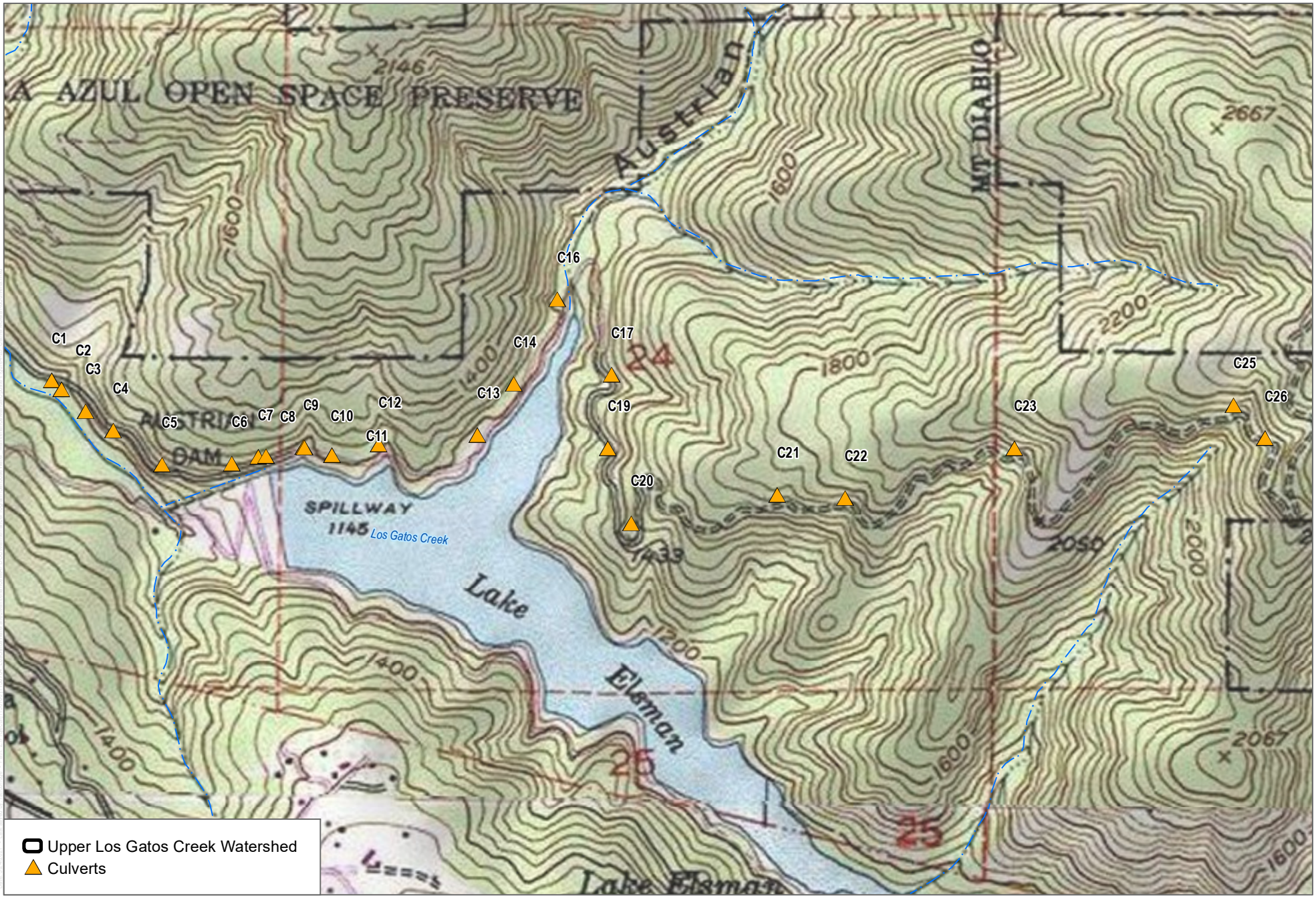
FIGURE 4-1A

John Nicholas Trail Culvert Locations

San Jose Water Company Maintenance Manual Update



SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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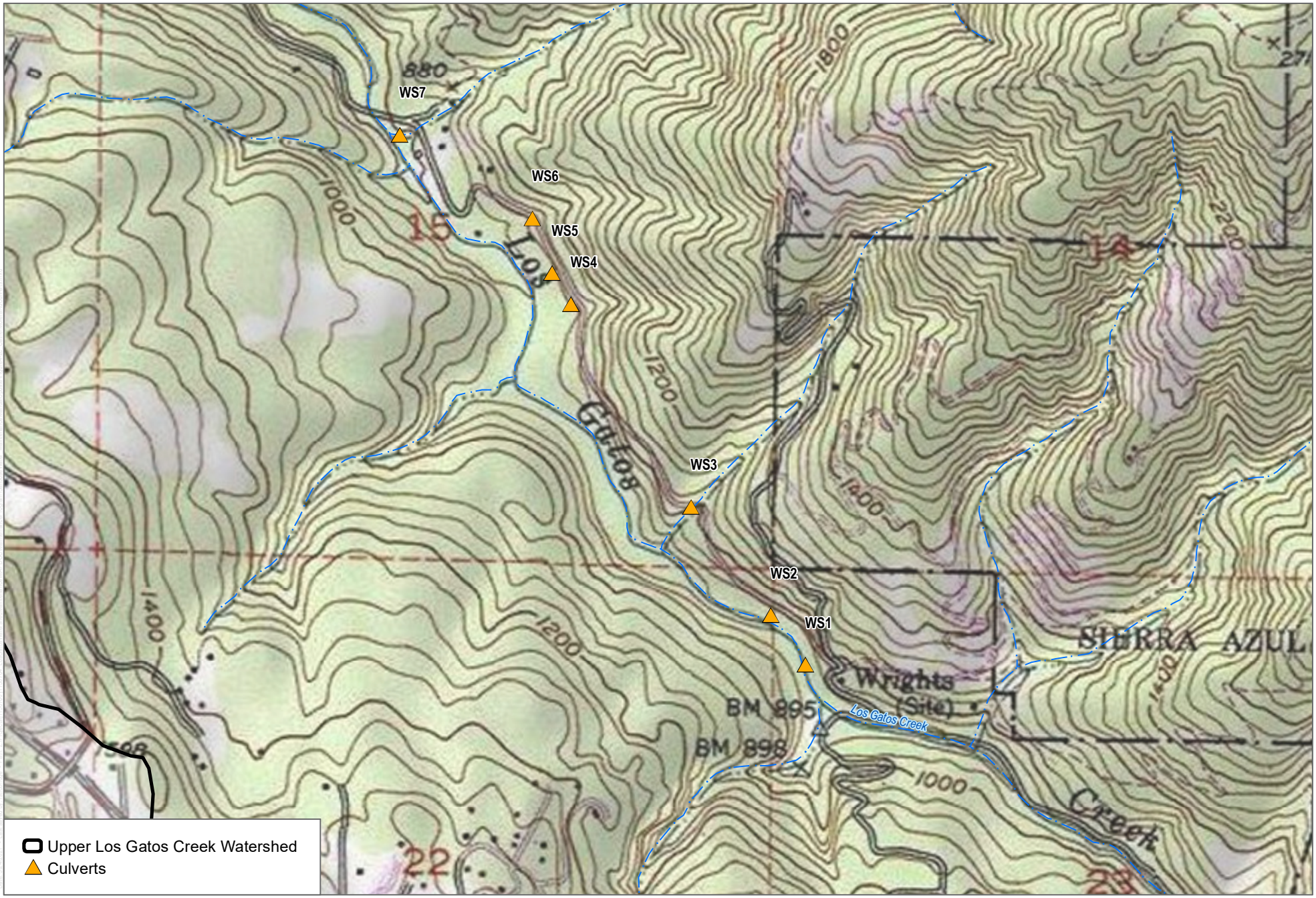
FIGURE 4-1B

Cathermola Road 1 Culvert Locations

San Jose Water Company Maintenance Manual Update



SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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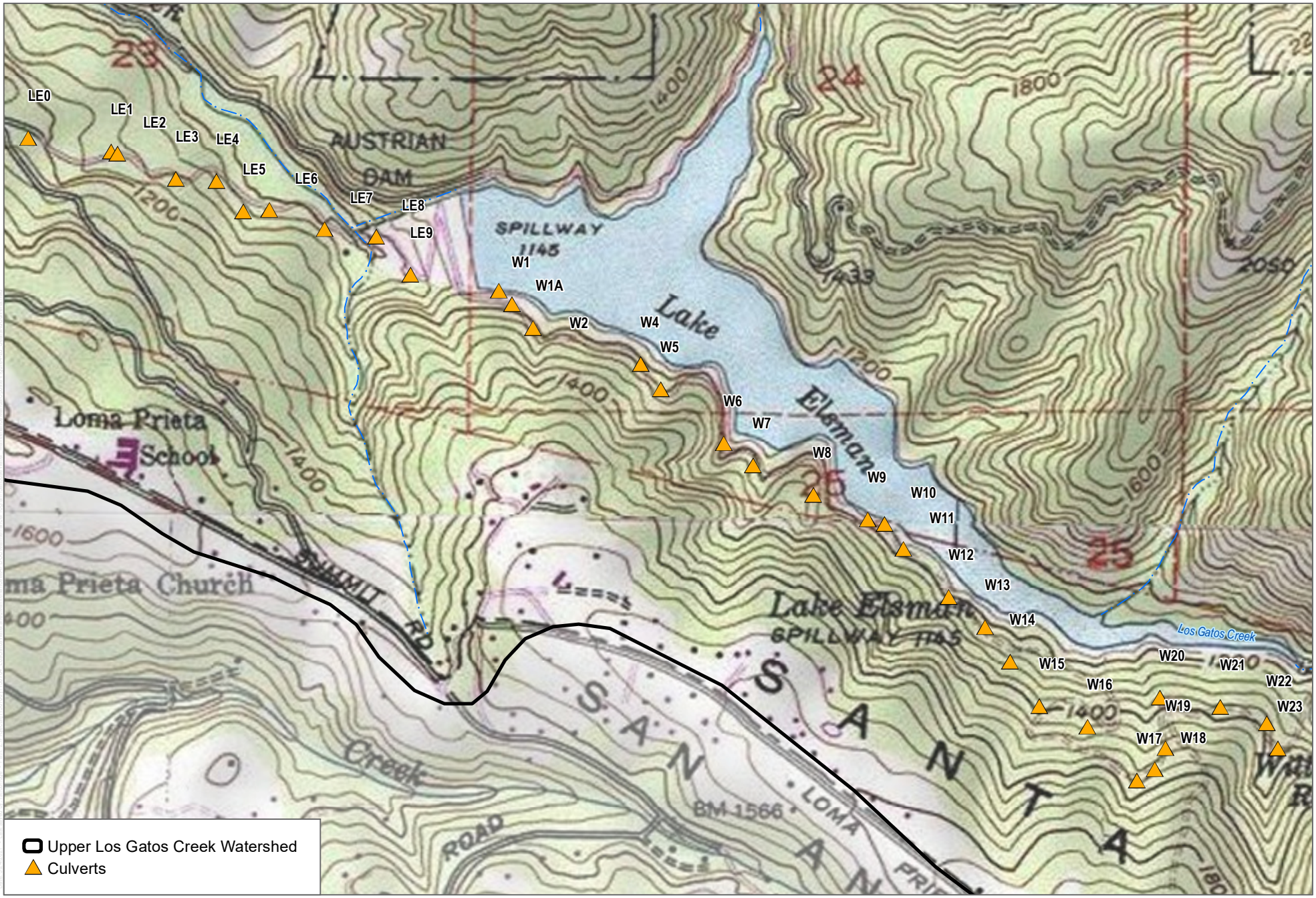
FIGURE 4-1C

Cathermola Road 2 Culvert Locations

San Jose Water Company Maintenance Manual Update



SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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FIGURE 4-1D

Sears Road Culvert Locations

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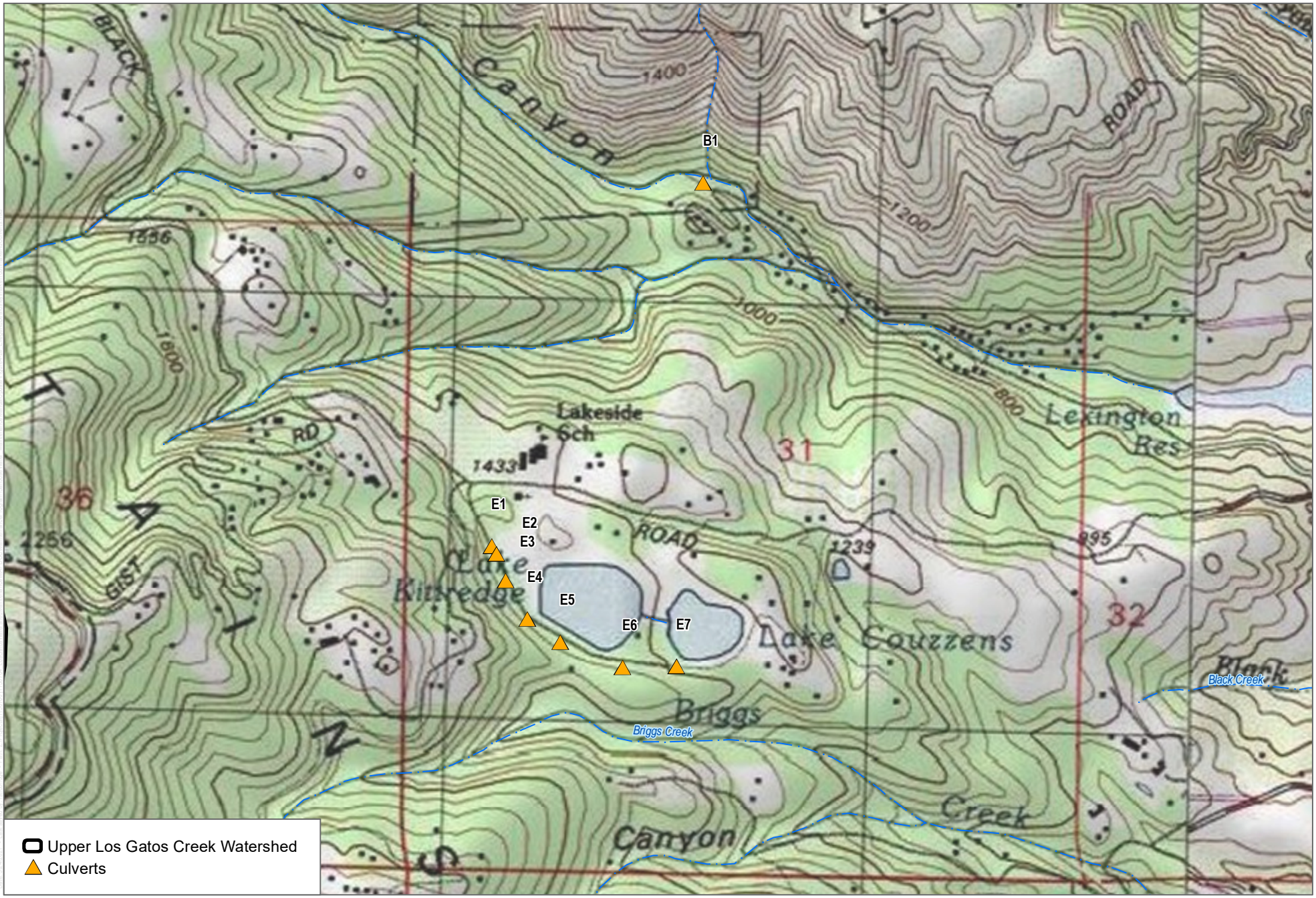

SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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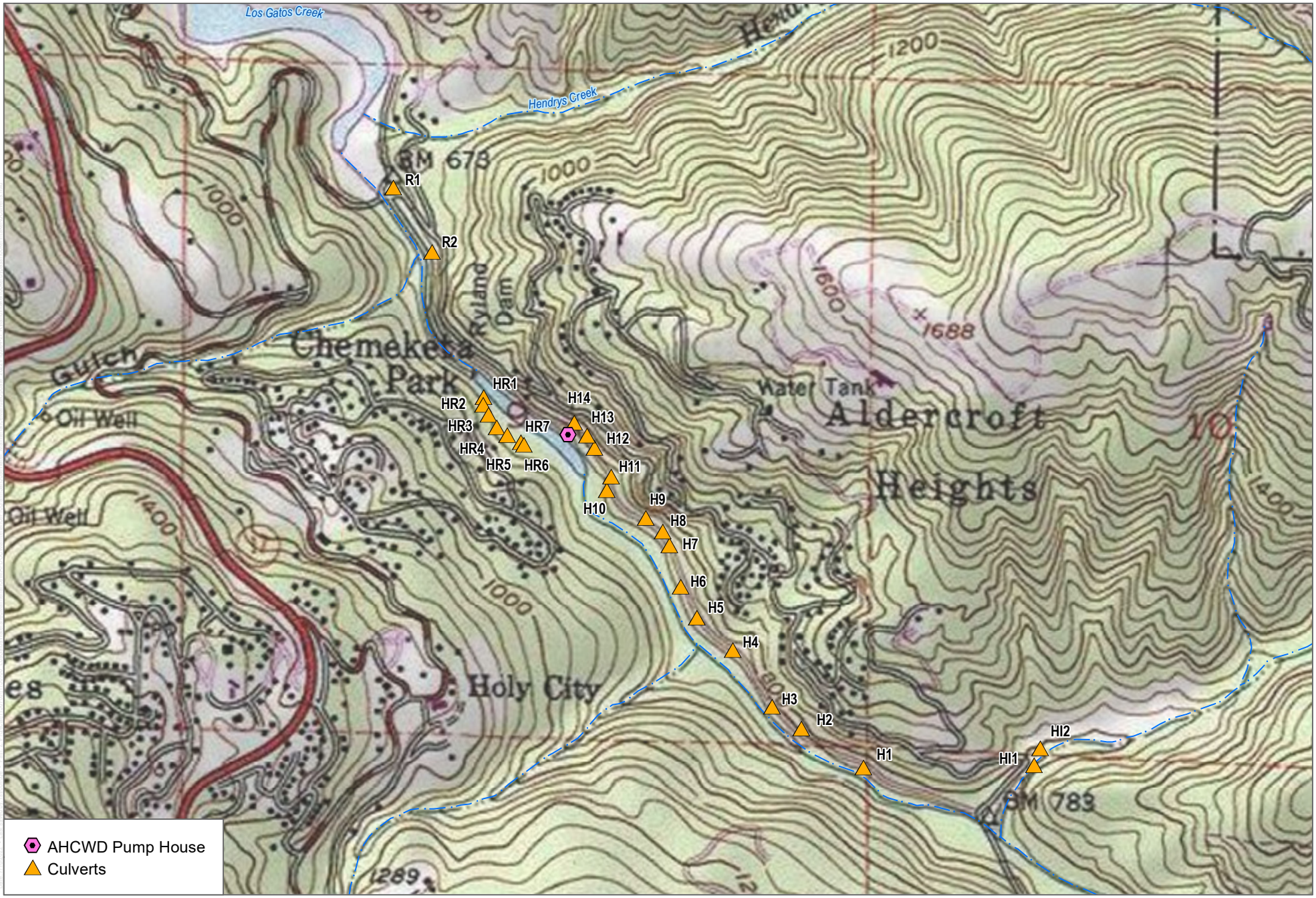
FIGURE 4-1E

Ellege Road and Beardsley Intake Culvert Locations

San Jose Water Company Maintenance Manual Update



SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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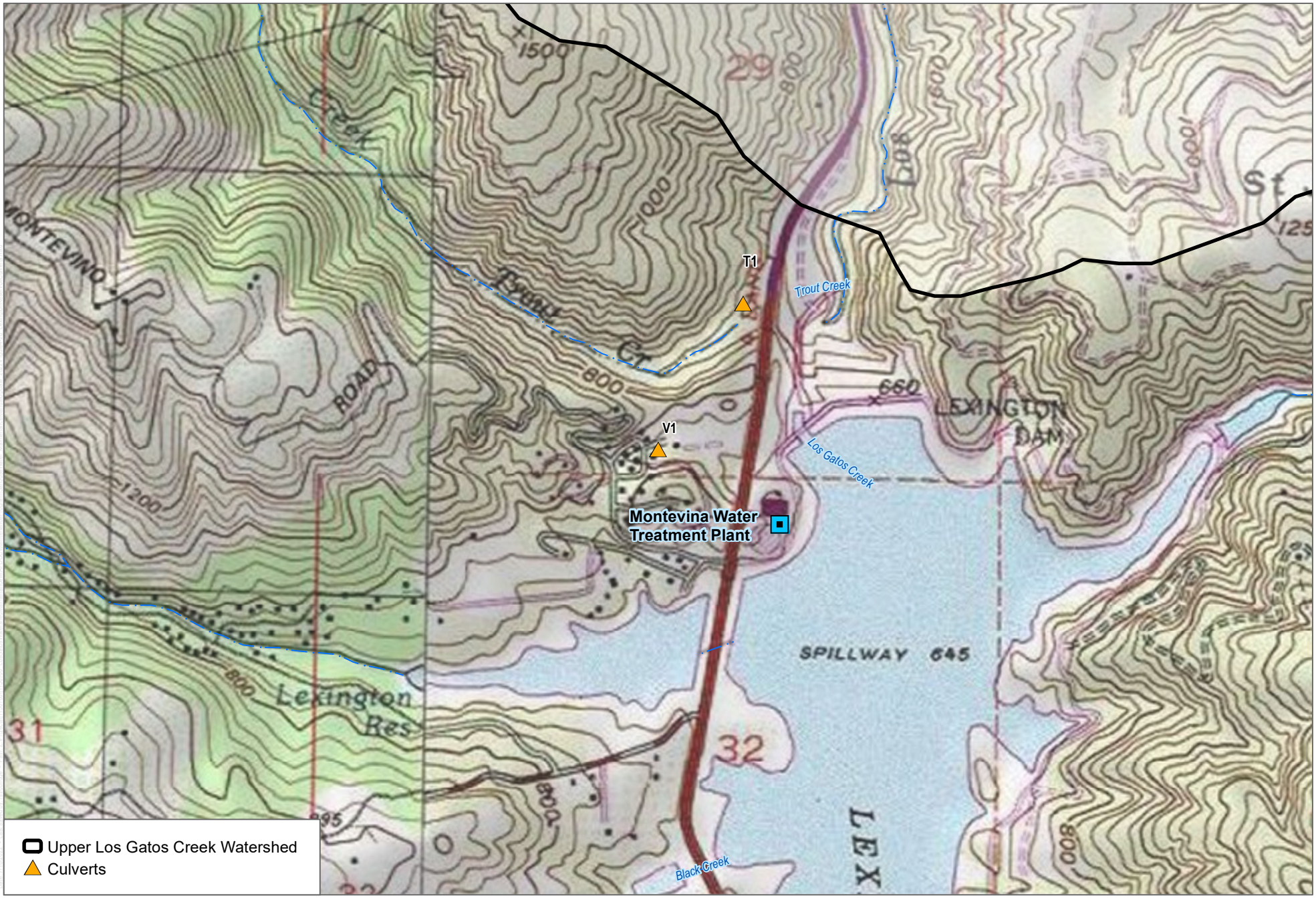
FIGURE 4-1F

Ryland Intake, Hooker Bypass, and Hooker Intake Road Culvert Locations

San Jose Water Company Maintenance Manual Update



SOURCE: USGS 7.5-minute Series Castle Rock Ridge, Laurel, Loma Prieta, Los Gatos, & Santa Teresa Hills Quadrangles

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FIGURE 4-1G

Lexington Reservoir Culvert Locations

San Jose Water Company Maintenance Manual Update

4.3.1 John Nicholas Trail

M1 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 21.547" N, 122° 2' 17.218" W. Located on John Nicholas Trail, less than 0.1 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 20 inch-diameter culvert drains the roadside ditch and adjacent slope. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert M1. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M2 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 21.839" N, 122° 2' 21.259" W. Located on John Nicholas Trail, approximately 0.1 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 24 inch-diameter receives flow from a small drainage (drainage width = 1.5 feet). The inlet is buried in sediment and large woody debris and requires maintenance. A debris collection structure should be considered.

Biological Resources: No special-status plants are expected to occur near culvert M2. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M3 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 23.985" N, 122° 2' 23.633" W. Located on John Nicholas Trail, approximately <0.2 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope/small drainage (drainage width = 0.5 feet). Minor sediment removal in the drainage ditch would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert M3. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M4 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 26.184" N, 122° 2' 26.252" W. Located on John Nicholas Trail, approximately 0.3 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 22 inch-diameter culvert drains the roadside ditch and adjacent slope. Minor sediment removal in the drainage ditch and erosion protection at the outlet would improve flow.

Biological Resources: No special-status plants are expected to occur near culvert M4. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M5 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 28.293" N, 122° 2' 27.042" W. Located on John Nicholas Trail, approximately 0.3 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. Minor sediment removal in the drainage ditch and erosion protection at the inlet would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert M5. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M6 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 30.416" N, 122° 2' 27.120" W. Located on John Nicholas Trail, approximately 0.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. The culvert is partially clogged and requires maintenance. Erosion protection should be applied to the inlet, and adjacent slope.

Biological Resources: No special-status plants are expected to occur near culvert M6. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M7 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 31.678" N, 122° 2' 28.537" W. Located on John Nicholas Trail, approximately 0.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. A small slide next to the inlet requires maintenance. Erosion protection should be applied at the inlet.

Biological Resources: No special-status plants are expected to occur near culvert M7. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M8 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 29.898" N, 122° 2' 32.016" W. Located on John Nicholas Trail, approximately 0.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 20 inch-diameter culvert drains the roadside ditch and adjacent slope. The inlet is crushed and requires replacement. There is a landslide immediately adjacent to the culvert, and large woody debris is present at the inlet and outlet. Maintenance and erosion protection measures are required.

Biological Resources: No special-status plants are expected to occur near culvert M8. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M9 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 30.447" N, 122° 2' 32.783" W. Located on John Nicholas Trail, approximately 0.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 36 inch-diameter culvert receives flow from two small drainages (drainage widths = 1 foot and 2 feet). A significant sediment and debris load has built up in front of the inlet (approximately 400 cubic yards). Maintenance is required. A debris-catching structure and culvert size and type should be evaluated.

Biological Resources: No special-status plants are expected to occur near culvert M9. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M10 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 33.902" N, 122° 2' 33.488" W. Located on John Nicholas Trail, approximately 0.55 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 48 inch-diameter culvert receives flow from a small drainage (drainage width = 2 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert M10. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M11 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 39.879" N, 122° 2' 33.693" W. Located on John Nicholas Trail, approximately 0.6 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be necessary.

Biological Resources: No special-status plants are expected to occur near culvert M11. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M12 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 42.621" N, 122° 2' 35.685" W. Located on John Nicholas Trail, approximately 0.7 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 22 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment. The extension on the outlet needs to be re-attached. The culvert requires maintenance and erosion protection.

Biological Resources: No special-status plants are expected to occur near culvert M12. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M13 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 43.501" N, 122° 2' 37.870" W. Located on John Nicholas Trail, approximately 0.8 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 10 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The inlet is partially crushed but functional. The culvert is partially clogged with sediment and requires maintenance and erosion protection.

Biological Resources: No special-status plants are expected to occur near culvert M13. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M14 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 44.248" N, 122° 2' 45.385" W. Located on John Nicholas Trail, approximately 0.8 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance and erosion protection.

Biological Resources: No special-status plants are expected to occur near culvert M14. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M15 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 45.194" N, 122° 2' 47.252" W. Located on John Nicholas Trail, approximately 0.9 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The roadside ditch requires sediment removal. The culvert is partially clogged with sediment and requires maintenance and erosion protection. Culvert size should be evaluated.

Biological Resources: No special-status plants are expected to occur near culvert M15. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M16 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Steep bank on the eastern side of John Nicholas Trail (Jan 2019).

Location: 37° 12' 45.738" N, 122° 2' 49.379" W. Located on John Nicholas Trail, approximately 1.0 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 24 inch-diameter double culvert receives flow from a small drainage (drainage width = 1 foot). No maintenance required as of March 2021, however future sediment and debris removal may be needed. The culverts have minor damage. Though functional, replacement and erosion protection at the outlet should be considered.

Biological Resources: No special-status plants are expected to occur near culvert M16. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert M16. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M17 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Steep bank on the eastern side of John Nicholas Trail (Jan 2019).

Location: 37° 12' 47.178" N, 122° 2' 45.444" W. Located on John Nicholas Trail, approximately 1.0 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the roadside ditch and adjacent slope. The roadside ditch and culvert are both clogged with sediment and debris. Maintenance is required. Erosion protection would improve drainage. Culvert size should be evaluated.

Biological Resources: No special-status plants are expected to occur near culvert M17. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M18 – Culvert John Nicholas

Photo 1. Tributary approaching John Nicholas Trail on the west side of the road (Jan 2019).

Photo 2. Steep bank on the eastern side of John Nicholas Trail (Jan 2019).

Location: 37° 12' 48.079" N, 122° 2' 43.126" W. Located on John Nicholas Trail, approximately 1.0 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. Sediment removal from the roadside ditch and erosion protection at the inlet would improve drainage. The culvert needs to be placed at a lower elevation to function properly.

Biological Resources: No special-status plants are expected to occur near culvert M18. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M19 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Mar. 2014).

Location: 37° 12' 49.290" N, 122° 2' 41.344" W. Located on John Nicholas Trail, approximately 1.1 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the roadside ditch and adjacent slope. The inlet is crushed and corroded, and the culvert should be replaced. Sediment removal from the roadside ditch and erosion protection at the inlet would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert M19. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M20 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 51.350" N, 122° 2' 41.988" W. Located on John Nicholas Trail, approximately 1.1 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the roadside ditch and adjacent slope. As of January 2019 no maintenance required, however future sediment and debris removal may be necessary.

Biological Resources: No special-status plants are expected to occur near culvert M20. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M21 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

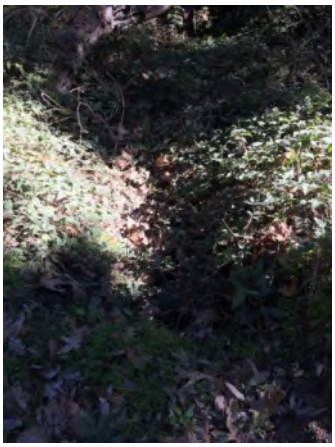

Photo 2. Steep bank on the eastern side of John Nicholas Trail (Jan 2019).

Location: 37° 12' 53.274" N, 122° 2' 42.680" W. Located on John Nicholas Trail, approximately 1.2 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the roadside ditch and adjacent slope. No maintenance required as of March 2021, however future sediment and debris removal may be needed. Though functional, the culvert is degraded and should be replaced.

Biological Resources: No special-status plants are expected to occur near culvert M21. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M22 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 55.115" N, 122° 2' 43.708" W. Located on John Nicholas Trail, approximately 1.3 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 12 inch-diameter culvert drains the roadside ditch and adjacent slope. The culvert inlet is damaged and 100 percent clogged. The culvert should be replaced, and erosion protection applied at the inlet and outlet.

Biological Resources: No special-status plants are expected to occur near culvert M22. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M23 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Steep bank on the eastern side of John Nicholas Trail (Jan 2019).

Location: 37° 12' 55.752" N, 122° 2' 44.053" W. Located on John Nicholas Trail, approximately 1.3 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description The 10 inch-diameter culvert drains the roadside ditch and adjacent slope. The culvert inlet is damaged and 100 percent clogged. The culvert should be replaced, and erosion protection applied at the inlet and outlet.

Biological Resources: No special-status plants are expected to occur near culvert M23. The olive-sided flycatcher (*Contopus cooperi*) and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M24 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 57.177" N, 122° 2' 46.726" W. Located on John Nicholas Trail, approximately 1.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. The culvert inlet is partially clogged. Drainage ditch maintenance is needed, and erosion protection should be installed at the inlet.

Biological Resources: No special-status plants are expected to occur near culvert M24. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M25 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 12' 58.797" N, 122° 2' 50.399" W. Located on John Nicholas Trail, approximately 1.4 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. Minor sediment removal is needed in the drainage ditch. Erosion protection at the inlet would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert M25. This culvert is located approximately 120 feet from Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle (*Actinemys marmorata*), a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert M25. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M26 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 0.684" N, 122° 2' 52.491" W. Located on John Nicholas Trail, approximately 1.48 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lyndon Canyon/Beardsley Creek Watershed

Project Description: The 18 inch-diameter culvert drains the roadside ditch and adjacent slope. The inlet is located to the left of the road as it turns over the dam, and the outlet is near the M25 outlet. Debris removal and erosion protection would improve the outlet condition.

Biological Resources: No special-status plants are expected to occur near culvert M26. This culvert is located approximately 120 feet from Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle (*Actinemys marmorata*), a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert M26. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M27 – Culvert John Nicholas

Photo 1. Culvert M27 and M28 inlets (Jan 2019).

Photo 2. Culvert M27 and M28 outlets (Jan 2019).

Location: 37° 13' 1.810" N, 122° 2' 55.927" W. Located on John Nicholas Trail, approximately 1.6 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 12-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. Minor vegetation removal is needed at the inlet and outlet. Erosion protection at the inlet would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert M27. This culvert is located on the edge of Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert M27. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M28 – Culvert John Nicholas

Photo 1. Culvert M27 and M28 inlets (Jan 2019).

Photo 2. Culvert M27 and M28 outlets (Jan 2019).

Location: 37° 13' 2.243" N, 122° 2' 56.601" W. Located on John Nicholas Trail, approximately 1.6 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 12-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged and partially clogged. Maintenance is required and replacement recommended.

Biological Resources: No special-status plants are expected to occur near culvert M28. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M29 – Culvert John Nicholas

Photo 1. Culvert inlet (Jan 2019).

Photo 2. Culvert outlet (Jan 2019).

Location: 37° 13' 3.745" N, 122° 2' 57.542" W. Located on John Nicholas Trail, approximately 1.6 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 12-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged and clogged. Maintenance is required and replacement recommended.

Biological Resources: No special-status plants are expected to occur near culvert M29. This culvert is located on the edge of Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern. Thus, red-legged frogs may disperse and/or take refuge in habitat immediately adjacent to culvert M29. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M30 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 5.230" N, 122° 2' 58.868" W. Located on John Nicholas Trail, approximately 1.6 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 18-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged and partially clogged. Maintenance is required and replacement recommended.

Biological Resources: No special-status plants are expected to occur near culvert M30. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M31 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 6.908" N, 122° 3' 0.465" W. Located on John Nicholas Trail, approximately 1.7 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 12-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged but functional. Replacement is recommended.

Biological Resources: No special-status plants are expected to occur near culvert M31. This culvert is located on the edge of Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert M31. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M32 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 7.954" N, 122° 3' 1.245" W. Located on John Nicholas Trail, approximately 1.7 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 12-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged but functional. Replacement is recommended.

Biological Resources: No special-status plants are expected to occur near culvert M32. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, the California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M33 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 9.607" N, 122° 3' 2.261" W. Located on John Nicholas Trail, approximately 1.7 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 24-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is damaged but functional. Replacement is recommended.

Biological Resources: No special-status plants are expected to occur near culvert M33. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, the California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M34 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 10.895" N, 122° 3' 3.380" W. Located on John Nicholas Trail approximately 1.7 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 24-inch-diameter culvert drains the adjacent slope and roadside drainage ditch. Erosion protection would improve the inlet condition.

Biological Resources: No special-status plants are expected to occur near culvert M34. This culvert is located on the edge of Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern. Thus, red-legged frogs may disperse and/or take refuge in habitat immediately adjacent to culvert M34. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M35 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 12.718" N, 122° 3' 5.180" W. Located on John Nicholas Trail, approximately 1.8 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 10 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. No maintenance required as of January 2019, however future sediment removal may be necessary.

Biological Resources: No special-status plants are expected to occur near culvert M35. This culvert is located on the edge of Lake Ranch Reservoir, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert M35. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M36 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 14.742" N, 122° 3' 7.123" W. Located on John Nicholas Trail approximately 1.8 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The 10 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The inlet is buried and requires maintenance. Erosion protection should be applied.

Biological Resources: No special-status plants are expected to occur near culvert M36. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, the California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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John Nicholas Trail

M37 – Culvert John Nicholas

Photo 1. Culvert inlet area (Jan 2019).

Photo 2. Culvert outlet area (Jan 2019).

Location: 37° 13' 15.468" N, 122° 3' 8.139" W. Located on John Nicholas Trail approximately 1.8 miles from the access gate at Black Road (Figure 4-1a).

Creek/Tributary: Lake Ranch Reservoir

Project Description: The size of the culvert is unknown as it is entirely buried. The culvert drains the adjacent slope and roadside drainage ditch. Maintenance and replacement and/or erosion control is needed.

Biological Resources: No special-status plants are expected to occur near culvert M37. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. Furthermore, the California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.2 Cathermola Road

WS1 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 8' 21.547" N, 121° 56' 52.758" W. Located on Cathermola Road, approximately 1.1 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance. The inlet is partially crushed, and the outlet is covered in vegetation. Erosion protection and possible replacement should be considered.

Biological Resources: No special-status plants or wildlife species are expected to occur near culvert WS1. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert WS1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS2 – Culvert Cathermola

Photo 1. Culvert inlet. Note landslide above inlet. (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 8' 25.322" N, 121° 56' 56.159" W. Located on Cathermola Road, approximately 1.0 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is mostly free of sediment (less than 5 percent clogged) however there is a landslide on the slope next to the inlet. The slope should be stabilized to maintain drainage through the culvert.

Biological Resources: No special-status plants are expected to occur near culvert WS2. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS3 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area. Note erosion. (March 2021).

Location: 37° 8' 33.591" N, 121° 57' 4.043" W. Located on Cathermola Road, approximately 0.8 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 48 inch-diameter culvert receives flow from a small drainage (drainage width = 3 feet). As of March 2021, the culvert is free of sediment and debris, however future maintenance may be needed. Erosion protection is needed at the outlet.

Biological Resources: No special-status plants are expected to occur near culvert WS3. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS4 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area. (March 2021).

Location: 37° 8' 49.057" N, 121° 57' 15.912" W. Located on Cathermola Road, approximately 0.4 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. As of March 2021, the culvert is free of sediment and debris, however future maintenance may be needed.

Biological Resources: No special-status plants or wildlife species are expected to occur near culvert WS4. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS5 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area. (March 2021).

Location: 37° 8' 51.443" N, 121° 57' 17.771" W. Located on Cathermola Road, approximately 0.3 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 16 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance at the inlet and roadside ditch. Erosion protection would improve drainage at the inlet.

Biological Resources: No special-status plants are expected to occur near culvert WS5. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS6 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area. (March 2021).

Location: 37° 8' 55.647" N, 121° 57' 19.734" W. Located on Cathermola Road, approximately 0.2 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 36 inch-diameter culvert receives flow from a small drainage (drainage width = 1 feet). As of March 2021, the culvert is free of sediment and debris, however future maintenance may be needed.

Biological Resources: No special-status plants are expected to occur near culvert WS6. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

WS7 – Culvert Cathermola

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet. (March 2021).

Location: 37° 9' 1.905" N, 121° 57' 32.647" W. Located on Cathermola Road, less than 0.1 miles from the gate at Aldercroft Heights Road (Figure 4-1c).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 36 inch-diameter culvert receives flow from a small stream (stream width = 5 feet). As of March 2021, the culvert is free of sediment and debris, however future maintenance may be needed.

Biological Resources: No special-status plants are expected to occur near culvert WS6. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C1 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 8' 1.581" N121° 56' 12.814" W. Located on Cathermola Road, at entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 10 inch-diameter culvert drains the roadside drainage ditch. No maintenance is required as of March 2021, however occasional sediment or debris removal may be needed. Erosion protection for the slope at the inlet area should be considered.

Biological Resources: No special-status plants are expected to occur near culvert C1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C2 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 8' 0.895" N, 121° 56' 11.859" W. Located on Cathermola Road, approximately 0.1 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 18 inch-diameter culvert drains the adjacent, eroding slope and roadside drainage ditch. Erosion protection is needed at the inlet area and adjacent slope. The inlet is buried. Culvert size should be evaluated before replacing the culvert.

Biological Resources: No special-status plants are expected to occur near culvert C2. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C3 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 59.272" N, 121° 56' 9.506" W. Located on Cathermola Road, approximately 0.1 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 18 inch-diameter culvert drains the adjacent, eroding slope and roadside drainage ditch. Erosion protection is needed at the inlet area and adjacent slope. The inlet is crushed. Culvert size should be evaluated before replacing the culvert.

Biological Resources: No special-status plants are expected to occur near culvert C3. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C4 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.813" N, 121° 56' 6.828" W. Located on Cathermola Road, approximately 0.2 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. Erosion protection would improve the outlet area condition.

Biological Resources: No special-status plants are expected to occur near culvert C4. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C5 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet in need of repair (March 2021).

Location: 37° 7' 55.243" N, 121° 56' 2.094" W. Located on Cathermola Road, approximately 0.3 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert outlet has an extension pipe that is degraded and needs replacement.

Biological Resources: No special-status plants are expected to occur near culvert C5. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C6 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 7' 55.373" N, 121° 55' 55.331" W. Located on Cathermola Road, approximately 0.4 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. No maintenance is required as of March 2021, however occasional sediment or debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert C6. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C7 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet shown by pencil (March 2021).

Location: 37° 7' 55.923" N, 121° 55' 52.838" W. Located on Cathermola Road, approximately 0.4 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter culvert drains the adjacent slope. The culvert is partially clogged with sediment and requires maintenance to improve drainage. Erosion control at the inlet would reduce future clogging.

Biological Resources: No special-status plants are expected to occur near culvert C7. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C8 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 56.019" N, 121° 55' 52.052" W. Located on Cathermola Road, approximately 0.4 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance to improve drainage. Erosion control at the inlet would reduce future clogging.

Biological Resources: No special-status plants are expected to occur near culvert C8. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C9 – Culvert Cathermola

Photo 1. Buried/damaged culvert inlet suspected below blue marker (March 2021).

Photo 2. Suspected culvert outlet area. Pencil points to damaged piece of pipe (March 2021).

Location: 37° 7' 56.761" N, 121° 55' 48.512" W. Located on Cathermola Road, approximately 0.5 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The buried/damaged culvert drains the roadside drainage ditch. The culvert needs to be replaced.

Biological Resources No special-status plants are expected to occur near culvert C9. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The site supports a roadside seasonal wetland in a swale on the north side of the access road. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert C9. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C10 – Culvert Cathermola

Photo 1. Culvert inlet is below blue marker (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 7' 56.728" N, 121° 55' 48.364" W. Located on Cathermola Road, approximately 0.5 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the roadside drainage ditch. The culvert needs to be replaced with a larger culvert. Both inlet and outlet areas need to be reinforced to prevent further hillside erosion.

Biological Resources: No special-status plants are expected to occur near culvert C10. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The site supports a roadside seasonal wetland in a swale on the north side of the access road. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert C10. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site. The site supports a roadside seasonal wetland in a swale on the north side of the access road.

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Cathermola Road

C11 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 56.139" N, 121° 55' 45.715" W. Located on Cathermola Road, approximately 0.5 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 18 inch-diameter culvert receives flow from the adjacent slope and roadside drainage ditch. No maintenance is required as of March 2021, however occasional sediment or debris removal may be needed

Biological Resources: No special-status plants are expected to occur near culvert C11. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C12 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.020" N, 121° 55' 41.241" W. Located on Cathermola Road, approximately 0.6 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter double culvert receives flow from a small drainage (drainage width = 2.5 feet). The culverts are partially clogged with sediment and gravel and will require ongoing maintenance. Replacement with a larger culvert may improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert C12. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert C12. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C13 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.872" N, 121° 55' 31.752" W. Located on Cathermola Road, approximately 0.8 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 28 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. As of March 2021, no maintenance is required, however future sediment and debris removal may be necessary. Erosion protection would improve the outlet condition.

Biological Resources: No special-status plants are expected to occur near culvert C13. San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), a California Species of Special Concern, are known to occupy adjacent riparian and shrubland habitats and may build a nest made of sticks in the proximity to the culvert site. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C14 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 8' 1.867" N, 121° 55' 28.333" W. Located on Cathermola Road, approximately 0.9 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 12 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The inlet area on the upslope side of the road needs minor clearing of accumulated debris to improve drainage and reduce potential for clogging.

Biological Resources: No special-status plants are expected to occur near culvert C14. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C16 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet and erosion (March 2021).

Location: 37° 8' 8.442" N, 121° 55' 24.264" W. Located on Cathermola Road, approximately 1.1 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the adjacent slope and roadside ditch. The culvert inlet was clear as of March 2021, however minor sediment removal in the roadside ditch is needed. The inlet is partially crushed, and erosion is occurring beneath the outlet. The culvert should be replaced, and the outlet should be flush with the slope and be reinforced with rockslope protection.

Biological Resources: No special-status plants species are expected to occur near culvert C16. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert C16. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C17 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet location indicated by pencil (March 2021).

Location: 37° 8' 2.667" N, 121° 55' 18.956" W. Located on Cathermola Road, approximately 1.3 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 24 inch-diameter double culvert receives flow from the roadside ditch and a small drainage (drainage width = 3 feet). The culvert inlets were clear (less than 5 percent clogged) as of March 2021. If woody debris in the drainage upstream are transported to the culvert inlet, maintenance may be required. Minor undermining and erosion at the culvert inlets was noted. Rock protection would improve stability of the inlet.

Biological Resources: No special-status plants are expected to occur near culvert C17. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C19 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area is on the slope at right (March 2021).

Location: 37° 7' 57.007" N, 121° 55' 19.195" W. Located on Cathermola Road, approximately 1.5 miles from the entrance gate (Figure 4-1b).

Creek/Tributary: Lake Elsman (Los Gatos Creek)

Project Description: The 16 inch-diameter culvert receives flow from the roadside ditch and a small drainage (drainage width = 2 feet). The culvert inlet is partially clogged and requires maintenance. Sediment and debris removal in the roadside ditch would improve drainage.

Biological Resources No special-status plants are expected to occur near culvert C19. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C20 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 51.268" N, 121° 55' 16.859" W. Located on Cathermola Road, approximately 1.6 miles from the entrance gate, or 1.17 miles east of Austrian Dam (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The culvert drains two roadside ditches. Sediment and debris removal is required at the culvert inlet, outlet, and in the adjacent roadside drainage ditches to improve drainage. The culvert outlet needs to be lengthened, and the inlet should be reinforced, possibly using hardscape, because there is visible erosion around the 20 inch-diameter inlet pipe.

Biological Resources: No special-status plant species are expected to occur near culvert C20. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C21 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 53.628" N, 121° 55' 2.817" W. Located on Cathermola Road (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the adjacent slope. No maintenance is needed as of 2019, however cutting the outlet to be flush with the slope would reduce potential for erosion.

Biological Resources: No special-status plant species are expected to occur near culvert C21. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C22 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 53.473" N, 121° 54' 56.313" W. Located on Cathermola Road (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the adjacent slope. No maintenance is needed as of March 2021, however cutting the outlet to be flush with the slope would reduce potential for erosion.

Biological Resources: No special-status plant are expected to occur near culvert C22. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C23 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.479" N, 121° 54' 40.077" W. Located on Cathermola Road (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert drains the adjacent slope. The inlet has minor damage but is functional. No maintenance is needed as of March 2021, however future sediment and debris removal may be necessary.

Biological Resources: No special-status plant species are expected to occur near culvert C23. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C25 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.479" N, 121° 54' 40.077" W. Located on Cathermola Road (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert receives flow from a small drainage (drainage width = 1.5-2 feet). The inlet has minor damage but is functional. No maintenance is needed as of March 2021, however future sediment and debris removal may be necessary.

Biological Resources: No special-status plants are expected to occur near culvert C25. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Cathermola Road

C26 – Culvert Cathermola

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 58.549" N, 121° 54' 15.966" W. Located on Cathermola Road (Figure 4-1b).

Creek/Tributary: Tributary to Lake Elsman (Los Gatos Creek)

Project Description: The 20 inch-diameter culvert receives flow from a small drainage (drainage width = 2 feet). There is some gravel accumulated at the culvert entrance. Minor maintenance would improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert C26. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.3 Sears Road

LE0 – Culvert Sears Road

Photo 1. Culvert inlet area, as indicated by spray paint mark (March 2021).

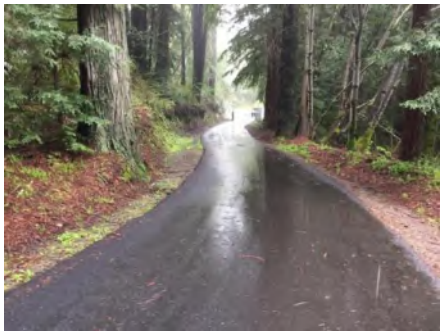

Photo 2. Distance from entrance gate off of Wright's Station Road (March 2021).

Location: 37° 7' 58.527" N, 121° 56' 33.346" W. Located on Sears Road, less than 0.1 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The culvert could not be found during the assessment. Further investigation required.

Biological Resources: No special-status plants are expected to occur near culvert LE0. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE1 – Culvert Sears Road

Photo 1. Culvert inlet area beneath barricade (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.568" N, 121° 56' 25.377" W. Parallel to Sears Road, approximately 0.15 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 8 inch-diameter culvert drains the roadside drainage ditch. No maintenance required as of March 2021, however occasional sediment or debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert LE1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE2 – Culvert Sears Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 57.407" N, 121° 56' 24.787" W. Located on Sears Road, south of Lake Elsman. Approximately 0.18 mile from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. This site requires replacement of the existing damaged/buried culvert with rock protection at the outlet and rockery wall installed at the inlet.

Biological Resources: No special-status plants are expected to occur near culvert LE2. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE3 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

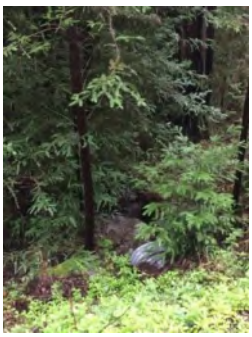

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 55.533" N, 121° 56' 19.102" W. Located on Sears Road, approximately 0.3 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert drains the roadside drainage ditch. The culvert is partially clogged and requires maintenance. Installation of erosion protection would improve drainage. Culvert replacement should be considered.

Biological Resources: No special-status plants are expected to occur near culvert LE3. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE4 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 55.423" N, 121° 56' 15.183" W. Located on Sears Road, approximately 0.4 miles from the entrance gate off of Wright's Station Road (Figure 4-1d)

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The inlet is buried in sediment. Maintenance is required at the inlet and outlet to restore functionality. Erosion protection is needed at the inlet.

Biological Resources: No special-status plants are expected to occur near culvert LE4. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE5 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet at center (March 2021).

Location: 37° 7' 53.101" N, 121° 56' 12.568" W. Located on Sears Road, approximately 0.45 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 30 inch-diameter culvert receives flow from a small drainage (drainage width = 2 feet) and the roadside ditch. Rock slope protection would improve outlet stability. No other maintenance required as of March 2021, however sediment and debris removal may occasionally be needed.

Biological Resources: No special-status plants are expected to occur near culvert LE5. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert LE5. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE6 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 53.270" N, 121° 56' 10.068" W. Located on Sears Road, approximately 0.5 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. Erosion protection at the inlet and outlet would improve drainage. Minor sediment removal from the drainage ditch is needed.

Biological Resources: No special-status plants are expected to occur near culvert LE6. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert LE6. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE7 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 51.838" N, 121° 56' 4.748" W. Located on Sears Road, approximately 0.6 miles from the entrance gate off of Wright's Station Road (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The inlet is partially clogged with rocks and sediment and requires maintenance. Drainage would be improved by installing erosion protection at the inlet and outlet, and potentially replacing the culvert.

Biological Resources: No special-status plants are expected to occur near culvert LE7. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert LE7. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE8 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Potential culvert outlet area (March 2021).

Location: 37° 7' 51.305" N, 121° 55' 59.740" W. Located on Sears Road, approximately 0.7 miles from the entrance gate off of Wright's Station Road, on the slope of the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 16 inch-diameter culvert drains the concrete ditch on the slope of the Austrian dam. The outlet location could not be determined during the March 2021 site visit. The culvert appears functional.

Biological Resources: No special-status plants are expected to occur near culvert LE8. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

LE9 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 48.415" N, 121° 55' 56.401" W. Located on Sears Road, approximately 0.7 miles from the entrance gate off of Wright's Station Road, on the slope of the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 15 inch-diameter culvert drains the concrete ditch on the slope of the Austrian dam. The outlet spills into the concrete ditch that leads to culvert LE8. No maintenance is required.

Biological Resources: No special-status plants are expected to occur near culvert LE9. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W1 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 46.263" N, 121° 55' 46.574" W. Located on Sears Road, less than 0.1 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The outlet connects into culvert W1A. No maintenance required as of March 2021, however occasional sediment removal may be required.

Biological Resources: No special-status plants are expected to occur near culvert W1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W1A – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 47.301" N, 121° 55' 47.859" W. Located on Sears Road, less than 0.1 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert receives flow via four drains adjacent to the access road to the intake valves, and also from culvert W1A. No maintenance required as of March 2021, however occasional sediment removal may be required.

Biological Resources: No special-status plants are expected to occur near culvert W1A. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W2 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area at left (March 2021).

Location: 37° 7' 44.455" N, 121° 55' 44.518" W. Located on Sears Road, approximately 0.1 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert receives flow from a small drainage (drainage width = 3 feet). No maintenance required as of March 2021, however occasional sediment and debris removal may be required.

Biological Resources: No special-status plants are expected to occur near culvert W2. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W4 – Sears Road Culvert

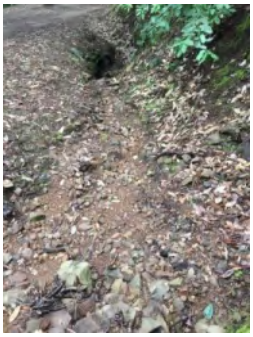

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 7' 41.791" N, 121° 55' 34.102" W. Located on Sears Road, approximately 0.3 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert receives flow from the adjacent slope and roadside drainage ditch. Sediment and gravel removal is required in the drainage ditch leading to the culvert. Minor erosion is occurring below the outlet, which could be improved with rock protection.

Biological Resources: No special-status plants are expected to occur near culvert W4. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W5 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area at left (March 2021).

Location: 37° 7' 39.894" N, 121° 55' 32.173" W. Located on Sears Road, approximately 0.3 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter culvert receives flow from a small drainage (drainage width = 2.5 feet). The culvert is partially clogged and sediment removal is required. The inlet is partially crushed and will need to be replaced. Culvert size should be evaluated.

Biological Resources: No special-status plants are expected to occur near culvert W5. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W6 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area at left (March 2021).

Location: 37° 7' 35.804" N, 121° 55' 25.981" W. Located on Sears Road, approximately 0.5 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 36 inch-diameter culvert receives flow from a small drainage (drainage width = 3 feet). The culvert is partially clogged and sediment removal is required. The inlet has minor damage but is functional. The outlet should be cut flush with the slope and erosion protection applied.

Biological Resources: No special-status plants are expected to occur near culvert W6. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W7 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet. Note erosion (March 2021).

Location: 37° 7' 34.133" N, 121° 55' 23.153" W. Located on Sears Road, approximately 0.6 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 36 inch-diameter culvert receives flow from a small drainage (drainage width = 4 feet). The outlet should be cut flush with the slope and erosion protection applied.

Biological Resources: No special-status plants are expected to occur near culvert W7. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W8 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area at left (March 2021).

Location: 37° 7' 31.927" N, 121° 55' 17.323" W. Located on Sears Road, approximately 0.8 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 30 inch-diameter culvert receives flow from a small drainage (drainage width = 1.5 feet). No maintenance required as of March 2021, however sediment and debris removal may be needed occasionally.

Biological Resources: No special-status plants are expected to occur near culvert W8. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W9 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 30.106" N, 121° 55' 11.993" W. Located on Sears Road, approximately 0.9 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 14 inch-diameter culvert drains the adjacent slope. No maintenance required as of March 2021, however sediment and debris removal may be needed occasionally.

Biological Resources: No special-status plants are expected to occur near culvert W9. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W10 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area at left (March 2021).

Location: 37° 7' 29.764" N, 121° 55' 10.381" W. Located on Sears Road, approximately 0.9 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 25 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance.

Biological Resources: No special-status plants are expected to occur near culvert W10. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W11 – Sears Road Culvert

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 27.876" N, 121° 55' 8.533" W. Located on Sears Road, approximately 0.9 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter receives flow from a small drainage (drainage width = 1.5 feet). No maintenance required as of March 2021, however medium-sized woody debris immediately upstream has the potential to clog the culvert. Debris and sediment removal may be required occasionally.

Biological Resources: No special-status plants are expected to occur near culvert W11. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W12 – Sears Road Culvert

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 24.222" N, 121° 55' 4.131" W. Located on Sears Road, approximately 1.0 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter receives flow from a small drainage (drainage width = 4 feet). No maintenance required as of March 2021, however a larger culvert should be considered given the substrate size.

Biological Resources: No special-status plants are expected to occur near culvert W12. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W13 – Sears Road Culvert

Photo 1. Culvert inlet area at left (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 21.944" N, 121° 55' 0.573" W. Located on Sears Road, approximately 1.1 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter drains the adjacent slope and roadside drainage ditch. Minor sediment removal is needed in the ditch leading to the culvert.

Biological Resources: No special-status plants are expected to occur near culvert W13. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W14 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 19.296" N, 121° 54' 58.145" W. Located on Sears Road, approximately 1.2 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter receives flow from a small drainage (drainage width = 1.5 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W14. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W15 – Sears Road Culvert

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 15.912" N, 121° 54' 55.243" W. Located on Sears Road, approximately 1.3 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 30 inch-diameter receives flow from a small drainage (drainage width = 2.5 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W15. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W16 – Sears Road Culvert

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 14.383" N, 121° 54' 50.583" W. Located on Sears Road, approximately 1.4 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 30 inch-diameter receives flow from a small drainage (drainage width = 3 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W16. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W17 – Sears Road Culvert

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 10.280" N, 121° 54' 45.757" W. Located on Sears Road, approximately 1.5 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 24 inch-diameter receives flow from a small drainage (drainage width = 2 feet). Other than removing one large rock jammed in the inlet of the culvert, no maintenance required as of March 2021. Future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W17. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W18 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 11.201" N, 121° 54' 44.035" W. Located on Sears Road, approximately 1.6 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 10 inch-diameter drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance. The outlet is degraded (see photo) and requires repair/replacement and erosion protection.

Biological Resources: No special-status plants are expected to occur near culvert W18. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W19 – Sears Road Culvert

Photo 1. Culvert inlet buried beneath slide (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 12.828" N, 121° 54' 43.029" W. Located on Sears Road, approximately 1.6 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter drains the adjacent slope and roadside drainage ditch. The culvert inlet is buried beneath a sediment and debris slide. Maintenance and erosion protection is required to restore functionality.

Biological Resources: No special-status plants are expected to occur near culvert W19. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W20 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location 37° 7' 16.722" N, 121° 54' 43.667" W. Located on Sears Road, approximately 1.7 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter drains the adjacent slope and roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W20. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W21 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 7' 16.056" N, 121° 54' 37.835" W. Located on Sears Road, approximately 1.8 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 18 inch-diameter drains the adjacent slope and roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W21. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W22 – Sears Road Culvert

Photo 1. Culvert inlet buried beneath slide at right (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 37° 7' 14.858" N, 121° 54' 33.362" W. Located on Sears Road, approximately 1.9 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 20 inch-diameter drains the adjacent slope and roadside drainage ditch. The culvert inlet is buried and culvert outlet could not be found. Sediment removal and erosion protection are required to restore functionality.

Biological Resources: No special-status plants are expected to occur near culvert W22. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Sears Road

W23 – Sears Road Culvert

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet area (March 2021).

Location: 3 37° 7' 12.927" N, 121° 54' 32.256" W. Located on Sears Road, approximately 1.9 miles from the Austrian dam (Figure 4-1d).

Creek/Tributary: Tributary of Lake Elsman (Los Gatos Creek).

Project Description: The 48 inch-diameter receives flow from a small drainage (drainage width = 4 feet). No maintenance erosion protection are required to restore functionality. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert W23. The olive-sided flycatcher and long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.4 Ellege Road

E1 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 30.837" N, 122° 1' 11.144" W. Located on Ellege Road, approximately <0.10 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Lake Howell

Project Description: The 10 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance. Installation of erosion protection and/or replacing the existing culvert could improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert E1. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E2 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 30.242", N 122° 1' 10.715" W. Located on Ellege Road, approximately <0.1 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Lake Howell

Project Description: The 10 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance. Installation of erosion protection and/or replacing the existing culvert could improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert E2. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E3 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 28.202" N, 122° 1' 9.731" W. Located on Ellege Road, approximately 0.1 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Lake Howell

Project Description: The 24 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert E3. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E4 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 25.273" N, 122° 1' 7.585" W. Located on Ellege Road, approximately 0.15 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Howell Lake

Project Description: The 10 inch-diameter culvert receives flow from a small stream (stream width = 2 feet).The culvert has minor damage and should be repaired or replaced. As of March 2021 the inlet was partially crushed, but the culvert was functional. The culvert outlet was not visible due to dense vegetation growth.

Biological Resources: No special-status plants are expected to occur near culvert E4. This culvert is located less than 180 feet from Lower Howell Lake, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to this culvert. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E5 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 23.546" N, 122° 1' 4.435" W. Located on Ellege Road, approximately 0.2 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Howell Lake

Project Description: The 12 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires maintenance. Installation of erosion protection and/or replacing the existing culvert could improve drainage.

Biological Resources: No special-status plants are expected to occur near culvert E5. This culvert is located less than 20 feet from Lower Howell Lake, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to this culvert. Further, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E6 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 21.682" N, 122° 0' 58.369" W. Located on Ellege Road, approximately 0.3 miles southeast of intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Upper Howell Lake

Project Description: The 4 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert E6. This culvert is located less than 20 feet from Lower Lake Howell, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to this culvert. Further, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ellege Road

E7 – Culvert Ellege Road

Photo 1. Culvert inlet (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37°11'21.68"N, 122°0'58.12"W. Located on Ellege Road, approximately 0.4 miles southeast of the intersection of Black Road and Ellege Road (Figure 4-1e).

Creek/Tributary: Lower Howell Lake

Project Description: The buried/damaged culvert drains the roadside drainage ditch. The culvert needs to be replaced.

Biological Resources: No special-status plants are expected to occur near culvert E7. This culvert is located approximately 50 feet from Lower Howell Lake, which provides suitable breeding habitat for the California red-legged frog, federally listed as threatened and a California species of special concern, and aquatic habitat for the western pond turtle, a California species of special concern. Thus, red-legged frogs and western pond turtles may disperse and/or take refuge in habitat immediately adjacent to culvert E7. Furthermore, the olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.5 Hooker Bypass Road

H1 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 20.383" N, 121° 58' 1.997" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert drains the roadside ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert H1. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H2 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 23.305" N, 121° 58' 8.036" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert drains the roadside ditch and adjacent slope. The culvert inlet is partially clogged with sediment and requires maintenance. The outlet was unable to be located on the March 2021 site visit and appears to be buried. The culvert should be maintained and/or replaced to restore drainage.

Biological Resources: No special-status plants are expected to occur near culvert H2. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H3 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 24.952" N, 121° 58' 10.887" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 12 inch-diameter culvert drains the roadside ditch. The culvert inlet is partially clogged with sediment and the outlet is buried. The culvert should be maintained and/or replaced to restore drainage.

Biological Resources: No special-status plants are expected to occur near culvert H3. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H4 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 29.271" N, 121° 58' 14.746" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 24 inch-diameter culvert drains the roadside ditch and adjacent slope. The inlet is partially crushed, but the culvert is functional. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert H4. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H5 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 31.726" N, 121° 58' 18.276" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert drains the roadside ditch and the adjacent slope. No maintenance required as of March 2021, however future sediment and debris removal may be needed. Erosion protection would improve the outlet condition.

Biological Resources: No special-status plants are expected to occur near culvert H5. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H6 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 34.100" N, 121° 58' 19.866" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert drains the roadside ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert H6. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H7 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 37.275" N, 121° 58' 21.028" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert receives flow from the adjacent slope and roadside ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert H7. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H8 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 38.330" N, 121° 58' 21.671" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert receives flow from the adjacent slope and roadside ditch. The culvert inlet is partially clogged with sediment and requires maintenance. As of March 2021, no outlet maintenance or repair is needed.

Biological Resources: No special-status plants are expected to occur near culvert H8. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H9 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 39.354" N, 121° 58' 23.342" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert receives flow from the adjacent slope and roadside ditch. The culvert inlet is partially clogged with sediment and requires maintenance. As of March 2021, no outlet maintenance or repair is needed.

Biological Resources: No special-status plants are expected to occur near culvert H9. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H10 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 41.448" N, 121° 58' 27.135" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert receives flow from the adjacent slope and roadside ditch. The culvert inlet is partially clogged with sediment and requires maintenance. As of March 2021, no outlet maintenance or repair is needed.

Biological Resources: No special-status plants are expected to occur near culvert H10. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H11 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 42.500" N, 121° 58' 26.743" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 36 inch-diameter culvert receives flow from a small drainage (drainage width = 2-10 feet). There is erosion upstream and downstream of the culvert. The existing culvert is undersized. Replacing it with a larger culvert will improve functionality. Erosion control measures should be installed to stabilize banks and prevent future erosion.

Biological Resources: No special-status plants are expected to occur near culvert H11. The California red-legged frog (*Rana draytonii*), federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert H11. The olive-sided flycatcher and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H12 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 44.697" N, 121° 58' 28.369" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 18 inch-diameter culvert receives flow from a small drainage (drainage width = 1.5 feet). There is severe erosion upstream and downstream of the culvert. Erosion control measures should be installed to stabilize banks and prevent future erosion. Culvert size should be evaluated.

Biological Resources: No special-status plants are expected to occur near culvert H12. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H13 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 45.626" N, 121° 58' 29.128" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 8 inch-diameter culvert receives flow from a small drainage (drainage width = 0.5 feet). The culvert inlet is partially clogged with sediment and requires maintenance. As of March 2021, no outlet maintenance or repair is needed.

Biological Resources: No special-status plants are expected to occur near culvert H13. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

H14 – Culvert Hooker

Photo 1. Erosion apparent at culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 46.598" N, 121° 58' 30.359" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 18 inch-diameter culvert receives flow from a small drainage (drainage width = 1 feet). The culvert inlet is subject to severe clogging from debris originating on the steep hillside above. Inlet erosion protection is needed to prevent clogging, and outlet erosion control measures are needed to prevent further erosion along the outlet bank.

Biological Resources: No special-status plants are expected to occur near culvert H14. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR1 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 48.461" N, 121° 58' 39.124" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from a small drainage (drainage width = 0.5 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR1. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, and western pond turtle (*Actinemys marmorata*), a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HR1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR2 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 47.867" N, 121° 58' 39.158" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from a small drainage (drainage width = 0.25 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR2. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, and western pond turtle (*Actinemys marmorata*), a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HR2. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR3 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 47.117" N, 121° 58' 38.643" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 8 inch-diameter culvert receives flow from a small drainage (drainage width = 0.5 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR3. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HR3. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR4 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 46.154" N, 121° 58' 37.835" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 36 inch-diameter culvert receives flow from a small stream (stream width = 2.5 feet). The culvert inlet is subject to clogging from debris originating on the steep, erosive hillside above. The neighboring community has attempted to stabilize the upstream area by placing large material such as cars, refrigerators, and tires along the bank. Inlet erosion protection and/or debris management would help to prevent clogging. As of March 2021, no maintenance of the outlet is needed.

Biological Resources: No special-status plants are expected to occur near culvert HR4. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HR4. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR5 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 45.581" N, 121° 58' 36.796" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert receives flow from a small drainage (drainage width = 0.25 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR5. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Bypass Road

HR6 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 45.026" N, 121° 58' 35.488" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from a small drainage (drainage width = 2 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR6. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HR6. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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HR7 – Culvert Hooker

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 44.831" N, 121° 58' 35.176" W. Located on Hooker Bypass Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from the roadside drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HR7. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.6 Hooker Intake Road

HI1 – Culvert Hooker Intake

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 20.763" N, 121° 57' 45.587" W. Located on Hooker Intake Road (Figure 4-1f).

Creek/Tributary: Tributary to Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from the adjacent slope. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HI1. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. California red-legged frogs, federally listed as threatened and a California species of special concern, may disperse and/or take refuge in habitat immediately adjacent to culvert HI1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Hooker Intake Road

HI2 – Culvert Hooker Intake

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 22.066" N, 121° 57' 45.004" W. Located on Hooker Intake Road (Figure 4-1f).

Creek/Tributary: Tributary to Los Gatos Creek

Project Description: The 24 inch-diameter culvert receives flow from a small stream (stream width = 1 foot). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert HI2. The olive-sided flycatcher and the long-eared owl, California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.7 Ryland Intake Road

R1 – Culvert Ryland

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 10' 4.511" N, 121° 58' 48.139" W. Located on Ryland Intake Road (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 16 inch-diameter culvert drains the adjacent slope and roadside drainage ditch. The culvert is partially clogged with sediment and requires minor maintenance.

Biological Resources: No special-status plants are expected to occur near culvert R1. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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Ryland Intake Road

R2 – Culvert Ryland

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 9' 59.588" N, 121° 58' 44.322" W. Located on Ryland Intake Rd (Figure 4-1f).

Creek/Tributary: Los Gatos Creek

Project Description: The 18 inch-diameter culvert receives flow from a small stream (stream width = 1.5 feet). No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert R2. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.8 Trout Intake Road

T1 – Culvert Trout

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 12' 12.481" N, 121° 59' 33.676" W. Located on Trout Intake Rd (Figure 4-1g).

Creek/Tributary: Trout Creek

Project Description: The 20 inch-diameter culvert receives flow from the adjacent slope. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert T1. The olive-sided flycatcher and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.9 Beardsley Road

B1 – Culvert Beardsley

Photo 1. Culvert inlet area (March 2021).

Photo 2. Culvert outlet (March 2021).

Location: 37° 11' 59.106" N, 122° 0' 51.321" W. Located on Beardsley Intake Rd (Figure 4-1e).

Creek/Tributary: Beardsley Creek

Project Description: The 18 inch-diameter culvert receives flow from a drainage ditch. No maintenance required as of March 2021, however future sediment and debris removal may be needed.

Biological Resources: No special-status plants are expected to occur near culvert B1. The olive-sided flycatcher and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site.

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4.3.10 Vina Drive

V1 – Culvert Vina Drive

Photo 1. Culvert outlet area (April 2019).

Photo 2. Culvert outlet (April 2019).

Location: 37° 12' 01.15740467" N, 121° 59' 41.67667756" W. Located on Vina Drive (Figure 4-1g).

Creek/Tributary: Unnamed Tributary to Lexington Reservoir

Project Description: The 12 inch-diameter culvert receives flow from a drainage ditch. Culvert replacement/repair is recommended and future sediment and debris removal will occur on an as needed basis.

Biological Resources: No special-status plants are expected to occur near culvert V1. The olive-sided flycatcher and the long-eared owl (*Asio otus*), California species of special concern, may nest in trees immediately adjacent to the culvert. The California giant salamander (*Dicamptodon ensatus*) and the Santa Cruz black salamander (*Aneides flavipunctatus niger*), both California Species of Special Concern, may seek refuge under rocks and woody debris adjacent to the culvert site. Western red bat (Lasiurus blossevillii) a California Species of Special Concern may roost in trees adjacent to the site. A biological assessment was conducted in 2019 to determine habitat suitability for CRLF. No CRLF were detected during the survey, however, potential CRLF dispersal and upland habitat features exist within the project area including; undercut banks, scattered logs, woody debris and root wads along the banks and upland areas

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Chapter 5

Maintenance Activities, Impact Avoidance and Minimization, and Best Management Practices

This chapter describes SJWC routine maintenance activities in the upper Los Gatos Creek Watershed and includes information about maintenance practices for SJWC dams and reservoirs; intake facilities; roads, culverts, and crossings; and watershed vegetation and fuel management activities. Conditions that would trigger maintenance activities are described, as are maintenance objectives, impact avoidance and minimization measures, and BMPs. The Maintenance Program BMPs are provided in Tables 5-1, 5-2, and 5-3 at the end of this chapter. Tables 5-4, 5-5, and 5-6, also provided at the end of this chapter, identify which biological resource protection BMPs will be implemented at specific SJWC facilities.

5.1 Dams and Reservoirs

5.1.1 Maintenance Activities at Dams and Reservoirs

SJWC owns and operates five dam/reservoir facilities that are regulated by DSOD. These include the dams and outlet works at Lake Williams, Lake Elsman (Austrian Dam), Lake Ranch Reservoir, Lake Cozzens, and Lake Kittredge.

Grass is the only vegetation allowed by DSOD regulations. DSOD dam safety regulations (DSOD 1965) require that all vegetation except grass is to be removed from the dam and that grass will be cut to or maintained at an acceptable height. Dam facilities require vegetation control to maintain the integrity of the dam surface and to allow for clear visual inspection of the dam surface. Vegetation must be removed from cracks in concrete, within weep holes and expansion joints, dam faces and spillways, and roads. Vegetation must be cleared from places where the dam comes into contact with native materials (e.g., abutments). Young trees must be removed before they become established. Trees that become established on dam faces must be removed to ensure visibility of dam surfaces and dam integrity. No woody growth is permitted on the dam face.

SJWC conducts vegetation management activities at its dam/reservoir facilities, including cutting and removal of vegetation and tree removal (if necessary). SJWC generally employs mechanical and manual methods of vegetation removal and management at its dams, but may also use direct application of herbicides to robust, herbaceous vegetation if necessary. Herbicides are applied on dam embankments and access roads, but are not applied in open water.

In addition to vegetation management, SJWC also repairs any damage from burrowing animals along a dam face and removes sediment and debris at spillways or culverts downstream of dams

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if operational capacity is diminished. SJWC does not routinely remove sediment from within its reservoirs. SJWC may repair hardware and facilities associated with dam or reservoir operations, such as pipes, valves, and gates.

The following paragraphs describe specific maintenance activities at the five SJWC dam/reservoir facilities. Chapter 4, Section 4.1 provides detailed descriptions and photographs of natural resource conditions and maintenance activities at SJWC dams and reservoirs.

Lake Williams

SJWC does not conduct any routine maintenance activities at Lake Williams. The road from Lake Elsman to Lake Williams requires periodic maintenance, including grading and culvert repair. Road and culvert maintenance activities are described in Chapter 4, Section 4.3 and shown in Figure 4-2d.

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Lake Elsman

Maintenance activities at Lake Elsman include managing vegetation along the dam face, maintaining the roads along the dam face, periodically removing sediment from the base of the spillway, maintaining dam facility hardware, and maintaining the roads and culverts that surround the lake. Vegetation management on the dam face primarily involves weed control, typically using a weed-whacker. Any small shrubs found on the dam face are removed. Direct application of herbicide to robust, herbaceous vegetation is periodically necessary.

Sediment is not removed from the main body of the reservoir. Some sediment is periodically (typically every other year) removed from the base of the Lake Elsman spillway and downstream of the emergency outlet culverts. This sediment is generally not derived from Lake Elsman itself, but is delivered from the tributary creek that discharges at the base of the spillway (see Photo 5 in Chapter 4, Section 4.1.2, Lake Elsman). A maintenance road at the base of the spillway provides direct access to the pool for trucks to haul away the removed sediment. Since 2009, sediment has been removed from the base of the spillway one time. This sediment was reused beneficially within the watershed for construction staging and road grading purposes.

There is also a periodic need to remove sediment from the pool downstream of the large emergency culverts below the spillway at Lake Elsman, to ensure that these culverts remain clear of any blockage. Sediment removal at the emergency culvert outfalls has not been conducted in more than 10 years. Sediment at this site has collected over time, likely transported from a tributary to the northeast, Cathermola Road runoff, and the surrounding area downstream of the dam. To remove sediment at the culvert outfalls, a temporary access road would be extended from the existing dam access road, along the toe of the dam, to access the site. Excavated sediment would be loaded on a haul truck and beneficially reused for construction fill in the watershed. SJWC expects to conduct this sediment removal work at the base of the emergency culverts every other year.

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Maintenance of dam facility hardware at Lake Elsman includes the periodic inspection and repair of various pipes and valves that are used at the reservoir. The maintenance of roads and culverts around Lake Elsman is described separately in Chapter 4, Section 4.3 and shown in Figure 4-2b and Figure 4-2d.

SJWC also plans to conduct a one-time repair at three gullies that have formed on Austrian Dam and modify an existing culvert that directs flow across an access road and down into the reservoir. The gullies are on the lake side, on the right dam groin (north side of dam), and south of Cathermola Road. The gullies would be filled with rock riprap to prevent additional erosion and alleviate threats to stability of the dam. This repair work would involve grading of up to 330 cubic yards to create v-ditch drainage forms in the gullies and installation of approximately 552 cubic yards of rock riprap to repair the gullies. An existing culvert would be wrapped with filter fabric or some equivalent fabric for protection, and would be anchored in place at several locations. The total disturbance area for the gully repair work is approximately 0.7 acre. Two staging areas would be used for temporary staging and stockpiling: one staging area (0.128 acre) would be located on the dam crest and the other staging area (0.825 acre) would be on the downstream flank of the dam.

Lake Cozzens

Maintenance activities at Lake Cozzens are limited to vegetation management along the dam face (mostly involving weed and grass removal), tree pruning around the dam, and filling of burrows along the dam face. The water level at Lake Cozzens is kept at least 10 feet below the overflow elevation to reduce strain and pressure on the earthen dam. SJWC also maintains the dam access road to provide proper grading and drainage.

Lake Kittredge

Maintenance activities at Lake Kittredge are limited to vegetation management along the dam face (mostly involving weed and grass removal), and tree pruning around the dam. SJWC also maintains the dam access road to provide proper grading and drainage. Additionally, a spring diversion box located near the lake, along Ellege Road, is maintained periodically to remove sediment and debris. A maximum of 1 cubic yard of accumulated sediment and debris is removed from the diversion box manually, primarily during the winter months.

Lake Ranch Reservoir

Principal maintenance activities at the Lake Ranch Reservoir are vegetation management along the dam faces at both ends of the reservoir (mostly involving weed and grass removal), tree pruning around the dam, filling of burrows along the dam faces, debris and vegetation management at the splitter gate upstream of the reservoir (see Photo 2 in Chapter 4, Section 4.1.5, Lake Ranch Reservoir), and maintaining the reservoir outlet gates in good working order. SJWC does not remove sediment from the Lake Ranch Reservoir.

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5.1.2 Maintenance Triggers at Dams and Reservoirs

Maintenance activities are conducted only when determined to be necessary. The following maintenance criteria are applied to evaluate and determine when maintenance actions are required at SJWC dams and reservoirs:

- Vegetation (other than grass) is removed when it is observed growing on the dam face;
- Vegetation is removed when it is observed growing in any concrete cracks, weep holes, or expansion joints or along any dam roads;
- Vegetation is removed when it is observed growing along dam abutments and dam contacts with adjacent native material;
- Grass is cut to a height to enable clear visibility of the dam surface;
- Any observable damage caused by burrowing animals along the dam face is repaired;
- If accumulated sediment or debris prevents the proper functioning of a dam/reservoir emergency spillway or emergency culvert, or impairs the safe operation of the dam facility, then sediment is removed;
- SJWC repairs gullies that have formed on the Austrian Dam groin when erosion and gullying is observed downslope of roadside culverts; or
- Based on routine and periodic inspections, SJWC repairs and/or replaces hardware and facilities associated with dam or reservoir operations, such as pipes, valves, and gates.

5.1.3 Impact Avoidance and Minimization Measures at Dams and Reservoirs

The following measures are implemented to avoid and minimize impacts resulting from maintenance activities conducted at SJWC dams and reservoirs:

- SJWC does not remove sediment from its reservoirs to increase or maintain reservoir capacity as part of its routine Maintenance Program. This Maintenance Program does not address sediment removal from within the main body of SJWC reservoirs.
- Sediment removed from the Lake Elsman spillway and emergency culvert outfall is beneficially reused as road grading or fill material in the watershed.
- General BMPs identified in Table 5-1 are applied to dam and reservoir maintenance activities, as applicable.
- Table 5-2 identifies BMPs to protect sensitive species and habitats. Table 5-2 is used in conjunction with Tables 5-4, 5-5, and 5-6 to determine the appropriate measures to implement for a specific maintenance site where habitat is present. For example,

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species-specific BMPs are implemented for sediment removal from ponds formed at dam spillway and culvert outfalls that support sensitive wetland and aquatic habitat for special-status species, such as California red-legged frog and western pond turtle.

- Table 5-3 identifies BMPs applied based on the potential presence of cultural resources.

5.2 Intake Facilities

5.2.1 Maintenance Activities at Intake Facilities

SJWC operates eight water intake facilities along creeks in the upper Los Gatos Creek Watershed. The purpose of these facilities is to divert and route surface water from creeks into conveyance pipes to be taken to MWTP. Routine maintenance activities at intake facilities include sediment and debris removal, flashboard repair, intake gate repair, and vegetation maintenance, including tree trimming and removing downed trees if they are caught at the intake facility. The Maintenance Program includes conducting routine maintenance at the following intake facilities: Ostwald, Hooker, Hendry, Cavanee, Beardsley, Howell, Aldercroft and Trout intakes. Chapter 1, Figure 1-2 identifies the locations of these facilities. Specific activities at these intake facilities are described below.

One maintenance activity that occurs in common at the Hendry, Cavanee, Beardsley, Howell, and Trout intakes is the use of small flashboard-type weirs that enable water to pool for intake collection. At these facilities, flashboards are generally inserted before the rainy season begins to enable operation of the intake facility. The flashboards are inserted and removed as needed throughout the season to keep debris clear of the intake and to manage available water supply. If sediment is deposited behind the flashboard dams toward the end of the rainy season, then following seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment past the weir. All sediment is kept in the creek.

Ostwald Intake Facility

The Ostwald Intake Facility captures flows along Los Gatos Creek (see Chapter 1, Figure 1-2) and diverts them to MWTP through the Los Gatos Creek 30-inch-diameter conveyance pipe. Because it is located directly along Los Gatos Creek, the Ostwald Intake is different from the other intake facilities that SJWC maintains, which are located on smaller tributary channels. Water is diverted from Los Gatos Creek through the Ostwald Intake Facility year-round when there is natural streamflow or when water is released from Lake Elsman. Under normal conditions, the rubber dam below the intake is inflated to provide a pool elevation that can supply water to the intake by gravity. The dam is lowered occasionally during storm events when water cannot be treated effectively due to high turbidity. The dam is also lowered to allow creek flows to transport accumulated sediment downstream.

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Routine maintenance activities at the Ostwald Intake Facility include periodic clearing of debris from the intake gates. The wooden boards that protect the base of the intake gate area are rotting and need repair and replacement (see Photo 20 in Chapter 4, Section 4.2.1). To facilitate replacement of these wooden boards, approximately 5-10 cy of sediment that has accumulated at the upstream of the boards would be removed and placed downstream of the rubber dam in the channel. This work would occur during the dry season and since dewatering would be needed, either a cofferdam or sand bag would be installed. Additionally, a spring diversion box located near the intake facility is maintained periodically to remove sediment and debris. A maximum of 1 cubic yard of accumulated sediment and debris is removed from the diversion box manually, primarily during the winter months.

Hooker Intake Facility

The Hooker Intake Facility is located on Hooker Gulch Creek, a tributary to Los Gatos Creek (see Chapter 1, Figure 1-2). Water is diverted from Hooker Gulch during the winter months when there is natural streamflow. The facility is not used in the dry months from late spring through fall.

Maintenance activities at the Hooker Intake Facility include sediment removal upstream of the facility (see Photo 25 in Chapter 4, Section 4.2.2), some light pruning of branches around the facility, and periodic clearing of debris from the intake gates. Sediment has not been removed from the facility since the 1990s. Approximately 661 cubic yards of sediment that has accumulated behind the dam needs to be removed. The frequency of future sediment removal will depend on the magnitude and frequency of winter storm events. It is anticipated that sediment removal at the Hooker Intake Facility will occur no more than four times during the 10-year Maintenance Program time frame. Following the initial sediment removal of 661 cubic yards, future sediment removal projects will be restricted to a 500-cubic-yard limit. A threshold of 250 cubic yards of reduced storage capacity will be required to initiate any subsequent sediment removal work. Sediment accumulation of less than 250 cubic yards will not trigger maintenance. Other minor maintenance activities would include in-kind replacement of hardware such as a ladder, railing, and sluice gates at the intake facility.

Due to settling and aging, a portion of the right base of the concrete dam has cracked. The facility may require long-term repair and retrofit to address this structural issue. SJWC is monitoring the dam's condition. Minor cracks in the dam may be repaired through the Maintenance Program, but any large repair or retrofit of the dam facility would not be conducted through the permit authorizations of the Maintenance Program.

Hendry Intake Facility

The Hendry Intake Facility is located on Hendry's Creek, a small tributary to Los Gatos Creek (see Chapter 1, Figure 1-2). Water is diverted from Hendry's Creek only during the winter months of wet years when there is natural streamflow. The facility is not used in the dry months from late spring through fall or during dry years when flows are nonexistent or ephemeral.

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Maintenance activities at the Hendry Intake Facility are minor (see Chapter 4, Section 4.2.3). If sediment is deposited behind the flashboard dams, then following seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to manually move the sediment past the weir. All sediment is kept in the creek. Deposited sediment is estimated to be less than 2 cubic yards annually. Other routine maintenance includes the annual inspection of the intake gate, leaf/debris screens, and other hardware to ensure that the facility is operating properly.

Lower/Upper Cavanee Intake Facilities

The Cavanee Intake Facility (see Chapter 1, Figure 1-2) comprises upper and lower intake features (see Chapter 4, Section 4.2.4). These facilities are used only during winter months when there is streamflow; they are not used in the dry months from late spring through fall.

Maintenance activities at the Cavanee Intake Facilities are minor. At the Lower Cavanee Intake Facility, routine maintenance is focused on the annual inspection of the sluice gate weirs and confirming the proper functioning of the intake gate, leaf/debris screens, and other hardware to ensure that the facility is operating properly. Any sediment that is deposited behind the sluice gate weirs is allowed to be transported downstream under natural flow conditions after the flashboards are removed. If necessary, sediment is relocated less than 10 feet downstream of the dam using hand tools (shovels); relocated sediment is estimated to be less than 2 cubic yards annually. Upstream of the Lower Cavanee Intake Facility is a trash and debris rack (or "grizzly") that also requires periodic clearing. Similar to the weir downstream, sediment is moved beyond the rack and allowed to be transported downstream by streamflow.

No sediment removal or other maintenance activities occur at the Upper Cavanee Intake Facility, where the non-gated concrete weir operates as is.

Beardsley Intake Facility

Located on Beardsley Creek (see Chapter 1, Figure 1-2), the Beardsley Intake Facility includes a small concrete weir, flashboard notch, flashboards, intake gate, leaf and debris screening filters, holding pool, and downstream pipeline (see Chapter 4, Section 4.2.5).

Maintenance activities at the Beardsley Intake are minor. Flashboards are generally inserted before the rainy season begins to enable operation of the intake facility. The flashboards are inserted and removed as needed throughout the season to keep debris clear of the intake and manage available water supply. If sediment is deposited behind the flashboard dams, then following the seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment past the weir. All sediment is kept in the creek. Deposited sediment is estimated to be less than 2 cubic yards annually. Most often, the pool upstream of the weir remains clear and open. Other routine maintenance activities include annual inspection of the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

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Trout Creek Intake Facility

Located on Trout Creek (see Chapter 1, Figure 1-2), the Trout Creek Intake Facility includes a small concrete weir, flashboard notch, intake gate, leaf and debris screening filters, pump house, and downstream pipeline (see Chapter 4, Section 4.2.6).

Maintenance activities at the Trout Creek Intake Facility are minor. If sediment is deposited behind the flashboard dam, then following the seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment past the weir. Relocated sediment is estimated to be less than 2 cubic yards annually and is moved less than 10 feet downstream of the dam. Most often, the pool upstream of the weir remains clear and open. Other routine maintenance includes annually inspecting the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

Howell Intake Facility

Located on Briggs Creek (see Chapter 1, Figure 1-2), the Howell Intake Facility includes a masonry dam, a slide gate, a wooden intake box covered with a louvered screen, and a rock-lined collection pond located 250 feet upstream of the dam (see Chapter 4, Section 4.2.7).

Maintenance activities at the Howell Intake Facility are minor. If any sediment is deposited behind the flashboard dam, then following seasonal removal of the flashboards, the sediment is allowed to flow downstream under natural flow conditions, or hand tools (shovels) are used to move the sediment manually past the weir. The amount of removed sediment is less than 1 cubic yard annually. Most often the rock-lined collection pool upstream of the weir remains clear and open when enough rainfall occurs to allow the pool to form. Other routine maintenance includes the annual inspection of the intake gate, leaf/debris screens, and intake gate hardware to ensure that the facility is operating properly.

Aldercroft Heights County Water District (AHCWD) Extraction Well

The well is located off of Los Gatos Creek, about 1.3 miles upstream of the Lexington Reservoir (see Chapter 1, Figure 1-2). The Aldercroft Heights County Water District Extraction Well includes a shallow well and pump house (see Chapter 4, Section 4.2.8). While it is not an in-stream feature, it is assumed that all water from the well is extracted from the Los Gatos Creek system (precluding the notion that there could be adjacent groundwater contributions).

Maintenance activities at the Aldercroft Heights Extraction well are minor. AHCWD has an agreement with SJWC to access this water, and AHCWD is in charge of repairing/maintaining this system and its lines. Periodic repair of the pump (maintenance, replacement of pump components) would be conducted to maintain the equipment. Other routine maintenance includes inspections of equipment to ensure that the facility is operating properly.

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5.2.2 Maintenance Triggers for Intake Facilities

Maintenance activities are conducted only when determined to be necessary. The following maintenance criteria are applied to evaluate and determine when maintenance actions are required at intake facilities:

- Intake facilities are inspected routinely during the wet season and before the beginning of the wet season. For most facilities, the major inspection takes place before their first use during the late fall–winter season. Intake gates, leaf/debris screens, weirs, debris racks, and other hardware are inspected and tested to ensure that the facility is operating properly. If, at any time, a feature at the intake facility requires maintenance and repair, then that maintenance will be conducted as soon as possible.

- Consistent with other SJWC facilities, if vegetation growth is affecting the proper operation of an intake facility, then the vegetation will be pruned or removed to eliminate the interference with the facility.

- At the Hendry, Cavanee, Beardsley, Howell, and Trout Creek Intake Facilities, the flashboards can be inserted and removed as needed throughout the season to keep debris clear of the intake and to manage available water supply. If sediment has collected behind the flashboard dams, the flashboards are removed during winter storm events, allowing the sediment to migrate downstream under natural flow conditions.

- At the upper Howell Intake periodic maintenance of the instream natural weir is required to maintain the collection pool and intake. Hand tools and shovels are used to reinforce the weir with sediment and rock.

- At the Ostwald Intake Facility, the rubber dam along Los Gatos Creek is lowered toward the end of the winter flow season and any sediment that has collected behind the rubber dam is allowed to migrate downstream under natural flow conditions. Any sediment that has accumulated near the intake entrance may be cleared and moved away from the intake facility but is kept in the creek. Sediment is not removed from Los Gatos Creek at the Ostwald Intake Facility.

- At the Hooker Intake Facility, sediment accumulation since the last removal in the 1990s has reduced the pool capacity and the ability of the intake facility to operate. Sediment needs to be removed soon, therefore, to enable proper functioning of the facility. After the initial sediment removal event (661 cubic yards), up to four additional sediment removal actions may occur during the Maintenance Program time frame. Sediment would be removed from the Hooker Intake Facility when operational capacity is reduced by more than 250 cubic yards in the intake pool. Removed sediment would be limited to 500 cubic yards per maintenance activity.

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5.2.3 Impact Avoidance and Minimization Measures at Intake Facilities

The following measures are implemented to avoid and minimize impacts resulting from maintenance activities conducted at intake facilities:

- At the Hendry, Lower Cavanee, Beardsley, Howell, and Trout Creek Intake Facilities, any sediment relocation to the channel immediately downstream of the weir will be conducted only with hand tools (shovels) and will be limited to moving sediment past the weir structure. Typically, this activity amounts to less than 2 cubic yards annually. All sediment will be kept in the stream system.
- No sediment removal or instream work will be conducted at the Upper Cavanee Intake Facility.
- At the Ostwald Intake Facility, no sediment will be removed from Los Gatos Creek. Sediment that is deposited behind the rubber dam will be allowed to migrate downstream under natural flow conditions when the dam is periodically lowered.
- At the Ostwald Intake Facility, the repair of rotted wooden boards shielding the intake from the creek will be repaired and replaced only under dry conditions. This maintenance will occur when the dam is deflated. A protective barrier will be established to keep the intake facility dewatered and dry during the repair process.
- At the Hooker Intake Facility, sediment removal under the Maintenance Program will be limited to an initial removal of 661 cubic yards. After the initial sediment removal activity, a maximum of four additional sediment removal actions may occur during the 10-year Maintenance Program time frame, and each additional removal activity will be limited to 500 cubic yards. A threshold of 250 cubic yards of reduced storage capacity will be required to initiate any subsequent sediment removal work. Sediment accumulation of less than 250 cubic yards will not trigger maintenance. Sediment removal work at the Hooker Intake Facility would occur only in late summer and early fall, typically during September and October, the driest period in the creek.
- Sediment removed from the Hooker Intake Facility will be beneficially reused within the Hooker Gulch watershed. Sediment removed from behind the dam will be used as road grading or fill material in the watershed.
- Logs or downed trees less than 10 feet long that are caught or trapped at intake facilities will be relocated directly downstream of the intake facility and kept in the stream channel. Logs or downed trees that are more than 10 feet long will be cut into pieces shorter than 10 feet and then relocated downstream of the intake facility. The intention is to maintain woody debris in the stream channel as much as possible. Before any downstream placement of woody debris, however, SJWC will check to see that any downstream facilities (such as road crossings or culvert outfalls) would not be impaired

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by the placement of woody debris in the channel. If downstream facilities could be affected by the placement of woody debris, then SJWC will seek alternative upland disposal of the woody debris, typically on lands within the riparian corridor near the stream channel. See BMP VEG-5.

- General BMPs identified in Table 5-1 are applied to dam and reservoir maintenance activities, as applicable.
- Table 5-2 identifies BMPs to protect sensitive species and habitat. Table 5-2 is used in conjunction with Tables 5-4, 5-5, and 5-6 to determine the appropriate measures to implement for a specific maintenance site and habitat.
- Table 5-3 identifies BMPs applied based on the potential presence of cultural resources.

5.3 Culverts and Road Crossings

5.3.1 Maintenance Activities at Culverts and Road Crossings

SJWC conducts maintenance activities to ensure proper functioning, access, and service for many culverts and road crossings in the Los Gatos Creek Watershed. Figures 4-2a through 4-2g in Chapter 4 identify sites where known culvert/road maintenance issues exist and where SJWC plans to conduct routine maintenance and repair. Figure 4-2a identifies 37 known sites that may require road and culvert maintenance or repair along the John Nicholas Trail, which provides access to the Lake Ranch Reservoir and sites in the Lake Kittredge and Lake Cozzens area. Figure 4-2b identifies 23 sites along Cathermola Road to the lower MROSD gate, while Figure 4-2c identifies 7 sites along Cathermola Road from Wrights Station Road to Aldercroft Heights Road. Figure 4-2d identifies 33 sites along Sears Road from Wrights Station Road to Lake Williams. Figure 4-2e identifies the 8 total sites in the vicinity of Ellege Road (7) and Beardsley Intake (1), Figure 4-2f identifies the 25 total sites in the vicinity of Ryland Intake (2), Hooker Bypass Road (21), and Hooker Intake Road (2). Figure 4-2g identifies the 2 total sites in the vicinity of Vina Drive (1) and Trout Intake (1). The "Culverts and Crossings" discussion in Chapter 4 (Section 4.3) provides detailed information for each of the 135 identified maintenance site locations, including required maintenance work, and an evaluation of potential biological resources, including sensitive habitats/species that are at or near the maintenance site.

The descriptions of culvert maintenance projects provided in Chapter 4, Section 4.3 are offered as known sites where maintenance is required. Over the course of the Maintenance Program, it is reasonable to expect that additional culvert and road maintenance needs will arise in other locations within the Program area. It is not anticipated, however, that the types of maintenance or repair activities will differ from the activities described in Chapter 4, Section 4.3 or in Section 5.3.2 below.

Table 5-7 at the end of this chapter lists the known culvert maintenance project sites described in Chapter 4, Section 4.3 and identifies the routine maintenance work to be conducted at those

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sites. SJWC typically implements six types of culvert maintenance and repair approaches: roadside drainage ditch maintenance, culvert inlet maintenance, culvert outfall maintenance, culvert maintenance, culvert replacement or enlargement, and road grading and erosion control. Appendix B of this Manual provides as-built engineering plans for nine culvert rehabilitation projects that were implemented in 2013. These plans provide typical engineering designs for culvert repair and replacement projects in the Program area. As shown in Appendix B, each project includes erosion control treatments for the culvert inlet and outlet.

5.3.2 Maintenance Triggers and Objectives for Culverts and Road Crossings

Maintenance activities are conducted only when determined to be necessary. The following maintenance criteria are applied to evaluate and determine when maintenance actions are required at culverts and road crossings:

1. **Roadside Drainage Ditch Maintenance:** This work is necessary when a roadside drainage ditch, typically on the upslope side of the road, is clogged with debris, sediment, or vegetation and is not providing adequate gravity-fed drainage toward the road-crossing culvert. In these situations, the maintenance work typically involves light debris clearing along the roadside ditch and sometimes light excavation to ensure that collected/ponded roadside water can drain properly toward the nearest culvert inlet. As examples, this type of work is required at the following culvert project sites shown in Chapter 4, Resource Characterizations at Maintenance Facilities, Section 4.3.1: Culvert John Nicholas Trail (Lake Ranch Road) M2 and M4.
2. **Culvert Inlet Maintenance, Repair, and Erosion Control:** This work is necessary when the culvert inlet on the upslope side of the road is not adequately capturing runoff, either from a contributing roadside ditch or from direct hillslope runoff adjacent to the road and culvert entrance. In these situations, the maintenance work may include implementing erosion control features at the hillslope directly adjacent to the culvert inlet to reduce any active hillslope erosion that is clogging or burying the culvert inlet with debris or sediment. Erosion control measures may include grading the hillslope to a more stable inclination, terracing the hillslope, applying erosion control fabrics/treatments, using a grate cover at the culvert inlet, and other measures. As examples, this type of work is required at the following culvert project sites shown in Chapter 4, Resource Characterizations at Maintenance Facilities, Sections 4.3.4 and 4.3.5: Culvert Ellege Road E7 and Culvert Hooker Bypass H2.
3. **Existing Road Culvert Maintenance, Repair, and Replacement:** This work is necessary when the existing road culvert has been crushed or otherwise damaged and cannot operate properly; is clogged with debris, sediment, and vegetation and cannot provide adequate conveyance capacity; or has been positioned (situated) incorrectly such that the culvert cannot function properly. When an existing culvert is crushed and inoperable, clogged or full of debris/sediment, or incorrectly positioned (typically being too shallow below the roadway and not deep enough) – then maintenance activities are required to address these situations. Crushed pipes will be replaced with new pipes.

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Culverts that are clogged or buried with sediment or debris will be cleared. Culverts that are too shallow will be excavated and repositioned at a more suitable depth to ensure proper functioning. As examples, this type of work is required at the following culvert project sites as shown in Chapter 4, Resource Characterizations at Maintenance Facilities, Section 4.3.1: Culvert John Nicholas Trail (Lake Ranch Road) M2 and M4.

4. **Existing Road Culvert Replacement and Enlargement:** This work is necessary when the existing culvert is undersized and inadequate to convey the volume of runoff supplied to the culvert. When a culvert is undersized, then ponding and backwatering occur on the upslope end of the culvert, which often causes runoff to bypass the culvert and run across the road, leading to further road erosion and gullying. Beneath-road culverts maintained by SJWC are typically sized in the range of 8- to 36-inch-diameter culverts. As an example, this type of work is required at Culvert Hooker Bypass H11 (see Chapter 4, *Resource Characterizations at Maintenance Facilities,* Section 4.3.5), where an existing 36-inch-diameter culvert is not adequately sized. This has led to erosion upstream and downstream of the culvert. The proposed repair would include replacing the existing culvert with a larger diameter culvert along the same existing alignment.

5. **Culvert Outfall Maintenance, Repair, and Erosion Control:** This work is necessary when culvert outfalls are blocked with debris or sediment, or when a culvert discharges flow to a steep hillside and additional (or new) erosion protection is needed to protect the slope below the culvert outfall. Erosion control treatments may include slight grading at the culvert outfall, placement of erosion control/protection materials at the outfall slope, placement of energy dissipation materials at the culvert outfall slope, or extension of the culvert into flexible plastic pipe to discharge flows farther downstream at a location that is not as steep or eroding. As examples, this type of work is required at the following two culvert project sites shown in Chapter 4, *Resource Characterizations at Maintenance Facilities,* Section 4.3.1: Culvert John Nicholas Trail (Lake Ranch Road) M12 and M14.

6. **Road Grading and Erosion Control:** This work is necessary when an existing earthen roadway is eroded. When ruts and rivulets that have formed in roadways can restrict vehicular passage or cause additional erosion, then SJWC will apply road maintenance activities to backfill such rills or ruts and will grade the road top surface. As examples, this type of work is required at the following project sites shown in Chapter 4, *Resource Characterizations at Maintenance Facilities,* Section 4.3.1: Culvert John Nicholas Trail (Lake Ranch Road) M9.

5.3.3 Impact Avoidance and Minimization Measures at Culverts and Road Crossings

The following measures are implemented to avoid and minimize impacts resulting from maintenance activities conducted at culverts and road crossings:

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- Implementation of BMPs GEN-1 through GEN-6, GEN-8 through GEN-13, and GEN-17 through GEN-20 are applicable to maintenance work at roads, culverts, and crossings.
- Implementation of BMPs GEN-14 through GEN-16 may be applicable if channel dewatering is required to conduct the maintenance work.
- Table 5-2 identifies BMPs to protect sensitive species and habitat. Table 5-2 is used in conjunction with Tables 5-4, 5-5, and 5-6 to determine the appropriate measures to implement for a specific maintenance site and habitat present. BMPs BIO-7 through BIO-9 prescribe revegetation and planting requirements after ground-disturbing activities are conducted.
- Table 5-3 identifies BMPs to be applied based on the potential presence of cultural resources.

5.4 Watershed Vegetation and Fuel Management

5.4.1 Watershed Vegetation and Fuel Management Activities

SJWC conducts vegetation and fuel management activities throughout the watershed to improve forest and watershed health and to mitigate the possibility of catastrophic wildfire. This includes activities near facilities and structures, and along roadways for which SJWC has maintenance responsibilities. Vegetation and fuel management activities are conducted primarily in upland areas and include the following:

- Removal of dead, decaying woody debris or fallen trees within a 200-foot radius of SJWC-maintained facilities and structures or near community assets/homes.
- Removal of hazard trees (sick, decaying, or otherwise potentially hazardous trees with higher risk for falling) within a 200-foot radius of SJWC-maintained facilities and structures or near community assets/homes.
- Thinning and pruning of vegetation within a 100-foot radius of SJWC-maintained facilities and structures or near community assets/homes. Vegetation thinning and pruning activities will focus on highly flammable material greater than 1 inch and less than 8 inches dbh.
- Removal of snags and ladder fuels within a 100-foot radius of SJWC-maintained facilities and structures. Ladder fuels increase the fire hazard by increasing the risk of ignition and connectivity from the understory to the mid- and upper-canopy forest levels.
- Removal of dead, decaying woody debris, fallen trees, and hazard trees within 50 feet of roads and the thinning and pruning and removal of snags and ladder fuels along and within 50 feet of SJWC-maintained roadways.
- Cutting firebreaks and weed removal along access/maintenance roads.

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- Ecological fuel and forest management, including hand removal of hazardous vegetation, mechanical vegetation reduction treatments, mastication, mowing, and vegetation thinning in upland sites throughout the watershed.

- Vegetation thinning and pruning management activities in accordance with the American National Standards Institute's (ANSI's) A300 (Part 1) 2008 Pruning, ANSI Z133.1 – 2000 *Safety Requirements* and International Society of Arboriculture's (ISA's) *Best Management Practices for Tree Pruning* (2008, or the most current version).

5.4.2 Maintenance Triggers for Vegetation and Fuel Management

Maintenance activities are conducted only when determined to be necessary. The following maintenance criteria are applied to evaluate and determine when vegetation management actions are required:

- SJWC will inspect watershed lands surrounding its facilities, structures, and roads annually and, based on the annual vegetation and fuel assessment, will develop a fuel management work plan to be implemented during the following year.

- The assessment of vegetation and potential fire fuels will be conducted by a qualified fire scientist, registered professional forester, certified arborist, or Ph.D.-qualified forest ecologist who will conduct visual inspections of the conditions of trees identified by SJWC staff as dead, decaying, fallen, hazardous, or otherwise subject to thinning or removal.

- Vegetation management and the reduction of potential fire fuel will be conducted within the distance radii designated above, based on the annual assessment.

5.4.3 Impact Avoidance and Minimization Measures for Vegetation and Fuel Management

The following measures are implemented to avoid and minimize impacts resulting from vegetation and fuel management activities:

- A qualified fire scientist, registered professional forester, certified arborist, or Ph.D.-qualified forest ecologist will conduct the forest fuel management assessment and identify potential fuel hazards to be removed and vegetation to be thinned/pruned, according to the activities listed above (see BMP VEG-2 in Table 5-1 (also UPVEG-2 in Table 5-8)).

- As described in BMP Measure VEG-1 (UPVEG-1), vegetation thinning and pruning will follow appropriate standards according to ANSI and ISA standards identified above.

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- BMP VEG-3 minimizes the area of vegetation removal to prevent additional bank erosion for work within Jurisdictional Areas.
- BMP VEG-4 (UPVEG-3) includes restrictions on herbicide use in and around SJWC facilities.
- BMP VEG-5 (UPVEG-4) describes management of downed trees and logs to maximize habitat provided by large wood in stream channels while protecting SJWC facilities.
- Tables 5-4, 5-5, and 5-6 at the end of this chapter identify sensitive species that may be present in SJWC maintenance areas and the applicable BMPs to implement to protect those species and habitats. Pre-construction surveys for certain special-status plants and wildlife will occur as necessary, based on potential habitats encountered at fuel management sites. These may include pre-construction surveys for selected special-status plants (BMP BIO-2/UPBIO-2) and red-legged frogs and western pond turtles (BMP BIO-3/UPBIO-3). If these resources are detected, they would be avoided if practicable (i.e., special-status plants, San Francisco dusky-footed woodrat nests) or relocated if necessary (i.e., red-legged frogs, western pond turtles, and woodrat nests that cannot be avoided).
- BMP BIO-1/UPBIO-1 prescribes restrictions on herbicide use in areas where red-legged frogs may be present. BMPs BIO-7 through BIO-9 (and UPBIO-7 through UPBIO-9) prescribes revegetation or planting requirements after vegetation management activities are conducted.

5.5 Best Management Practices

The measures in Table 5-1 below apply generally to all maintenance practices that are conducted within jurisdictional areas. BMPs tailored for specific maintenance activities are also identified. Table 5-2 identifies BMPs that are implemented for specific biological resources and habitat protection as appropriate to the maintenance site for work within jurisdictional areas. BMPs in Table 5-3 are implemented for cultural resource protection as appropriate to the maintenance site within jurisdictional areas.

Tables 5-4, 5-5, and 5-6 are provided to identify which biological resource protection BMPs may be necessary at SJWC facilities. Table 5-4 lists the facilities and identifies whether California red-legged frog, western pond turtle, and San Francisco dusky-footed woodrat may be present. Table 5-5 identifies the sensitive species potentially present in fuel management areas. Table 5-6 is a crosswalk table that correlates the appropriate BMP measures with the sensitive species that may be present at the facility. Tables 5-4, 5-5, and 5-6 are used to identify the appropriate measure to implement from Table 5-2, in addition to applicable measures from Table 5-1.

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Tables 5-8, 5-9, and 5-10 list the subset of BMPs that would be applicable and implemented for maintenance activities within upland areas outside of agency jurisdiction.

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Table 5-1. Maintenance Program Best Management Practices for work in Jurisdictional Areas

BMP Number	BMP Title	BMP Description
General Maintenance Practices		
GEN-1	Work Windows	▪ Non-ground-disturbing maintenance on any facility will generally occur between April 15 and October 1. ▪ Ground-disturbing maintenance activities (i.e., tree removal, mechanized vegetation management, bank stabilization, and sediment removal) occurring in a creek channel will take place between June 15 and October 15. ▪ Hand pruning and hand removal of vegetation may occur year round, except when wheeled or tracked equipment needs to access the site by crossing a creek, ponded area, or secondary channel. ▪ Removal of standing trees will not occur between February 1 and August 30 to avoid impacts on nesting birds (also see Measure BIO-6). ▪ Modification and removal of large wood, such as downed trees, is generally conducted during the dry season but can occur at any time of year if imminent danger of a flood threat precludes leaving the wood in place. ▪ Herbicide applications will occur between June 15 and November 15, with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inch is forecasted within a 24-hour period following planned application events.
GEN-2	Minimize Area of Disturbance	To minimize impacts to natural resources, the area of ground disturbance will be limited to the minimum footprint necessary to meet the goals and objectives of the maintenance activity.
GEN-3	Erosion and Sediment Control Measures	▪ Upland soils exposed by maintenance activities will be seeded and stabilized using erosion control fabric or hydroseeding. The channel bed and areas below the ordinary high water mark (OHWM) are exempt from this BMP. ▪ Erosion control fabrics will consist of natural fibers that biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Plastic sheeting may be used to protect a slope from runoff temporarily, but only if there are no indications that special-status species would be affected by the application. ▪ Erosion control measures will be installed according to manufacturer's specifications. ▪ Appropriate measures include, but are not limited to, the following: – silt fences – straw bale barriers – brush or rock filters – storm drain inlet protection – sediment traps

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BMP Number	BMP Title	BMP Description
		– sediment basins – erosion control blankets and mats – soil stabilization (e.g., tackified straw with seed, jute, or geotextile blankets, broadcast and hydroseeding) ▪ All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project. ▪ The following California Stormwater Quality Association (CASQA) Construction BMPs provide guidance and specifications on implementation of the erosion control measures listed above (see also www.casqa.org/resources/bmp-handbooks/construction): – SC-3. Sediment Basins – SC-4. Straw or Sand Bag Barriers – SC-5. Sediment Traps – SC-6. Silt Fences – SS-1. Erosion Control Blankets, Mats, and Geotextiles – VR-1. Brush or Rock Filters – VR-4a. Temporary Outlet Protection – VR-4b. Storm Drain Inlet Protection – WD-1. Earth Dike – WD-1. Slope Drain – WD-3. Temporary Drains and Swales
GEN-4	Dust Management Controls	SJWC will implement the Bay Area Air Quality Management District's (BAAQMD's) Basic Dust Control Measures (www.baaqmd.gov) at maintenance sites less than 4 acres in size. Current measures stipulated by the BAAQMD guidelines include the following: ▪ All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. ▪ All haul trucks transporting soil, sand, or other loose material off-site shall be covered. ▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ▪ All vehicle speeds on unpaved roads shall be limited to 15 mph. ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

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BMP Number	BMP Title	BMP Description
		▪ Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. ▪ A publicly visible sign shall be posted with the telephone number and name of the person to contact at SJWC regarding dust complaints. Following the review of any dust complaints, SJWC's Watershed Maintenance Manager shall respond and take corrective action within 48 hours.
GEN-5	Staging and Stockpiling of Materials	▪ To the extent feasible, staging will occur on access roads, surface streets, or other disturbed areas that are already compacted and support only ruderal vegetation. Similarly, all maintenance equipment and materials (e.g., road rock and project spoils) will be contained within the existing service roads, paved roads, or other pre-determined staging areas. Staging areas for equipment, personnel, vehicle parking, and material storage will be sited as far as possible from major roadways. ▪ To prevent sediment-laden water from being released back into waterways during transport of spoils to disposal locations, truck beds will be lined with an impervious material (e.g., plastic), or the tailgate will be blocked with wattles, hay bales, or other appropriate filtration material. ▪ Building materials and other maintenance-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains. ▪ No runoff from staging areas may be allowed to enter waterways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). The discharge of decant water to waterways from any on-site temporary sediment stockpile or storage areas is prohibited. ▪ During the dry season, no stockpiled soils will remain exposed and unworked for more than 7 days. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control.
GEN-6	Stream Access	SJWC personnel will use existing access ramps and roads to the extent feasible. If necessary to avoid large mature trees, native vegetation, or other significant habitat features, temporary access points will be constructed in a manner that minimizes impacts according to the following guidelines: 1. Temporary access points will be constructed as close to the work area as possible to minimize equipment transport. 2. In considering channel access routes, slopes of greater than 20 percent will be avoided, if possible. 3. Disturbed areas will be revegetated or filled with compacted soil, seeded, and stabilized with erosion control fabric immediately after completion of maintenance activities to prevent future erosion.

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BMP Number	BMP Title	BMP Description
		4. SJWC personnel will use the most appropriate equipment for the job that minimizes impacts. Appropriately tired vehicles, either tracked or wheeled, will be used, depending on the site and maintenance activity.
GEN-7	Sediment Removal Restrictions at Intake Facilities	▪ At the Hendry, Lower Cavanee, Beardsley, and Trout Creek Intake Facilities, any sediment relocation to the channel immediately downstream of the weir will be conducted only with hand tools (shovels) and will be limited to moving sediment past the weir structure. ▪ No sediment removal or instream work will be conducted at the Upper Cavanee Intake Facility. ▪ At the Ostwald Intake Facility, no sediment will be removed from Los Gatos Creek. Sediment that is deposited behind the rubber dam will be allowed to migrate downstream under natural flow conditions when the dam is periodically lowered. ▪ At the Hooker Intake Facility, sediment removal under the Maintenance Program will be limited to an initial removal of 661 cubic yards. After the initial sediment removal activity, a maximum of four additional sediment removal actions may occur during the 10-year Maintenance Program time frame, and each additional removal activity will be limited to 500 cubic yards. A threshold of 250 cubic yards of reduced storage capacity will be required to initiate any subsequent sediment removal work. Sediment accumulation of less than 250 cubic yards will not trigger maintenance. Sediment removal work at the Hooker Intake Facility would occur only in late summer and early fall, typically during September and October, the driest period in the creek.
GEN-8	On-Site Hazardous Materials Management	▪ An inventory of all hazardous materials used (and/or expected to be used) at the work site and the end products that are produced (and/or expected to be produced) after their use will be maintained by the worksite manager. ▪ As appropriate, containers will be properly labeled with a “Hazardous Waste” label and hazardous waste will be recycled or disposed of properly off-site at an appropriate hazardous waste facility. ▪ Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage. ▪ Petroleum products, chemicals, cement, fuels, lubricants, non-storm-drainage water, and water contaminated with the aforementioned materials will not contact soil and will not be allowed to enter surface waters or the storm drainage system. ▪ All toxic materials, including waste disposal containers, will be covered when not in use and located as far as possible from any direct connection to the storm drainage system or surface water. ▪ All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags, cigarettes) will be removed from the site daily.

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BMP Number	BMP Title	BMP Description
GEN-9	Existing Hazardous Materials	▪ If previously unknown hazardous contaminants, including oil, batteries, or paint cans, are encountered during excavation work, SJWC personnel will cease activity and will contact the Santa Clara County Public Health Department to determine what measures need to be implemented to address the hazardous materials and ensure that the work site is safe for people and the environment. As directed by the Santa Clara County Public Health Department, SJWC personnel will carefully remove and dispose of hazardous materials. ▪ SJWC personnel will wear proper protective gear when handling hazardous materials. All contaminated materials will be stored in appropriate hazardous waste containers for transport and disposal at a permitted hazardous waste facility.
GEN-10	Spill Prevention and Response	▪ SJWC personnel will prevent the accidental release of chemicals, fuels, lubricants, and non-storm-drainage water into channels by following these measures: 1. New SJWC field personnel will be trained appropriately in spill prevention, hazardous material control, and cleanup of accidental spills. 2. Equipment and materials for cleanup of spills will be available on site at all times, and spills and leaks will be cleaned up immediately and disposed of at a hazardous waste facility. 3. SJWC field personnel will ensure that hazardous materials are handled properly and natural resources are protected by all reasonable means. 4. Spill prevention kits will always be in close proximity when SJWC personnel are using hazardous materials (e.g., at crew trucks and other reasonable locations). All SJWC field personnel will be advised of these locations. 5. SJWC personnel will routinely inspect the work site, vehicles, and equipment to verify that spill prevention and response measures are implemented and maintained properly. All leaks will be repaired promptly. Drip pans will be used to catch leaks until repairs are made. ▪ For small spills on impervious surfaces, absorbent materials will be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill area will be excavated and properly disposed of rather than being buried. Absorbent materials will be collected and disposed of properly and promptly. ▪ All significant spills of hazardous materials, including oil, will be reported immediately. To report a spill: 1) Dial 911 or your local emergency response number; and 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

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BMP Number	BMP Title	BMP Description
GEN-11	Equipment and Fire Prevention	▪ All earth-moving and portable equipment with internal combustion engines will be equipped with spark arrestors. ▪ During the high fire danger period (April 1–December 1), work crews will: 1. Have appropriate fire suppression equipment available at the work site. 6. Keep flammable materials, including flammable vegetation slash, at least 10 feet away from any equipment that could produce a spark, fire, or flame. 7. Not use portable tools powered by gasoline-fueled internal combustion engines within 25 feet of any flammable materials unless a round-point shovel or fire extinguisher is within immediate reach of the work crew (no more than 25 feet away from the work area).
GEN-12	Vehicle and Equipment Maintenance	▪ All vehicles and equipment will be kept clean. Excessive buildup of oil and grease will be prevented. ▪ All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Action will be taken to prevent or repair leaks prior to use. ▪ Incoming vehicles and equipment (including delivery trucks and employee and subcontractor vehicles) will be checked for leaking oil and fluids. Leaking vehicles or equipment will not be allowed on-site. ▪ No heavy equipment will operate in a live stream. ▪ No equipment will be serviced in the creek channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators). ▪ If necessary, servicing of equipment at the job site will be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated service areas will not connect directly to the ground, surface water, or storm drain system. The service area will be clearly designated with berms, sand bags, or other barriers. Secondary containment, such as a drain pan, will be used to catch spills or leaks when removing or changing fluids. Fluids will be stored in appropriate containers with covers, and recycled or disposed of properly off-site. ▪ If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be conducted in the channel or floodplain. ▪ Equipment will be cleaned of any sediment or vegetation before being transferred and used in a different watershed, to avoid spreading sediment, pathogens, or exotic/invasive species. ▪ Vehicle and equipment washing can take place on-site only as needed to prevent the spread of sediment, pathogens, or exotic/invasive species. No runoff from vehicle or equipment washing will be allowed to enter water bodies, including creek channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens). The discharge of decant water from any on-site wash area to water bodies or areas outside of the active project site is prohibited. Additional vehicle and equipment washing will take place at the approved wash area in SJWC's corporation yard.

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BMP Number	BMP Title	BMP Description
GEN-13	Vehicle and Equipment Fueling	▪ No fueling will be done in the channel (top-of-bank to top-of-bank) or immediate floodplain unless equipment stationed in these locations cannot be readily relocated (e.g., pumps and generators). ▪ All off-site fueling sites (i.e., on access roads above the top-of-bank) will be equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system. ▪ For stationary equipment that must be fueled on-site, secondary containment, such as a drain pan or drop cloth, will be used to prevent accidental spills of fuels from reaching soil, surface water, or the storm drain system.
GEN-14	Dewatering Measures	When work in flowing streams is unavoidable, streamflow will be diverted around the work area by construction of a temporary dam or bypass. 1. Before dewatering, the best means to bypass flow through the work area will be determined to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates. 2. The area to be dewatered will encompass the minimum area necessary to perform the maintenance activity. 3. The period of dewatering will extend only for the minimum amount of time needed to perform the maintenance activity. 4. Depending on the channel configuration, sediment removal activities may occur where the flows are not bypassed around the work site as long as a berm is left between the work area and streamflows to minimize water quality impacts during excavation activities. 5. In reaches that contain deep pools, SJWC will maintain these pools, as is practical, by constructing temporary fencing surrounding the pool and avoiding pool dewatering. Pools at construction sites may be isolated by upstream or downstream barriers such as culverts. This approach does not apply to sediment removal activities that require removal of all sediment to restore the design capacity. *Construction:* 1. Where feasible and appropriate, dewatering will occur through gravity-driven systems and diversion structures shall be installed on concrete sections of the channels, such as concrete box culverts often used at road crossings. 2. Construction of cofferdams will begin in the upstream area and continue in a downstream direction, and the flow will be diverted only when construction of the dams is completed. 3. Coffer dams will be installed both upstream and downstream, not more than 100 feet from the extent of the work areas. 4. Instream cofferdams will be built only from materials such as sand bags, clean gravel, or rubber bladders that will cause little or no siltation or turbidity. No earthen fill will be used to construct cofferdams. Plastic sheeting will be placed over sand bags to minimize water seepage into the maintenance areas. The plastic sheets will be firmly anchored to the streambed to minimize water seepage. If necessary, the footing of the cofferdam

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BMP Number	BMP Title	BMP Description
		will be keyed into the channel bed at an appropriate depth to capture the majority of subsurface flow needed to dewater the streambed. 5. Streamflows will be allowed to travel by gravity flow around or through the work site using temporary bypass pipes or culverts. Bypass pipe diameter will be sized to accommodate, at a minimum, twice the volume of the summer base flow. 6. When gravity-fed dewatering is not feasible and pumping is necessary to dewater a work site, a temporary siltation basin and/or silt bags may be required to prevent sediment from re-entering the wetted channel. *Implementation*: 1. A qualified biologist will be present to ensure that fish and other aquatic vertebrates are not stranded during construction and implementation of channel dewatering. 2. If it is necessary to remove stranded fish or other aquatic vertebrates, electrofishing will be used to collect and relocate fish from the work area. If relocation is necessary, BMP GEN-15 will be implemented. 5. Downstream flows adequate to prevent fish or vertebrate stranding will be maintained at all times during dewatering activities. 6. Diverted and stored water will be protected from maintenance activity-related pollutants, such as soils, equipment lubricants, or fuels. 7. If necessary, discharged water will pass over some form of energy dissipater to prevent erosion of the downstream channel. Silt bags will be attached to the end of discharge hoses and pipes to remove sediment from discharged water. 8. For full channel dewatering, filtration devices or settling basins will be provided as necessary to ensure that discharged water is not visibly more turbid than water in the channel upstream of the maintenance site. If increases in turbidity are observed, additional measures will be implemented, such as a larger settling basin or additional filtration. If increases in turbidity persist, the SJWC Maintenance Program Manager will be alerted and turbidity measurements may be required. *Deconstruction:* 1. When maintenance is completed, the flow diversion structure will be removed as soon as possible but no later than 48 hours after work is completed. Impounded water will be released at a reduced velocity to minimize erosion, turbidity, and harm to downstream habitat. Cofferdams will be removed in such a way that surface elevations of water impounded above the cofferdam are lowered at a rate not greater than 1 inch per hour. 9. When diversion structures are removed, to the extent practicable, the ponded flows will be directed into the low-flow channel within the work site to minimize downstream water quality impacts. 10. The area disturbed by flow bypass mechanisms will be restored at the completion of the maintenance activity. Restoration may include, but is not limited to, recontouring the area and planting riparian vegetation.

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BMP Number	BMP Title	BMP Description
GEN-15	Relocation of Aquatic Species for Dewatering	As identified in BMP GEN-14, before a work area is dewatered, fish and other aquatic vertebrates will be captured and relocated to avoid injury and mortality and to minimize disturbance. The following guidelines will apply: 1. Before removal and relocation begin, a qualified fisheries biologist will identify the most appropriate release location(s). Release locations should have water temperatures similar to the capture location and offer ample habitat for released fish and aquatic vertebrates, and should be selected to minimize the likelihood of fish and aquatic vertebrates re-entering the work area or becoming impinged on the exclusion net or screen. 11. The means of capture will depend on the nature of the work site, and will be selected by a qualified fisheries biologist who has a current CDFW scientific collecting permit and is experienced with capture and handling protocols for fish and aquatic vertebrates. Complex stream habitat may require the use of electrofishing equipment, whereas in outlet pools, vertebrates may be captured by pumping down the pool and then seining or dipnetting. Electrofishing will be used only as a last resort; if electrofishing is necessary, it will be conducted only by properly trained personnel following the NMFS guidelines (dated June 2000). 12. To the extent feasible, relocation will be performed during morning periods. Air and water temperatures will be measured periodically, and relocation activities will be suspended if temperatures exceed the limits allowed by NMFS guidelines. 13. To prevent aquatic vertebrates from re-entering the work area, the channel will be blocked by placing fine-meshed nets or screens above and below the work area. To minimize entanglement, mesh diameter will not exceed 1/8 inch. The bottom edge of the net or screen will be secured to the channel bed to prevent fish from passing under the screen. Exclusion screening will be placed in low-velocity areas to minimize impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water. 14. Handling of aquatic vertebrates will be minimized. When handling is necessary, personnel will wet hands or nets before touching them. 15. Fish will be held temporarily in cool, shaded water in a container with a lid. Overcrowding in containers will be avoided; at least two containers will be used and no more than 25 fish will be kept in each container. Aeration will be provided with a battery-powered external bubbler. Fish will be protected from jostling and noise, and will not be removed from the container until the time of release. A thermometer will be placed in each holding container and partial water changes will be conducted as necessary to maintain a stable water temperature. Fish will not be held more than 30 minutes. If water temperatures reach or exceed NMFS limits, fish will be released and relocation operations will cease. 16. If fish are abundant, capture will cease periodically to allow release and minimize the time fish spend in holding containers. 17. Fish will not be anesthetized or measured. They will be visually identified to species level, however, and year classes will be estimated and recorded. 18. Reports on fish relocation activities will be submitted to CDFW and NMFS in a timely fashion.

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BMP Number	BMP Title	BMP Description
		19. If mortality during relocation exceeds 5 percent, relocation will cease and CDFW and NMFS will be contacted immediately or as soon as feasible. 20. When feasible, initial fish relocation efforts will be performed several days before the scheduled start of construction. The fisheries biologist will perform a survey on the day before construction begins to verify that no fish have moved back into the project area.
GEN-16	Pump/Generator Operations and Maintenance	When needed to assist in channel dewatering, pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. ▪ Pumps and generators will be maintained according to manufacturer's specifications to regulate flows to prevent dryback or washout conditions. ▪ Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. ▪ Pump intakes will be screened to prevent entrainment of fish and other aquatic vertebrates. If pumping is necessary in streams that support steelhead, a minimum of 2.28-mm screens will be installed to prevent entrainment.
Public Safety		
GEN-17	Planning for Pedestrians, Traffic Flow, and Safety Measures	▪ Work will be staged and conducted in a manner that maintains two-way traffic flow on public roadways in the vicinity of the work site. If temporary lane closures are necessary, they will be coordinated with the appropriate jurisdictional agency and scheduled to occur outside of peak traffic hours (7:00–10:00 a.m. and 3:00–6:00 p.m.) to the maximum extent practicable. Any lane closures will include advance warning signage, a detour route, and flaggers in both directions. When work is conducted on public roads and may have the potential to affect traffic flow, work will be coordinated with local emergency service providers as necessary to ensure that emergency vehicle access and response is not impeded. ▪ Bicycle and pedestrian facility closures will be scheduled outside of peak traffic hours (7:00–10:00 a.m. and 3:00–6:00 p.m.) to the maximum extent practicable. ▪ Public transit access and routes will be maintained in the vicinity of the work site. If public transit will be affected by temporary road closures and require detours, affected transit authorities will be consulted and kept informed of project activities. ▪ Adequate parking will be provided or designated public parking areas will be used for maintenance-related vehicles not in use through the maintenance period. ▪ Access to driveways and private roads will be maintained. If brief periods of maintenance would temporarily block access, property owners will be notified prior to maintenance activities.

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BMP Number	BMP Title	BMP Description
GEN-18	Public Safety Measures	SJWC will implement public safety measures during maintenance as follows: ▪ If necessary, construction signs will be posted at job sites warning the public of construction work and to exercise caution. ▪ Where work is proposed adjacent to a recreational trail, warning signs will be posted several feet beyond the limits of work. Signs will also be posted if trails will be temporarily closed. ▪ If needed, a lane will be temporarily closed to allow trucks to pull into and out of access points to the work site. ▪ Fencing, either the orange safety type or chain link, will be installed around repair sites on bank stabilization projects. ▪ When necessary, SJWC personnel or contracted staff will provide traffic control and site security.
GEN-19	Minimize Noise Disturbances to Residential Areas	SJWC will implement maintenance practices that minimize disturbances to residential areas surrounding work sites. ▪ With the exception of emergencies, work will be conducted during normal working hours (8:00 a.m.–5:00p.m). Maintenance activities in residential areas will not occur on Saturdays, Sundays, or SJWC-observed holidays except during emergencies, or with approval by the local jurisdiction and advance notification to surrounding residents. ▪ Advance notification will be provided 1 week before the start of construction to adjacent properties within 275 feet of a proposed maintenance site where heavy equipment will be used. ▪ Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers. ▪ Excessive idling of vehicles (beyond 5 minutes) will be prohibited.
GEN-20	Work Site Housekeeping	▪ SJWC employees and contractors will maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly condition when work is complete. Slash, sawdust, and cuttings will be removed to clear the site of vegetation debris. As needed, paved access roads and trails will be swept and cleared of any residual vegetation or dirt resulting from the maintenance activity. ▪ For activities that last more than 1 day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. ▪ SJWC's maintenance crews are responsible for properly removing and disposing of all debris generated as a result of construction within 72 hours of project completion and as directed by the SJWC Maintenance Program Manager. ▪ All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags, cigarettes) will be removed from the site daily.

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BMP Number	BMP Title	BMP Description
GEN-21	Asbestos Exposure Precautions	▪ Before conducting ground-disturbing maintenance activities in the southeastern and eastern parts of the upper Los Gatos Creek Watershed where naturally occurring asbestos (NOA) may be present in ultramafic geologic formations, as mapped in Wagner et. al. (1991), the proposed maintenance sites will be evaluated by a registered geologist for presence of NOA. ▪ If NOA presence is likely, tests to determine whether NOA is present in content levels below regulatory limits (the current threshold is 0.25 percent asbestos) will be conducted according to the evaluation methods identified in California Air Resources Board (CARB) Test Method 435 (M435). ▪ If NOA is present at levels above the regulatory limit, ground-disturbing maintenance activities in that area will be avoided. ▪ If NOA is present above regulatory limits and ground-disturbing work must be conducted in that area, the SJWC Maintenance Program Manager will ensure that work is conducted in compliance with all applicable aspects of the Asbestos Airborne Toxic Control Measures (ATCMs) for Construction, Grading, Quarrying and Surface Mining Operations (17 CCR 93105). Compliance with this ATCM will be documented and the records retained for future reference. Compliance with these ATCMs will protect against harm to maintenance workers and the environment. These regulations and guidance documents regarding their implementation can be found at: www.arb.ca.gov/toxics/asbestos/reginfo.htm.
Vegetation Management		
VEG-1	Routine Pruning Measures	1. Pruning will be performed according to the most recently published National ANSI A300 Pruning Standards and ISA BMPs for Tree Pruning, which include guidance on pruning practices, pruning objectives, pruning methods (types), palm pruning, and utility pruning. 21. Pruning activities will follow National ANSI Z133.1-2006 Standards for safe operation of tree care machinery, and safety equipment such as carabiners, helmets, and arborist ropes will be used to ensure the safety of tree climbers.
VEG-2	Conduct a Forest Fuel Management Assessment	A qualified fire scientist, registered professional forester, certified arborist, or Ph.D.-qualified forest ecologist will conduct the forest fuel management assessment and identify potential fuel hazards to be removed or vegetation to be thinned/pruned according to the methods prescribed in BMP VEG-1.
VEG-3	Minimize Local Erosion Increase from In-channel Vegetation Removal	To minimize the potential effect of localized erosion, the toe of the bank will be protected by allowing vegetation to remain to the maximum extent possible.

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Deleted: March 2021

BMP Number	BMP Title	BMP Description
VEG-4	Standard Herbicide Use Requirements	▪ Hand or mechanical vegetation removal will be used in areas within 0.25 mile of schools. Herbicides will be applied only if hand or mechanical vegetation removal is not feasible. ▪ Only herbicides and surfactants that have been approved for aquatic use by the U.S. Environmental Protection Agency (USEPA) and are registered for use by the California Department of Pesticide Regulation (CDPR) will be used for vegetation control activities. ▪ Herbicide application will be consistent with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label instructions and use conditions issued by USEPA, CDPR, and the Santa Clara County Agricultural Commissioner. ▪ Herbicides will not be applied in upland areas within 48 hours of predicted rainfall. ▪ The lowest recommended rates of herbicides and surfactants that achieve project objectives will be utilized to achieve desired control. ▪ An indicator dye may be added to the tank mix to help the applicator identify areas that have been treated and to better monitor the overall application. ▪ Herbicides will not be applied in open water or to plants whose bases are submerged in a stream channel or other water body. Application of herbicides to plants growing directly in water or within a stream channel (top-of-bank to top-of-bank) or its riparian corridor (drip line of trees growing on the top-of-bank) is not covered under this Maintenance Program and requires additional authorizations according to state and local regulations.
VEG-5	Downed Tree and Log Management	▪ At intake facilities, logs or downed trees that are less than 10 feet long will be relocated directly downstream of the intake facility and kept in the stream channel. ▪ Logs or downed trees that are more than 10 feet long will be cut into pieces shorter than 10 feet long and then relocated downstream of the intake facility. The intention is to maintain woody debris in the stream channel as much as possible. ▪ Before any downstream placement of woody debris, SJWC will check to see that any downstream facilities (such as road crossings or culvert outfalls) would not be impaired by the placement of woody debris in the channel. If downstream facilities could be affected by the placement of woody debris, then SJWC will seek alternative upland disposal site for the woody debris, typically on lands within the riparian corridor near the stream channel.

Deleted: April 2019

Deleted: March 2021

Table 5-2. Maintenance Program Best Management Practices for Biological Resource Protection for work in Jurisdictional Areas

BMP Number	BMP Title	BMP Description
Biological Resources		
BIO-1	Protection of California Red-legged Frogs from Herbicide Use	▪ In accordance with BMP VEG-4, only herbicides approved for use by USEPA and registered for use by CDPR will be used for vegetation management, and approved herbicides will be applied in accordance with federal, state, and local regulations. ▪ In accordance with BMP VEG-4, no herbicides will be applied in open water, including lakes and ponds. ▪ In project areas identified as providing suitable habitat for the California red-legged frog, SJWC shall ensure that any applications of sprayable or dust formulations of herbicides will: 1. be applied only when the air is calm or moving away from red-legged frog habitat; 2. begin in the portion of the work area nearest the suitable habitat and proceed away from the habitat; and 3. not be conducted within 40 yards upwind of suitable habitat when air currents are moving toward the habitat.
BIO-2	Avoid Special-Status Plant Species	If ground-disturbing equipment, such as a masticator, is to be used for fuel management vegetation removal, the fuel management areas will be pre-surveyed for Santa Clara Valley dudleya, bent-flowered fiddleneck, Santa Cruz Mountains pussypaws, Mt. Hamilton fountain thistle, San Francisco collinsia, and Santa Cruz Mountains beardtongue. To avoid and/or minimize potential impacts on special-status plants, the following actions will be taken: 1. Pre-maintenance surveys of the work area for special-status plant species will be conducted by a qualified biologist during the appropriate blooming period, within 2 years before commencement of work. 4. If special-status plant species are present at the work site, the qualified biologist will minimize impacts on them by implementing the following measures: A. Flag the special-status plant population to be protected to create a clearly visible boundary of the sensitive area to be avoided. B. Restrict vegetation management activities within the flagged area to cutting, weed-whacking, and/or hand removal. No ground disturbance or vegetation removal will be allowed within 10 feet of the known special-status plant population.
BIO-3	Protection of California Red-legged Frogs and Western Pond Turtles	In project areas identified as providing suitable habitat for California red-legged frogs or western pond turtles (see Table 5-4), a qualified biologist will conduct one daytime survey for these species within 48 hours before commencement of maintenance activities.

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
Biological Resources		
		1. If no California red-legged frogs or western pond turtles are found within the activity area during the survey, the work may proceed. 5. If a California red-legged frog or western pond turtle, or the eggs or larvae of either of these species, are found within the activity area during the survey or during project activities, the qualified biologist will implement the following measures: A. For maintenance activities that will take less than 1 day, conduct a survey for red-legged frogs and western pond turtles on the morning of and before the scheduled work. I. If no California red-legged frogs or western pond turtles are found, the work may proceed. II. If eggs or larvae of either species are found, a no-disturbance buffer zone will be established around the location of the eggs/larvae. Work may proceed outside of the buffer zone; however, work within the buffer zone will be postponed until the eggs have hatched and/or larvae have metamorphosed. The monitoring biologist will determine the buffer size based on the specific site conditions and type of maintenance. III. If an active western pond turtle nest is detected within the maintenance area, a 25-foot buffer zone around the nest will be maintained during the breeding and nesting season (April 1–August 31). The buffer zone will remain in place until the young have left the nest, as determined by a qualified biologist. IV. If adults or non-larval juvenile California red-legged frogs or western pond turtles are found, the qualified biologist will implement one of the following two procedures: a.) If, in the opinion of the qualified biologist, the individual(s) are likely to leave the work area on their own, and work can be feasibly rescheduled, a buffer zone will be established around the location of the individual(s). Work may proceed outside of the buffer zone. Work within the buffer zone will be postponed until the individual(s) have left the area, as determined by the qualified biologist. The monitoring biologist will determine the buffer size based on the specific site conditions and type of maintenance. b.) If, in the opinion of the qualified biologist, capture and removal of the individual to a safe location outside of the work area is less likely to result in adverse effects than leaving the individual in place and rescheduling the work (e.g., if the species could potentially hide and be missed during a follow-up survey), the individual will be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed. B. For maintenance and vegetation removal activities that will take more than 1 day, the qualified biologist will conduct a survey for California red-legged frogs and western pond turtles each

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
Biological Resources		
		morning before the scheduled work commences. I. If eggs or larvae of either species are found, a buffer zone will be established around the location of the eggs/larvae and work may proceed outside of the buffer zone. Work within the buffer zone will be postponed until the eggs have hatched and/or larvae have metamorphosed. The monitoring biologist will determine the buffer size based on the specific site conditions and type of maintenance. II. If an active western pond turtle nest is detected within the maintenance area, a 50-foot buffer zone around the nest will be established and maintained during the breeding and nesting season (April 1–August 31). The buffer zone will remain in place until the young have left the nest, as determined by a qualified biologist. III. If adults or non-larval juvenile California red-legged frogs or western pond turtles are found, the individual(s) will be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed.
BIO-4	Protect California Red-legged Frogs During Burrow Removal on Dam Faces	Before any dam face burrow removal begins, a qualified biologist will inspect each burrow using a burrow scope, making his/her best possible effort to fully inspect each burrow and associated chambers. The inspection process will include inspecting each burrow to the extent possible with the scope and, if necessary (i.e., if the full extent of the burrow cannot be seen), an iterative process of scoping and digging out the burrow will be implemented until the full extent of the burrow has been inspected. Where burrows are deeper and/or more complex and the full extent of the burrow cannot be inspected with the burrow scope, after placement of a locator line in the burrow (to maintain access to the burrow), the SJWC maintenance workers will excavate the cleared (inspected and no special-status species found) section of the burrow to allow the biologist to inspect the next segment. This step-wise process of inspection and excavation will occur in stages until the full extent of the burrow has been inspected or the SJWC's project engineer has determined that additional digging into the dam face may begin to jeopardize the structural integrity of the dam. When a burrow has been fully inspected and no special-status species have been found, the burrow will either be marked for destruction or excavated completely by the SJWC maintenance crew. If the burrow will not be destroyed the same day it is inspected, the biologist will ensure it is sealed so that no special-status species can enter (see "Burrow Sealing Methodology" below). Any non-special-status species found in a burrow will be allowed or encouraged to leave. If an individual of a special-status species is observed in a burrow, the burrow will be marked for avoidance. If the special-status species is a California red-legged frog, a buffer area where work will not occur will be delineated based on the best judgment of the qualified biologist on site. The burrow will be left in a state that will allow the special-status species to remain unharmed (i.e., the special-status

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
Biological Resources		
		species can exit the burrow and will avoid exposure). Only when the burrow cannot be left in a "safe" condition (e.g., if the animal is found during excavation of a burrow), in the opinion of a qualified biologist, will relocation of the individual be considered, and then only when the SJWC has obtained approval from the USFWS. If an entire burrow cannot be inspected completely, the burrow will be marked for avoidance. If any burrow marked for avoidance has been excavated during the inspection process, the biologist will ensure the opening is adequate so any animal inside will not be trapped or exposed. This may consist of the use of an inverted half of sufficiently large PVC pipe to support the opening. Clusters of burrows will be inspected as a group so that inspection or destruction activities will not result in inadvertent damage to other burrows in the cluster. <u>Burrow Marking Methodology</u> 1. During the initial site visit to each dam where burrow removal activities are to occur, all burrows will be located and marked with bright pink pin flags. 2. When scoping each burrow, the following marking methodology will be used: a. If a burrow is cleared with the burrow probe, write the burrow number and the date on the pink pin flag and seal the burrow. b. If the burrow is not cleared for destruction (e.g., because it contains a special-status species, cannot be fully inspected with the probe due to its depth, or some other reason), the pink pin flag will be replaced with a green flag. The burrow number will be written on the new flag. 3. Any burrow that must be rechecked after the initial scoping effort will be marked with a red flag; such burrows would include burrows whose seal is not intact when re-inspected, burrows that are not sealed within five days of initial inspection, or new burrows that are created between the initial scoping effort and removal. These burrows would be detected during the re-inspection period just prior to removal. 4. All buffers where work is limited or prohibited (due to the potential for impacts on special-status species in a burrow) will be delineated by orange flagging tape, which will be strung between stakes or lath. <u>Burrow Sealing Methodology</u> If a burrow will not be destroyed the same day it is inspected, the burrow will be sealed using a small burlap bag (e.g., the kind used for sandbags) that will be filled with a small amount of dirt excavated by shovel at the

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
Biological Resources		
		burrow location and inserted into the burrow. Such bags can be molded to the shape of any burrow, yet once they are packed tightly into a burrow they will form a sturdy seal.
BIO-5	Nesting Bald Eagle, Golden Eagle, and Osprey Avoidance	To avoid impacts on nesting special-status or sensitive raptors, SJWC will implement the following restrictions on fuel management activities: 1. Removal of snags and hazard trees ≥ 12 inches in diameter at 4.5 feet above grade, and thinning and pruning of vegetation within 100 feet of SJWC-maintained facilities and within 50 feet of SJWC-maintained roads, will occur only during the non-breeding season (i.e., September 1–January 30). 22. Trees or snags containing inactive bald eagle, golden eagle, or osprey nests will not be removed.
BIO-6	Protection of Bat Colonies	To minimize impacts on special-status bats and large colonies of non-special-status bats, SJWC will implement the following restrictions on fuel management activities: 1. If high-quality habitat for roosting bats (i.e., large trees with cavities of sufficient size to support roosting bats, as determined by a qualified bat biologist) is present, within 2 weeks before the commencement of work activities, a qualified bat biologist will conduct a survey to look for evidence of bat use. If evidence is observed, or if high-quality roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey may be necessary to determine if a bat colony is present and to identify the specific location of the bat colony. 23. If no active maternity colony or non-breeding bat roost is located, work can continue as planned. 24. If an active maternity colony or non-breeding bat roost is located, work will be redesigned to avoid disturbance of the roosts, if feasible. 25. If an active maternity colony is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, disturbance will not take place during the maternity roost season (March 15–July 31), and a disturbance-free buffer zone (determined by a qualified bat biologist) will be observed during this period. 26. If an active non-breeding bat roost is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, the individuals will be safely evicted between August 1 and October 15 or between February 15 and March 15 (as determined by a Memorandum of Understanding with CDFW). Bats may be evicted through exclusion after notifying CDFW. Trees with roosts that need to be removed will first be disturbed at dusk, just before removal that same evening, to allow bats to escape during the darker hours.
BIO-7	Seeding with Native Species	SJWC shall reseed exposed soil resulting from maintenance activities as follows: 1. Sites where maintenance activities result in exposed soil will be stabilized to prevent erosion. Disturbed

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
Biological Resources		
		areas shall be seeded with native seed as soon as is appropriate after maintenance activities are completed. An erosion control seed mix may be applied to exposed soils, down to the OHWM. 27. The seed mix should consist of California native grasses (e.g., *Hordeum brachyantherum*, *Elymus glaucus*, and *Vulpia microstachys*) or annual, sterile seed. 28. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable, or may have other appropriate erosion control measures in place.
BIO-8	Planting Material	Revegetation and replacement plantings will consist of locally collected native species. Species selection will be based on surveys of natural areas on the same creek or a nearby creek that have a similar ecological setting and/or as appropriate for the site location.
BIO-9	Planting Site Maintenance	▪ Follow-up maintenance will be performed on sites that have been seeded and planted: 1. Maintenance will include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water. 2. Irrigation will be implemented as needed throughout the establishment period. ▪ SJWC may maintain or repair bank stabilization projects that are less than 2 years old that are damaged by winter flows. ▪ SJWC will report post construction maintenance work at individual sites as part of the post-construction report submitted by January 15 of each year or, if necessary, the subsequent year. Appropriate BMPs will be applied during maintenance repairs.

Deleted: April 2019

Deleted: March 2021

Table 5-3. Maintenance Program Best Management Practices for Cultural Resource Protection for work in Jurisdictional Areas

BMP Number	BMP Title	BMP Description
Cultural Resources		
CUL-1	Review Baseline Maps to Determine if the Project Work Area Has Been Subject to a Cultural Resource Study	▪ During the early phases of Annual Work Plan development, for all locations where ground-disturbing activities are proposed, SJWC will review the maps and data in its files to determine if the project area has been the subject of a past cultural resource study. Based on the desktop review of existing information, BMPs CUL -2 through CUL-4 will be implemented in the following areas as follows: – Areas that have not been subject to a cultural resources inventory: BMPs CUL-2 and CUL-4 required – Areas that have identified cultural resources or historical resources: BMPs CUL-3, CUL-5, and CUL-6 required – Locales that have been subject to previous cultural resource studies that identified no previously identified cultural resources or historical resources: BMPs CUL-2 through CUL- 4 not required – Facilities or cultural resources that have been determined not eligible for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP): BMPs CUL-2 through CUL- 4 not required – Areas of unknown sensitivity: BMP CUL-4 ▪ BMPs CUL-5 and CUL-6 are applicable to all ground-disturbing activities, regardless of the sensitivity level of the work area.
CUL-2	Field Inventory for Highly or Moderately Sensitive Areas	▪ SJWC will retain a qualified cultural resources specialist to conduct a field inventory of the project area to determine the presence/absence of surface cultural materials associated with prehistoric or historic occupation. The results, along with any mitigation and/or management recommendations, will be presented to SJWC in an appropriate report format that includes any necessary maps, figures, and correspondence with interested parties. ▪ A summary table indicating appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources, and data recovery) will be developed for each project work area reviewed. ▪ The maintenance activities will be implemented on-site to avoid significant impacts to cultural resources.

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
CUL-3	Construction Monitoring for Highly Sensitive Cultural Areas	▪ SJWC will retain a qualified archaeologist to be present onsite during any ground-disturbing activities within highly sensitive cultural areas. ▪ If any cultural resources are discovered during these or any Maintenance Program activities, BMP CUL-2 or BMP CUL-6 will be implemented as appropriate.
CUL-4	Review Project Activities Involving Disturbance of Native Soil	▪ SJWC will retain a cultural resources specialist to conduct a review and evaluation of those sites that would involve disturbance/excavation of soil to determine the potential for these activities to affect significant cultural resources. ▪ The evaluation of the potential to disturb cultural resources will be based on an initial review of archival information provided by the California Historical Resources Information System/Northwest Information Center (CHRIS/NWIC) in regard to the project area based on a 0.25-mile search radius. It is recommended that this initial archival review be completed by a professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination. ▪ Consultation with interested stakeholders will be conducted in accordance with 36 CFR § 800.2(4), "Participants in the Section 106 Process," as required by Section 106 of the NHPA. ▪ If necessary, a further archival record search and literature review (including a review of the Sacred Lands Inventory of the Native American Heritage Commission [NAHC]) and a field inventory of the project area may be conducted. ▪ The results, along with any mitigation and/or management recommendations, will be presented to SJWC as described in BMP CUL-2.
CUL-5	Conduct Pre-Maintenance Educational Training	At the beginning of each maintenance season and before conducting ground-disturbing stream maintenance activities, all maintenance personnel will participate in an educational training session conducted by a qualified cultural resources specialist. This training will include instruction on how to identify historic and prehistoric resources that may be encountered, and will describe the appropriate protocol to be followed if resources are discovered during maintenance work.
CUL-6	Address Discovery of Cultural Remains or Historic or Paleontological Artifacts Appropriately	Examples of cultural remains are obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or significant areas of tool-making debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period artifacts may include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. Paleontological artifacts are fossilized remains of plants and animals.

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		Work will be restricted or stopped in areas where remains or artifacts are found until proper protocols are met. *Protocol for treatment of prehistoric or historic cultural resources:* 1. Work at the location of the find will halt immediately within 50 feet of the find. A "no work" zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find. 29. SJWC will retain the services of a consulting archaeologist, who will visit the discovery site as soon as practicable and perform minor hand excavation to describe the archaeological or paleontological resources present and assess the amount of disturbance. 30. The consulting archaeologist will provide to SJWC and USACE, at a minimum, written and digital-photographic documentation of all observed materials, utilizing the CRHR and NRHP guidelines for evaluating archaeological resources. Based on the assessment, SJWC and USACE will identify the CEQA and Section 106 cultural resources compliance procedures to be implemented. 31. If the consulting archaeologist determines that the find appears not to meet the CRHR or NRHP criteria of significance, and a USACE archaeologist concurs with the consulting archaeologist's conclusions, construction may continue while monitored by the consulting archaeologist. The authorized maintenance work will resume at the discovery site only after SJWC has retained a consulting archaeologist to monitor and the Watershed Maintenance Manager has received notification from USACE allowing work to continue. 32. If the find appears significant, avoidance of additional impacts is the preferred alternative. The consulting archaeologist will determine if adverse impacts to the resources can be avoided. 33. Where avoidance is not practical (e.g., maintenance activities cannot be deferred or must be completed to satisfy the Maintenance Program objective), SJWC will develop an action plan (also known as a data recovery plan) and submit it to USACE within 48 hours of determining that maintenance activities cannot be deferred. The action plan will be submitted by email to the appropriate archeological/cultural resources contact at the USACE. The action plan is equivalent to a data recovery plan. It will be prepared in accordance with the current professional standards and state guidelines for reporting the results of the work, and will describe the services of a Native American consultant and a proposal for curation of cultural materials recovered from a non-grave context. 34. The recovery effort will be documented in a report prepared by the consulting archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository.

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		35. In the event of discovery of human remains (or if a find consists of bones suspected to be human), the field crew supervisor will take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.) 36. The field crew supervisor will immediately notify the Santa Clara County Coroner and provide any information that identifies the remains as Native American. If the remains are determined to be those of a prehistoric Native American or a Native American from the ethnographic period, the Coroner will contact NAHC within 24 hours of being notified about the remains. NAHC will designate and notify a Most Likely Descendant (MLD) within 24 hours. The MLD will have 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. 37. Preservation in situ is the preferred option for human remains. Human remains will be preserved in situ if continuation of the maintenance work, as determined by the consulting archaeologist and MLD, will not cause further damage to the remains. The remains and artifacts will be documented, the find location carefully backfilled (with protective geo-fabric if desirable), and the information recorded in SJWC Maintenance Program files. 38. If human remains or cultural items are exposed during maintenance that cannot be protected from further damage, they will be exhumed by the consulting archaeologist at the discretion of the MLD and reburied, with the concurrence of the MLD, in a place mutually agreed upon by all parties. *Protocol for treatment of paleontological resources:* 1. Work at the location of the find will halt immediately within 50 feet of the find. A "no work" zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find. 39. SJWC will retain the services of a consulting paleontologist who meets the Society for Vertebrate Paleontology's criteria for a "qualified professional paleontologist" (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). **40.** The consulting paleontologist will follow the Society for Vertebrate Paleontology's guidelines for treatment of the find. Treatment may include preparation and recovery of fossil materials for donation to an appropriate museum or university collection, and may include preparation of a report describing the find. SJWC will be responsible for ensuring that the paleontologist's recommendations are implemented.

Deleted: April 2019

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Table 5-4. Sensitive Species Potentially Present at SJWC Facilities

SJWC Facilities	Potentially Present Sensitive Species		
	California Red-legged Frog	Western Pond Turtle	San Francisco Dusky-footed Woodrat
Beardsley Intake	X	X	X
Cavanee Intake	X	X	X
Elsman Reservoir	X	X	
Hendry Intake	X	X	X
Hooker Intake	X	X	X
Lake Cozzens	X	X	
Lake Kittredge	X	X	
Lake Ranch Reservoir	X	X	
Lake Williams	X	X	X
Ostwald Intake	X	X	X
Trout Creek Intake	X	X	X
Howell Intake			
AHCWD Extraction Well	X	X	X
Culvert John Nicholas Trail – M1			
Culvert John Nicholas Trail – M2			X
Culvert John Nicholas Trail – M3			
Culvert John Nicholas Trail – M4			
Culvert John Nicholas Trail – M5			
Culvert John Nicholas Trail – M6			
Culvert John Nicholas Trail – M7			
Culvert John Nicholas Trail – M8			
Culvert John Nicholas Trail – M9			
Culvert John Nicholas Trail – M10			
Culvert John Nicholas Trail – M11			X
Culvert John Nicholas Trail – M12			
Culvert John Nicholas Trail – M13			X
Culvert John Nicholas Trail – M14			
Culvert John Nicholas Trail – M15			
Culvert John Nicholas Trail – M16	X		
Culvert John Nicholas Trail – M17			
Culvert John Nicholas Trail – M18			X
Culvert John Nicholas Trail – M19			
Culvert John Nicholas Trail – M20			
Culvert John Nicholas Trail – M21			
Culvert John Nicholas Trail – M22			

Deleted: April 2019

Deleted: March 2021

SJWC Facilities	Potentially Present Sensitive Species		
	California Red-legged Frog	Western Pond Turtle	San Francisco Dusky-footed Woodrat
Culvert John Nicholas Trail – M23			
Culvert John Nicholas Trail – M24			X
Culvert John Nicholas Trail – M25	X	X	
Culvert John Nicholas Trail – M26	X	X	
Culvert John Nicholas Trail – M27	X	X	
Culvert John Nicholas Trail – M28	X	X	
Culvert John Nicholas Trail – M29	X	X	
Culvert John Nicholas Trail – M30			
Culvert John Nicholas Trail – M31	X	X	
Culvert John Nicholas Trail – M32			
Culvert John Nicholas Trail – M33			
Culvert John Nicholas Trail – M34	X	X	
Culvert John Nicholas Trail – M35	X	X	
Culvert John Nicholas Trail – M36			
Culvert John Nicholas Trail – M37			
Culvert Cathermola Road – WS1	X		
Culvert Cathermola Road – WS2			
Culvert Cathermola Road – WS3			
Culvert Cathermola Road – WS4			
Culvert Cathermola Road – WS5			
Culvert Cathermola Road – WS6			
Culvert Cathermola Road – WS7			
Culvert Cathermola Road – C1			
Culvert Cathermola Road – C2			
Culvert Cathermola Road – C3			
Culvert Cathermola Road – C4			
Culvert Cathermola Road – C5			
Culvert Cathermola Road – C6			
Culvert Cathermola Road – C7			
Culvert Cathermola Road – C8			
Culvert Cathermola Road – C9	X		X
Culvert Cathermola Road – C10	X		X
Culvert Cathermola Road - C11			
Culvert Cathermola Road - C12	X		X
Culvert Cathermola Road - C13			X
Culvert Cathermola Road - C14			
Culvert Cathermola Road - C15			
Culvert Cathermola Road - C16			

Deleted: April 2019

Deleted: March 2021

SJWC Facilities	Potentially Present Sensitive Species		
	California Red-legged Frog	Western Pond Turtle	San Francisco Dusky-footed Woodrat
Culvert Cathermola Road - C17	X		
Culvert Cathermola Road - C18			
Culvert Cathermola Road - C19			
Culvert Cathermola Road - C20			
Culvert Cathermola Road - C21			
Culvert Cathermola Road - C22			
Culvert Cathermola Road - C23			
Culvert Cathermola Road - C24			
Culvert Cathermola Road - C25			
Culvert Cathermola Road - C26			
Culvert Sears Road - LE0			
Culvert Sears Road - LE1			
Culvert Sears Road - LE2			
Culvert Sears Road - LE3			
Culvert Sears Road - LE4			
Culvert Sears Road - LE5			
Culvert Sears Road - LE6	X		
Culvert Sears Road - LE7	X		
Culvert Sears Road - LE8			
Culvert Sears Road - LE9			
Culvert Sears Road - W1			
Culvert Sears Road - W1A			
Culvert Sears Road - W2			
Culvert Sears Road - W3			
Culvert Sears Road - W4			
Culvert Sears Road - W5			
Culvert Sears Road - W6			
Culvert Sears Road - W7			
Culvert Sears Road - W8			
Culvert Sears Road - W9			
Culvert Sears Road - W10			
Culvert Sears Road - W11			
Culvert Sears Road - W12			
Culvert Sears Road - W13			
Culvert Sears Road - W14			
Culvert Sears Road - W15			
Culvert Sears Road - W16			
Culvert Sears Road - W17			

Deleted: April 2019

Deleted: March 2021

SJWC Facilities	Potentially Present Sensitive Species		
	California Red-legged Frog	Western Pond Turtle	San Francisco Dusky-footed Woodrat
Culvert Sears Road - W18			
Culvert Sears Road - W19			
Culvert Sears Road - W20			
Culvert Sears Road - W21			
Culvert Sears Road - W22			
Culvert Sears Road - W23			
Culvert Ellege Road - E1			
Culvert Ellege Road - E2			
Culvert Ellege Road - E3			
Culvert Ellege Road - E4	X	X	
Culvert Ellege Road - E5	X	X	
Culvert Ellege Road - E6	X	X	
Culvert Ellege Road - E7	X	X	
Culvert Hooker - H1			
Culvert Hooker - H2			
Culvert Hooker - H3			
Culvert Hooker - H4			
Culvert Hooker - H5			
Culvert Hooker - H6			
Culvert Hooker - H7			
Culvert Hooker - H8			
Culvert Hooker - H9			
Culvert Hooker - H10			
Culvert Hooker - H11	X		
Culvert Hooker - H12			
Culvert Hooker - H13			
Culvert Hooker - H14			
Culvert Hooker - HR1	X	X	
Culvert Hooker - HR2	X	X	
Culvert Hooker - HR3	X		
Culvert Hooker - HR4	X		
Culvert Hooker - HR5			
Culvert Hooker - HR6	X		
Culvert Hooker - HR7			
Culvert Hooker Intake - HI1	X		
Culvert Hooker Intake - HI2			
Culvert Ryland – R1			
Culvert Ryland – R2			

Deleted: April 2019

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SJWC Facilities	Potentially Present Sensitive Species		
	California Red-legged Frog	Western Pond Turtle	San Francisco Dusky-footed Woodrat
Culvert Trout – T1			
Culvert Beardsley – B1			
Culvert Vina Dr – V1	X		X

Source: H.T. Harvey & Associates 2014 and 2016; Dudek 2019.

Table 5-5. Sensitive Species Potentially Present at SJWC Fuel Maintenance Areas

Potentially Present Sensitive Species	
California red-legged frog	*Rana draytonii*
Western pond turtle	*Actinemys marmorata*
Bald eagle	*Haliaeetus leucocephalus*
Golden eagle	*Aquila chrysaetos*
Osprey	*Pandion haliaetus*
San Francisco dusky-footed woodrat	*Neotoma fuscipes annectens*
Western red bat	*Lasiurus blossevillii*
Pallid bat	*Antrozous pallidus*
Santa Clara Valley dudleya	*Dudleya abramsii* ssp. *setchellii*
Bent-flowered fiddleneck	*Amsinckia lunaris*
Santa Cruz Mountains pussypaws	*Calyptridium parryi* var. *hesseae*
Mt. Hamilton fountain thistle	*Cirsium fontinale* var. *campylon*
San Francisco collinsia	*Collinsia multicolor*
Santa Cruz Mountains beardtongue	*Penstemon rattanii* var. *kleei*

Source: H.T. Harvey & Associates 2014.

Deleted: April 2019

Deleted: March 2021

Table 5-6. Applicable BMPs for Potentially Present Sensitive Species

Applicable BMPs	Potentially Present Sensitive Species				
	California Red-legged Frog	Western Pond Turtle	Bald Eagle, Golden Eagle, Osprey	Bat Colonies	Special-Status Plants*
BMP BIO-1	X				
BMP BIO-2					X
BMP BIO-3	X	X			
BMP BIO-4	X				
BMP BIO-5			X		
BMP BIO-6				X	

* *Special-status plants: Santa Clara Valley dudleya, bent-flowered fiddleneck, Santa Cruz Mountains pussypaws, Mt. Hamilton fountain thistle, San Francisco collinsia, and Santa Cruz Mountains beardtongue.*

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Deleted: March 2021

Table 5-7. Maintenance Activities for Roads, Culverts, and Crossings

Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
John Nicholas Trail (Lake Ranch) Road						
M1				x		
M2	X	X	x			
M3						
M4	X		x			
M5						
M6	X	X	x			
M7	X	X				
M8	X	X	x		x	
M9	X	X	x		x	x
M10						
M11						
M12	X	X	x		x	
M13	X	X				
M14	X	X	x		x	
M15	X	X	x		x	x
M16	X					
M17		X	x			x
M18	X	X	x			
M19	X	X	x			
M20	X	X	x		x	
M21						
M22		X	x	x		x
M23	X	X	x			x
M24	X	X	x			x
M25	X					
M26						

Deleted: April 2019

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Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
M27	X	X			x	
M28	X	X			x	x
M29	X	X	x		x	
M30	X	X	x	x	x	
M31	X	X	x			
M32	X	X	x		x	
M33	X	X			x	
M34	X	X				
M35	X					
M36	X	X	x		x	
M37	X	X	x		x	x
Beardsley Intake Road						
B1						
Cathermola Road 1						
C1	X					
C2	X	X	x			
C3	X	X	x	x	x	
C4	X				x	x
C5			x	x	x	
C6						
C7		X	x		x	
C8		X	x			
C9		X	x		x	
C10				x		
C11						
C12		X	x			x
C13					x	
C14		X	x			
C16	X	X	x	x	x	x

Deleted: April 2019

Deleted: March 2021

Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
C17						
C19	X	X	x			x
C20	X	X	x		x	x
C21						
C22						
C23						
C25						
C26						
Ellege Road						
E1		X	x	x	x	
E2		X	x	x	x	
E3						
E4		X	x	x		
E5	X	X	x	x	x	
E6	X	X	x			
E7	X	X	x		x	
Hooker Bypass Road 1						
H1						
H2		X	x			
H3		X	x	x	x	
H4		X				
H5					x	
H6						
H7						
H8		X	x			
H9		X	x			
H10		X	x			
H11		X	x	x	x	
H12		X	x		x	

Deleted: April 2019

Deleted: March 2021

Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
H13		X	x			
H14		X	x		x	
Hooker Intake Road						
HI1						
HI2						
Hooker Bypass Road 2						
HR1						
HR2						
HR3						
HR4		X	x			
HR5						
HR6						
HR7						
Sears Road 1 (Wrights Station Rd. to Austrian Dam)						
LE0						
LE1						
LE2	X	X	x	x	x	
LE3	X	X	x			
LE4	X	X	x		x	
LE5						
LE6					x	
LE7		X	x		x	
LE8						
LE9						
Ryland Intake Road						
R1		X	x		x	
R2						
Trout Intake Road						
T1		X			x	

Deleted: April 2019

Deleted: March 2021

Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
Sears Road 2 (Austrian Spillway to Lake Williams)						
W1						
W1A			x			
W2						
W4	X	X	x		x	
W5		X	x			
W6		X	x		x	x
W7			x		x	x
W8						
W9						
W10	X	X	x			
W11						
W12				x		
W13	X		x		x	
W14					x	
W15						
W16						
W17						
W18	X	X	x	x	x	
W19	X	X	x			
W20						
W21	X					
W22		X	x			
W23						
Cathermola Road 2						
WS1		X	x		x	
WS2		X				
WS3			x		x	
WS4			x			

Deleted: April 2019

Deleted: March 2021

Road and Culvert ID	Roadside Drainage Ditch Maintenance	Culvert Inlet Maintenance, Repair, Erosion Control	Existing Culvert Maintenance, Repair, Replacement	Existing Culvert Replacement, Enlargement	Outfall Maintenance, Repair, Erosion Control	Road Grading, Erosion Control
WS5	X	X	x		x	
WS6			x			
WS7			x			
Vina Drive						
V1		x	x	x	x	

Table 5-8. Maintenance Program Best Management Practices for work in Upland Areas

BMP Number	BMP Title	BMP Description
Upland General Maintenance Practices		
UPGEN-1	Work Windows	▪ Non-ground-disturbing maintenance in upland areas may occur year round as needed. ▪ Vegetation and fuel management activities may occur year round provided that upland BMPs for resource protection are implemented. ▪ Upland road maintenance activities may occur year round provided that upland BMPs for resource protection are implemented. Generally, upland road maintenance will occur during the dry season (April-September). ▪ Hand pruning and hand removal of vegetation may occur year round, except when wheeled or tracked equipment needs to access the site by crossing a creek, ponded area, or secondary channel. ▪ Removal of standing trees will not occur between February 1 and August 30 to avoid impacts on nesting birds with the exception of hazard trees, which will follow ALL appropriate upland biological measures and require pre-activity surveys to confirm absence of nesting activity and biological monitoring during work activities. ▪ Modification and removal of large wood, such as downed trees, is generally conducted during the dry season but can occur at any time of year if imminent danger of a flood threat precludes leaving the wood in place. ▪ Herbicide applications will occur between June 15 and November 15, with an extension through December 31 or until the first occurrence of local rainfall greater than 0.5 inch is forecasted within a 24-hour period following planned application events.
UPGEN-2	Minimize Area of Disturbance	To minimize impacts to natural resources, the area of ground disturbance will be limited to the minimum footprint necessary to meet the goals and objectives of the maintenance activity.

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
UPGEN-3	Erosion and Sediment Control Measures	▪ Upland soils exposed by maintenance activities will be seeded and stabilized using erosion control fabric or hydroseeding. Erosion control fabrics will consist of natural fibers that biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Plastic sheeting may be used to protect a slope from runoff temporarily, but only if there are no indications that special-status species would be affected by the application. ▪ Erosion control measures will be installed according to manufacturer's specifications. ▪ Appropriate measures include, but are not limited to, the following: – silt fences – straw bale barriers – brush or rock filters – storm drain inlet protection – sediment traps – sediment basins – erosion control blankets and mats – soil stabilization (e.g., tackified straw with seed, jute, or geotextile blankets, broadcast and hydroseeding) ▪ All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project. ▪ The following California Stormwater Quality Association (CASQA) Construction BMPs provide guidance and specifications on implementation of the erosion control measures listed above (see also www.casqa.org/resources/bmp-handbooks/construction): – SC-3. Sediment Basins – SC-4. Straw or Sand Bag Barriers – SC-5. Sediment Traps – SC-6. Silt Fences – SS-1. Erosion Control Blankets, Mats, and Geotextiles – VR-1. Brush or Rock Filters – VR-4a. Temporary Outlet Protection – VR-4b. Storm Drain Inlet Protection – WD-1. Earth Dike – WD-1. Slope Drain

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		– WD-3. Temporary Drains and Swales
UPGEN-4	Dust Management Controls	SJWC will implement the Bay Area Air Quality Management District's (BAAQMD's) Basic Dust Control Measures (www.baaqmd.gov) at maintenance sites less than 4 acres in size. Current measures stipulated by the BAAQMD guidelines include the following: ▪ All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. ▪ All haul trucks transporting soil, sand, or other loose material off-site shall be covered. ▪ All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. ▪ All vehicle speeds on unpaved roads shall be limited to 15 mph. ▪ All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. ▪ Idling times shall be minimized either by shutting equipment off when not in use or by reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure (Title 13, Section 2485 of the California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. ▪ All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. ▪ A publicly visible sign shall be posted with the telephone number and name of the person to contact at SJWC regarding dust complaints. Following the review of any dust complaints, SJWC's Watershed Maintenance Manager shall respond and take corrective action within 48 hours.
UPGEN-5	Staging and Stockpiling of Materials	▪ To the extent feasible, staging will occur on access roads, surface streets, or other disturbed areas that are already compacted and support only ruderal vegetation. Similarly, all maintenance equipment and materials (e.g., road rock and project spoils) will be contained within the existing service roads, paved roads, or other pre-determined staging areas. Staging areas for equipment, personnel, vehicle parking, and material storage will be sited as far as possible from major roadways. ▪ To prevent sediment-laden water from being released back into waterways during transport of spoils to disposal locations, truck beds will be lined with an impervious material (e.g., plastic), or the tailgate will be blocked with wattles, hay bales, or other appropriate filtration material. ▪ Building materials and other maintenance-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains. ▪ No runoff from staging areas may be allowed to enter waterways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). The

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		discharge of decant water to waterways from any on-site temporary sediment stockpile or storage areas is prohibited. ▪ During the dry season, no stockpiled soils will remain exposed and unworked for more than 7 days. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control.
UPGEN-6	On-Site Hazardous Materials Management	▪ An inventory of all hazardous materials used (and/or expected to be used) at the work site and the end products that are produced (and/or expected to be produced) after their use will be maintained by the worksite manager. ▪ As appropriate, containers will be properly labeled with a "Hazardous Waste" label and hazardous waste will be recycled or disposed of properly off-site at an appropriate hazardous waste facility. ▪ Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage. ▪ Petroleum products, chemicals, cement, fuels, lubricants, non-storm-drainage water, and water contaminated with the aforementioned materials will not contact soil and will not be allowed to enter surface waters or the storm drainage system. ▪ All toxic materials, including waste disposal containers, will be covered when not in use and located as far as possible from any direct connection to the storm drainage system or surface water. ▪ All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags, cigarettes) will be removed from the site daily.
UPGEN-7	Existing Hazardous Materials	▪ If previously unknown hazardous contaminants, including oil, batteries, or paint cans, are encountered during excavation work, SJWC personnel will cease activity and will contact the Santa Clara County Public Health Department to determine what measures need to be implemented to address the hazardous materials and ensure that the work site is safe for people and the environment. As directed by the Santa Clara County Public Health Department, SJWC personnel will carefully remove and dispose of hazardous materials. ▪ SJWC personnel will wear proper protective gear when handling hazardous materials. All contaminated materials will be stored in appropriate hazardous waste containers for transport and disposal at a permitted hazardous waste facility.
UPGEN-8	Spill Prevention and Response	▪ SJWC personnel will prevent the accidental release of chemicals, fuels, lubricants, and non-storm-drainage water into channels by following these measures: 1. New SJWC field personnel will be trained appropriately in spill prevention, hazardous material control, and cleanup of accidental spills. 2. Equipment and materials for cleanup of spills will be available on site at all times, and spills and leaks will

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		be cleaned up immediately and disposed of at a hazardous waste facility. 3. SJWC field personnel will ensure that hazardous materials are handled properly and natural resources are protected by all reasonable means. 4. Spill prevention kits will always be in close proximity when SJWC personnel are using hazardous materials (e.g., at crew trucks and other reasonable locations). All SJWC field personnel will be advised of these locations. 5. SJWC personnel will routinely inspect the work site, vehicles, and equipment to verify that spill prevention and response measures are implemented and maintained properly. All leaks will be repaired promptly. Drip pans will be used to catch leaks until repairs are made. ▪ For small spills on impervious surfaces, absorbent materials will be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill area will be excavated and properly disposed of rather than being buried. Absorbent materials will be collected and disposed of properly and promptly. ▪ All significant spills of hazardous materials, including oil, will be reported immediately. To report a spill: 1) Dial 911 or your local emergency response number; and 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).
UPGEN-9	Equipment and Fire Prevention	▪ All earth-moving and portable equipment with internal combustion engines will be equipped with spark arrestors. ▪ During the high fire danger period (April 1–December 1), work crews will: 6. Have appropriate fire suppression equipment available at the work site. 7. Keep flammable materials, including flammable vegetation slash, at least 10 feet away from any equipment that could produce a spark, fire, or flame. 8. Not use portable tools powered by gasoline-fueled internal combustion engines within 25 feet of any flammable materials unless a round-point shovel or fire extinguisher is within immediate reach of the work crew (no more than 25 feet away from the work area).
UPGEN-10	Vehicle and Equipment Maintenance	▪ All vehicles and equipment will be kept clean. Excessive buildup of oil and grease will be prevented. ▪ All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Action will be taken to prevent or repair leaks prior to use. ▪ Incoming vehicles and equipment (including delivery trucks and employee and subcontractor vehicles) will be checked for leaking oil and fluids. Leaking vehicles or equipment will not be allowed on-site. ▪ No heavy equipment will operate in a live stream. ▪ No equipment will be serviced in the creek channel or immediate floodplain, unless equipment stationed in

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		these locations cannot be readily relocated (i.e., pumps and generators). ▪ If necessary, servicing of equipment at the job site will be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated service areas will not connect directly to the ground, surface water, or storm drain system. The service area will be clearly designated with berms, sand bags, or other barriers. Secondary containment, such as a drain pan, will be used to catch spills or leaks when removing or changing fluids. Fluids will be stored in appropriate containers with covers, and recycled or disposed of properly off-site. ▪ If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be conducted in the channel or floodplain. ▪ Equipment will be cleaned of any sediment or vegetation before being transferred and used in a different watershed, to avoid spreading sediment, pathogens, or exotic/invasive species. ▪ Vehicle and equipment washing can take place on-site only as needed to prevent the spread of sediment, pathogens, or exotic/invasive species. No runoff from vehicle or equipment washing will be allowed to enter water bodies, including creek channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens). The discharge of decant water from any on-site wash area to water bodies or areas outside of the active project site is prohibited. Additional vehicle and equipment washing will take place at the approved wash area in SJWC's corporation yard.
UPGEN-11	Vehicle and Equipment Fueling	▪ No fueling will be done in the channel (top-of-bank to top-of-bank) or immediate floodplain unless equipment stationed in these locations cannot be readily relocated (e.g., pumps and generators). ▪ All off-site fueling sites (i.e., on access roads above the top-of-bank) will be equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system. ▪ For stationary equipment that must be fueled on-site, secondary containment, such as a drain pan or drop cloth, will be used to prevent accidental spills of fuels from reaching soil, surface water, or the storm drain system.
Upland Public Safety		
UPGEN-12	Planning for Pedestrians, Traffic Flow, and Safety Measures	▪ Work will be staged and conducted in a manner that maintains two-way traffic flow on public roadways in the vicinity of the work site. If temporary lane closures are necessary, they will be coordinated with the appropriate jurisdictional agency and scheduled to occur outside of peak traffic hours (7:00–10:00 a.m. and 3:00–6:00 p.m.) to the maximum extent practicable. Any lane closures will include advance warning signage, a detour route, and flaggers in both directions. When work is conducted on public roads and may have the potential to affect traffic flow, work will be coordinated with local emergency service providers as necessary to ensure that emergency vehicle access and response is not impeded. ▪ Bicycle and pedestrian facility closures will be scheduled outside of peak traffic hours (7:00–10:00 a.m. and

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		3:00–6:00 p.m.) to the maximum extent practicable. ▪ Public transit access and routes will be maintained in the vicinity of the work site. If public transit will be affected by temporary road closures and require detours, affected transit authorities will be consulted and kept informed of project activities. ▪ Adequate parking will be provided or designated public parking areas will be used for maintenance-related vehicles not in use through the maintenance period. ▪ Access to driveways and private roads will be maintained. If brief periods of maintenance would temporarily block access, property owners will be notified prior to maintenance activities.
UPGEN-13	Public Safety Measures	SJWC will implement public safety measures during maintenance as follows: ▪ If necessary, construction signs will be posted at job sites warning the public of construction work and to exercise caution. ▪ Where work is proposed adjacent to a recreational trail, warning signs will be posted several feet beyond the limits of work. Signs will also be posted if trails will be temporarily closed. ▪ If needed, a lane will be temporarily closed to allow trucks to pull into and out of access points to the work site. ▪ Fencing, either the orange safety type or chain link, will be installed around repair sites on bank stabilization projects. ▪ When necessary, SJWC personnel or contracted staff will provide traffic control and site security.
UPGEN-14	Minimize Noise Disturbances to Residential Areas	SJWC will implement maintenance practices that minimize disturbances to residential areas surrounding work sites. ▪ With the exception of emergencies, work will be conducted during normal working hours (8:00 a.m.–5:00p.m). Maintenance activities in residential areas will not occur on Saturdays, Sundays, or SJWC-observed holidays except during emergencies, or with approval by the local jurisdiction and advance notification to surrounding residents. ▪ Advance notification will be provided 1 week before the start of construction to adjacent properties within 275 feet of a proposed maintenance site where heavy equipment will be used. ▪ Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers. ▪ Excessive idling of vehicles (beyond 5 minutes) will be prohibited.
UPGEN-15	Work Site Housekeeping	▪ SJWC employees and contractors will maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly condition when work is complete. Slash, sawdust, and cuttings will be removed to clear the site of vegetation debris. As needed, paved access roads and trails will be

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
		swept and cleared of any residual vegetation or dirt resulting from the maintenance activity. ▪ For activities that last more than 1 day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. ▪ SJWC's maintenance crews are responsible for properly removing and disposing of all debris generated as a result of construction within 72 hours of project completion and as directed by the SJWC Maintenance Program Manager. ▪ All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, lunch bags, cigarettes) will be removed from the site daily.
UPGEN-16	Asbestos Exposure Precautions	▪ Before conducting ground-disturbing maintenance activities in the southeastern and eastern parts of the upper Los Gatos Creek Watershed where naturally occurring asbestos (NOA) may be present in ultramafic geologic formations, as mapped in Wagner et. al. (1991), the proposed maintenance sites will be evaluated by a registered geologist for presence of NOA. ▪ If NOA presence is likely, tests to determine whether NOA is present in content levels below regulatory limits (the current threshold is 0.25 percent asbestos) will be conducted according to the evaluation methods identified in California Air Resources Board (CARB) Test Method 435 (M435). ▪ If NOA is present at levels above the regulatory limit, ground-disturbing maintenance activities in that area will be avoided. ▪ If NOA is present above regulatory limits and ground-disturbing work must be conducted in that area, the SJWC Maintenance Program Manager will ensure that work is conducted in compliance with all applicable aspects of the Asbestos Airborne Toxic Control Measures (ATCMs) for Construction, Grading, Quarrying and Surface Mining Operations (17 CCR 93105). Compliance with this ATCM will be documented and the records retained for future reference. Compliance with these ATCMs will protect against harm to maintenance workers and the environment. These regulations and guidance documents regarding their implementation can be found at: www.arb.ca.gov/toxics/asbestos/reginfo.htm.
Upland Vegetation Management		
UPVEG-1	Routine Pruning Measures	• Pruning will be performed according to the most recently published National ANSI A300 Pruning Standards and ISA BMPs for Tree Pruning, which include guidance on pruning practices, pruning objectives, pruning methods (types), palm pruning, and utility pruning. • Pruning activities will follow National ANSI Z133.1-2006 Standards for safe operation of tree care machinery, and safety equipment such as carabiners, helmets, and arborist ropes will be used to ensure the safety of tree climbers.
UPVEG-2	Conduct a Forest Fuel Management	A qualified fire scientist, registered professional forester, certified arborist, or Ph.D.-qualified forest ecologist will conduct the forest fuel management assessment and identify potential fuel hazards to be removed or vegetation

Deleted: April 2019

Deleted: March 2021

BMP Number	BMP Title	BMP Description
	Assessment	to be thinned/pruned according to the methods prescribed in BMP VEG-1.
UPVEG-3	Standard Herbicide Use Requirements	▪ Hand or mechanical vegetation removal will be used in areas within 0.25 mile of schools. Herbicides will be applied only if hand or mechanical vegetation removal is not feasible. ▪ Herbicide application will be consistent with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label instructions and use conditions issued by USEPA, CDPR, and the Santa Clara County Agricultural Commissioner. ▪ Herbicides will not be applied in upland areas within 48 hours of predicted rainfall. ▪ The lowest recommended rates of herbicides and surfactants that achieve project objectives will be utilized to achieve desired control. ▪ An indicator dye may be added to the tank mix to help the applicator identify areas that have been treated and to better monitor the overall application.

Table 5-9. Maintenance Program Best Management Practices for Biological Resource Protection in Upland Areas

BMP Number	BMP Title	BMP Description
Upland Biological Resources		
UPBIO-1	Protection of California Red-legged Frogs from Herbicide Use	▪ In accordance with BMP VEG-4, only herbicides approved for use by USEPA and registered for use by CDPR will be used for vegetation management, and approved herbicides will be applied in accordance with federal, state, and local regulations. ▪ In project areas identified as providing suitable habitat for the California red-legged frog, SJWC shall ensure that any applications of sprayable or dust formulations of herbicides will: 1. be applied only when the air is calm or moving away from red-legged frog habitat; 2. begin in the portion of the work area nearest the suitable habitat and proceed away from the habitat; and 3. not be conducted within 40 yards upwind of suitable habitat when air currents are moving toward the habitat.
UPBIO-2	Avoid Special-Status Plant Species	If ground-disturbing equipment, such as a masticator, is to be used for fuel management vegetation removal, the fuel management areas will be pre-surveyed for Santa Clara Valley dudleya, bent-flowered fiddleneck, Santa Cruz Mountains pussypaws, Mt. Hamilton fountain thistle, San Francisco collinsia, and Santa Cruz Mountains beardtongue. To avoid and/or minimize potential impacts on special-status plants, the following

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Upland Biological Resources		
		actions will be taken: 1. Pre-maintenance surveys of the work area for special-status plant species will be conducted by a qualified biologist during the appropriate blooming period, within 2 years before commencement of work. 2. If special-status plant species are present at the work site, the qualified biologist will minimize impacts on them by implementing the following measures: A. Flag the special-status plant population to be protected to create a clearly visible boundary of the sensitive area to be avoided. B. Restrict vegetation management activities within the flagged area to cutting, weed-whacking, and/or hand removal. No ground disturbance or vegetation removal will be allowed within 10 feet of the known special-status plant population.
UPBIO-3	Protection of California Red-legged Frogs and Western Pond Turtles	In project areas identified as providing suitable habitat for California red-legged frogs or western pond turtles (see Table 5-4), a qualified biologist will conduct one daytime survey for these species within 48 hours before commencement of maintenance activities. 9. If no California red-legged frogs or western pond turtles are found within the activity area during the survey, the work may proceed. 4. If a California red-legged frog or western pond turtle, or the eggs or larvae of either of these species, are found within the activity area during the survey or during project activities, the qualified biologist will implement the following measures: A. For maintenance activities that will take less than 1 day, conduct a survey for red-legged frogs and western pond turtles on the morning of and before the scheduled work. I. If no California red-legged frogs or western pond turtles are found, the work may proceed. II. If adults or non-larval juvenile California red-legged frogs or western pond turtles are found, the qualified biologist will implement one of the following two procedures: a.) If, in the opinion of the qualified biologist, the individual(s) are likely to leave the work area on their own, and work can be feasibly rescheduled, a buffer zone will be established around the location of the individual(s). Work may proceed outside of the buffer zone. Work within the buffer zone will be postponed until the individual(s) have left the area, as determined by the qualified biologist. The monitoring biologist will determine the buffer size based on the specific site conditions and type of maintenance. b.) If, in the opinion of the qualified biologist, capture and removal of the individual to a safe location outside of the work area is less likely to result in adverse effects than leaving the

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Upland Biological Resources		
		individual in place and rescheduling the work (e.g., if the species could potentially hide and be missed during a follow-up survey), the individual will be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed. B. For maintenance and vegetation removal activities that will take more than 1 day, the qualified biologist will conduct a survey for California red-legged frogs and western pond turtles each morning before the scheduled work commences. I. If adults or non-larval juvenile California red-legged frogs or western pond turtles are found, the individual(s) will be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed.
UPBIO-4	Protect California Red-legged Frogs During Burrow Removal on Dam Faces	Before any dam face burrow removal begins, a qualified biologist will inspect each burrow using a burrow scope, making his/her best possible effort to fully inspect each burrow and associated chambers. The inspection process will include inspecting each burrow to the extent possible with the scope and, if necessary (i.e., if the full extent of the burrow cannot be seen), an iterative process of scoping and digging out the burrow will be implemented until the full extent of the burrow has been inspected. Where burrows are deeper and/or more complex and the full extent of the burrow cannot be inspected with the burrow scope, after placement of a locator line in the burrow (to maintain access to the burrow), the SJWC maintenance workers will excavate the cleared (inspected and no special-status species found) section of the burrow to allow the biologist to inspect the next segment. This step-wise process of inspection and excavation will occur in stages until the full extent of the burrow has been inspected or the SJWC's project engineer has determined that additional digging into the dam face may begin to jeopardize the structural integrity of the dam. When a burrow has been fully inspected and no special-status species have been found, the burrow will either be marked for destruction or excavated completely by the SJWC maintenance crew. If the burrow will not be destroyed the same day it is inspected, the biologist will ensure it is sealed so that no special-status species can enter (see "Burrow Sealing Methodology" below). Any non-special-status species found in a burrow will be allowed or encouraged to leave. If an individual of a special-status species is observed in a burrow, the burrow will be marked for avoidance. If the special-status species is a California red-legged frog, a buffer area where work will not occur will be delineated based on the best judgment of the qualified biologist on site. The burrow will be left in a state that will allow the special-status species to remain unharmed (i.e., the special-status species can exit the burrow and will avoid exposure). Only when the burrow cannot be left in a "safe" condition (e.g., if the animal is found during excavation of a burrow), in the opinion of a qualified biologist, will relocation

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Upland Biological Resources		
		of the individual be considered, and then only when the SJWC has obtained approval from the USFWS. If an entire burrow cannot be inspected completely, the burrow will be marked for avoidance. If any burrow marked for avoidance has been excavated during the inspection process, the biologist will ensure the opening is adequate so any animal inside will not be trapped or exposed. This may consist of the use of an inverted half of sufficiently large PVC pipe to support the opening. Clusters of burrows will be inspected as a group so that inspection or destruction activities will not result in inadvertent damage to other burrows in the cluster. Burrow Marking Methodology 5. During the initial site visit to each dam where burrow removal activities are to occur, all burrows will be located and marked with bright pink pin flags. 6. When scoping each burrow, the following marking methodology will be used: a. If a burrow is cleared with the burrow probe, write the burrow number and the date on the pink pin flag and seal the burrow. b. If the burrow is not cleared for destruction (e.g., because it contains a special-status species, cannot be fully inspected with the probe due to its depth, or some other reason), the pink pin flag will be replaced with a green flag. The burrow number will be written on the new flag. 7. Any burrow that must be rechecked after the initial scoping effort will be marked with a red flag; such burrows would include burrows whose seal is not intact when re-inspected, burrows that are not sealed within five days of initial inspection, or new burrows that are created between the initial scoping effort and removal. These burrows would be detected during the re-inspection period just prior to removal. 8. All buffers where work is limited or prohibited (due to the potential for impacts on special-status species in a burrow) will be delineated by orange flagging tape, which will be strung between stakes or lath. Burrow Sealing Methodology If a burrow will not be destroyed the same day it is inspected, the burrow will be sealed using a small burlap bag (e.g., the kind used for sandbags) that will be filled with a small amount of dirt excavated by shovel at the burrow location and inserted into the burrow. Such bags can be molded to the shape of any burrow, yet once

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Upland Biological Resources		
		they are packed tightly into a burrow they will form a sturdy seal.
UPBIO-5	Nesting Bald Eagle, Golden Eagle, and Osprey Avoidance	To avoid impacts on nesting special-status or sensitive raptors, SJWC will implement the following restrictions on fuel management activities: • Removal of snags and non-hazard trees ≥ 12 inches in diameter at 4.5 feet above grade, and thinning and pruning of vegetation within 100 feet of SJWC-maintained facilities and within 50 feet of SJWC-maintained roads, will occur only during the non-breeding season (i.e., September 1–January 30). • Non-hazard trees or snags containing inactive bald eagle, golden eagle, or osprey nests will not be removed.
UPBIO-6	Protection of Bat Colonies	To minimize impacts on special-status bats and large colonies of non-special-status bats, SJWC will implement the following restrictions on fuel management activities: • If high-quality habitat for roosting bats (i.e., large trees with cavities of sufficient size to support roosting bats, as determined by a qualified bat biologist) is present, within 2 weeks before the commencement of work activities, a qualified bat biologist will conduct a survey to look for evidence of bat use. If evidence is observed, or if high-quality roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey may be necessary to determine if a bat colony is present and to identify the specific location of the bat colony. • If no active maternity colony or non-breeding bat roost is located, work can continue as planned. • If an active maternity colony or non-breeding bat roost is located, work will be redesigned to avoid disturbance of the roosts, if feasible. • If an active maternity colony is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, disturbance will not take place during the maternity roost season (March 15–July 31), and a disturbance-free buffer zone (determined by a qualified bat biologist) will be observed during this period. • If an active non-breeding bat roost is located and work cannot be redesigned to avoid removal or disturbance of the occupied tree or structure, the individuals will be safely evicted between August 1 and October 15 or between February 15 and March 15 (as determined by a Memorandum of Understanding with CDFW). Bats may be evicted through exclusion after notifying CDFW. Trees with roosts that need to be removed will first be disturbed at dusk, just before removal that same evening, to allow bats to escape during the darker hours.
UPBIO-7	Seeding with Native	• SJWC shall reseed exposed soil resulting from maintenance activities as follows:

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Upland Biological Resources		
	Species	• Sites where maintenance activities result in exposed soil will be stabilized to prevent erosion. Disturbed areas shall be seeded with native seed as soon as is appropriate after maintenance activities are completed. An erosion control seed mix may be applied to exposed soils, down to the OHWM. • The seed mix should consist of California native grasses (e.g., *Hordeum brachyantherum*, *Elymus glaucus*, and *Vulpia microstachys*) or annual, sterile seed. • Temporary earthen access roads may be seeded when site and horticultural conditions are suitable, or may have other appropriate erosion control measures in place.
UPBIO-8	Planting Material	Revegetation and replacement plantings will consist of locally collected native species. Species selection will be based on surveys of natural areas on the same creek or a nearby creek that have a similar ecological setting and/or as appropriate for the site location.
UPBIO-9	Planting Site Maintenance	▪ Follow-up maintenance will be performed on sites that have been seeded and planted: • Maintenance will include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water. • Irrigation will be implemented as needed throughout the establishment period. ▪ SJWC may maintain or repair bank stabilization projects that are less than 2 years old that are damaged by winter flows. ▪ SJWC will report post construction maintenance work at individual sites as part of the post-construction report submitted by January 15 of each year or, if necessary, the subsequent year. Appropriate BMPs will be applied during maintenance repairs.
UPBIO-10	General Biological Pre-Activity Clearance for Special Status Species	▪ If upland maintenance work is scheduled to occur in areas identified to contain suitable upland habitat for special status species, a preconstruction clearance survey for the potentially occurring special status species will be conducted by a qualified biologist at the project site within twenty-four (24) hours prior to the date of initial ground disturbance. The survey will consist of walking the project limits and within the project site to ascertain the possible presence of the species.
UPBIO-11	Nesting Bird Season Pre-Activity Surveys/Clearance	▪ If upland maintenance work is scheduled during the nesting season (February 15 to August 30 for passerines, January 15 to September 15 for owls, and February 15 to September 15 for raptors), a qualified biologist will conduct a clearance survey for active nests of such within 48 hours prior to activities beginning. The minimum survey radii surrounding the work area shall be the following: i) 250 feet for passerines; ii) 500 feet for raptors. ▪ If a lapse in Project-related activities of 15 days or longer occurs, another survey, and if required,

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Upland Biological Resources		
		consultation with CDFW and USFWS will occur before construction can be reinitiated. ▪ If an active nest is found, the agency-approved biologist will establish an appropriate buffer between the nest and maintenance activities. The buffer would be maintained until the qualified biologist determines the nest is no longer active.

Table 5-10. Maintenance Program Best Management Practices for Cultural Resource Protection for work in Upland Areas

BMP Number	BMP Title	BMP Description
Upland Cultural Resources		
UPCUL-1	Review Baseline Maps to Determine if the Project Work Area Has Been Subject to a Cultural Resource Study	▪ During the early phases of Annual Work Plan development, for all locations where ground-disturbing activities are proposed, SJWC will review the maps and data in its files to determine if the project area has been the subject of a past cultural resource study. Based on the desktop review of existing information, BMPs UPCUL -2 through UPCUL-4 will be implemented in the following areas as follows: – Areas that have not been subject to a cultural resources inventory: BMPs UPCUL -2 and UPCUL -4 required – Areas that have identified cultural resources or historical resources: BMPs UPCUL -3 and UPCUL -5 required – Locales that have been subject to previous cultural resource studies that identified no previously identified cultural resources or historical resources: BMPs UPCUL -2 through UPCUL - 4 not required – Facilities or cultural resources that have been determined not eligible for listing in the California Register of Historical Resources (CRHR) or the National Register of Historic Places (NRHP): BMPs UPCUL -2 through UPCUL - 4 not required – Areas of unknown sensitivity: BMP UPCUL -4 ▪ BMP UPCUL -5 is applicable to all ground-disturbing activities, regardless of the sensitivity level of the work area.
UPCUL-2	Field Inventory for Highly or	▪ SJWC will retain a qualified cultural resources specialist to conduct a field inventory of the project

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	Moderately Sensitive Areas	area to determine the presence/absence of surface cultural materials associated with prehistoric or historic occupation. The results, along with any mitigation and/or management recommendations, will be presented to SJWC in an appropriate report format that includes any necessary maps, figures, and correspondence with interested parties. ▪ A summary table indicating appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources, and data recovery) will be developed for each project work area reviewed. ▪ The maintenance activities will be implemented on-site to avoid significant impacts to cultural resources.
UPCUL-3	Construction Monitoring for Highly Sensitive Cultural Areas	▪ SJWC will retain a qualified archaeologist to be present onsite during any ground-disturbing activities within highly sensitive cultural areas. ▪ If any cultural resources are discovered during these or any Maintenance Program activities, BMP UPCUL -2 or BMP UPCUL -6 will be implemented as appropriate.
UPCUL-4	Review Project Activities Involving Disturbance of Native Soil	▪ SJWC will retain a cultural resources specialist to conduct a review and evaluation of those sites that would involve disturbance/excavation of soil to determine the potential for these activities to affect significant cultural resources. ▪ The evaluation of the potential to disturb cultural resources will be based on an initial review of archival information provided by the California Historical Resources Information System/Northwest Information Center (CHRIS/NWIC) in regard to the project area based on a 0.25-mile search radius. It is recommended that this initial archival review be completed by a professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination. ▪ Consultation with interested stakeholders will be conducted in accordance with 36 CFR § 800.2(4), "Participants in the Section 106 Process," as required by Section 106 of the NHPA. ▪ If necessary, a further archival record search and literature review (including a review of the Sacred Lands Inventory of the Native American Heritage Commission [NAHC]) and a field inventory of the project area may be conducted. ▪ The results, along with any mitigation and/or management recommendations, will be presented to SJWC as described in BMP UPCUL -2.
UPCUL-5	Address Discovery of Cultural Remains or Historic or Paleontological Artifacts	Examples of cultural remains are obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or significant areas of tool-making debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; stone milling equipment (e.g., mortars, pestles,

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BMP Number	BMP Title	BMP Description
	Appropriately	handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-period artifacts may include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. Paleontological artifacts are fossilized remains of plants and animals. Work will be restricted or stopped in areas where remains or artifacts are found until proper protocols are met. *Protocol for treatment of prehistoric or historic cultural resources:* 1. Work at the location of the find will halt immediately within 50 feet of the find. A "no work" zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find. 2. SJWC will retain the services of a consulting archaeologist, who will visit the discovery site as soon as practicable and perform minor hand excavation to describe the archaeological or paleontological resources present and assess the amount of disturbance. 3. The consulting archaeologist will provide to SJWC and USACE, at a minimum, written and digital-photographic documentation of all observed materials, utilizing the CRHR and NRHP guidelines for evaluating archaeological resources. Based on the assessment, SJWC and USACE will identify the CEQA and Section 106 cultural resources compliance procedures to be implemented. 4. If the consulting archaeologist determines that the find appears not to meet the CRHR or NRHP criteria of significance, and a USACE archaeologist concurs with the consulting archaeologist's conclusions, construction may continue while monitored by the consulting archaeologist. The authorized maintenance work will resume at the discovery site only after SJWC has retained a consulting archaeologist to monitor and the Watershed Maintenance Manager has received notification from USACE allowing work to continue. 5. If the find appears significant, avoidance of additional impacts is the preferred alternative. The consulting archaeologist will determine if adverse impacts to the resources can be avoided. 6. Where avoidance is not practical (e.g., maintenance activities cannot be deferred or must be completed to satisfy the Maintenance Program objective), SJWC will develop an action plan (also known as a data recovery plan) and submit it to USACE within 48 hours of determining that maintenance activities cannot be deferred. The action plan will be submitted by email to the appropriate archeological/cultural resources contact at the USACE. The action plan is equivalent to a data recovery plan. It will be prepared in accordance with the current professional standards and state guidelines for reporting the results of the work, and will describe the services of a Native

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BMP Number	BMP Title	BMP Description
		American consultant and a proposal for curation of cultural materials recovered from a non-grave context. 7. The recovery effort will be documented in a report prepared by the consulting archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository. 8. In the event of discovery of human remains (or if a find consists of bones suspected to be human), the field crew supervisor will take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.) 9. The field crew supervisor will immediately notify the Santa Clara County Coroner and provide any information that identifies the remains as Native American. If the remains are determined to be those of a prehistoric Native American or a Native American from the ethnographic period, the Coroner will contact NAHC within 24 hours of being notified about the remains. NAHC will designate and notify a Most Likely Descendant (MLD) within 24 hours. The MLD will have 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. 10. Preservation in situ is the preferred option for human remains. Human remains will be preserved in situ if continuation of the maintenance work, as determined by the consulting archaeologist and MLD, will not cause further damage to the remains. The remains and artifacts will be documented, the find location carefully backfilled (with protective geo-fabric if desirable), and the information recorded in SJWC Maintenance Program files. 11. If human remains or cultural items are exposed during maintenance that cannot be protected from further damage, they will be exhumed by the consulting archaeologist at the discretion of the MLD and reburied, with the concurrence of the MLD, in a place mutually agreed upon by all parties. *Protocol for treatment of paleontological resources:* 1. Work at the location of the find will halt immediately within 50 feet of the find. A "no work" zone will be established utilizing appropriate flagging to delineate the boundary of this zone, which will measure at least 50 feet in all directions from the find. 2. SJWC will retain the services of a consulting paleontologist who meets the Society for Vertebrate Paleontology's criteria for a "qualified professional paleontologist" (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995). **3.** The consulting paleontologist will follow the Society for Vertebrate Paleontology's guidelines for treatment of the find. Treatment may include preparation and recovery of fossil materials for

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BMP Number	BMP Title	BMP Description
		donation to an appropriate museum or university collection, and may include preparation of a report describing the find. SJWC will be responsible for ensuring that the paleontologist's recommendations are implemented.

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Chapter 6

Impact Mitigation

6.1 Introduction

As described in Chapter 5, *Maintenance Activities, Impact Avoidance and Minimization, and Best Management Practices*, when conducting routine maintenance activities in the Los Gatos Creek Watershed, SJWC's initial approach is to first avoid potential impacts. Impact avoidance can often be achieved through minimizing the maintenance area footprint, conducting maintenance activities during less sensitive time periods, focusing maintenance areas to specific targeted locations, and conducting routine repairs and maintenance when needed such that small problems do not become larger issues requiring more intensive and widespread maintenance activities.

Potential impacts can also be minimized through site-specific decisions on how to conduct maintenance at particular facilities, as well as more program-wide protocols on how to minimize potential impacts. The BMPs provided in Chapter 5, Table 5-1, 5-2 and 5-3 are used to further avoid and minimize potential environmental effects. SJWC's general approach is to know and understand the natural resources and physical and biological processes that occur at each of its facilities and to conduct maintenance in the least impactful manner. Chapter 4 provides resource and facility assessment descriptions for SJWC facilities and provides detailed information on the setting, physical conditions, and natural resources at SJWC facilities in the upper Los Gatos Creek Watershed.

Compensatory mitigation is one element of a comprehensive impact avoidance, minimization, and compensation approach. As described in Chapter 5, project planning, resource evaluations, maintenance criteria and limits, and avoidance and minimization measures can be used to prioritize work activities, avoid conducting any unnecessary maintenance, and avoid or minimize impacts on sensitive natural resources during maintenance activities. When maintenance is required, BMPs are applied on site to avoid and minimize impacts. Residual impacts that are neither avoided nor minimized completely through other measures may require compensatory mitigation, depending upon the nature of the impact and the regulatory authority involved.

For aquatic resources including wetlands and waters of the United States, compensatory mitigation may involve the restoration, establishment, enhancement, and/or in certain circumstances, preservation of aquatic resources for the purposes of off-setting unavoidable adverse impacts (hereafter "residual impacts") which remain after all appropriate and practicable avoidance and minimization have been achieved (*Compensatory Mitigation for Losses of Aquatic Resources; Final Rule* (2008 USACE 33 CFR, Parts 325 and 332 [2008]; and USEPA 40 CFR Part 230 [2008]).

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Mitigation may also potentially be required for impacts to sensitive habitats (e.g., riparian habitats), permanent impacts to beneficial uses, and impacts to certain special-status species and their habitats (e.g., California red-legged frog).

Impacts to waters of the U.S. are regulated by USACE; impacts to waters of the State and beneficial uses are regulated by the SWRCB and nine RWQCBs; and streambed, streambank, and associated riparian habitats are regulated by CDFW. Mitigation requirements for potential impacts will be determined based on guidance from the appropriate regulatory agency. SJWC is committed to providing appropriate and effective mitigation for maintenance impacts that are not adequately avoided or minimized.

6.2 Mitigation Guidance from USACE/USEPA, CDFW, and RWQCB

The 2008 USACE/USEPA Mitigation Rule describes the range of mitigation methods and options available based on specific project and resource conditions. This guidance shall be followed by SJWC in developing suitable mitigation for potential maintenance impacts requiring mitigation. Mitigation timing is also important. Following USACE guidance, implementation of compensatory mitigation shall occur, to the maximum extent practicable, in advance of or concurrent with the activity causing the authorized impacts. This is particularly true when off-site mitigation is pursued. For on-site mitigation, it is recognized that the on-site mitigation activities, by necessity, will likely occur during or following the maintenance activities. It is preferable to reduce the time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of such functions as provided by compensatory mitigation.

CDFW promulgates mitigation requirements through various sections of the F&G Code and associated regulations related to lake and streambed habitats and species receiving protection under the CESA.

Compliance with the Porter-Cologne Act will occur via implementing the provisions of WDR and water quality certification that will be issued to SJWC. Compliance with CWA Section 401 will also occur through issuance of the Water Quality Certification as described in Chapter 2, which will verify compliance with other applicable sections of CWA. In considering potential impacts to wetlands and adequate mitigation, the San Francisco Bay RWQCB follows the California Wetlands Conservation Policy (Executive Order W-59-93). The objectives of this policy are:

- To ensure no overall net loss and long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.
- To reduce procedural complexity in the administration of state and federal wetland conservation programs.

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- To encourage partnerships to make restoration, landowner incentive programs, and cooperative planning efforts the primary focus of wetland conservation.

Based on past experience, the San Francisco Bay RWQCB prefers mitigation that is provided on-site, near-site, or in the watershed versus more distant off-site or out-of-watershed mitigation approaches. This regulatory guidance was considered and followed in developing the mitigation approaches for the SJWC Maintenance Program.

6.3 Residual Impacts Potentially Requiring Mitigation

6.3.1 Impacts to Wetland and Aquatic Habitat

Because maintenance activities include in-channel sediment removal, removal of debris from drainage ditches, and replacement of culverts, impacts to jurisdictional wetlands and other waters cannot be completely avoided. Thus, routine maintenance activities at SJWC facilities in the Los Gatos Creek Watershed will affect aquatic and wetland habitats. These habitats can be categorized according to the regulations protecting them and the applicable agencies that regulate impacts to them, as described in Chapter 2, *Regulatory Framework*. In addition, these features can be categorized according to whether or not they are vegetated and the types of vegetation present.

Estimated impact acreages for wetlands and other waters of the United States (i.e., USACE jurisdictional habitats) and waters of the State (i.e., RWQCB and CDFW jurisdictional habitats), based on field surveys of the maintenance area, are provided in the program's Mitigation and Monitoring Plan (see Appendix C) . These estimates present the "worst-case" estimates for areas potentially affected by maintenance activities, and therefore provides a conservative estimate of the potential impact area.

The areal limit (size) of maintenance activities may be refined based on conditions on the site immediately preceding the initiation of these activities. Because impacts on other waters are determined based on the width of a channel as defined by the ordinary high water mark (which is not expected to vary significantly from year to year) and the length of the channel to be affected, SJWC staff may re-evaluate potential direct impacts on other waters to determine whether the affected reach will be shorter, and hence the impact area smaller, than the worst-case estimates presented in the program Mitigation and Monitoring Plan. Any revisions to the impacts on vegetated wetlands will be conducted by a qualified wetland ecologist.

6.3.2 Impacts to Special-status Species Habitats

The potential presence of special-status plants and animals in the maintenance areas are summarized in Chapter 3, Tables 3-5 through 3-7, and the appropriate BMPs to be implemented are summarized in Chapter 5, Table 5-4. For many special-status species potentially occurring in the maintenance areas, the implementation of BMPs, including pre-activity surveys, seasonal

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Impacts Expected to be Regulated by RWQCB and CDFW

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work windows, and non-disturbance buffers, will be sufficient to avoid impacts or minimize impacts to the point that no further mitigation will be required for CEQA compliance. For example, fuel management activities to maintain defensible space around SJWC facilities may include removal of snags and hazard trees ≥ 12 inches diameter at breast height (dbh). Such work would be conducted only during the non-breeding season for the bald eagle, golden eagle, and osprey to avoid impacts on nesting individuals of these species. Similarly, fuel management activities will be preceded by a pre-activity survey for roosting bats, and a non-disturbance buffer will be implemented around active maternity colonies.

Although suitable habitat for the olive-sided flycatcher, long-eared owl, yellow warbler, and western pond turtle (all California species of special concern) is present at most maintenance sites, they are expected to be absent from most facilities due to their local distributions and relatively small populations. No upland nesting habitat of the western pond turtle will be affected by maintenance activities, and BMPs involving worker awareness of this species' potential presence, avoidance of any individuals detected by workers, and pre-construction surveys in areas identified as suitable habitat will minimize the potential for impacts. Therefore, maintenance activities are not expected to substantially reduce populations or habitats of the olive-sided flycatcher, long-eared owl, yellow warbler, or western pond turtle, and any project impacts on these species would be less than significant under CEQA.

Maintenance activities may result in residual impacts on the California red-legged frog, as it may not be feasible to avoid all impacts on habitats for individuals of this species. There have been recorded occurrences of California red-legged frog on SJWC lands: in 1989 at a small pond behind the dam at the Ostwald Intake (CNDDB 2014); along Los Gatos Creek in 1989 approximately 0.8 mile downstream of Austrian Dam (CNDDB 2014); at Lake Kittredge and Lake Cozzens (EcoSystems West 2006, as cited in EcoSystems West 2010b) and below the Lake Elsman Emergency Outflow (CNDDB 2019). As discussed in Section 3.3, the California red-legged frog is not expected to occur regularly or in abundance on SJWC lands away from the few areas where it has been recorded. Nevertheless, at least marginally suitable breeding habitat is present along numerous creeks within the watershed, and given this species' dispersal capabilities, the occurrence of this species at SJWC facilities cannot be ruled out entirely. As a result, maintenance activities are anticipated to occur in potential California red-legged frog habitat.

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Maintenance activities at intakes, reservoirs, and culverts and along roadways are projected to involve disturbance, through-access, staging, and maintenance, to approximately 11.9 acres of undeveloped California red-legged frog habitat. Most such disturbance (approximately 11.6 acres) and all fuel management activities, however, will occur in upland areas and during the dry season. For example, maintenance in much of this acreage involves weed cutting in upland areas, such as at the Lake Elsman dam face. Red-legged frog presence in these non-aquatic upland habitats areas during the dry season is highly unlikely because of the scarcity of the species throughout most SJWC lands and the species' reliance on aquatic habitats during the dry

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season. As a result, no impacts to individual red-legged frogs are expected to occur from these activities in drier upland areas. Activities such as weed cutting and fuel management do not remove habitat and have little, if any, effect on habitat quality for red-legged frogs within the maintenance areas. Implementation of BMPs to minimize habitat impacts and restore temporarily affected areas to pre-activity conditions will minimize any potential impacts on red-legged frog habitats from maintenance activities in upland areas. As such, no mitigation is proposed for potential impacts to California red-legged frog due to maintenance activities in dry upland areas.

Maintenance activities in aquatic habitats have a somewhat greater potential to affect small numbers of red-legged frogs. Most such impacts will be temporary (e.g., temporary reduction in habitat quality or indirect disturbance of individuals), with the only permanent loss of aquatic habitat) resulting from installation/upgrade of new culverts, and installation of inlet protection at existing culverts. Furthermore, the excavation of accumulated sediment and gravel behind the dams and intakes will benefit red-legged frogs by enhancing aquatic habitat (e.g., creating or deepening pools). Given the species' expected scarcity in project areas at SJWC facilities and the implementation of BMPs, the number of individuals that might be affected by either temporary or permanent impacts would be very low. Pre-maintenance surveys for red-legged frogs will occur in maintenance areas with suitable habitat.

Wetlands along edge of Lake Kittredge (December 2013)

Nevertheless, because of the regional scarcity of the species, loss of individual California red-legged frogs as a result of in-channel activities may result in a significant impact on the regional population by reducing what is apparently an already-small population in the Los Gatos Creek Watershed. Creation/restoration of aquatic habitat will be required as mitigation for temporary impacts on wetlands, permanent impacts on wetlands and other waters, and impacts on California red-legged frogs.

As described in Chapter 3, a number of special-status plant species may be present in fuel management areas: the bent-flowered fiddleneck, Mt. Hamilton fountain thistle, Santa Cruz Mountains beardtongue, and San Francisco collinsia, all of which are California Rare Plant Rank (CRPR) 1B.2 species, and the Santa Clara Valley dudleya and Santa Cruz Mountains pussypaws, CRPR 1B.1 species. Use of weed-cutting equipment is not expected to result in significant impacts on these species. Because populations of these species are small and/or sparsely distributed, however, the use of ground-disturbing vegetation removal equipment (e.g., masticators) could result in significant impacts (see Section 5.4.3 for a discussion of the process for determining which species could be significantly affected). If ground-disturbing equipment is

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to be employed, pre-activity surveys of fuel management areas will be conducted by a qualified biologist during the appropriate time of year to detect these species. If these species are present, the occurrences will be flagged for avoidance, and vegetation management activities will be limited to weed cutting and/or hand removal to avoid impacts to known occurrences.

6.4 Mitigation Activities

Based on the impacts identified in the program Mitigation and Monitoring Plan and the resource evaluations conducted in developing this Manual, SJWC will conduct mitigation activities as necessary for the loss of functions or values to aquatic resources, including wetlands, waters, and riparian habitats. Mitigation will be provided when impacts to these resources cannot be adequately avoided or minimized. Compensatory mitigation for specific locations of special-status species habitat will also be provided as needed, through enhancement and management of suitable habitat for the affected species.

The mitigation projects described in the program's Mitigation and Monitoring Plan will preserve, enhance, restore, or establish aquatic habitats, including wetlands, waters, or riparian habitat. Each of these projects will take place in the Los Gatos Creek Watershed and will provide mitigation that will improve aquatic functions and values for resources and habitats that may be adversely affected by the Maintenance Program.

6.5 Compensatory Mitigation Ratios

Table 6-1 below summarizes the mitigation ratios for temporary and permanent impacts to wetlands and waters for the Program. Mitigation ratios were established in consultation with USACE, CDFW, and RWQCB.

Table 6-1. Summary of Mitigation Ratios

Resource	Impact Type	Mitigation Ratio	Mitigation Type
Riparian Wetlands	Temporary	1.1:1	In-kind
Wetlands	Temporary	1:1	In-kind
Wetlands	Permanent	2.2:1	In-kind
Other Waters	Temporary	0.1:1	Out-of-kind

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To the immediate northwest of Lake Kittredge, a land parcel owned by SJWC provides a transitional area between the lake and surrounding uplands. An aerial photograph of this area is shown in **Figure 6-1** and ground-level photographs are provided in **Figure 6-2**. This parcel has been evaluated for potential creation and enhancement of aquatic habitat. The site has been surveyed and a conceptual wetland mitigation plan is under development. The conceptual wetland mitigation plan will include developing two wetland features with diverse structure (e.g., bulrush and willows). Additional features of the plan may include removing some invasive eucalyptus trees adjacent to the planned wetland. SJWC has monitored groundwater levels at the wetlands site to ensure that there is a water source for the planned wetlands. The planned wetlands will provide suitable breeding, sheltering, and/or foraging habitat for a variety of wildlife species, including special-status species such as the California red-legged frog and western pond turtle.¶

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Deleted: **Figure 6-1.** Lake Kittredge Wetlands and Aquatic Resources Mitigation Site¶

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Deleted: **Figure 6-2.** Photos of Lake Kittredge Wetlands and Aquatic Resources Mitigation Site¶

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Deleted: As described in Chapter 3, California red-legged frogs have been recorded in Lake Kittredge and Lake Cozzens as recently as 2006, but were not detected during a 2010 survey effort (EcoSystems West 2010b). Furthermore, aquatic predators of red-legged frogs (e.g., large-mouth bass) are abundant in both reservoirs. Therefore, as feasible, the wetlands will be graded to minimize direct contact with the lake in an effort to deter dispersal of predators. The general approach is to grade the restoration area in such a way that groundwater or tributary discharge will support the restored wetlands without providing direct connection to Lake Kittredge. This approach will prevent fish from entering the restored wetlands.¶

<#>Wetland and Aquatic Habitat Mitigation: Red-legged Frog Habitat Enhancement at Hooker Intake¶

The area above the Hooker Intake Facility provides an opportunity for red-legged frog habitat enhancement. As described in Section 5.2, sediment has accumulated behind the dam at the Hooker intake site and needs to be removed. Sedimentation has resulted in channel filling and the absence of any pools in the reach of Hooker Gulch immediately upstream of the dam. Sediment will be removed from upstream of the dar...

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Other Waters	Permanent	3:1	Out-of-kind

A final ratio of 2.2:1 for permanent impacts to wetland waters from Program activities was determined using Attachment 12501.6 - SPD Mitigation Ratio Checklist (USACE 2013). Temporary impacts to riparian wetlands will be mitigated at ratio of 1.1:1, whereas temporary impacts of non-riparian wetlands will be mitigated at a 1:1 ratio. Temporary impacts to non-vegetated, low functioning non-wetland waters will be mitigated at a 0.1:1 ratio, as conditions at temporary impact sites are anticipated to return to baseline in less than a year.

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Chapter 7

Maintenance Program Administration and Reporting

7.1 Annual Maintenance Cycle and Work Plan

Routine maintenance activities, such as clearing localized debris or sediment removal at culvert crossings, clearing minor sediment at intake facilities, preserving access routes, preserving fire-defensible space around facilities, and maintaining operations at the various facilities, represents the majority of SJWC's maintenance projects. All maintenance activities utilize the appropriate programmatic impact avoidance, minimization, and mitigation measures described in Chapters 5 and 6 of this Manual.

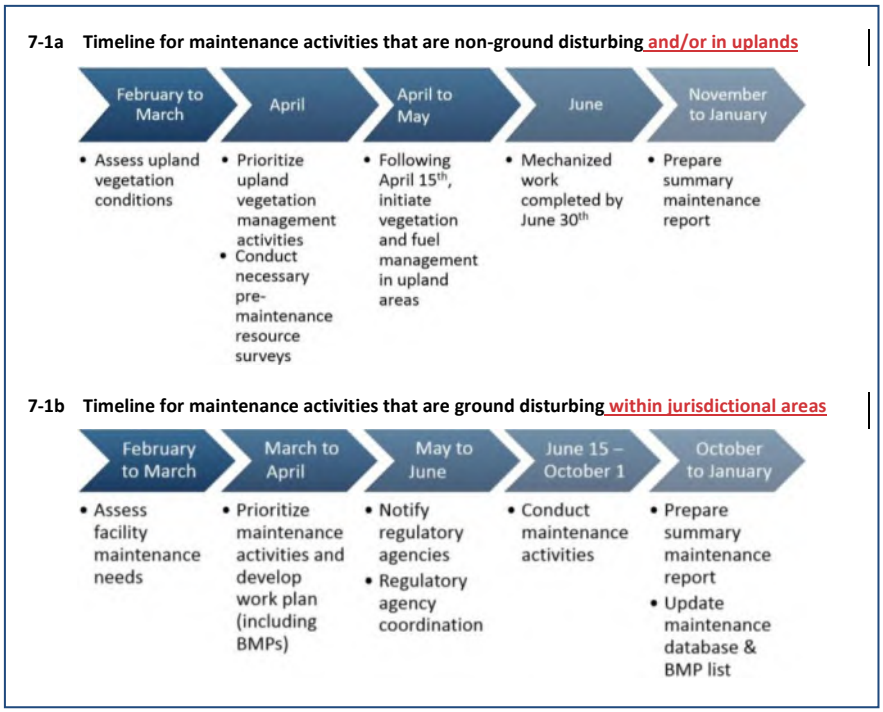

Figure 7-1. Annual Watershed Maintenance Approximate Timelines

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In general, maintenance activities take place on an annual cycle, as shown in **Figure 7-1,** depending on whether they are non-ground disturbing activities (**Figure 7-1a**), or ground-disturbing activities near wetlands and creeks (**Figure 7-1b**).

7.1.1 Non-ground-disturbing and/or Upland Activities

Maintenance activities that do not require ground disturbance, such as tree pruning or brush clearing around the perimeter of an SJWC facility located in an upland setting, will follow the timeline shown in Figure 7-1a. For maintenance activities in uplands or along roads that do not involve wetlands, creeks, or other jurisdictional areas, these activities may occur year round, although the bulk of maintenance activities take place in the spring season (Figure 7-1a). For these activities, including access road maintenance and vegetation management along roads and fire fuel reduction, typically a reconnaissance evaluation will be conducted annually in the winter months. Vegetation thinning and removal of dead branches or understory are best conducted in spring, once the primary wet months are over and before the drier conditions in the summer, when the maintenance activities themselves can be a source of fire ignition. For this reason, vegetation management that is non-ground-disturbing or in upland areas is generally scheduled to begin in April and will be completed by June 30 (Figure 7-1a).

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7.1.2 Ground-disturbing Activities within Jurisdictional Areas

For maintenance activities that involve ground disturbance within jurisdictional areas, such as sediment clearing at intake facilities and culvert replacement; SJWC will conduct a maintenance evaluation at each facility during February and March (as shown in Figure 7-1b). During the assessment, the facility characterization sheets (provided in Chapter 4) will be referenced in the field, reviewed for their accuracy, and updated as appropriate.

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The history of past maintenance activities and specific resource conditions at individual facilities will be reviewed as maintenance tasks are identified and prioritized. During March and April, an annual maintenance work plan will be developed for ground-disturbing activities based on the assessment and prioritization process.

The number of projects prioritized for the annual work plan will be dependent on factors such as the climatic and hydrologic conditions in the preceding years. Projects marked as low priority and not included in the current year's work plan will be noted for inspection and reassessment during the next annual work cycle. As appropriate, regulatory agencies would be notified of the planned ground-disturbing maintenance activities in May and June. Ground-disturbing maintenance work would be implemented between June 15 and October 1. Table 1-1 in Chapter 1 provides a summary of the routine maintenance projects expected in most years.

For ground-disturbing activities occurring near creeks and wetlands in particular, potential constraints will be identified that might complicate maintenance activities. For example, narrow access, the presence of infrastructure such as pipelines or road crossings, the presence of

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threatened or endangered species, and structural facility issues could all influence the maintenance approach. The annual maintenance work plan for ground-disturbing activities within jurisdictional areas will identify the necessary impact avoidance measures. Following identification of the treatment approach, activity-specific BMPs will be identified from among the practices listed in Table 5-4.

All projects (both non-ground-disturbing activities and ground-disturbing projects) will utilize appropriate program-wide BMPs for impact avoidance and minimization as identified in Chapter 5.

SJWC will oversee the maintenance program throughout all steps of the work cycle. Continuity in oversight and attention will enable the program to run effectively. The watershed maintenance manager's primary responsibility will be to supervise and guide the maintenance program. A key responsibility for the watershed maintenance manager will be to provide communication and coordination between SJWC and the relevant regulatory agencies throughout all steps of the work cycle. The program will be administered to be consistent with the goals, principles, and activities described in this Manual.

7.2 Agency Notification

By May 1 of each year, SJWC will notify the relevant regulatory agencies that have jurisdictional authority over or oversight of the year's planned maintenance projects that are occurring near streams or wetlands, or that involve ground-disturbing activities within jurisdictional areas. The relevant regulatory agencies will be provided with information describing proposed maintenance activities, locations, natural resource conditions, and any other key resource issues. If requested, SJWC will host a tour of the identified maintenance sites. Following regulatory review and coordination, ground-disturbing projects within jurisdictional areas will be implemented between June 15 and October 1, with summary reporting activities occurring in the late fall as described below.

A separate notification summarizing the planned non-ground-disturbing and/or upland maintenance work outside of jurisdictional areas for the year will also be provided to the agencies for their edification as a courtesy.

7.3 Project Implementation

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Once SJWC receives notice to proceed from the relevant regulatory agencies, regulated maintenance activities taking place in jurisdictional areas may be initiated. Maintenance work required near a stream or wetland would take place after June 15. All maintenance activities will be conducted in accordance with the project description, program-wide and activity-specific BMPs, and terms of the maintenance permits. This includes conducting any necessary pre-activity surveys for fish, wildlife, and other resources, if activities may affect these resources. An

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on-site project supervisor trained in using the Maintenance Manual will oversee and guide all maintenance activities and ensure that the proper maintenance principles and avoidance and minimization approaches, as described in Chapter 5, are employed.

As described above, fuel management activities must take place early in the work season, before the fuel is too dry and the fire ignition risk increases. Fuel and vegetation management activities (including weed and brush control) that are not subject to regulatory approvals will be conducted in the April/May timeframe.

During implementation of maintenance activities, if an issue arises that requires a different treatment or approach than that described in the notification package, the watershed maintenance manager will send an updated notification to the relevant agencies with this project change.

When projects are implemented, data will be collected at the project site before, during, and immediately after project implementation or as required by regulatory permits or the protocols described in this manual. Data collected may include before, during, and after photographs; quantification of material removed (for culvert repair projects) or placed (for road stabilization projects); the length and area of vegetation maintenance activities (e.g., herbicide application, tree trimming, native plantings); and the location or occurrence of any sensitive species or other resources encountered at the site during pre-activity surveys or project implementation. Monitoring data will be collected within 7 working days of the completion of maintenance activities at each site.

7.4 Summary Maintenance Report for Regulatory Agencies

At the conclusion of the maintenance season for work within jurisdictional areas (after October 31 and before January 31), SJWC will prepare and submit to the relevant regulatory agencies a summary report describing the work plan status and confirming which projects from the work plan were completed. The report will comply with permitting requirements issued by the relevant regulatory agencies and will include the following information:

- Description of the extent to which the work plan was completed during the maintenance season (i.e., projects that were and were not implemented) and, for any projects that were not implemented, an explanation of why, and whether the project will be incorporated into the next year's work plan or placed on a watch list;
- Statement of whether activities were conducted according to the project description and, if not, how the actual project varied from the project description;
- Site photographs taken before and after project completion;

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- A record, if applicable, of how much sediment and vegetation was removed and the number of acres affected;
- A record, if applicable, of how much material was disposed of off-site, the disposal locations, and the number of acres affected;
- Description of whether any special-status species or other sensitive resources were encountered during construction and, if so, what impact avoidance steps were taken in response;
- A brief description of site monitoring activities;
- Any lessons learned from that year's activities, including treatments that were not effective, administrative difficulties, and proposed steps to facilitate the process; and
- Recommended updates (if any) to the program BMPs.

At the conclusion of the annual work cycle, SJWC will also update the maintenance database and the BMP list (Table 5-4), as appropriate, to include any updates or changes made over the recent work cycle. In this way, development of the next year's work plan will be built on updated information across the watershed program area.

A summary of uplands maintenance work completed each year will be provided as a stand-alone addition to the annual reporting submitted to agencies for their edification as a courtesy.

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Chapter 8

Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
ANSI	American National Standards Institute
ATCM	Airborne Toxic Control Measure
AHCWD	Aldercroft Heights County Water District
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BO	Biological Opinion
Cal-IPC	California Invasive Plant Council
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game (former)
CDFW	California Department of Fish and Wildlife (since 2012)
CDPR	California Department of Pesticide Regulation
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHRIS	California Historic Resources Information System
CIP	Capital Improvement Project
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COHP	California Office of Historic Preservation
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
CWA	Clean Water Act
dbh	diameter at breast height
DSOD	California Department of Water Resources, Division of Safety of Dams
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement

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ESA	Endangered Species Act
F&G Code	California Fish and Game Code
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONSI	Finding of no significant impact
FWCA	Fish and Wildlife Coordination Act
gpm	gallons per minute
ISA	International Society of Arboriculture
M435	California Air Resources Board Test Method 435
Maintenance Program	Los Gatos Creek Watershed Maintenance Program
Manual	Los Gatos Creek Watershed Maintenance Program Manual
MBTA	Migratory Bird Treaty Act
mg	million gallons
mgd	million gallons per day
MLD	most likely descendant
MROSD	Midpeninsula Regional Open Space District
MWTP	Montevina Water Treatment Plant
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOA	naturally occurring asbestos
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NTU	nephelometric turbidity units
NWIC	Northwest Information System
OHWM	ordinary high water mark
PBO	Programmatic Biological Opinion
PCB	Polychlorinated Biphenyls
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
Program	Los Gatos Creek Watershed Maintenance Program
RGP	Regional General Permit
RMA	Routine Maintenance Agreement
RWQCB	California Regional Water Quality Control Board

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SAA	Streambed Alteration Agreement
SCADA	Supervisory Control and Data Acquisition
SCVWD	Santa Clara Valley Water District
SJWC	San Jose Water Company
SWRCB	State Water Resources Control Board
SWTP	Saratoga Water Treatment Plant
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirement

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Chapter 9
References

Chapter 1 Introduction

No references cited.

Chapter 2 Regulatory Framework

RWQCB. *See* San Francisco Bay Regional Water Quality Control Board.

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2005. Resolution RS-2005-0063 Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish a Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL) for Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks. Certified November 16. Available: www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2005/R2-2005-0063.pdf. Accessed June 2, 2015.

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2006. Resolution R2-2006-0052 Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish New Mercury Water Quality Objectives and to Amend the Total Maximum Daily Load and Implementation Plan for Mercury in San Francisco Bay. Certified August 9. Available: www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2006/R2-2006-0052.pdf. Accessed June 2, 2015.

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2008. Resolution R2-2008-0012 Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish a Total Maximum Daily Load and Implementation Plan for PCBs in the San Francisco Bay. Certified February 13. Available: www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2008/R2-2008-0012.pdf. Accessed June 2, 2015.

U.S. Army Corps of Engineers. 1987 Wetland Delineation Manual

U.S. Army Corps of Engineers. 2008 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.

USACE. *See* U.S. Army Corps of Engineers.

USEPA. *See* U.S. Environmental Protection Agency.

U.S. Fish and Wildlife Service. 2014. Programmatic Biological Opinion for Issuance of Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Authorizations Under 22 Nationwide Permits, for Projects that May Affect the Threatened California Red-Legged Frog in Nine San Francisco Bay Area Counties, California.USFWS. *See* U.S. Fish and Wildlife Service.

Deleted: December 2016

Deleted: March 2021

Chapter 3 Program Setting

Altman, B., and R. Sallabanks. 2000. Olive-sided flycatcher (*Contopus cooperi*), in A. Poole and F. Gill, eds., *The Birds of North America*. The Birds of North America, Inc., Philadelphia, PA.

AmphibiaWeb. 2008. Introduced species. Available at amphibiaweb.org/declines/IntroSp.html. Accessed on 18 March 2011.

Barbour, R. W., and W. H. Davis. 1969. Bats of America. University of Kentucky Press, Lexington, KY.

Bossard, C. C., J. M. Randall, and M. C. Hoshovsky, eds. 2000. Invasive Plants of California's Wildlands. University of California Press, Berkeley, California.

Bousman, W. G. 2007a. Bald eagle, Haliaeetus leucocephalus. Pages 517-518 in W. G. Bousman, ed. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, CA.

Bousman, W. G. 2007b. Long-eared owl, Asio otus. Pages 238-239 in W. G. Bousman, ed. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, CA.

Bousman, W. G. 2007c. Peregrine falcon, Falco peregrinus. Pages 188-189 in W. G. Bousman, ed. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, CA.

Bousman, W. G. 2007d. Golden eagle, Aquila chrysaetos. Pages 184-185 in W. G. Bousman, ed. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, CA.

Bousman, W. G. 2007e. Yellow warbler, Dendroica petechia. Pages 376-377 in W. G. Bousman, ed. Breeding Bird Atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, CA.

Bousman, W. G. 2007f. Purple martin Progne subis. Pages 310-311 in W.G. Bousman, editor. Breeding bird atlas of Santa Clara County. Santa Clara Valley Audubon Society, Cupertino, California.

Buehler, D. A. 2000. Bald Eagle (Haliaeetus leucocephalus), in A. Poole and F. Gill, eds. The Birds of North America. The Birds of North America, Inc., Philadelphia, PA.

Bulger, J. B., and N. J. Scott, Jr. 2003. Terrestrial activity and conservation of adult California red-legged frogs Rana aurora draytonii in coastal forests and grasslands. Biological Conservation 110:85-95.

California Department of Food and Agriculture. 2012. Encycloweedia. Available at: www.cdfa.ca.gov/plant/ipc/encycloweedia/encycloweedia_hp.htm.

California Department of Fish and Game. 2008. CWHR version 8.2 personal computer program in California Department of Fish and Game, California Interagency Wildlife Task Group.

CaliforniaHerps.com. 2011. Non-native reptiles and amphibians introduced into California. Available at www.californiaherps.com/info/introducedspecies.html. Accessed 18 March 2011.California Invasive Plant Council. 2015. California Invasive Plant Inventory Database. Available at: www.cal-ipc.org/paf.

California Native Plant Society. 2015. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Available at: www.cnps.org/inventory.

California Natural Diversity Data Base. 2015. Rarefind. California Department of Fish and Wildlife.

Deleted: December 2016

Deleted: March 2021

Carraway, L. N., and B. J. Verts. 1991. Neotoma fuscipes. Mammalian Species No. 386.

CDFA. *See* California Department of Food and Agriculture.

CDFG. *See* California Department of Fish and Game.

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society.

Davis, F. W., D. M. Stoms, A. D. Hollander, et al. 1998. The California GAP Analysis Project—Final Report. University of California, Santa Barbara, CA.

EcoSystems West Consulting Group. 2003. Preconstruction wildlife survey results summary for the San Jose Water Company Beardsley Intake Facility Maintenance Project, Santa Clara County, California. Letter report dated September 25, 2003.

EcoSystems West Consulting Group. 2006. California Red-legged frog Habitat Assessment for the San Jose Water Company Lexington Reservoir Raw Water Pipeline Replacement Project Santa Clara County, California. Prepared for Sacramento Fish and Wildlife Service, West Valley Construction Company, and San Jose Water Company. June 2006.

EcoSystems West Consulting Group. 2010a. Draft Botanical and Wildlife Assessment of San Jose Water Company's Roadside Vegetation Management Areas Santa Clara County, California. Prepared for San Jose Water Company. December 2010.

EcoSystems West Consulting Group. 2010b. Results of special-status amphibian and aquatic reptile surveys at San Jose Water Company's Lake Kittredge and Lake Cozzens properties, near the community of Lakeside in Santa Clara County, California. September 2010.

Fellers, G. M. 2005. *Rana draytonii* California red-legged frog. Pages 552-554 in M. Lannoo, ed., *Amphibian Declines: The Conservation Status of United States Species*. University of California Press, Berkeley, CA.

Fellers, G. M., and P. M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. Journal of Herpetology 41:276-286.

Ferguson, H., and J. M. Azerrad. 2004. Management recommendations for Washington's priority species: Mammals, pallid bat (*Antrozous pallidus*). Washington Department of Fish and Game.

Graber, D. M. 1996. Status of terrestrial vertebrates. In Sierra Nevada Ecosystem Project: Final report to Congress. Chapter 25. Davis, California: Centers for Water and Wildland Resources.

Gregory, S. V., F. J. Swanson, W. A. McKee, and K. W. Cummins. 1991. An ecosystem perspective of riparian zones. BioScience 41(8):540-551.

H. T. Harvey & Associates. 1997. Santa Clara Valley Water District Red-legged Frog Distribution and Status – 1997. Prepared for the Santa Clara Valley Water District. June 1997.

Deleted: December 2016

Deleted: March 2021

H. T. Harvey & Associates. 1999. Foothill Yellow-legged Frog Distribution and Status - 1999. Prepared for the Santa Clara Valley Water District.

Heath, S. K. 2008. Yellow warbler (Dendroica petechia). In W. D. Shuford and T. Gardali, eds., California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. Western Field Ornithologists and California Department of Fish and Game. Camarillo and Sacramento, CA.

Jennings, M. R. and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California.* California Department of Fish and Game, Inland Fisheries Division.

Johnston, D. S., B. Hepburn, J. Krauel, T. Stewart, and D. Rambaldini. 2006. Winter roosting and foraging ecology of pallid bats in Central Coastal California. Bat Research News 47:115.

Kruckeberg, A. R. 1984. California Serpentines: Flora, Vegetation, Geology, Soils, and Management Problems. University of California Press, Berkeley, CA.

Lee, D. E., and W. D. Tietje. 2005. Dusky-footed woodrat demography and prescribed fire in a California oak woodland. Journal of Wildlife Management 69:1211-1220.

Lowther, P. E., C. Celada, N. K. Klein, C. C. Rimmer, and D. A. Spector. 1999. Yellow warbler (*Dendroica petechia*). In A. Poole, and F. Gill, eds., *The Birds of North America*. The Birds of North America, Inc., Philadelphia, PA.

Natural Resources Conservation Service. 2014. Web Soil Survey for Santa Clara County. Available at: websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed: December 1, 2014.

Noble, P. L. 2007. Long-eared owl *Asio otus*. Pages 238-239 in W. G. Bousman, ed., *Breeding Bird Atlas of Santa Clara County, California*. Santa Clara Valley Audubon Society.

NRCS. *See* Natural Resource Conservation Service.

Pierson, E. D., W. E. Rainey, and C. Corben. 2006. Distribution and status of western red bats (*Lasiurus blossevillii*) in California. California Department of Fish and Game, Habitat Conservation Branch, Species Conservation and Recovery Program Report 2006-04.

Robertson, B. A., and R. L. Hutto. 2007. Is selectively harvested forest an ecological trap for olive-sided flycatchers? Condor 109:109-121.

Rottenborn, S. C. 2007. Vaux's swift *Chaetura vauxi*. Pages 244-245 in W. G. Bousman, ed., *Breeding Bird Atlas of Santa Clara County*. Santa Clara Valley Audubon Society, Cupertino, CA.

RWQCB. *See* San Francisco Bay Regional Water Quality Control Board.

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2005. Resolution RS-2005-0063 Amending the Water Quality Control Plan for the San Francisco Bay Region to Establish a Water Quality Attainment Strategy and Total Maximum Daily Load (TMDL) for Diazinon and Pesticide-Related Toxicity in Bay Area Urban Creeks. Certified November 16. Available: www.waterboards.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2005/R2-2005-0063.pdf. Accessed June 2, 2015.

Deleted: December 2016

Deleted: March 2021

San Francisco Bay Regional Water Quality Control Board (RWQCB). 2013. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporated June 29, 2013. Available at: www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Accessed: January 7, 2015.

Santa Clara County. 1994. Santa Clara County General Plan, Charting the Course for Santa Clara County's Future: 1995-2010. Adopted December 20, 1994. Available at: www.sccgov.org/sites/planning/PlansPrograms/GeneralPlan/Documents/GP_Book_A.pdf. Accessed: December 2014.

San Jose Water Company. 2011. Watershed Sanitary Survey. December 2011.

Shilling, F., S. Sommarstrom, R. Kattlemann, B. Washburn, J. Florsheim, and R. Henly. 2005. California watershed assessment guide. Prepared for the California Resources Agency. July.

SJWC. *See* San Jose Water Company.

Spinks, P. Q., G. B. Pauly, J. J. Crayon, and H. B. Shaffer. 2003. Survival of the western pond turtle (Emys marmorata) in an urban environment. Biological Conservation 113:257-267.State Water Resources Control Board. 2010. 2010 Integrated Report: Clean Water Act Section 303(d) List. Available at: www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed: January 9, 2015.

State Water Resources Control Board (SWRCB). 2010. 2010 Integrated Report: Clean Water Act Section 303(d) List. Available at: www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Accessed: January 9, 2015.

SWRCB. *See* State Water Resources Control Board.

Thomson, R. C., P. Q. Spinks, and H. B. Shaffer. 2010. Distribution and abundance of invasive red-eared sliders (*Trachemys scripta elegans*) in California's Sacramento River Basin and possible impacts on native western pond turtles (*Emys marmorata*). Chelonian Conservation and Biology 9:297-302.

USEPA. *See* U.S. Environmental Protection Agency.

U.S. Fish and Wildlife Service. 1996. Endangered and threatened wildlife and plants: Determination of threatened status for the California red-legged frog. Federal Register 61:25813-25833.

U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Region 1.

U.S. Fish and Wildlife Service. 2010. Endangered and threatened wildlife and plants: Revised designation of critical habitat for California red-legged frog; Final rule. Federal Register 75:12816-12959.

USFWS. *See* U.S. Fish and Wildlife Service.

Deleted: December 2016

Deleted: March 2021

U.S. Geological Survey. 2014. StreamStats: California Interactive Map. Available at: water.usgs.gov/osw/streamstats/california.html. Accessed on: September 18, 2014

USGS. *See* U.S. Geological Survey.

Ventana Wildlife Society. 2012. Bald Eagle Restoration Program 1986-2012. Available at: www.ventanaws.org/species_eagles. Accessed 5 December 2013.

Western Bat Working Group. 2005. Species accounts *Lasiurus blossevillii*, western red bat. Available at www.wbwg.org/speciesinfo/species_accounts/vespertilonidae/ labl.pdf.Wilson and Ruff 1999

Zeiner, D. C., W. F. Laudenslayer Jr., K. E. Mayer, and M. White, editors. 1990. *California's Wildlife*. Volume III: Mammals. California Department of Fish and Game, Sacramento, CA.

Personal Communications

Dave Johnston, H. T. Harvey & Associates. Personal communication to Ginger Bolen from H.T. Harvey & Associates. Ringtail Occurrences in Project Area. August 2014.

Chapter 4 Resource Characterizations at Maintenance Facilities

California Natural Diversity Data Base. 2015. Rarefind. California Department of Fish and Wildlife.

CNDDB. See California Natural Diversity Database.

EcoSystems West Consulting Group. 2003. Preconstruction wildlife survey results summary for the San Jose Water Company Beardsley Intake Facility Maintenance Project, Santa Clara County, California. Letter report dated September 25, 2003.

EcoSystems West Consulting Group. 2006. California Red-legged frog Habitat Assessment for the San Jose Water Company Lexington Reservoir Raw Water Pipeline Replacement Project, Santa Clara County, California. Prepared for Sacramento Fish and Wildlife Service, West Valley Construction Company, and San Jose Water Company. June 2006.

EcoSystems West Consulting Group. 2010a. Draft Botanical and Wildlife Assessment of San Jose Water Company's Roadside Vegetation Management Areas Santa Clara County, California. Prepared for San Jose Water Company. December 2010.

EcoSystems West Consulting Group. 2010b. Results of special-status amphibian and aquatic reptile surveys at San Jose Water Company's Lake Kittredge and Lake Cozzens properties, near the community of Lakeside in Santa Clara County, California. September 2010.

Graymer, R. W., B. C. Moring, G. J. Saucedo, C. M. Wentworth, E. E. Brabb, and K. L. Knudsen. 2006. Geologic Map of the San Francisco Bay Region. Available at: pubs.usgs.gov/sim/ 2006/2918. Accessed: December 1, 2014.

H. T. Harvey & Associates. 1997. Santa Clara Valley Water District Red-legged Frog Distribution and Status – 1997. Prepared for the Santa Clara Valley Water District. June 1997.

Deleted: December 2016

Deleted: March 2021

Natural Resources Conservation Service. 2014. Web Soil Survey for Santa Clara County. Available at: websoilsurvey.nrcs.usda.gov/app/HomePage.htm. Accessed: December 1, 2014.

NRCS. *See* Natural Resource Conservation Service.

Santa Clara County Fire Department. 2009. Standard details and specifications: Fire Department apparatus access. Standard originally adopted January 23, 1997. Revised June 1, 2009. Available at: www.sccfd.org/forms/SD&S_A-1ApparatusAccess.pdf.

SCCFCD. See Santa Clara County Fire Department.

San Jose Water Company. 2011. Watershed Sanitary Survey. December 2011.

SJWC. *See* San Jose Water Company.

State Water Resources Control Board. 1976. License for Diversion and Use of Water. August 13.

SWRCB. *See* State Water Resources Control Board.

U.S. Geological Survey. 2014. StreamStats: California Interactive Map. Available at: water.usgs.gov/osw/streamstats/california.html. Accessed on: September 18, 2014

USGS. See U.S. Geological Survey.

Chapter 5 Maintenance Activities, Impact Avoidance and Minimization, and Best Management Practices

American National Standards Institute. 2008. A300 (Part 1) 2008 Pruning, ANSI Z133.1 – 2000 Safety Requirements

ANSI. *See* American National Standards Institute.

BAAQMD. *See* Bay Area Air Quality Management District.

Bay Area Air Quality Management District. 2011. California Environmental Quality Act Air Quality Guidelines. Updated May. Available at: www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_May%202011_5_3_11.ashx. Accessed June 1, 2015.

California Air Resources Board. Test Method 435 – Determination of Asbestos Content of Serpentine Aggregate. Available at: www.arb.ca.gov/toxics/asbestos/tm435/tm435.htm. Accessed June 1, 2015.

California Department of Water Resources, Division of Safety of Dams. 1965. Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs.

California Stormwater Quality Association. 2015. Construction BMP Handbook. Available at: www.casqa.org/resources/bmp-handbooks/construction. Accessed June 1, 2015.

CARB. See California Air Resources Board.

CASQA. See California Stormwater Quality Association.

Deleted: December 2016

Deleted: March 2021

DSOD. See California Department of Water Resources, Division of Safety of Dams.

International Society of Arboriculture. Best Management Practices for Tree Pruning (2008, or the most current version)

ISA. *See* International Society of Arboriculture.

National Marine Fishery Service. NMFS electrofishing guidelines – 2000

NMFS. *See* National Marine Fishery Service.

Society of Vertebrate Paleontology. 1995. Conformable Impact Mitigation Guidelines Committee 1995

Wagner, D. L., E.J. Bortugno, and R. D. McJunkin. 1991. Geologic Map of the San Francisco- San Jose Quadrangle, California. Map No. 5A, 1:250,000 scale. Available at: www.quake.ca.gov/gmaps/RGM/sfsj/sfsj.html. Accessed: January 5, 2015.

Chapter 6 Impact Mitigation

California Natural Diversity Database. 2014

CNDDB. *See* California Natural Diversity Database.

EcoSystems West Consulting Group. 2006. California Red-legged frog Habitat Assessment for the San Jose Water Company Lexington Reservoir Raw Water Pipeline Replacement Project, Santa Clara County, California. Prepared for Sacramento Fish and Wildlife Service, West Valley Construction Company, and San Jose Water Company. June 2006.

EcoSystems West Consulting Group. 2010a. Draft Botanical and Wildlife Assessment of San Jose Water Company's Roadside Vegetation Management Areas, Santa Clara County, California. Prepared for San Jose Water Company. December 2010.

EcoSystems West Consulting Group. 2010b. Results of special-status amphibian and aquatic reptile surveys at San Jose Water Company's Lake Kittredge and Lake Cozzens properties, near the community of Lakeside in Santa Clara County California. September 2010.

Chapter 7 Maintenance Program Administration and Reporting

No references cited.

Deleted: December 2016

Deleted: March 2021