Initial Study/Mitigated Negative Declaration for the proposed Roy's Redwoods Restoration Project at Roy's Redwoods Open Space Preserve

Public Comment Period: February 6 to March 10, 2023

Marin County Open Space District
3501 Civic Center Drive, Suite 260, San Rafael, CA 94903

This document has been prepared pursuant to the
California Environmental Quality Act of 1970, as amended.

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PROJECT INFORMATION

Project Title

Roy's Redwoods Restoration Project

Lead Agency Name and Address

Marin County Open Space District (MCOSD)
3501 Civic Center Drive, Suite 260
San Rafael, California 94903

Contact Person

Jon Campo, Principal Natural Resources Planner
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Project Location

Roy's Redwoods Open Space Preserve, Woodacre, California

General Plan Designation

APN 172-350-36: Public Open Space (OS) (Marin County)

Zoning

Open Area (OA) (Marin County)

Coordinates

Latitude: 38º01'14.30"N

Longitude: 122º29'40.68'W

MITIGATED NEGATIVE DECLARATION

Marin County Environmental Review

Pursuant to Section 21000 et. seq. of the Public Resources Code and Marin County Environmental Impact Review Guidelines and Procedures, a Negative Declaration is hereby granted for the following project.

1. **Project Name:** Roy's Redwoods Restoration Project
2. **Location:** Roy's Redwoods Open Space Preserve, San Rafael, Marin County, California
3. **Project Summary:**

The proposed project would create a sustainable trail system that reduces impacts of visitor use to environmentally sensitive areas. The proposed project would decommission social trails, relocated segments of existing trails to remove them from sensitive areas such as wetlands and stream crossings, and upgrade existing trails to improve drainage and reduce erosion. The proposed project would improve hydrologic conditions and increase groundwater infiltration and storage throughout the valley floor through implementation of habitat restoration activities designed to create a wetland-channel network, often referred to as Stage Zero channel conditions, along Upper Larsen Creek through the redwood forest in conjunction with the proposed trail closures and trail improvements.

4. **Project Sponsor:** Marin County Open Space District (MCOSD)
5. **Finding:**

Based on the attached Initial Study and without a public hearing, it is my judgment that:

☒ The project will not have a significant effect on the environment.

☒ The significant effects of the project noted in the Initial Study attached have been mitigated by modifications to the project so that the potential adverse effects are reduced to a point where no significant effects would occur.

Rachel Reid _____ Date: January 31, 2023

Rachel Reid
Environmental Planning Coordinator

Based on the attached Initial Study, a [Mitigated] Negative Declaration is granted.

_____ Date: _____

Director and General Manager
Marin County Parks and Marin County Open Space District

6. **Mitigation Measures:**

☐ No potential adverse impacts were identified; and therefore, no mitigation measures are required.

☒ Please refer to mitigation measure in the attached Initial Study.

☒ The potential adverse impacts have been found to be mitigable as noted under the following factors in the Initial Study attached.

The mitigation measure for the potentially significant environmental impact associated with nesting birds has been incorporated into the project and are required as conditions of approval.

7. **Preparation:**

This Mitigated Negative Declaration was prepared by Michelle Julene, Regulatory Open Space Planner of the Marin County Parks and Marin County Open Space District.

Hardcopies of the document are available to review at the MCOSD administrative office, at the Civic Center Library located at 3501 Civic Center Dr. STE 414, San Rafael, and at the Fairfax Library located at 2097 Sir Francis Drake Boulevard.

The document and the online comment form is available for review on the Marin County Open Space District website at LINK: MCOSD Website.

INTRODUCTION AND DOCUMENT ORGANIZATION

The Marin County Open Space District (MCOSD)[1] is proposing the Roy's Redwoods Restoration Project (proposed project) within Roy's Redwoods Open Space Preserve. This Initial Study has been prepared to provide information to the public and decision makers regarding the scope of the proposed project, the potentially significant environmental impacts that could result from implementation of the proposed project, and mitigation measures that would reduce potentially significant environmental impacts to a less-than-significant level.

The document is organized into sections that include identification of the proposed project purpose and need, existing conditions, project description, project development, and impacts analyses. The figures used to illustrate the proposed project are presented at the end of the project description section.

CEQA Framework

This Initial Study has been prepared in compliance with the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. The basic purposes of CEQA are to:

1. Inform governmental decision makers and the public about the potential significant environmental effects of proposed activities
2. Identify ways that environmental damage can be avoided or significantly reduced
3. Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible
4. Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved

The purpose of this Initial Study is to disclose information obtained during the analysis of environmental effects that could result from implementation of the proposed project, including construction, operation, and maintenance that has a potential for resulting in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment. The conclusions of the Initial Study have been utilized to determine whether a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report should be prepared. This determination depends on the conclusions of the Initial Study regarding potentially significant environmental impacts, based on substantial evidence:

Negative Declaration	The Initial Study concludes no potentially significant environmental impacts would occur from implementation of the proposed project and no mitigation measures are required.
Mitigated Negative Declaration	The Initial Study concludes that potentially significant environmental impacts could occur from implementation of the proposed project. Mitigation measures are included to reduce potentially significant environmental impacts to a less-than-significant level.
Environmental Impact Report	The Initial Study concludes that potentially significant environmental impacts could occur from implementation of the proposed project. Mitigation measures are included to reduce potentially significant environmental impacts to a less-than-significant level, but potentially significant environmental impacts could still result.

[1] The MCOSD is a special district pursuant to the California Public Resources Code.

The MCOSD is the CEQA Lead Agency for the proposed project, meaning that the MCOSD has the principal responsibility for carrying out or approving a project, including the decision of which environmental document should be prepared.

Project Need

Roy's Redwoods Open Space Preserve, in the San Geronimo Valley in west Marin County, was one of the initial properties acquired when the Marin County Open Space District (MCOSD) was formed. Purchased in 1978, it was the first of several preserves established in the San Geronimo Valley[2]. While most of its 293 acres are the typical mixture of grasslands and Douglas fir/California bay/coast live oak woodlands found on the ridges of west Marin, the unique feature of Roy's Redwoods is its stand of old-growth redwoods along the valley floor of upper Larsen Creek. The Roy's Redwoods Open Space Preserve has been loved and well used by the San Geronimo Valley community over the last 40 years. With easy access to the old-growth redwood grove from Nicasio Valley Road, the grove serves many functions for the community: it hosts picnics; it provides the space and opportunities for local school kids to run, climb, and make forts; it is a place where many stop to take a walk through the bay and old-growth redwood forest; and it previously provided a site for filming George Lucas' *The Ewok Adventure* along the Meadow Trail. This use has contributed to an extensive social trail[3] network through the redwood grove and has resulted in areas of soil compaction and denuded vegetation around points of interest. There is concern that upper Larsen Creek and its tributary channels within the grove may be negatively impacted by the visitor use and that downstream natural resources are being affected. The MCOSD, in collaboration with the Golden Gate National Parks Conservancy (Parks Conservancy) through the One Tam collaboration, conducted a multi-year evaluation and planning process to determine what actions are needed to restore degraded resources and protect sensitive areas, while improving site access and community-desired activities. The MCOSD intends to protect the diverse biological resources that the area offers, improve hydrologic function, preserve the rich history of the landscape, and provide access and amenities for visitors to enjoy the Roy's Redwoods Open Space Preserve through development of a trail circulation system that achieves multiple benefits to habitat restoration, hydrologic restoration, and an immersive and sustainable visitor experience.

Project Purpose

The purpose of the proposed project is to implement the MCOSD's Road and Trail Management Plan (RTMP[4]) to provide the public with a safe multi-use trail system to enhance the visitor experience, reduce environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of trails that meet design and management standards and provide safe year-round access through the alluvial redwood valley. An additional purpose of the proposed project is to implement the Marin County Parks Inclusive Access Plan (IAP). The RTMP and IAP are described in the Project Development section of this document.

Project Objectives

Implementation of the proposed project would achieve the following project objectives:

- Restore and enhance the health and resiliency of the redwood forest by restoring healthy soil conditions through decompaction of social trails and heavy visitor use areas, re-establishing a diverse forest understory plant community, and reducing impacts to wildlife habitat and the forest ecosystem by limiting the number and distribution of trails through the forest.

[2] Marin Conservation League Walk into (Conservation) History #18. Roy's Redwoods. 2015.

[3] Social trails are informal trails created by erosion due to foot traffic from people and animals. Social trails are not part of the official Marin County Open Space District trail network and are an indication of human disturbance.

[4] Marin County Open Space District. 2014. Road and Trail Management Plan. December.

- Restore and enhance hydrologic process and function by stopping the development and persistence of incised channels through the alluvial valley floor, re-establishing a multi-threaded and dynamic wetland-channel network that is closely connected to the floodplain, storing a majority of the total sediment delivered to the valley floor on-site, and reducing winter peak flows and increasing the volume and longevity of spring and summer low flows.
- Improve the public access by providing an immersive visitor experience that is consistent with restoration goals, providing safe and sustainable year-round access to the bay and redwood forest portion of the Roy's Redwoods Open Space Preserve, improving access consistent with MCOSD's Inclusive Access Plan, and providing visitor interpretive services.

SUMMARY OF THE PROPOSED PROJECT

The project is intended to provide a sustainable trail system that reduces the impacts of visitor use to environmentally sensitive areas while improving visitor experience within the old-growth redwood forest. Erosion, soil compaction, and unsustainable trail density created by the network of social trails are of concern for the health of the old-growth redwood forest along the valley floor of Upper Larsen Creek through a portion of the Roy's Redwoods Open Space Preserve. The proposed Roy's Redwoods Restoration Project is intended to decommission social trails, relocate segments of existing trails to remove them from sensitive areas[5], and upgrade existing trails to improve drainage and reduce erosion and sedimentation. The proposed project is also intended to improve hydrologic conditions and increase groundwater infiltration and storage throughout the valley floor through implementation of habitat restoration activities designed to create a wetland-channel complex, often referred to as Stage Zero channel conditions[6], along Upper Larsen Creek through the redwood forest in conjunction with the proposed trail closures and trail improvements.

The proposed project includes the following elements, which are introduced and summarized below. Each proposed project element is fully described in the Project Description section of this document, including definitions of key terms and concepts:

Trail Improvements

- Upgrade of 4,270 feet of existing trails to improve drainage and prevent future erosion and sedimentation to meet trail design standards of the RTMP.
- Upgrade approximately 1,900 feet of existing trails to meet Marin County Parks IAP standards for an Access and Discovery Trail[7].
- Realign 1,400 feet of existing trail segments to provide more sustainable trail connections to network trails and to improve trail drainage to reduce erosion and sedimentation.

Parking and Entryway Improvements

- Develop two new designated entryways and improve the existing entryway adjacent to Nicasio Valley Road.
- Relocate the existing porta-toilet out of the floodplain and closer to the existing entryway.

[5] Sensitive areas include stream crossings, wetlands, and heavily visited sites in the valley that are prone to compaction resulting in erosion and subsequent sedimentation to Larsen Creek.

[6] Stage Zero is a condition resulting from the interaction of physical and biological processes according to the Stream Evolution Model developed by Cluer and Thorne. Stage Zero conditions refer to a pre-channelization phase in which a stream valley is occupied by a forested wetland complex with many anabranching (interweaving) channels. Prior to anthropogenic disturbance, many stream systems in low-gradient alluvial valleys were characterized by Stage Zero conditions.

[7] The Access and Discovery Trail system is an experience-based network of trails that will provide varied and immersive user experiences broadly representative of the array of outdoor settings available within the MCOSD preserves. The term and concept are described in more detail in the Project Description section of this document.

- Install one inclusive access parking spot on the shoulder of Nicasio Valley Road.
- Reinstall fencing along the Nicasio Valley Road shoulder.

Social Trail Decommissioning

- Decommission approximately 3,750 feet of social trails located in sensitive areas utilizing passive methods, defined as allowing an abandoned segment of trail to naturally recover following elimination of public access. Passive trail closure areas have limited erosion and trail drainage problems and the surrounding area provides sufficient seed source to allow for natural revegetation to occur.
- Decommission six social trail segments, totaling approximately 2,715 feet of trail, located in areas prone to erosion and sedimentation using active methods. Active trail closure activities would use heavy equipment or hand tools to close trails to future visitor access and could include soil tillage and site recontouring to improve infiltration and drainage, improve revegetation success, and blend the decommissioned trail corridor back into the surrounding landscape.

Ecological and Hydrologic Restoration

- Rehabilitate approximately 77,170 square feet (1.77 acres) of heavy visitor use areas throughout the valley floor to reduce soil compaction and increase conditions for natural regeneration of vegetation.
- Halt development and persistence of incised channel[8] reaches of Upper Larsen Creek through the valley floor using large and small wood structures.
- Reestablish a multi-threaded wetland-channel complex, often called Stage Zero conditions to reconnect Upper Larsen Creek to its surrounding floodplain, reduce erosion, restore hydrologic functions, and increase infiltration and raise the groundwater table.
- Reorient existing fallen trees and downed branches and obtain and place additional logs, where needed, through the floodplain to improve natural hydrologic function by slowing and spreading water throughout the floodplain to allow flows to infiltrate into the soil.

Visitor Education

- Install new fencing and visitor information signage to notify visitors of closed trails and discourage development of new social trails.
- Construct a Nature Exploration Area and Scramble.
- Provide visitor interpretive services.

EXISTING SETTING

Project Location, Surrounding Land Uses, and Access

The project area is located within the 293-acre Roy's Redwoods Open Space Preserve at the headwaters of the east fork of Larsen Creek in the San Geronimo Creek watershed and the San Geronimo Valley, West Marin County near San Geronimo Village and the town of Woodacre, CA; as shown on Figure 1: Project Location. The primary entrance to the Roy's Redwoods Open Space Preserve is located on Nicasio Valley Road approximately 0.5 miles north of the intersection of Nicasio Valley Road and Sir Francis Drake Boulevard. It is surrounded by a large and mostly undeveloped parcel to the north and east; the San

[8] Incised channel is a stream channel in which the bed has become deeply eroded and, as a result, the stream is disconnected from its floodplain.

Geronimo Commons and French Ranch Open Space Preserve to the west; and the Maurice Thorner Memorial Open Space Preserve, San Geronimo Village, and San Geronimo Treatment Plant to the south. Access is also available from the Maurice Thorner Memorial Open Space Preserve using a private bridge and from the east using the Spirit Rock Trail.

The proposed project area within the Roy's Redwoods Open Space Preserve is located at the entrance along Nicasio Valley Road into the redwood grove in the valley floor as shown on Figure 2: Project Area, immediately north of West Nicasio Road.

Access to the project area would be from the north along Nicasio Valley Road from Sir Francis Drake Boulevard or from the town of Fairfax along Sir Francis Drake Boulevard to Nicasio Valley Road. There is very limited roadside parking along Nicasio Valley Road with no dedicated visitor parking within Roy's Redwoods Open Space Preserve.

Figure 1 shows the location of the Roy's Redwoods Open Space Preserve

Figure 2 shows the proposed project area within the Roy's Redwoods Open Space Preserve

Proposed Project Area Existing Conditions

The 19.5-acre proposed project area within the Roy's Redwoods Open Space Preserve encompasses the valley floor and includes approximately 16 acres of redwood forest, California bay forest, and oak woodlands; 2.9 acres of non-native grassland, and 0.7 acres of wetland. The majority of the visitors to the Roy's Redwoods Open Space Preserve spend their time in the valley, visiting specific sites within the redwood grove or completing a loop hike using a combination of established trails and social paths[9].

The redwood grove is located along the southern half of the valley and extends up the north facing slope of the adjacent ridge. The grove includes numerous old-growth trees, as well as large second-growth trees originating from logged or naturally fallen trees that have regrown over the past several centuries. Generally, the trees appear to be in good condition, with robust canopies and healthy foliage. In relatively undisturbed parts of the grove, there is a complex understory of natives including bay and maple trees, shrubs including snowberry and wood rose, and herbs like sword fern, false Solomon's seal, and sedges, as shown in Photo Set 1. Redwood saplings are also found in these undisturbed areas. However, the understory has been lost in many places due to trampling and compaction from visitors. Invasive species are rare in most of the grove; Himalayan blackberry is abundant along the lower reach of Upper Larsen Creek.

[9] Roy's Redwoods Visitor Use Survey. Parks Conservancy. 2018.

Photo Set 1. In Roy's Redwoods Open Space Preserve, the many informal trails and picnic areas result in loss of understory vegetation. In areas of high use, soil is compacted and devoid of organic debris. A healthy, structurally diverse native understory is present outside of heavily traveled areas.

Existing Trail Network and Visitor Use

The multi-use trail network on the Roy's Redwood Open Space Preserve connects to Maurice Thorner Open Space, French Ranch Open Space, Spirit Rock Retreat Center, Dickson Horse Ranch, and the San Geronimo Commons (formerly the San Geronimo Golf Course). There are 4.1 miles of designated network trails on the Roy's Redwood Open Space Preserve. Equestrian use is allowed on approximately 3.2 miles and 0.9 miles are open to bicyclists. Existing trails include Roy's Redwoods Loop Trail, Dickson Ridge Fire Road, David Hansen Trail, Meadow Trail, and an unofficial series of braided social trails through the valley floor and other destinations of interest. No changes in allowable uses would occur with implementation of the proposed project. Informal parking along Nicasio Valley Road serves as a trailhead, which includes a wayfinding sign, a screened porta-toilet, and trash receptacles. The Roy's Redwoods Loop Trail and the Meadow Trail and numerous social trails are located in the proposed project area.

The RTMP identifies the existing network trails in the Roy's Redwood Open Space Preserve as in fair or worse condition, with 2.35 miles in poor condition. A majority of the trails receive moderate or high use. The RTMP also describes potential hydrologic issues on the Roy's Redwoods Trail and Road System resulting from steep terrain, erosive soils, and numerous stream crossings. The RTMP specifically identifies gullies on segments of the Roy's Redwoods Loop Trail and the Dickson Ridge Fire Road. These trails are outside the proposed project area, with the exception of approximately 1,000 feet of the Roy's Redwoods Loop Trail that runs parallel to Nicasio Valley Road. The proposed project would address environmental issues in the most heavily visited part of the Roy's Redwoods Open Space Preserve. The poor existing condition resulting from high visitor use through the old growth redwood grove and along the Meadow Trail through the valley would be addressed with implementation of the proposed project. Issues along the Roy's Redwoods Loop Trail outside of the project area were previously addressed using Measure A funds in 2016.

The Meadow Trail is the system trail that takes visitors into the Roy's Redwoods Open Space Preserve and to the upland trails and redwood grove from Nicasio Valley Road as shown in Photo Set 2. The Meadow Trail is a quarter-mile, hiking-only trail that branches off the Roy's Redwoods Loop Trail near the Nicasio Valley Road trailhead and reconnects with the Roy's Redwoods Loop Trail just beyond the northeastern extent of the redwood stand. From the existing entrance, the trail passes by a wetland and through a meadow along the northern half of the valley. As a primary access route into the Roy's Redwoods Open Space Preserve, the Meadow Trail sees heavy use. During intense rainfall events the trail acts as a channel, eroding and transporting fine sediment to the lower wetland. It also stays muddy through much of the winter wet season while visitors continue to use the trail. Analysis of the existing Meadow Trail condition indicates

the alignment also intercepts sheet flows[10] that would normally reach the wetlands downslope, causing erosion and sedimentation issues downstream.

Photo Set 2. Meadow Trail takes visitors into the redwood grove. The photo at left is looking down valley. The photo at right is closer to the trailhead looking towards Nicasio Valley Road. The wetland is on the left in the photo. Note the muddy and rutted condition of the trail.

Numerous social trails have been established that fork off the Meadow Trail and the Roy's Redwoods Loop Trail to take visitors directly to trees of interest within the redwood grove, including the "Fairy Ring". The social trail network on the valley floor has created hardened pathways that crisscross the valley floor and prevent vegetation growth. The social trails also form overflow channels that accelerate storm water flows, cause sediment erosion and sediment transport, and reduce groundwater recharge. In addition, multiple areas within the redwood grove are sites of interest for visitors and these sites are commonly used for picnics and play as shown on Figure 3: Existing Hydrologic Conditions. Heavy visitor use has resulted in large extents of compacted soil and denuded understory vegetation. Several of the heavy use areas are located at critical hydrologic zones where Upper Larsen Creek and tributary stream channels enter or exit the valley, and the heavy use has altered the channels and their hydrologic functioning. Social trails provide year-round access through the valley floor.

Figure 3 illustrates visitor use and hydrologic existing conditions through the proposed project area

Fallen trees are routinely moved by visitors, and in some instances chainsaw cut, to keep them out of the stream channels and cleared from the social paths to provide continued access. Visitors also remove redwood branches from the valley floor to create forts and keep trails and picnic areas cleared. Where trees are not moved by visitors, new social trails develop over and around obstacles. These practices are detrimental to the natural hydrologic functioning of the redwood grove and valley's channel network.

The existing trail network in the Roy's Redwoods Open Space Preserve does not provide inclusive access. Visitors must traverse down a short, but continuous 8 percent grade trail to reach the Meadow Trail from Nicasio Valley Road. The trail then crosses a perennially wet area before reaching the open meadow. The trail surface does not provide an accessible means to use the trail network.

Parking and Trailhead

The current road shoulder along Nicasio Valley Road is approximately 10 to 12 feet wide and is used by visitors as informal parking to access the Roy's Redwoods Open Space Preserve. Visitors park on the east and west shoulders of Nicasio Valley Road and often cross the roadway to access the trailhead. This informal parking can accommodate approximately 24 vehicles at any one time. Based on observational

[10] An overland flow or downslope movement of water taking the form of a thin, continuous film over relatively smooth soil or rock surfaces and not concentrated into channels larger than rills.

anecdotal reports from MCOSD rangers and locals, visitor use increased to the Roy's Redwoods Open Space Preserve during the coronavirus pandemic as it did countywide during the same time period. The MCOSD conducted visitor use data collection over a four-week period in August 2021 to understand visitor use at Roy's Redwoods Open Space Preserve and results indicated an average of approximately 51 visitors per weekday and approximately 100 visitors per weekend day came to the Preserve. Parking along the roadway shoulder expanded with visitors parking further south along both sides of Nicasio Valley Road and, in 2020, the Marin County Department of Public Works installed no parking signs on the western side of Nicasio Valley Road for approximately 200 feet north from W. Nicasio Road to provide improved line-of-sight for residents when turning into and out of W. Nicasio Road. Visitors can still park along the shoulder away from the "no parking zone."

There is currently one designated entrance into the Roy's Redwoods Open Space Preserve in the proposed project area. Visitors park along Nicasio Valley Road and walk north along the roadway or they cross Nicasio Valley Road to reach the designated entrance. The existing trailhead has a wayfinding sign, a screened all-access porta-toilet and wash station, and garbage cans. The porta-toilet is currently located along a proposed re-aligned trail segment and would be relocated as part of the proposed project. The existing split-rail fencing along the roadway shoulder is in disrepair, and visitors often enter the Roy's Redwoods Open Space Preserve via unofficial paths where fencing has fallen rather than walking along the designated entryway.

Upper Larsen Creek and Tributaries

According to the Roy's Redwoods Hydrology Study[11], Upper Larsen Creek and several tributaries flow through the alluvial valley and redwood grove within the proposed project area. Upper Larsen Creek leaves the project area and flows under Nicasio Valley Road to Lower Larsen Creek. Upper Larsen Creek is formed and fed by multiple steep drainages that are cut into the ridges surrounding the valley in the Roy's Redwoods Open Space Preserve, as shown on Figure 4: Hydrologic Setting. The drainages on the north facing ridge are short and are swale-like in form. They only flow during periods of heavy rainfall, and the runoff enters the alluvial valley from the southern drainages as dispersed sheet flow. Streams draining the south and west facing slopes are much longer than those on the north facing slopes and have well-defined channels that flow seasonally during the winter and spring, as shown in Photo Set 3.

Figure 4 shows the drainages that flow into the alluvial valley

Photo Set 3. Representative photos of the drainages on the south-facing slopes. Note the vertical cut banks, which indicate recent incision, and the bedrock and coarse boulder bed material that indicates a relatively stable bed.

[11] Prunuske Chatham, Inc. 2018. Roy's Redwoods Hydrology Study. November.

Upper Larsen Creek and its tributaries transition out of the steep areas onto the more gently sloping alluvial valley in the proposed project area, where they naturally form alluvial fans[12] where coarse sediment is dropped out and the water spreads across the fan. During low flow periods, the water coming out of the tributaries percolates into the fan sediments and slowly recharges the alluvial valley's aquifer. During storm events, the higher velocity flows cut channels across and through the fan along the path of least resistance. Distributary channels[13] will persist and concentrate flow unless a downed log, tree, dense vegetation, or sediment berm is encountered, as shown in Photo Set 4.

Photo Set 4. Upper Larsen Creek where it flows into the redwood grove shortly after a winter storm event. Note that all flow is in a single channel and has high velocity and some turbidity. This area is heavily impacted by visitor use and the soils are compacted.

The northern and southern tributaries flow into the valley floor at the northern end of the valley and upper end of the redwood grove. The northern tributary, which is deeply incised, joins the Upper Larson Creek in the proposed project area just downstream of the Meadow Trail crossing. The southern tributary flows into Upper Larsen Creek outside the project area. Upper Larson Creek flows through the redwood grove near the southern edge of the valley. It overtops the banks during intense rainfall events, when water often flows down social trails in the valley; see Photo Set 5. An ephemeral channel[14] originating from two of the tributaries draining the southern ridge joins Upper Larsen Creek about halfway down the alluvial valley. The channel is entrenched[15] through this middle reach and several knick points[16] are moving up-valley.

[12] An alluvial fan is a fan-shaped mass of alluvium deposited as the flow of a river or stream decreases in velocity.

[13] A distributary channel is a channel that branches off from and flows away from the main channel.

[14] An ephemeral channel is a channel formed by water during or immediately after precipitation events in a typical year. Runoff from rainfall is the primary source of water for stream flow.

[15] An entrenched stream is a stream that flows in a narrow trench or valley cut into a relatively level upland.

[16] Knickpoints are small headcut type features within a channel that indicate a channel bed adjustment is occurring and bed erosion is deepening the channel.

Photo Set 5 (single). The northern tributary (right of photo) as it flows into the grove. The Fairy Ring Tree is behind the photographer. Note how deeply incised the channel is and that the ground is compacted and devoid of vegetation. The flow coming down the Meadow Trail on the left side of the photo is from one of the middle tributary's distributary channels.

Further downstream, downed trees divert Upper Larsen Creek flows, as shown in Photo Set 6. During high flows water ponds behind the logs and ultimately seeps under the logs, creating distributary channels and complex flow patterns with multiple high flow paths to the wetland on the western side of the valley and downstream to the end of the valley. These high flow paths often travel along social trails in the area.

Photo Set 6. Upper Larsen Creek around the valley-spanning downed redwood log. Clockwise from upper left: looking upstream at sediment fan upstream of the log, standing on log and looking downstream at the complex flow paths, looking upstream at the log and its rootwad, and looking upstream at the concentrated flow down the social trail.

When Upper Larsen Creek nears the downstream end of the valley within Roy's Redwoods Open Space Preserve, it joins the western tributary's incised channel. At this point it sheets across the valley bottom on compacted soils around the redwoods in this heavily used area of the Preserve. Flows cascade over the bank and exposed redwood roots where the western tributary enters the creek. Some flows that are diverted by downed logs into existing wetland ponds and flows slowly through the dense wetland vegetation, as shown in Photo Set 7.

The western tributary does not flow through the valley within Roy's Redwoods Open Space Preserve, but rather parallels Nicasio Valley Road after entering the Preserve at a culvert under the road. This tributary drains the ridge above Nicasio Valley Road's S-curve and crosses under the road in at least two locations. The channel may have been rerouted to the east when the road was put in. The channel has multiple rock grade control structures along its length. Several of the rock structures appear to be failing, most notable are those within a heavily used area near the confluence with Upper Larsen Creek.

Photo Set 7 (single photo). Upper Larsen Creek entering the western tributary channel that runs along Nicasio Valley Road (road is behind photographer; flow is from left to right). During rainfall events and higher flows Upper Larsen Creek enters this channel at multiple locations along the bank.

Alluvial Valley Conditions

The alluvial valley, with its complex of mature redwood grove, meadow, and wetland provides important hydrologic and ecosystem functions. It is hydrologically functioning to store sediment and water, metering these flows out over time and buffering downstream habitats from detrimental pulses sediment and water. Human activities along Upper Larson Creek and within the floodplain have impacted soils and vegetation, and altered stream system's form and resiliency.

As discussed in the Roy's Redwoods Hydrology Study, the alluvial valley within Roy's Redwoods Open Space Preserve functions much differently today than it did historically because of human use and its associated impacts[17]. Historically, the valley floor looked much different. Redwood trees would have covered the area, with patches of grassland and wetlands interspersed between the redwood stands. Fallen trees and branches would be scattered densely across the valley floor. A thick layer of redwood duff and organic material would form a mat over the rich soil. Understory vegetation, such as ferns, redwood sorrel, native blackberry, thimbleberry, and snowberry would grow lushly. The full balance of tree ages would be present, ranging from seedlings, to saplings, to mature old growth trees. Where the steep streams meet the valley floor they would form alluvial fans, dropping the coarse sediment and splitting into multiple small,

[17] Prunuske Chatham, Inc. 2018. Roy's Redwoods Hydrology Study. November.

transitory channels. Water would quickly infiltrate into the gravel and soil. Winter storms would still increase streamflow to the valley, but instead of concentrating into a single-thread channel that traverses the valley floor and transports most of the water and sediment downstream, the floodwaters would disperse across the valley floor; the water would slowly move down-valley through and around the vegetation, depositing the fine sediments carried from the hillsides and saturating the deep soil and alluvial valley fill. Low spots in the floodplain would be ponded through the winter and spring, providing critical early life-stage habitat for amphibians. The channel network would consist of multiple shallow channels that interconnected and wind their way around trees and downed logs. Channels would form, fill, and move location frequently. During the winter and spring wet season the valley would store water such that the volume of flow exiting the valley would be significantly less than the combined flow volumes entering the valley from the steep tributaries. Transitioning into the dry late spring and summer, the valley would release water downstream from what it had stored, even though the intermittent tributaries had dried up.

The existing channel network through the valley and the redwood grove still has elements of its historic hydrologic patterns and functioning. However, the decades of agricultural land use and park visitation activities has changed the landscape. Visitor gathering areas around favorite redwood trees and an extensive social trail system have compacted the soils and denuded the understory vegetation over large portions of the valley floor. This alteration of the ground surface conditions has led, over time, to the concentration and acceleration of flood waters down the valley and caused the erosion and creation of deep channels. Instead of a complex network of shallow channels across the valley, the northern and southern tributaries join and flow in a single-thread channel along much of its length. Upper Larsen Creek through the redwood grove, as well as the tributaries that feed it, are all incised and relatively disconnected from the floodplain. Only short portions of the channel network exhibit a multi-threaded, anastomosing[18], Stage Zero wetland-channel complex. The more hydrologically appropriate, multi-threaded, non-incised channel form is only found associated with, and in the immediate vicinity of, large downed trees, wetlands, and extensive redwood root structures that limit erosion.

Stream flows are concentrated in the incised sections, which leads to further channel deepening and bank erosion, as shown in Figure 3. Because high winter flows are now contained within a deep channel and not spreading across the valley floor as would have historically occurred, the extent and longevity of localized flooding is reduced. These changed conditions reduce groundwater infiltration and recharge. The volume of water stored in the valley is reduced and late spring discharges downstream are reduced. All of these changes negatively impact winter and spring habitat for fish and wildlife, especially amphibians that rely on pond features and moist conditions on floodplains, and salmonids in reaches downstream in Larsen Creek that need lower winter peak flows and higher spring base flows.

The proposed project would improve the hydrologic functioning of Upper Larsen Creek by stopping the incision process, filling incised channels, removing unmanaged public access from the floodplain, and decompacting soils in the most sensitive areas in the floodplain. Multiple knickpoints are found throughout the incised channels which indicates ongoing channel incision. There are also several headcuts, which are a steep transition point between incised and non-incised channel reaches. Many of the knickpoints and headcuts are hung up on tree root structures. If those trees fall, the knickpoints and headcuts will move upstream, deepening the channel and further disconnecting it from the floodplain and all the ecosystem benefits provided by a flooded valley floor. Incised channels also drain and lower the valley's water table, which can negatively impact the vitality and resiliency of the redwoods and other vegetation, especially during drought periods.

[18] Anastomosing channels are multithreaded channels. Anastomosing is commonly applied to alluvial rivers that are composed or two or more interconnected channels.

Sediment supply and delivery rates from the upper watershed are not excessive or above natural background levels. Visual evidence suggests that the upper tributaries recently went through a period of erosion but are now in a fairly stable form, having incised down to bedrock or large cobbles and boulders. Existing trails deliver some fine sediment[19] to the stream system during high intensity rainfall events. They also concentrate runoff. In particular, the Meadow Trail is a conduit for fine sediment from the upper portion of the valley down to the wetland near the Preserve entrance. The concentrated runoff flowing down the trail causes deep rills and scour holes to form in the trail and increases fine sediment delivery to the wetland. Rehabilitating the incised channels in the valley would improve the system's ability to store and process any delivered sediment and minimize downstream impacts.

PROJECT DESCRIPTION

The project is intended to provide a sustainable trail system that reduces the impacts of visitor use in environmentally sensitive areas while improving visitor experience within the old-growth redwood forest. The proposed Roy's Redwoods Restoration Project was designed to decommission social trails, relocate segments of existing trails to remove them from sensitive areas, and upgrade existing trails to improve drainage and reduce erosion and sedimentation. The proposed project is also intended to improve hydrologic conditions and increase groundwater infiltration and storage throughout the valley floor through implementation of habitat restoration activities designed to create a wetland/channel complex in Upper Larsen Creek through the redwood forest in conjunction with the proposed trail closures and trail improvements.

Implementation of the proposed project would improve trail conditions, restore habitat, and improve hydrologic function in Roy's Redwood Open Space Preserve to provide sustainable access and improve visitor experience, to restore healthy soil conditions and reestablish the native plant forest understory, and to improve sustainability and resiliency of the redwood forest within Roy's Redwoods Open Space Preserve. The dimensions of some trail features and hydrologic restoration elements discussed below may be refined during project implementation as needed to avoid tree removal and reduce potential impacts. The descriptions and impact analysis are based on maximum areas of potential disturbance.

Figure 5 shows the location of the proposed project elements and provides a project overview. Habitat restoration areas are shown on Figure 11 and the hydrologic restoration areas are illustrated on Figure 13

Designated Trails and Inclusive Access

The proposed project would reduce the number, extent, and use of trails by creating a sustainable designated trail network through the alluvial valley. The project would result in inclusive access to an immersive experience of the old growth redwood forest. The proposed project would increase the equitability of access to the Roy's Redwoods Open Space Preserve with construction of an Access and Discovery Trail as specifically identified in the Marin County IAP[20]. The Access and Discovery Trail system is an experience-based network of trails that provides varied and immersive user experiences broadly representative of the array of outdoor settings available within the MCOSD preserves. These trails within an old growth redwood grove would meet or exceed the technical standards for accessible recreational trails and incorporate the principles of Universal Design and Standard for Accessible Design contained in the Architectural Barriers Act *Accessibility Guidelines for Outdoor Developed Areas*[21] to accommodate the needs of users. Chapter 6 in the IAP describes the trail design characteristics needed to provide inclusive access, which include the following design criteria: firm trail surfaces would be maintained with minimal

[19] Fine sediment is normally comprised of loose sand, silt, and clay particles.
[20] The IAP is based on the principles of Universal Design to accommodate the needs of a range of users, which includes specification for trail surface, width, slopes, resting intervals, passing spaces, signage, and other amenities.
[21] 36 CFR Part 1191, published in the Federal Register on September 26, 2013, and supplemented with guidance documents produced by the US Forest Service and California Department of Parks and Recreation.

vertical obstacles, Access and Discovery trails would be cleared of overhanging vegetation to 60 inches, trail slopes would be no greater than needed to provide adequate trail drainage and alternative drainage means would be used where required to meet accessibility standards, and resting intervals and passing spaces would be provided to allow trail users to rest after vertical changes in elevation or to allow simultaneous passage all trail users.

Access and Discovery trails are intended to reflect national demographics and address the need to provide recreation opportunities to all members of the community. A survey of Americans between 21 and 64 identifies 16.6 percent of the population with having a disability[22]. Recreational trails and open space offer an important opportunity for people of all ages and abilities to experience nature, participate in physical activity, and explore their communities. The basic premise of inclusive design is that human abilities are distributed along a wide spectrum. An inclusive approach to design in open space areas would aim to make access safer and more comfortable for everyone, including older persons, persons without disabilities, and persons with disabilities. The IAP identified the need for an Access and Discovery Trail at the Roy's Redwoods Open Space Preserve.

Trail Re-alignments and Trail Improvements

The proposed trail network would include upgrades to approximately 6,170 linear feet of existing trail. In addition, approximately 1,400 linear feet of new or re-aligned trail segments would be constructed to provide more sustainable trail connections within the designated trail network, as shown on Figure 6: Trail System. In total, the new network of approximately 1.4 miles of trail would provide a sustainable replacement to the existing network of approximately 2.4 miles of formal trails and social trails for a net decrease of one mile of trail within the alluvial valley area of Roy's Redwoods Open Space Preserve. The proposed new trails would be constructed to meet design standards addressed in the RTMP with three trail types with varying levels of accessibility as illustrated on Figure 6. The three trail types would have the following characteristics:

1. Access and Discovery Trail[23]
    - Trail widths would be approximately 6 feet wide
    - Trail edging would be provided as needed depending on site specific conditions
    - Trail surfacing would be stable and firm
    - Trail slopes would accommodate all users with approximately 4 percent grades or less
2. Primary Trail Routes
    - Trails would be approximately 4 feet wide
    - Trails would weave round some downed trees and some larger downed trees would be cut to accommodate a trail
    - Slopes may accommodate all users; however, these trails would not have a conditioned firm surface.
3. Secondary Trail Routes
    - Trails would be approximately 3 feet wide
    - Trails would have low use by visitors
    - Trail surfaces would be natural with clearly defined edges

[22] 2013 Annual Disability Statistics Compendium, Disability Statistics and Demographics, Rehabilitation Research and Training Center

[23] The Access and Discovery Trail system is an experience-based network of trails that will provide varied and immersive user experiences broadly representative of the array of outdoor settings available within the MCOSD preserves.

- Trail surface may be elevated and uneven

Table 1: Proposed Trail Types presents the designated trails and trail types in the proposed project. Trail design and construction would be implemented in conformance with the Best Management Practices (BMPs) included in the RTMP.

Figure 6 provides an overview of the proposed trail network, accessibility level, and users

Table 1: Proposed Trail Types

Trail Type	Proposed Roy's Redwoods Open Space Preserve Trails
Access and Discovery Trail	Roy's Redwoods Loop Trail Upgrade and Extension, Fairy Ring Trail
Primary Trail Route	Ridge Trail, Mossy Rocks Trail, Forest Trail
Secondary Trail Route	Floodplain Trail, Scramble Trail

Roy's Redwoods Loop Trail Upgrade and Extension

To restore the hydrology and maintain a sustainable designated trail network, the existing Meadow Trail would be decommissioned and re-aligned to become part of the Roy's Redwoods Loop Trail, as shown on Figure 5. The proposed project would actively decommission 825 feet of the existing and unsustainable trail through the meadow, re-route 500 feet[24] of the of the trail to a more sustainable location and configuration near Nicasio Valley Road to improve trail grades, widths, surfacing, and drainage conditions, and upgrade 550 feet of trail. This proposed trail extension would be constructed to an Access and Discovery Trail standard and would provide inclusive pedestrian and equestrian access from the existing Preserve entryway on Nicasio Valley Road to the redwood forest.

The re-aligned trail segment would still maintain an experience of the meadow and its unique views of old-growth redwoods. The trail upgrades would be a part of a new network of designated all-inclusive access trails to connect the entryways to the prominent "Fairy Ring" location and the nature exploration area destinations within the redwood grove. The upgrade would include installation of an approximately 14-foot-long-equestrian boardwalk near the site of the existing Preserve entryway on Nicasio Valley Road. The proposed boardwalk is discussed in more detail in the Trail Bridge, Boardwalks, and Log Crossings section of the Project Description. Equestrian and pedestrian access would continue on the upgraded and re-aligned trail segments of the trail as illustrated on Figure 6.

Fairy Ring Trail

The proposed new Fairy Ring Trail would connect the new segment of the Roy's Redwoods Loop Trail to the "Fairy Ring" location and to the Nature Exploration Area as shown on Figure 5. This proposed trail would be constructed to an Access and Discovery Trail standard as shown on Figure 6. Pedestrians could use the Fairy Ring Trail; however, equestrians would not be allowed on this trail.

Scramble and Nature Exploration Area

The proposed project would include development of a log Scramble and Nature Exploration Area accessible from the Fairy Ring Trail as shown on Figure 5. The Scramble and Nature Exploration Area would be developed as a location for visitors to explore, build, and create. The area would be developed using natural materials available within the area including downed logs, log rounds, and loose sticks and branches. A segment of the Scramble would maintain visitors' ability to traverse a large downed log currently used as a

[24] Construction would include two individual trail segments; one segment would be 350 feet and the other 150 feet.

social trail. The area would continue to provide outdoor education opportunities and early childhood development activities in a location intentionally designed to limit impact to the old-growth redwood forest. Visitors would be able to move materials in this space without causing negative impacts on stream channels in the valley while “fort-building” and other such activities outside the Nature Exploration Area would be discouraged and dismantled. The designated Scramble Trail would replace an existing 325-foot social trail and would provide a linkage between the Nature Exploration Area and the proposed Boardwalk Loop Trail as shown on Figure 6. The new Scramble Trail would be constructed to a secondary trail route standard with an approximate wide of 3 feet with the trail weaving around trees and downed logs.

Boardwalk Loop Trail

The proposed project would include a construction of the Boardwalk Loop Trail to replace a series of social trails and to provide an inclusive experience of old growth redwood trees, see Figures 6 and 7. This loop would connect directly to a new inclusive access parking space, as discussed in the Parking Improvement section, and would connect to the upgraded segment of the Roy’s Redwoods Loop Trail. Trail construction would include the upgrade of approximately 800 feet of the existing social trail and construction of a new 255-foot boardwalk over the Upper Larsen Creek floodplain. The 800 feet of upgraded trail would be constructed to an Access and Discovery Trail standard. Downed logs along the upgraded trail would be reposition to accommodate trail construction as shown on Figure 7: Boardwalk Loop Train and Discovery Trail. The new boardwalk would range from 4 to 5 feet wide and would be fully accessible to provide inclusive access for visitors. The Boardwalk Loop Trail would be open to hikers only, and no equestrian use would be allowed as shown on Figure 6. In addition to the new Boardwalk Loop Trail, the proposed project would actively decommission 140 feet and passively decommission approximately 650 feet of existing unsustainable social trails in the area. Proposed trail decommissioning is discussed in more detail below.

Figure 7 shows the proposed Boardwalk Loop Trail and the Access and Discovery Trail

Ridge and Mossy Rocks Trails

An additional 1,050 feet of new designated trail would be constructed to provide sustainable access to the Upper Larsen Creek area and approximately 1,150 feet of unsustainable social trails would be actively decommissioned along the northern and southern tributaries, as shown on Figure 5. The new 500-foot Ridge Trail would re-align a 500-foot segment of the existing Meadow Trail to reduce impacts to the adjacent stream channel and continue to provide visitor access from the Forest Trail to the Roy’s Redwoods Loop Trail and further to the Mossy Rock area. The Ridge Trail would be constructed to a primary trail standard with an average grade of 9.7 percent along its length. The trail would provide access for hikers as shown on Figure 6.

The Mossy Rocks Trail would provide designated trail access to the Mossy Rock area, which is a key destination in the Roy’s Redwoods Open Space Preserve, to replace an existing social trail crosses in and out of the southern tributary of Upper Larsen Creek. The new Mossy Rocks Trail would redirect visitors out of the stream channel and off the steep, unsustainable segment of the existing social trail. The proposed project would re-align a 275-foot section of trail to provide safer, less erosive, and more sustainable visitor access across the southern tributary. A new approximately 30-foot-long span pedestrian bridge would be installed across the southern tributary. The bridge is discussed in more detail below. The Mossy Rocks Trail would have an average grade of about 6.6 percent along its length and would be constructed to the primary trail route standard. Together, the proposed Mossy Rocks and Ridge trails would continue to guide visitors to the Roy’s Redwoods Loop Trail and the Mossy Rocks area. A 500-foot section of social trail that visitors use to access the Roy’s Redwoods Loop Trail would be actively decommissioned along with an additional 500 feet of social trail along the southern tributary. Proposed trail decommissioning is discussed in more detail below and locations are shown on Figure 5.

Forest Trail Upgrades

The proposed project would improve trail drainage and improve conditions at existing wet area crossings of Upper Larsen Creek along 1,500 feet of existing social trail, referred to as the Forest Trail on Figure 5. Two approximately 15-foot span pedestrian boardwalks would be installed on the Forest Trail near the junction with the Ridge Trail to allow visitors to safely cross seasonally wet areas and Upper Larsen Creek without impacting the channel below, as shown on Figure 5. A 450-foot segment of existing social trail would be actively decommissioned to eliminate use and to guide visitors to the new network trail in the area. Several downed logs along the existing alignment would be repositioned to provide access and reduce the risk of new social trail development. The Forest Trail would be constructed to a primary trail route standard.

Floodplain Trail

An existing approximately 350-foot social trail would be upgraded to a designated trail connecting the Nature Exploration Area and the Forest Trail, as shown on Figure 5. The Floodplain Trail would include grading to create a stable earthen trail surface and would include installation of one approximately 10-foot long span and one approximately 15-foot long span pedestrian log crossings to provide visitors safe means to cross the branches of the creek without impacting the channel below. The Floodplain Trail would be constructed to secondary trail route standard.

Wayfinding Signage

New signage would be installed throughout the Roy's Redwoods Open Space Preserve to guide visitors and orient them to the formal trail network. New signage would be installed at each of the three entrances and at trail intersections to guide visitors. Signage would meet MCOSD standards.

Trail Use

Figure 6 presents the proposed trail system. The proposed project would not change existing trail use designations. Equestrian access would be maintained along the upgraded and new segments of the Roy's Redwoods Loop Trail. Equestrians could continue on the Roy's Redwoods Loop Trail, as access is currently provided. Multi-Use access, which includes non-motorized bicycles, would continue to be allowed on the Dickson Ridge Fire Road, which is outside the proposed project area.

Trail Bridge, Boardwalks, and Log Crossings

Trail Bridge (Mossy Rocks Trail)

The proposed project would include installation of a new footbridge as part of the Mossy Rocks Trail where the trail crosses the southern tributary of Upper Larsen Creek. The proposed bridge would be an approximately 6-foot-wide and 30-foot-long steel beam recreational bridge with wood decking and guardrails. Reclaimed redwood decks, guardrails, and posts would be used if available. The bridge's two abutments would each be 6 inches thick and 11 inches high cast-in-place concrete platforms placed on buried piles. A design team member would guide the final placement and construction of the concrete platforms; abutments would be placed outside the stream channel and above the top of the streambank. Large stones and fitted rocks would be placed around the footings at both approaches to the bridge. The abutments would be offset from the edge of the southern tributary of Upper Larsen Creek, and the bridge and bridge abutments would be located above the 100-year flood elevation. Materials for the proposed bridge would be hauled to the bridge location and assembled on site. The bridge location is shown on Figure 5.

Trail Boardwalks

The proposed project would include the installation of eight boardwalks, five as part of the Boardwalk Loop Trail, one along the Roy's Redwood Loop Trail, and two along the Forest Trail near the Ridge and Mossy Rocks trails. The boardwalks would be designed to improve visitor access and reduce visitor impacts through seasonally wet areas along the trails. All boardwalks would be constructed using wood decking

placed on steel plates/platforms that would be attached to cast-in-place concrete foundations. The proposed boardwalks would be four or five feet wide and constructed with cast-in-place concrete platforms placed at each end of the boardwalk and every five feet along the boardwalk to provide intermediate support. The platforms would be set vertically in the ground with helical piles to provide the necessary support for each structure and pea gravel would be placed around each support. The boardwalks would be constructed using wood beams connected with steel anchors to the platforms and wood curbs would be placed along the boardwalk edge. Neatly fitted stones would be placed at the threshold of each boardwalk as directed by a Landscape Architect.

Roy's Redwoods Loop Trail Boardwalk

A boardwalk would be constructed on the new segment of the Roy's Redwoods Loop Trail to provide equestrian and hiker access across the western tributary of Upper Larson Creek. The boardwalk would be located near Entryway 3 along Nicasio Valley Road and is illustrated on Figure 5. It would be approximately 14 feet long and 5 feet wide.

Boardwalk Loop Trail Boardwalks

The proposed Boardwalk Loop Trail includes seven segments of boardwalks, totaling 315 feet in length. The boardwalks would be either 4 or 5 feet wide depending on the location and specific site characteristics. The proposed boardwalks along the Boardwalk Loop Trail are shown on Figure 7.

The first series of boardwalks would begin at the Roy's Redwood Loop Trail near Entryway 3. A total of five boardwalks would be constructed across the floodplain and over a series of small channels and wet areas to guide visitors to the newly developed Scramble and the upgraded Forest Trail or for the Boardwalk Loop Trail. The 255 feet of new boardwalk would replace a series of social trails in the area. The social trails would be decommissioned and the site restored as shown on Figure 7.

A 20-foot-long, 5-foot-wide boardwalk would be installed at Entryway 1 adjacent to the inclusive access parking spot. This boardwalk would connect to the existing bridge over Upper Larsen Creek via a short segment of the improved Roy's Redwoods Loop Trail. The new boardwalk would provide visitor access to the upgraded Roy's Redwoods Loop Trail or the Boardwalk Loop Trail as shown on Figure 7.

An additional 40-foot-long boardwalk would be constructed near the existing bridge to provide access to the upgraded Boardwalk Loop Trail as shown on Figure 7.

Forest Trail Boardwalks

Two approximately 15-foot spans of boardwalk along the Forest Trail would provide visitor access across the northern and southern tributaries of Upper Larsen Creek. The boardwalks would be located along the existing trail where visitors currently step into the channel to cross the creek. The location of these proposed boardwalks are shown on Figure 5.

Floodplain Trail Log Crossings

One approximately 10-foot long and one approximately 15-foot-long span of pedestrian log crossing along the Floodplain Trail would provide visitor access across the Upper Larsen Creek. The boardwalks would be located along the existing trail where visitors currently step into the channel to cross the creek. The locations of these proposed log crossings are shown on Figure 5.

Parking Improvements

Roadway Shoulder Parking Improvements

The current roadway shoulder along Nicasio Valley Road is approximately 10 to 12 feet wide and is used as informal parking for visitors entering the Roy's Redwoods Open Space Preserve at the existing trailhead. The proposed project would construct minor improvements to the existing access parking area. Improvements would include minor grading and shoulder surfacing improvements to approximately 4,700

square feet of roadway shoulder; re-installation of 350 linear feet of split rail fencing; installation of 235 linear feet of wooden curb; and construction of two additional entrances to the Roy's Redwoods Open Space Preserve to improve visitor safety and access and to get visitors off the busy roadway quickly and safely. The curb and fencing would guide visitors to one of the three entrances while protecting resources in the area. These proposed improvements would not increase existing parking capacity along Nicasio Valley Road.

Inclusive Access Parking Spot

The proposed project would construct a new inclusive access parking spot on the shoulder of Nicasio Valley Road as shown on Figure 7. Construction would require minor grading to expand the road shoulder and surfacing with concrete to achieve ADA parking standards. This new inclusive access parking space would be constructed adjacent to southern-most newly constructed entrance and would connect directly to the Roy's Redwoods Loop Trail. The new parking spot would be constructed to meet inclusive access requirements to comply with the IAP. No other parking spaces would be formalized or designated as part of the proposed project. Parking availability would not increase or decrease with implementation of the proposed project.

Preserve Entryway Improvements

The proposed project would construct two new Roy's Redwoods Open Space Preserve entryways and upgrade an existing entryway from Nicasio Valley Road. The existing and two proposed entryways would improve visitor safety by providing multiple entry points that would allow visitors to safely exit their vehicles and quickly leave the roadway shoulder to gain access to the Preserve. The two proposed new entryways would also provide a means to discourage visitors from creating new social trails between the parking area and the designated trails in the Preserve, which would also reduce existing erosion and vegetation trampling.

The proposed new Entryway 1 would be constructed adjacent to the new inclusive access parking spot at the southern end of the project area. Development of this entryway would include a 20-foot-long boardwalk to provide trail access, (described above) previously under the Boardwalk Loop Trail Boardwalks description and shown on Figure 8: Entryway 1 - Inclusive Access.

The second proposed access point, Entryway 2, would include installation of new entryway, which may include boulder-lined stone entryway steps and is shown on Figure 9: Entryway 2. Along with the re-installation of the fencing along the roadway, installation of the stairway would prevent visitors from accessing the area in adjacent locations. This entryway would also include installation of trail edging, possibly made of a combination of boulders and logs, to guide visitors onto the Roy's Redwoods Loop Trail. Coarse woody debris would be placed to mimic a natural aesthetic setting and to protect the surrounding the forest floor from trampling by visitors to the Roy's Redwoods Open Space Preserve.

The existing access point, Entryway 3, would be upgraded as part of the proposed project. New aggregate base would be placed on the existing eight percent grade trail from the road shoulder to the valley floor, where it would join the Roy's Redwoods Loop Trail near the new 5-foot-wide, 14-foot-long boardwalk as shown on Figure 10: Entryway 3. The boardwalk is described in the Trail Bridge, Boardwalks, and Log Crossings section.

Figure 8 shows the entryway 1 designs and site rendering

Figure 9 shows the entryway 2 design, entryway steps, and site rendering

Figure 10 shows the existing entryway upgrade design, proposed porta-toilet location, and site rendering

Porta-Toilet and Trash Receptacles

The proposed project would relocate the existing porta-toilet and trash receptacles from their current locations near the existing trailhead to accommodate realignment of the Roy's Redwoods Loop Trail segment and to remove them from the floodplain. A new accessible porta-toilet pad would be constructed near the existing entrance along Nicasio Valley Road, between the new equestrian/pedestrian boardwalk and the road shoulder as shown on Figure 10. The new location would require minor grading to create a level surface for the relocated toilet. The trash receptacles and dog waste receptacles would be placed adjacent to the porta-toilet, similar to the existing set up.

Habitat Restoration and Trail Decommissioning

Habitat Restoration

The proposed project would rehabilitate approximately 77,170 square feet (1.77 acres) of heavy visitor use areas throughout the alluvial valley through a combination of low intensity mechanical decompaction of soils, duff and woody debris replacement, and revegetation efforts. The areas proposed for treatment are shown on Figure 11: Habitat Restoration Areas. Heavy use has resulted in large extents of compacted soil and denuded understory vegetation. Several of the heavy use areas are located at critical hydrologic zones where tributary stream channels enter or exit the valley, and the heavy use has altered the channels and their hydrologic functioning.

Figure 11 shows the proposed habitat restoration areas

Two heavy use areas would be treated as part of the proposed project through providing a clearly defined and sustainable trail network and implementing rehabilitation measures: 1) where Upper Larsen Creek comes out of the valley near the Roy's Redwoods Open Space Preserve entrance and joins the western tributary and 2) where the southern and northern tributaries enter the valley at the upper end of the redwood grove near the "Fairy Ring" tree. The following are actions that would be taken to restore these areas:

- Protect rehabilitated areas through placement of large logs to delineate areas undergoing restoration and discourage foot traffic.
- Decompact soil and replace ground cover in denuded areas.
- Revegetate heavy use areas with native species to discourage foot traffic. The planting would consist of native species that spread readily to provide greater cover in the valley floor, in areas of redwood understory, and along streambanks using a palate of native plant species, placed appropriately on the landscape as directed by a restoration ecologist or other restoration professional.
    - Azalea (*Rhododendron occidentale*)
    - Snowberry (*Symphoricarpos albus*)
    - Thimbleberry (*Rubus parviflorus*)
    - Wood rose (*Rosa gymnocarpa*)
    - California gray rush (*Juncus patterns*)
    - Common rush (*Juncus effusus*)
    - Dense sedge (*Carex densa*)
    - Redwood sorrel (*Oxalis oregano*)
    - Starry false lily of the valley (*Maianthemum stellatum*)
    - Sword fern (*Polystichum munitum*)
    - Wood strawberry (*Fragaria vesca*)

- Protect plantings through use of downed wood, signage, and/or temporary cages that will also protect from herbivory.
- Broadcast seed the decommissioned Meadow Trail:
    - Blue wildrye (*Elymus glaucus*)
    - California brome (*Bromus carinatus*)
    - California buttercut (*Ranunculus californica*)
    - California oatgrass (*Danthonia californica*)
    - Yarrow (*Achillea millefolium*)

Social Trail Decommissioning

The proposed project would passively close and actively decommission approximately 6,465 feet of social trails that are located in sensitive areas or are redundant to network trails that access the same area. Decommissioning of social trails would reduce trail density through sensitive areas and associated environmental impacts resulting from compaction, erosion, sedimentation, and denuded vegetation.

Passive Trail Decommissioning

Passive trail decommissioning would eliminate visitor use along existing approximately 3,750 feet of existing social trails that do not require stabilization or scarification of the trail surface to effectively close trail segments. The social trails identified for passive decommissioning locations are shown on Figure 12: Proposed Trail Treatments. Proposed passive trail decommissioning would include measures to disguise social trails to make it look like a trail was never there, to reduce visual openings of the old trail corridor, and to educate visitors about trail closures. Education would be used to help visitors understand why routes must be closed, and trail maps would be updated to remove all closed trail segments.

Passive trail decommissioning methods would include installation of physical barriers at trail entrances to eliminate use and disguise the trail. Physical barriers would include blocking the trail entrance with woody material to eliminate use and allow the area to recover naturally. Erosion control blankets may be used to cover bare soil and blend the closed social trail into the surrounding landscape to discourage visitor use. No heavy equipment would be used to close these trails, and passive closure activities would be accomplished by hand. Trail ruts may be filled with soil or mulch to blend with the surrounding area where needed. Passive decommissioning efforts may also include natural recovery to allow local vegetation to re-establish itself along abandoned sections of closed social trails. Natural recovery would be used where soil conditions are present to serve as a seedbed and in areas that have suitable native seed sources nearby. Active revegetation efforts may be used to augment natural recovery in areas where soil conditions or native seed sources are not sufficient to meet revegetation objectives, especially in areas with high visibility to visitors.

Figure 12 illustrates the locations of proposed passive and active trail decommissioning

Active Trail Decommissioning

Active trail decommissioning measures would be used to stabilize eroded sections of existing social trails and prevent future erosion, promote natural revegetation, and deter future visitor use. The proposed project would actively decommission approximately 2,715 feet of existing social trails. The social trails proposed for active decommissioning are shown on Figure 12. The proposed project would actively decommission and restore 825 feet of the existing Meadow Trail, which would be replaced through the construction of 500 feet of network trail that would be located in a more sustainable location. Approximately 450 feet would be decommissioned along Upper Larsen Creek along the valley floor, 500 feet along the northern tributary, and an additional approximately 800 feet along the southern tributary between the Forest Trail and Mossy Rocks to the Roy's Redwoods Loop Trail. An additional 140 feet would be decommissioned between upper Larsen Creek and the entrance area channel.

A combination of handwork supported with heavy equipment would be used to implement active trail decommissioning to recontour slopes, decompact trail tread, and install drainage features where appropriate given the site conditions along each trail segment. Equipment would likely include a mini excavator and small tractor. Active trail decommissioning would reestablish local drainage patterns, improve infiltration, promote revegetation, and blend the decommissioned trail corridor back into the surrounding landscape. The trail tread would be scarified, where needed, to reduce compaction, improve revegetation success, and enhance infiltration. Revegetation efforts would occur in locations where natural seed sources are not sufficient to meet revegetation objectives following decommissioning activities. Areas with local seed sources nearby would naturally regenerate. All trail decommissioning would be performed consistent with the BMPs detailed in the RTMP.

Monitoring Trail Decommissioning

The MCOSD maintains a monitoring program that would include regular inspections of decommissioned trails to evaluate the effectiveness of the trail closures and to inspect invasive species as described in the Operations Section below. The decommissioned trails at Roy's Redwoods Open Space Preserve would be incorporated into this monitoring program, which would identify locations where visitors are bypassing closed entrances, determine the effectiveness of revegetation efforts, and assess the effectiveness of trail drainage features. If monitoring indicates a trail decommissioning is ineffective or does not meet MCOSD objectives to reduce environmental impacts, the MCOSD would identify and implement remediation actions. Remediation action would include increased staff presence to enforce the closure and increased signage about the trail closure. Physical remediation actions may include fencing, obstructing with downed branches, or additional active revegetation efforts to improve conditions and additional erosion control efforts to help stabilize the area. Monitoring and remediation work would continue until the closed or decommissioned trail area shows no signs of public use and is stable, revegetated, and blends into the surrounding landscape.

Hydrologic Restoration

The redwood grove and adjacent meadow and wetland areas within the alluvial valley at Roy's Redwoods Open Space Preserve provide important ecosystem values and contribute benefits to downstream water quality and salmonid habitat. A large proportion of the stream segments within the valley bottom through the redwood grove are incised and largely disconnected from the floodplain as discussed in the Existing Condition section. See Figure 3 for locations of incised channel reaches and Figure 13: Upper Larsen Creek Hydrologic Restoration for an overview of the proposed hydrologic restoration work. The proposed project would include activities designed to increase the hydrologic functions and values and support their long-term persistence. Restoring hydrologic processes and functions within the alluvial valley would be intended to reduce erosion, store sediment on-site, improve groundwater recharge, and replace episodic peak winter flows through the depositional alluvial valley with slower flows that persist longer into the dry season. The proposed project would improve soils conditions, improve resiliency of the redwood forest ecosystem, and improve water quality for salmonid habitat downstream through implementation of the following actions:

- Restore conditions of the degraded channel reach below the entryway access points through installation of rock and log grade control structures.
- Restore incised channel reaches across the valley floor to multi-threaded channels connected to the valley floodplain and wetlands by creating wetland-channel complex or Stage Zero conditions using fill material consisting of alluvial material from within the project area and from other restoration activities in the watershed or from another source with gravels and fines suitable for introduction into the watershed.
- Relocate large down logs to slow overland water flow and allow water to infiltrate into soils.
- Install approximately 10 wood structures with downed logs salvaged from the site or using large woody material recovered by the Marin Municipal Water District at Kent Lake.

Figure 13 shows the proposed hydrologic restoration areas

Upper Larsen Creek

The Upper Larsen Creek channel is incised and is actively downcutting through the project area. The proposed project would restore Upper Larsen Creek through the redwoods from a downcutting channel to a stream-wetland-floodplain complex or what some refer to as a "Stage Zero channel" through the project area. The term "Stage Zero" describes conditions in which a stream valley is occupied by a forested wetland complex with many shallow and interweaving channels. The term comes from the Stream Evolution Model developed by Cluer and Thorne as depicted on Figure 14: Stream Evolution Model[25]. This Stream Evolution Model shows the stages of channel form and behavior that can occur in different landscapes and are affected by land use and management practices. Figure 14 illustrates a single-thread, sinuous channel form and a multi-threaded, wetland-channel Stage Zero network. In the Stream Evolution Model, Stage 1 and subsequent stages represents development of a single stream channel that transports most of the water flow through a stream valley, frequently resulting in incised[26] and erosive single-thread channels as water flow is concentrated as shown on Figure 15: Channel Types. Natural, undisturbed wetland and alluvial fan channels start out at Stage Zero and have the highest habitat and ecosystem benefits. A complex mosaic of channels and wetlands is expected to provide more diverse plant and wildlife habitat, allow for greater infiltration and storage of water, and result in a greater likelihood of sustaining wetlands into the future. With disturbance and human management actions that concentrate flow these channels will move through the stages of incision and widening and lose their ecosystem benefits[27].

In the context of stream restoration, the proposed project would encourage development of multi-threaded shallow channels by filling the incised and erosive single-thread channel. Energy dissipaters, including large woody material, help to slow down and distribute flow throughout the floodplain to dissipate the erosive forces of the increased floodplain flow. Over time, a fully connected stream-wetland-floodplain system is created, resulting in the creation of multi-thread channels connected to the floodplain to reduce erosion, restore hydrologic functions, increase infiltration and groundwater storage, and distribute sediment throughout the alluvial fan and floodplain. The intention is to "Slow it Down and Spread it Out."[28] Stage Zero wetland-channel complex restoration distributes flows across the interweaving channels within the floodplain, which reduces the water flow energy at any given point. This reduces excess sediment from depositing in downstream surface waters and creates a diverse habitat, benefiting aquatic and terrestrial species.

Figure 14 illustrates the stream evolution model

Figure 15 shows differing channel forms

The location of the proposed wetland-channel complex and other restoration components are shown on Figure 16: Hydrologic Restoration Areas. Creation of the wetland-channel complex would include placement of 650 cubic yards of fill soil and gravel into the incised channel starting at the confluence of the northern and southern tributaries downstream approximately 400 feet through the valley floor. Eight sill logs would be placed perpendicular to flow in the channel[29]. The 18- to 24-inch diameter sill logs would be placed across the channel and cobble would be placed by hand behind the logs on the downstream side to prevent

[25] Cluer, B. and Thorne. C. 2013. A Stream Evolution Model Integrating Habitat and Ecosystem Benefits. River Research and Applications. John Wiley & Sons, Ltd.
[26] An incised channel is one in which the bed has dropped and as a result, has become disconnected from its floodplain. Incised channels are often referred to as degraded channels.
[27] Roy's Redwoods Hydrology Study. 2018. Prunuske Chatham, Inc.
[28] LINK: Stream Restoration Dreams: Stage Zero
[29] A sill is a large log placed perpendicular to flow at a riffle within the stream to help stabilize the bed and channel. These logs also provide habitat for macroinvertebrates and shelter for aquatic species.

water piping under the log. Once the sill logs are placed, the incised channel would be filled with a 50/50 mix of alluvial gravel and soil, which would consist of imported alluvial material recovered from other restoration activities in the watershed or from another source with gravels and fines suitable for introduction into the watershed.

Figure 16 illustrates proposed locations for creation of wetland-channel complex also called a Stage Zero channel

A single diagonal double log in-channel structure would be installed in the channel in the middle of the wetland-channel complex, Stage Zero reach. This diagonal log structure would serve the same purpose as other log structures: slow high flows, push high flows out on to the floodplain, and promote sediment deposition and long-term sediment storage.

Following placement of fill in the channel, surface logs would be placed across the channel and throughout the valley to disperse and capture flows to promote infiltration into the forest floor and recharge groundwater in the area. Existing down logs and large woody material recovered by the Marin Municipal Water District at Kent Lake, logs sourced from DPW, PG&E, and other local projects would be used as surface logs. All logs are redwood. The surface logs would include both pooling logs and valley logs, as described below.

Logs would be placed at strategic locations throughout the valley floor to capture water that flows across the valley and allow for additional infiltration and create a pooling effect. The pool log structures would have two large logs placed in a v-formation. These logs would be anchored into the soil and buried about 4 to 5 inches. Native soil backfill would be placed and compacted behind the log to prevent piping and allow flows to pool behind the structure. Two pooling log structures would be constructed.

Logs would also be placed throughout the valley floor to intercept overland flows and direct them to desired locations to facilitate additional water infiltration. These logs would be placed on the valley floor surface with no gaps between the log and the valley floor. Minor surface grading or excavation may be required to ensure proper contact between the log and the ground. Determination of needed grading would be made on a case-by-case basis during construction. These logs would typically be placed at a 1 to 2 percent slope to achieve the desired flow direction as shown on Figure 17: Grade Control Log Typicals. Approximately twelve valley logs would be placed.

Figure 17 shows log grade control typical designs

Northern Tributary

The proposed project would repair an existing headcut in the northern tributary of Upper Larsen Creek in the channel below the northern proposed pedestrian boardwalk on the Forest Trail. A double log grade control structure would be constructed to arrest further downcutting, hold and elevate channel grade, capture sediment, and help restore the incised channel. Both logs in the structure would be approximately 30 inches in diameter. Rock would be placed on the upstream side of the structure and the downcut channel would be partially filled with a 50/50 mix of alluvial gravel and soil to create a 3 percent grade for the channel. Water would flow over the structure and into a plunge pool before flowing downstream into the main upper Larsen Creek channel. A double log grade control structure is shown on Figure 17.

Western Tributary (Entryway area)

The degraded channel at the lower end of the project area adjacent to the entry area, as shown Figure 18: Western Tributary Hydrologic Restoration, would be stabilized using a combination of rock and log placement to stop continued erosion and headcut expansion. The proposed project would include installation of a boulder cascade structure to provide grade control to stabilize the channel immediately upstream of the existing pedestrian bridge. The boulder cascade would be approximately 15 feet wide and 22 feet long. The channel depth would also vary along the cascade length. The existing channel would be

graded to accommodate placement of large rock on top of a layer of drain rock. The larger rocks would be placed using heavy machinery and would range from 30 to 36 inches thick. Voids between the boulders would be filled with smaller rock placed by hand. Compacted fill material would be placed in the channel immediately upstream of the cascade. The compacted fill would be placed over permeable material to provide a stable transition from the natural bed channel to the boulder cascade as shown on Figure 19: Boulder Cascade Grade Control. Half ton boulders would be placed at the lower end of the cascade to provide energy dissipation as the cascade transitions to the natural channel.

The area above the cascade along the channel would be stabilized through placement of a multi-layer fabric reinforced fill (FREF). The FREF would be constructed starting at the edge of the cascade and placed at a 2:1 slope. Erosion control blanket would be installed and planted with vegetation above the FREF to blend with the natural landscape. The FREF is shown on Figure 20: Fabric Reinforced Earth Fill (FREF).

Figure 18 shows proposed western tributary restoration

Figure 19 shows the proposed boulder cascade grade control structure

Figure 20 shows the fabric reinforced fill

Four log structures would be placed in the channel upstream of the boulder cascade to stabilize the channel and prevent future downcutting. These wood structures would serve to slow high flows, push high flows out on to the floodplain, and promote sediment deposition and long-term sediment storage and would be placed primarily below the ordinary high water mark (OHWM). A cross log grade control structure would be installed approximately 50 feet upstream of the boulder cascade. This cross log structure would be placed to intercept stream flow to slow down the water and allow sediment to settle and fill the channel. The large logs would be partially buried and anchored at a minimum of two locations to keep the logs in place and prevent movement downstream. A second cross log structure would be placed approximately 50 feet upstream to serve the same purpose as the one downstream. Two single log structures would be placed approximately 70 and 110 feet upstream of the second cross log structure. These single log grade control structures would be constructed by placing a large log across the channel and installing a low flow notch to have the structure serve as a weir. The 36-inch-diameter single logs would be placed on boulders and cobble sized material that would serve as an energy dissipater for water flowing over the structure. Similar to the boulder cascade, FREF would be placed above the structure to stabilize and revegetate the area.

Erosion Control

The MCOSD would implement erosion control on disturbed areas as part of the proposed project. Erosion control would include native erosion control seed mix and rice straw where appropriate to mulch disturbed ground. If there is ample residual dry matter, the MCOSD may collect this material and substitute it for seed and straw where available to cover the soil surface to reduce erosion potential. Erosion control would include installation of erosion control blanket along with straw wattles or coir logs[30] on areas where needed. Revegetation areas are shown on Figure 16.

Revegetation

Revegetation would be included as part of all trail decommissioning and new trail construction to stabilize disturbed areas and as part of social trail decommissioning strategies. Either active or passive methods would be used depending on the site and the revegetation objectives.

Passive/natural revegetation would be used along abandoned trail segments where existing conditions facilitate local, native vegetation to re-establish itself. Passive revegetation would be used where soil and

[30] Straw wattles are rolls of compressed straw, wheat, or rice. They are placed on disturbed soils along contours or at the base of slopes, inlets, and roadways to reduce soil erosion and runoff. Coir logs are densely packed coconut fiber rolls that are used to stabilize disturbed soils.

other site conditions allow for natural revegetation to occur without the need for manual seeding or planting of native vegetation and without the need for soil scarification or other manual planting techniques.

Active revegetation efforts would be used on disturbed sites to manually plant the areas with native seeds or plants. Active revegetation would occur in areas where site conditions following trail closure or new trail construction would leave the site prone to erosion or in areas where native seed sources are not present in sufficient quantities to allow for native vegetation to establish in the area.

Planting could occur immediately following trail decommissioning and new trail construction if weather conditions are adequate for new plant survival; otherwise, planting would occur in fall and early winter.

Signage and Public Education

The MCOSD proposes to increase trail signage to inform visitors of the need to remain on designated network trails to facilitate the success of trail closures and minimize the risk of new social trail establishment. Implementation of the education program for the proposed project would focus on resource protection. The MCOSD would produce educational signs and disseminate information through the MCOSD webpage, e-blasts, and social media accounts. The public education program would also include interpretive hikes on the Roy's Redwoods Open Space Preserve with the County Naturalist, and educational tabling events set up at trailheads, such as Coffee with a Ranger. These programs would be used at the Roy's Redwoods Open Space Preserve to inform users about conditions in the area and why social trails were closed.

Construction and Construction Access

Construction of the proposed project would implement the Road and Trail Standards and applicable RTMP BMPs. The RTMP is described in the Project Development section and the RTMP Policies and BMPs are included in Appendix A of this Initial Study.

Construction would begin after August 1 or after pre-construction surveys determined that sensitive species are not present in the project area or in areas potentially affected by construction activities. Construction related to water crossings and earthwork requiring use of heavy equipment would be limited to the dry season, generally May 15 through October 15 or as allowed through regulatory permits. Equipment with noise levels 20 dBA above ambient noise levels would not be used during nesting season for Northern spotted owl, February 1 through July 31, or before pre-construction surveys determine that sensitive species are not present in the project area. Construction would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m. Construction may take up to eight months over two dry season construction windows to complete.

Access to the project site for heavy equipment and materials would occur from Nicasio Valley Road. Two temporary construction loading/unloading areas would be used for unloading materials, with one site located along the existing roadway shoulder near the proposed inclusive access parking spot and the other located near the existing Roy's Redwoods Open Space Preserve entryway, as shown on Figure 21: Construction Access Plan. Two other temporary construction access sites for moving construction equipment in and out of the area would be required for the duration of construction. These temporary access sites would be located at the proposed new southern entry point and at the existing entryway. Within Roy's Redwoods Open Space Preserve, construction access would occur along existing trails, including the portion of the Meadow Trail and social trails proposed for decommissioning. Access would require equipment to cross along the beginning segment of the existing Meadow Trail through a perennial wet area. Either crane mat[31] or cobble fill would be temporarily placed along the trail to accommodate construction equipment access. The crossing material would be removed following construction, and a new equestrian/pedestrian boardwalk is proposed for the crossing location. Access and staging for the proposed

[31] Crane mat is a generic term used to describe a heavy equipment mat made of up large timbers or other structural material used to support large equipment to distribute the load and to provide stability.

hydrologic restoration, habitat restoration, trail construction and decommissioning, and bridge construction would occur along the existing Meadow Trail alignment, which would be decommissioned as part of the proposed project after completion of other construction activities. A small excavator and tractor would access in-channel work sites along the channel itself and within areas adjacent to the channel. Construction mats and tree protection measures would be used in locations as needed to protect resources.

Construction access to Upper Larsen Creek for proposed trail decommissionings, Scramble and Nature Exploration Area, and site restoration would occur from the Meadow Trail following a narrow route along a social trail across the valley as shown on Figure 21. The construction access routes would be decommissioned following construction. Crane mats or other construction matting would be placed on the route to prevent soil compaction. Erosion control and restoration planting would be used to repair any disturbance resulting from construction activities.

Figure 21 shows proposed construction access and protection plan with trail closures

Equipment would include excavators and an excavator with a masticator head, skid steer with mulching attachment, bulldozer, track truck skid loader, dump truck, chipper, ATVs, jackhammers, power saws, and other hand tools. Construction staging areas would be restricted to existing MCOSD roads and trails or other areas that would avoid any significant impacts on sensitive natural resources.

During construction, trails within the construction area would be closed to recreation for safety purposes. Visitors would be able to visit other areas of the Roy's Redwoods Open Space Preserve during construction. Off-limit areas would be clearly marked with temporary signs to notify the public that construction is in progress and the area is closed. Emergency access would be maintained during construction.

Operation and Maintenance

Post-Project Monitoring, Maintenance, and Remediation

After project implementation, the MCOSD would maintain the trails and facilities included in the proposed project. As the trails and facilities are designed to improve existing trail sustainability, the level of maintenance is expected to be low. Regular maintenance would include brushing of the trail corridor, maintaining the trail surface and drainage, and clearing fallen trees and trail obstructions as needed to maintain RTMP trail standards. As part of the proposed project, the decommissioned trail segments would be monitored to ensure revegetation is successful and to prevent continued use of the decommissioned trails. Corrective actions may be required to prevent access to the decommissioned trails.

The MCOSD maintains a monitoring program that includes on-going trail inspections, including closed and decommissioned trails. This allows for early detection of, and rapid response to, any trail issues including identification of areas that require corrective actions to protect resources, areas where visitors continue to access decommissioned trails or sensitive locations following project implementation, and areas in which trails require corrective action to maintain RTMP trail standards. The trails at Roy's Redwoods Open Space Preserve that are included in the proposed project would be incorporated into this monitoring program, which would evaluate the following:

- Locations where visitors are bypassing closed and decommissioned trails
- Effectiveness of trail closures
- Effectiveness of passive and active revegetation efforts
- Effectiveness of trail drainage features
- Effectiveness of the formalized channel crossings and boardwalks at focusing visitor access

- Changes in trail conditions at surrounding preserves including the Maurice Thorner and French Ranch Open Space Preserves using established photo-monitoring points
- Changes in informal parking along the shoulders of Nicasio Valley and West Nicasio roads by photo-monitoring

In addition to the on-going trail inspections, post-project monitoring would include:

- Visitor use cameras would be installed for a four-week period in years 1, 2 and 5 after project implementation to capture visitor use trends. One camera would be placed on the Roy's Redwoods Loop Trail to capture visitor use data for visitors to the Roy's Redwoods Open Space Preserve accessing the area from Nicasio Valley Road.

If monitoring indicates trail closures and decommissioning is ineffective or does not meet RTMP objectives to reduce environmental impacts, the MCOSD would identify and implement corrective actions. Monitoring and corrective actions would continue until RTMP trail standards are achieved. Corrective actions at Roy's Redwoods Open Space Preserve could include any or all of the following:

- Increased visitor education signage regarding the reasons for the trail closure
- Installation of additional access deterrents such as logs, and fencing
- Increased ranger presence to enforce the closure
- Installation of cameras to help with law enforcement efforts
- Additional revegetation efforts to establish native plant understory
- Additional erosion control efforts to help stabilize the area

Additional corrective actions outside of Roy's Redwoods Open Space Preserve could include any or all of the following:

- Trail and roadway improvements for trails in Maurice Thorner and/or French Ranch Open Space Preserves
- Installation of "people crossing" advisory signage on Nicasio Valley Road
- Installation of additional "No Parking" signage and/or prohibitive parking boulders along Nicasio Valley or West Nicasio Roads
- Coordination with the Marin County Sheriff office to enforce parking regulations on Nicasio Valley and West Nicasio Roads

Permits and Approvals

The proposed project would require the following permits and approvals, and the MCOSD would obtain the necessary permits prior to construction:

- U.S. Army Corps of Engineers, Section 404 of the Clean Water Act
- San Francisco Bay Regional Water Quality Control Board, Section 401 of the Clean Water Act and the State of California's Porter-Cologne Water Quality Control Act
- California Department of Fish and Wildlife, California Fish and Game Code Sections 1062 – 1603: Lake or Streambed Alteration Agreement
- Marin County Encroachment Permit and Creek Permit

PROJECT DEVELOPMENT

Planning and Site Assessment, Site Analysis Technical Memo

In 2014 a Memorandum of Understanding establishing the One Tam partnership, formerly known as the Tamalpais Land Collaborative, was signed by the four land management agencies charged with stewarding Mt. Tamalpais including the National Park Service, California Department of Parks and Recreation, Marin Municipal Water District, MCOSD, along with the Golden Gate National Parks Conservancy (Parks Conservancy). Through a prioritization process, One Tam established a list of priority projects that the partners would collaboratively undertake which included the proposed Roy's Redwoods Restoration Project with the goals of protecting the diverse biological resources of the site, improving hydrologic function, preserving the rich history of the landscape, and providing access and amenities for visitors to enjoy Roy's Redwoods into the future. Since the spring of 2017, the Parks Conservancy and the MCOSD have led a multi-agency team through scoping and project design.

Marin County Parks and Parks Conservancy staff assessed the area between 2017 and 2018 and presented recommendations in the Roy's Redwoods Open Space Preserve Site Analysis Technical Memo November 2018[32]. The technical memo includes descriptions of the bio-physical site characteristics and the historical, cultural, and recreational planning context. It also includes the results of a visitor use survey, a literature review, a series of technical workshops, site inventory and mapping, and community engagement. This early project planning phase helped to ground the project in the best available science, and gain understanding of community values and visitor use.

Through this site analysis process, the project team defined "Restoration of Roy's Redwoods" to more specifically mean restoring the degraded hydrologic function of the alluvial valley and habitat of the old growth redwood forest. Key to this understanding was the hydrologic assessment conducted by Prunuske Chatham, Inc that detailed the degraded conditions and opportunities for improvements to hydrologic processes and function[33]. In addition to the visitor experience benefit, the site analysis process helped confirm that providing a comprehensible trail circulation system through the redwood stand would be a critical element to successful restoration.

Additional Project Outreach

The MCOSD conducted a number of public information meetings, workshops, and field walks between March 2017 and November 2020. The primary purpose of these meetings was to inform stakeholders about project concepts to improve public access and restored the hydrologic function of the valley floor through the redwood forest and to collect public input about the project.

Subject Matter Experts Workshop

The MCOSD and One Tam hosted a subject matter expert workshop to develop an initial site inventory, identify opportunities and constraints, and provide guidance to the project team on areas to focus further study. The workshop was held on May 9, 2017 and included staff from private organizations, local, state, and federal agencies. A primary outcome of the meeting was identification of the need to understand the hydrology of upper Larsen Creek and its relationship to important habitat downstream and identification of hydrologic restoration opportunities.

Stakeholder Workshop

The MCOSD and One Tam held a stakeholder workshop on August 2, 2017 to introduce the project and project goals, share work completed to date, and to gather additional knowledge of the site. Participants were asked to contribute knowledge and ideas regarding biological resources, visitor circulation, visitor

[32] One Tam. 2018. Roy's Redwoods Open Space Preserve Site Analysis Technical Memo. Draft. November 9, 2018.
[33] Prunuske Chatham, Inc. 2018. Roy's Redwoods Hydrology Study.

experience, and visitor uses. This workshop confirmed that resource protection, habitat restoration, and an improved visitor experience was desired by stakeholders. Along with identifying key visitor destinations, the workshop established that the lack of a formal trail system is understood to be detrimental to biological resources but also degrades the visitor experience. Participants expressed the importance of retaining access to Roy's Redwoods for local schools and environmental education opportunities.

Bioblitz 2017

On March 25, 2017, 23 volunteers of all ages came to the Roy's Redwoods Open Space Preserve for the first One Tam Bioblitz of 2017. Along with staff and interns from the MCOSD, the Parks Conservancy, and the Marin Municipal Water District, the group divided into teams to survey four areas including grasslands, meadow, redwood forest, and mixed evergreen forest.

Roy's Redwoods Walk & Talk with Jean Berensmeier

On November 4, 2017, staff from the MCOSD and the Parks Conservancy teamed up with Jean Berensmeier to lead a site visit and short hike at Roy's Redwoods Open Space Preserve. The project team introduced the effort to study restoration and visitor experience improvement opportunities at Roy's Redwoods Open Space Preserve.

Roy's Redwoods Field Day

On May 12, 2018, staff from the MCOSD and the Parks Conservancy hosted an on-site workshop which was advertised to the community. Approximately 30 community members attended the event. The project team discussed the project, presented the findings of the visitor use survey and site-analysis to date, and engaged the attendees in conversation about the project, knowledge of the site, and ideas for enhancement. A hydrologist from Prunuske Chatham, Inc. also presented preliminary findings of the hydrology study and impacts to the hydrologic function from visitor use. Finally, a National Park Service interpretive ranger and naturalist led the group on a walk through a portion of the redwood grove identifying natural resources present and discussed challenges with balancing resource protection and visitor experience of the redwoods.

Feedback was solicited informally from the attendees by the project team throughout the day. A consensus was heard with support for a project that restored the hydrologic function of the site, improved protection of the biological resources, and enhanced the visitor experience of the redwood forest while minimizing visitor impacts.

Community and Public Meetings

The MCOSD and the Parks Conservancy hosted a community meeting on July 31, 2019 to present the draft concept plan to interested members of the public. The project team introduced ideas for restoring the hydrologic function of the alluvial valley, improving redwood forest and wetland habitats, and guiding visitors through the immersive and inclusive access experience of the redwoods. The meeting was designed to gather feedback on initial project concepts. One Tam followed up with emails to the project stakeholder and community email list to provide a draft project map and a link to the information presented at the community meeting. One Tam distributed the email on August 7, 2019.

Environmental Roundtable

The Environmental Roundtable is a forum facilitated by the MCOSD and includes two representatives from each of the following environmental organizations: California Native Plant Society, Sierra Club, Friends of Corte Madera Creek, Marin Conservation League, Environmental Forum of Marin, and Marin Audubon Society. The purpose of the Environmental Roundtable is to facilitate a natural resources focused discussion and exchange of ideas between the MCOSD and members of the community as it relates to

natural resources management and project development. The proposed project has been presented at Environmental Roundtable meetings regularly between 2019 and 2022.

Marin County Parks and Open Space Commission

The Marin County Parks and Open Space Commission advises the Marin County Board of Supervisors regarding parks and open space policy and conducts public hearings on parks and open space matters considered for recommendation to the Board when appropriate. There are seven members appointed by the Board of Supervisors, each having demonstrated expertise and interest in subject areas and disciplines beneficial to the county's provision of parks and open space stewardship, facilities, programs, and services. The MCOSD staff presented the proposed project to the Marin County Parks and Open Space Commission on September 19, 2019 and September 15th, 2022.

Marin Project Coordination Meetings

Marin Countywide Stormwater Pollution Prevention Program holds monthly project coordination meetings designed to review and guide projects through the environmental and regulatory permit process. These meetings are intended to provide a forum for interaction and input, not public comment or regulatory action. The MCOSD presented the proposed project at a Marin Project Coordination meeting on May 2, 2019 and hosted a site visit for regulatory agency staff on June 3, 2019 to provide the participants with information on the project and project background. The MCOSD also presented the Stage 0 hydrologic restoration concept on February 6, 2020.

Neighborhood Outreach

The MCOSD and the Parks Conservancy presented the project to the San Geronimo Planning Group on May 12, 2022 with a follow-up site visit a couple weeks later. MCOSD presented the proposed project to the Marin Conservation League in October 2022.

The MCOSD and the Parks Conservancy made presentations about the project to the San Geronimo Valley Stewards and the French Ranch Home Owners Association on November 9, 2020 and December 2, 2020 respectively. The meeting involved discussions regarding the recent increase in visitation, visitor use impacts, and parking. Discussions also included restroom limitations, groundwater and streamflow data collection, construction impacts, and funding.

The MCOSD met with local environmental educators on November 11, 2019 to discuss the plans and to collect feedback.

Federated Indians of Graton Rancheria

On November 10, 2020 Evans & DeShazo, Inc. Archaeology and Historic Preservations submitted a request to the Native American Heritage Commission (NAHC) for a sacred lands inventory and Native American contacts list for the proposed project. The NAHC responded on November 18, 2020 concluding that the sacred lands file inventory was negative for the presence of sacred sites within or near the project area and recommend that the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Indian Rancheria (GIR) be contacted to request further information about Native American traditional cultural resources within or near the project area that could be affected by the proposed project and to inquire about Native American issues related to the proposed project. Evans & DeShazo contacted the FIGR and the GIR on December 1, 2020 and did not receive responses from either tribe.

The MCOSD staff provided notification of the proposed project to the FIGR the GIR, and the Coast Miwok Tribal Council of Marin (CMTCM) on July 19, 2021 and asked if a consultation process pursuant to California Assembly Bill 52 should be initiated. The notification satisfies RTMP BMP Cultural Resources-3: Tribal Consultation. FIGR provided an email confirming receipt of this notification but no further comments and did not respond to the MCOSD’s request to meet. The GIR did not respond. The CMTCM provided a

response including a formal AB52 request from our Tribal Council designating a contact person to consult on the proposed Roy's Redwoods Open Space Preserve Restoration Project but did not follow up with the MCOSD's request to meet. The MCOSD will include the FIGR, the GIR, and the CMTCM in the public notice for public review of this Initial Study.

Project Development Studies and Reports

MCOSD Authority, Mission, and Leadership

The MCOSD is an independent legal entity and a special district operating pursuant to the California Public Resources Code, with the following mission:

> We are dedicated to educating, inspiring, and engaging the people of Marin in the shared commitment of preserving, protecting, and enriching the natural beauty of Marin's parks and open spaces, and providing recreational opportunities for the enjoyment of all generations.

A five-member Board of Directors oversees the MCOSD operations. A seven-member Parks and Open Space Commission advises the MCOSD Board of Directors on policy matters related to acquisition, development, funding, management, and operation. The MCOSD's Director and General Manager oversees the day-to-day operations.

MCOSD Governing and Guidance Documents

The MCOSD is subject to the following governing and guidance documents:

- Marin County Strategic Plan, 2001
- Policy Review Initiative, 2005
- Marin Countywide Plan, 2007
- Marin County Department of Parks and Open Space Strategic Plan, 2008
- Marin County Fire Management Plan, 2008
- Marin County Integrated Pest Management Ordinance, 2009
- MCOSD Road and Trail Management Plan, 2014
- MCOSD Vegetation and Biodiversity Management Plan, 2015
- MCOSD Inclusive Access Plan, 2016

Road and Trail Management Plan (RTMP)

On December 16, 2014, the MCOSD Board of Directors approved the Road and Trail Management Plan (RTMP) and certified its program Environmental Impact Report (EIR)[34] (MCOSD, 2014a and 2014b). The RTMP is a science-based comprehensive management plan to guide the MCOSD in the:

1. Establishment and maintenance of a sustainable system of roads and trails;
2. Reduction of environmental impact from roads and trails on natural resources; and
3. Improvements to visitor experience and safety.

The RTMP incorporates existing policies from the Countywide Plan and the MCOSD's Policy Review Initiative and therefore, a project that is consistent with the RTMP is also consistent with the Countywide Plan. Additionally, it identifies 34 new policies that govern the MCOSD's road and trail system. The intent of these policies is to reduce the environmental impact from the roads and trail system and to improve the recreational experience. In addition to these policies, the RTMP defined several best management practices

[34] State Clearinghouse Number 2011012080

(BMPs) to reduce resource effects from any road and trail projects. Appendix A includes the RTMP Policies and BMPs. Within the body of the CEQA Checklist, the specific RTMP BMPs applicable to implementation of the proposed project are identified.

The RTMP covers six regions within Marin County, and 34 open space preserves. Region 2, which includes the project site, covers the open space preserves listed below:

- French Ranch
- Maurice Thorner Memorial
- Roy's Redwoods
- Gary Giacomini
- Loma Alta
- White Hill
- Cascade Canyon

The MCOSD developed the RTMP over the course of four years based on extensive outreach and public input. After adoption of the plan and consistent with the RTMP's *Policy SW.2: System Roads and Trails*, the MCOSD initiated a process to designate a system of roads and trails in all existing open space preserves. The roads and trails eligible for consideration must have existed as of November 2011, which is when the MCOSD completed a report on the condition of the existing roads and trails. The designation of a formal road and trail system is proceeding on a regional basis. Roy's Redwoods Open Space Preserve is located within Region 2. The road and trail designation for Region 2 occurred in late 2015. The Region 2 Designation Workshop was held on October 3, 2015. Following the workshop, the public had an opportunity to view and comment on the proposed road and trail system for Region 2.

Figure 22 shows the MCOSD Preserves by RTMP Region

Figure 23 shows the Region 2 trail designations

Inclusive Access Plan (IAP)

The Inclusive Access Plan (IAP) was finalized in July 2016. The IAP is a guidance document focused on improving the MCOSD trail accessibility and increasing the equitability of access to visitors of all abilities, developed with a public engagement process that included open houses, focus groups, workshops, and review of the IAP. The IAP is a supplement to the RTMP and helps to guide the accessibility component of trail-planning efforts. It includes:

- An evaluation of the existing inventory of pedestrian trails, the identification of an initial system of Access and Discovery Trails, providing access for users of all abilities to experiences in a variety of natural settings and a framework for expanding an Improved Access Trail system
- A review of and recommendations for policies and procedures, including the use of service animals, mobility devices, and visitor amenities in MCOSD open space preserves
- Recommendations for methods of communicating information about trails and trail conditions
- Design guidelines and standards that incorporate inclusive design principles and accessible elements in new construction and reconstruction of existing open space trails

As required by the IAP for trail redevelopment projects, the MCOSD completed a Trail Accessibility Standards analysis for the proposed Project relative to the applicability of accessibility standards as defined by the Architectural Barriers Act Accessibility Guidelines for Outdoor Developed Areas. The conclusion of this analysis was that the proposed Project would meet the accessibility trail design guidelines and is fully compliant with the IAP. The IAP identified an Access and Discovery Trail for the Roy's Redwoods Open Space Preserve.

Vegetation and Biodiversity Management Plan

The MCOSD developed the Vegetation and Biodiversity Management Plan (VBMP) in April 2015 to be implemented along with the RTMP. Its primary purpose is to provide comprehensive, long-term guidance for a new science-based approach to vegetation management that will:

1. Maintain the natural biodiversity of the vegetation within the preserves
2. Maintain patrol, emergency and public access, and
3. Manage fuel loads to reduce the threat of natural and human-caused fires.

The VBMP is not a prescriptive plan but rather it is a tool for decision-making associated with vegetation management projects on MCOSD lands. As part of this effort, the MCOSD classified vegetation within each of the 34 preserves into four management zones based on the ecological and/or cultural importance of distinctive vegetation types, the condition of resources in particular locations, and the proximity of particular locations to urban or suburban areas. The four management zones include:

Legacy Zone. The legacy zone includes lands that support unique or irreplaceable remnants of natural biological diversity, along with other vegetation types with high biological value. The habitats for plants that have been identified as threatened, endangered, or rare in the world, the nation, the state of California, or Marin County are included in this zone, along with wetlands and selected upland vegetation types, including redwood forest, serpentine grasslands, and chaparral. Also included are habitats and vegetation types that are at the boundaries of their geographic distributions and that may be important to detecting, and managing for adaptation to, the effects of climate change. Native vegetation in this zone remains largely intact and free of invasion by nonnative plants. Because of their rarity and ecological importance, many species and vegetation types within this zone are protected by federal and state laws and regulations, or by other initiatives, such as the Upland Habitat Goals Project. The legacy zone will serve as a sanctuary for natural resources that otherwise could be permanently lost from Marin, California, and the world.

Sustainable Natural Systems. The sustainable natural systems zone includes lands that are valuable for ensuring the ecological resiliency of natural systems and the associated character of Marin County. Lands in this zone, which generally form a natural buffer around lands in the legacy zone, include corridors supporting wildlife movements and potentially the movements of species adapting to climate change, areas of refuge for species living within or migrating through Marin County, and vegetation types that are not considered as biologically valuable as those included in the legacy zone, but that are still considered “hot spots” in terms of relatively high species diversity. Lands in this zone contain only minimal infrastructure, and the vegetation types are relatively free of invasive species.

Natural Landscape Zone. The natural landscape zone includes lands that support native plants and natural vegetation types that are typical of Marin County landscapes. These common vegetation types, while not legally protected or recognized as rare, provide valuable habitat for a diversity of local native species. They contribute to the beauty of Marin County landscapes and add to the ecologically rich natural communities and scenic vistas that define the MCOSD preserves. Vegetation within the natural landscape zone often provides important common oak and other woodland vegetation types, and coastal scrub. While this zone is more infested with invasive plants than the legacy and sustainable natural systems zones, it still provides valuable connectivity and important habitat for common wildlife and plants.

Highly Disturbed Zone. The Highly Disturbed Zone includes lands that provide essential services, such as fire protection, access to the MCOSD open space lands, and in many cases is within the state defined Wildland Urban Interface. While these lands are also important to the enjoyment and protection of the natural diversity of Marin County, their management is influenced by their role in preventing the movement of fire between residences and open space lands, transmitting utilities, such as electrical power and water lines, to nearby communities, and facilitating visitor access. Due to high human use and disturbance, this

zone is prone to invasive plant infestations; plant diseases and pathogen outbreaks; and neighboring land influences, such as trespass, predation by domestic pets, green waste dumping, and the introduction of garden plant escapees.

Roy's Redwoods Open Space Preserve is classified as consisting of all four management zones Legacy Zone, Sustainable Natural Systems Zone, Natural Landscape Zone, Highly Disturbed Zone. The majority of the proposed project would occur within the Sustainable Natural Systems and Legacy Zones. The relative acreage of VBMP Management Zone classifications for Roy's Redwoods Open Space Preserve and the project area are shown in Table 2.

Table 2: VBMP Management Zone Relative Acreages in Roy's Redwoods Open Space Preserve

VBMP Classification Zones	Acres in Roy's Redwoods Preserve (acres)	Relative Percent (%)	Acres in Project Area (acres)	Relative percent (%)
Legacy	50.3	17.9	7.6	39.6
Sustainable Natural Systems	189.1	67.1	11.6	60.4
Natural Landscape	42.3	15.0	0	0
Highly Disturbed	0	0	0	0
Totals	**281.7**	**100**	**19.2***	**100**

*0.3 acres in the project area a located along the shoulder of Nicasio Valley Road

Figure 24 shows the Region 2 VBMP classification

Figure 1: Project Location

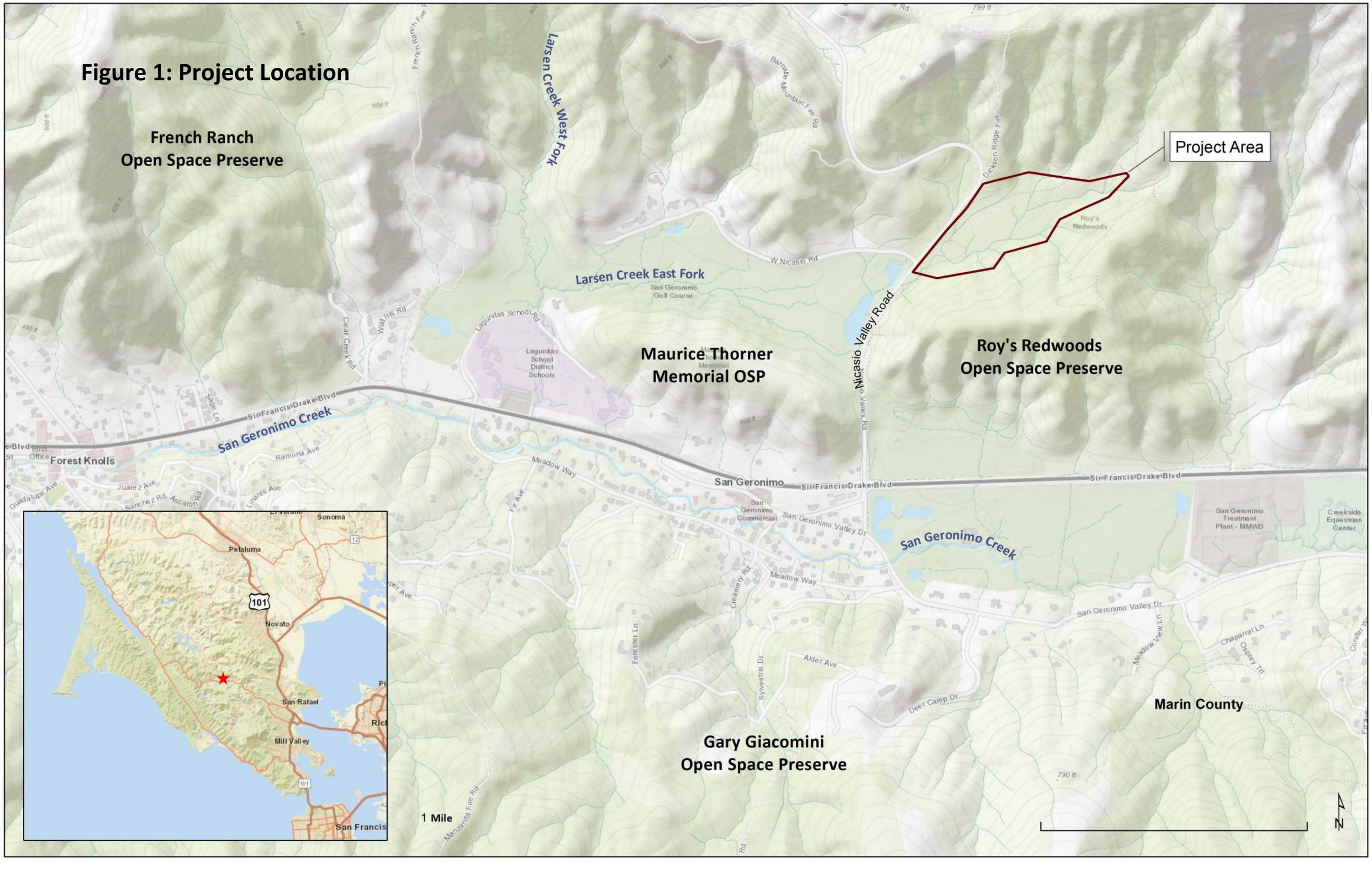


Figure 2: Project Area

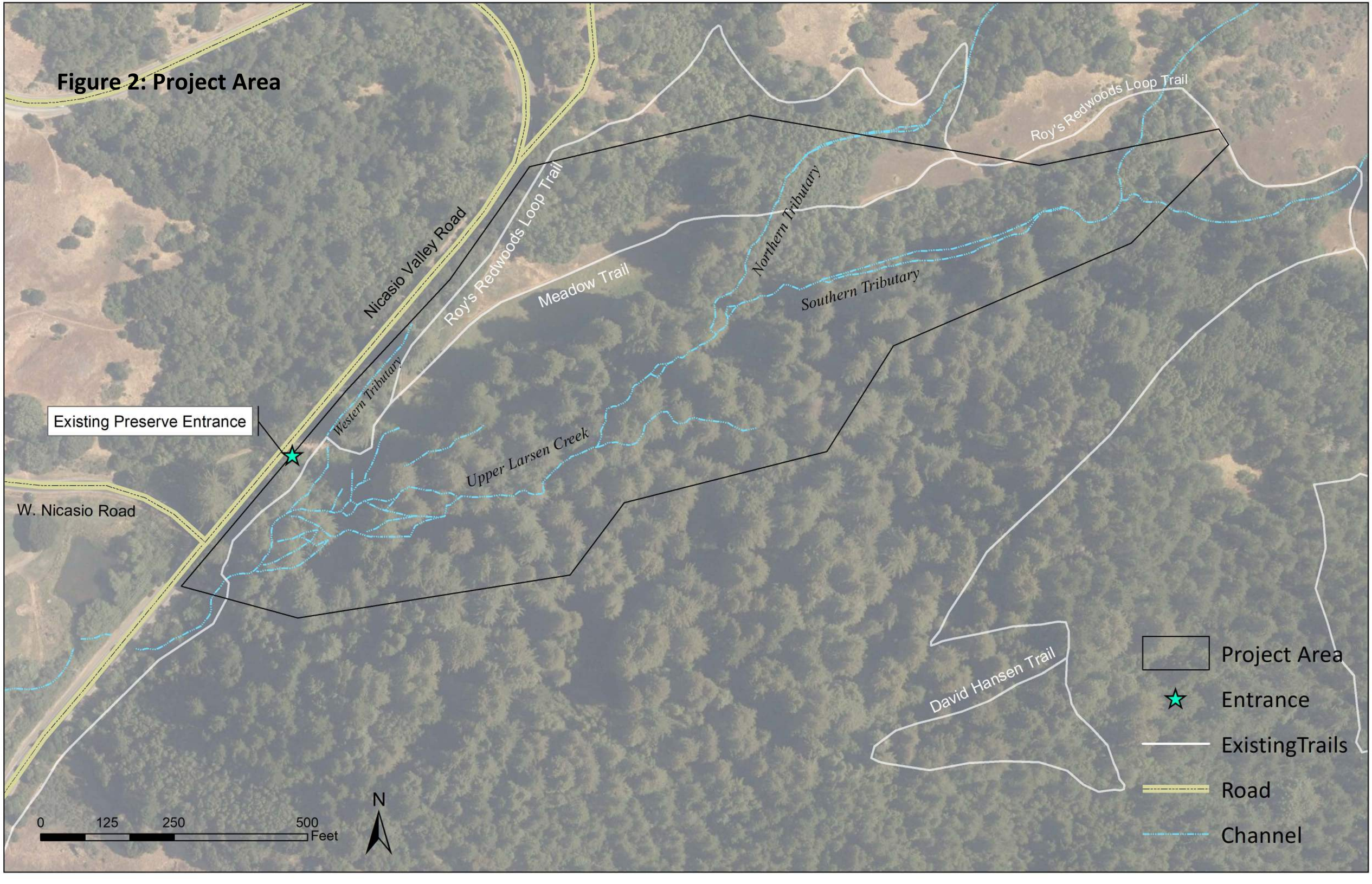
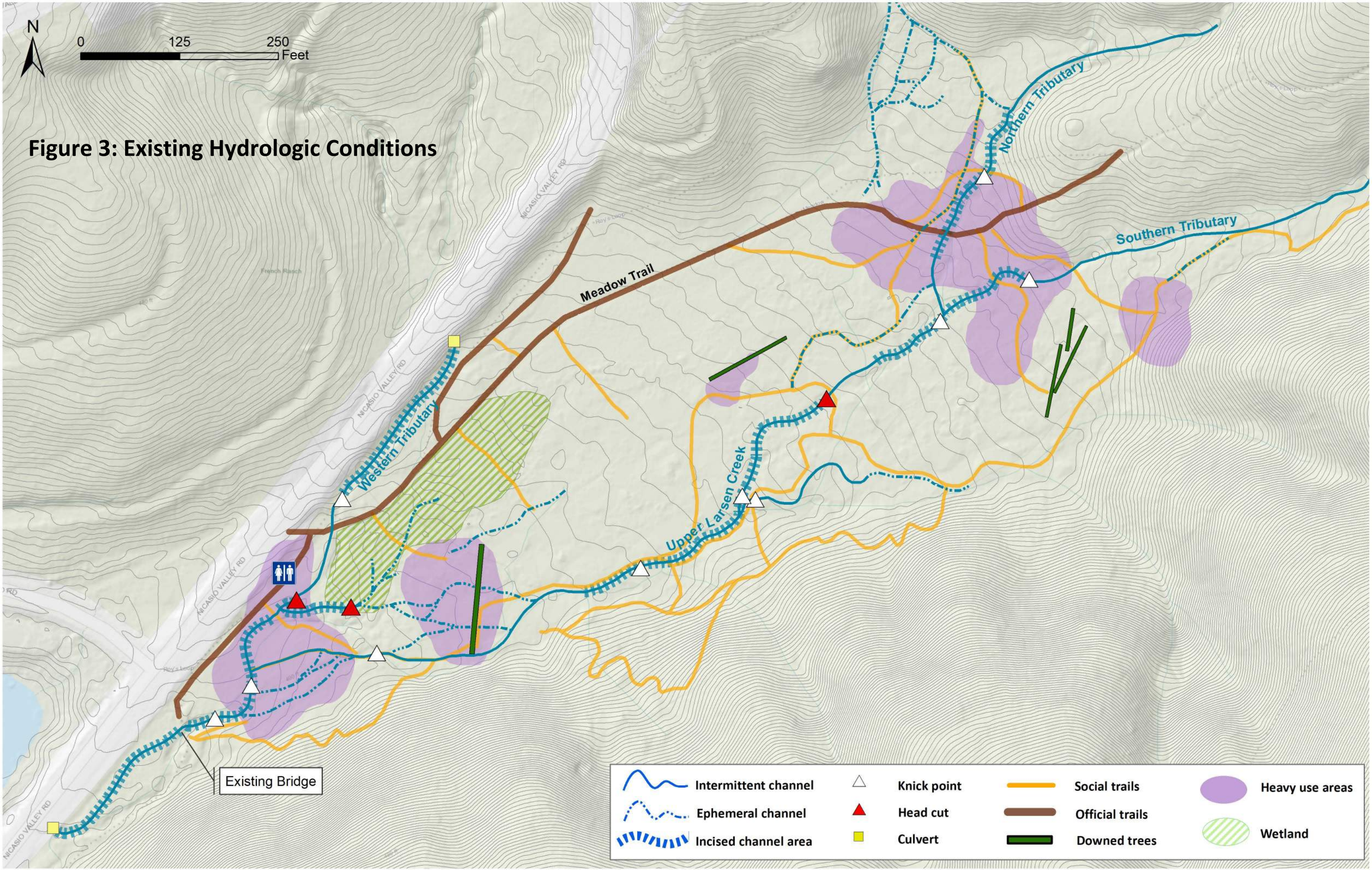


Figure 3: Existing Hydrologic Conditions



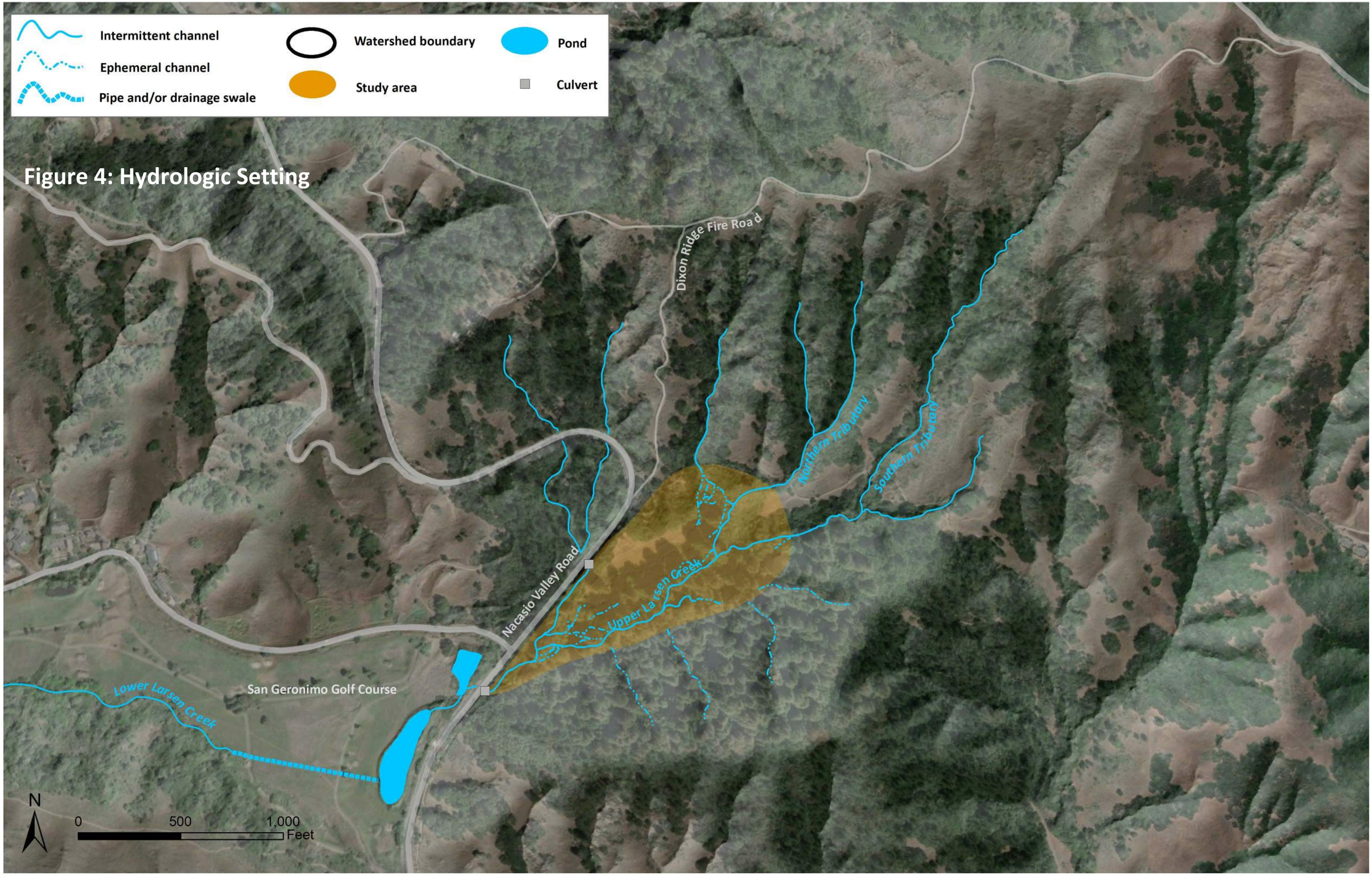


Figure 4: Hydrologic Setting

Figure 5: Project Elements

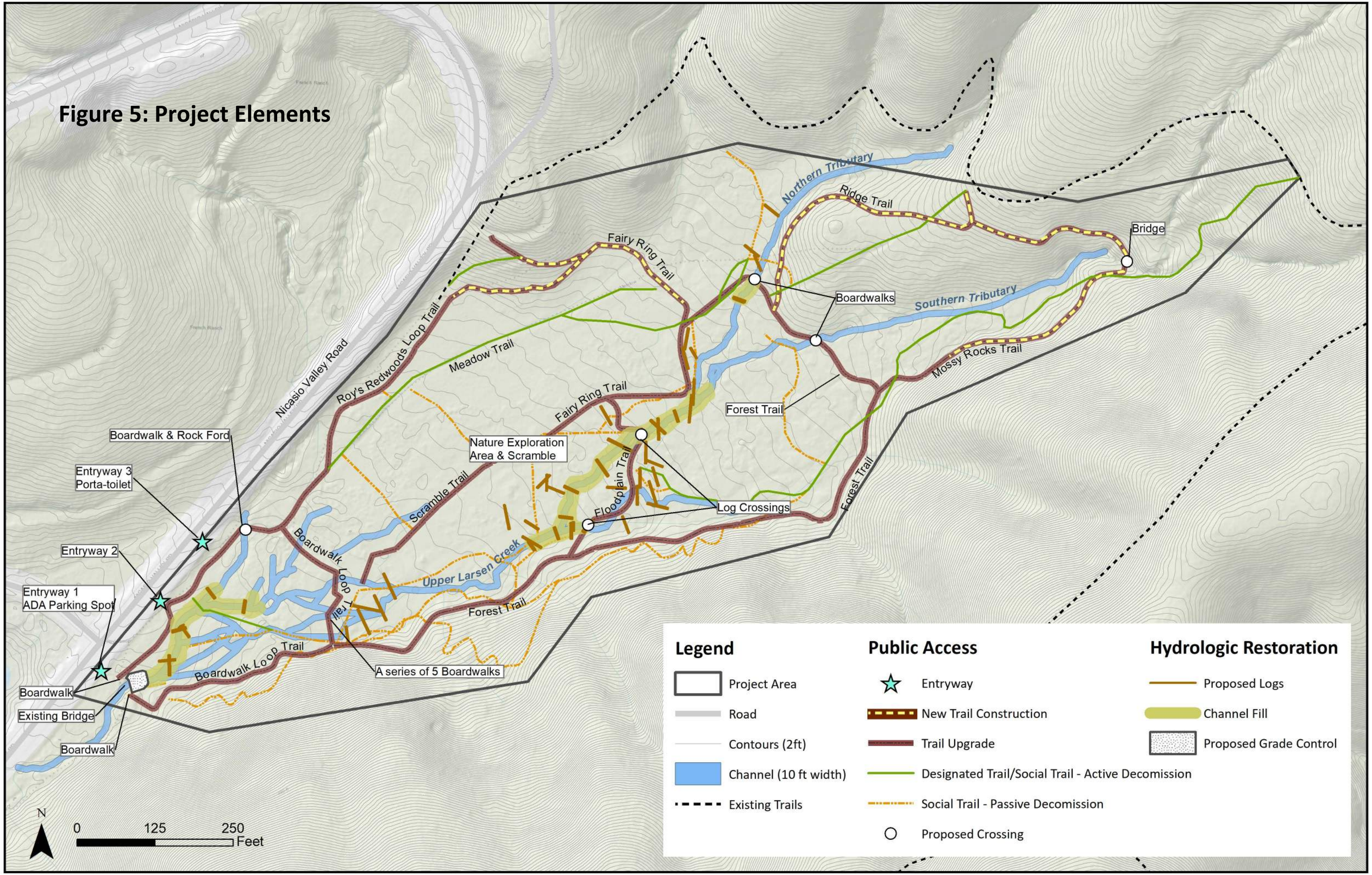
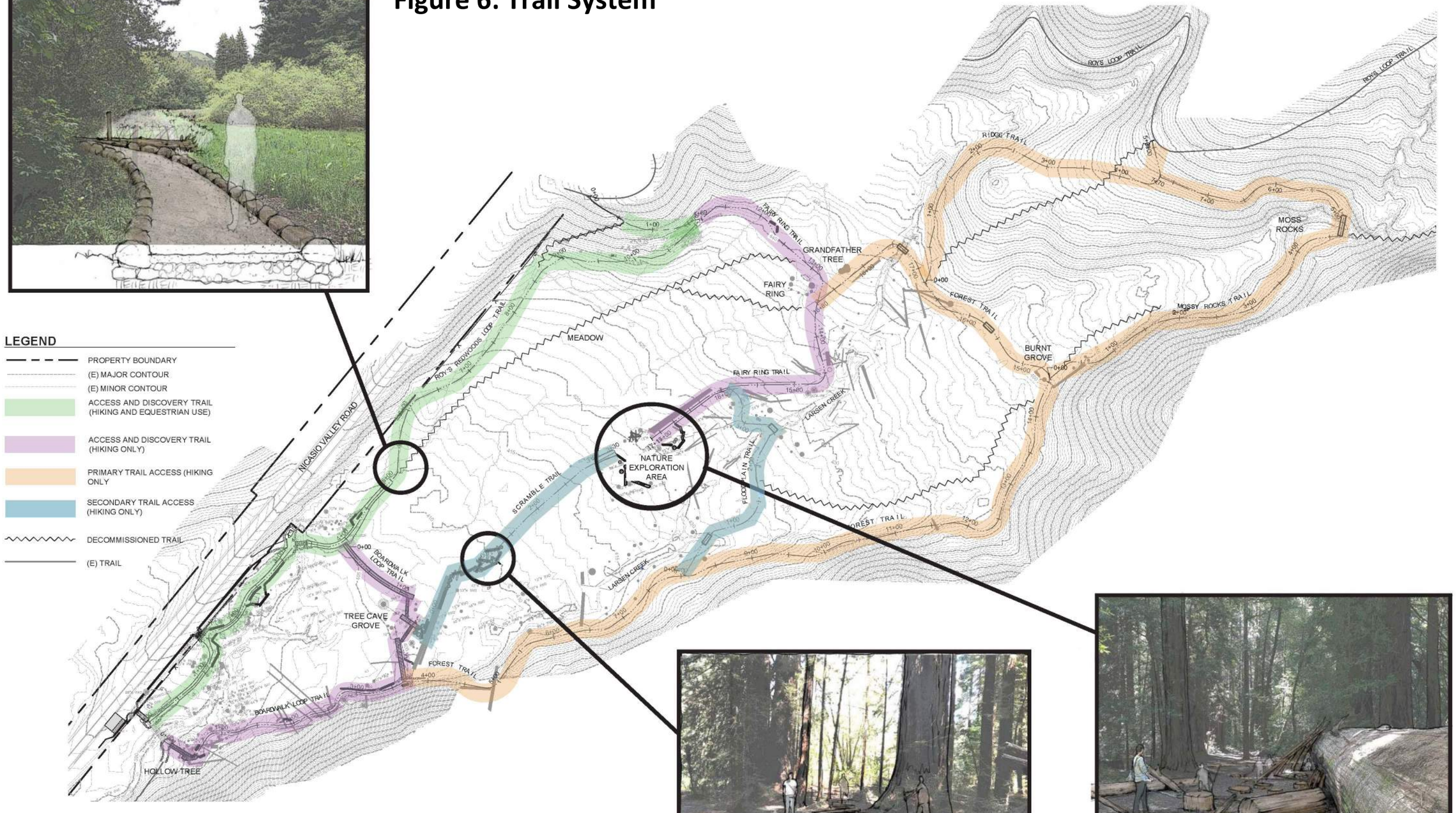


Figure 6: Trail System

ROY'S REDWOODS LOOP TRAIL RENDERING



JULY 2, 2021

SCRAMBLE RENDERING

NATURE EXPLORATION AREA RENDERING

BOARDWALK RENDERING

Figure 7: Boardwalk Loop Trail and Discovery Trail

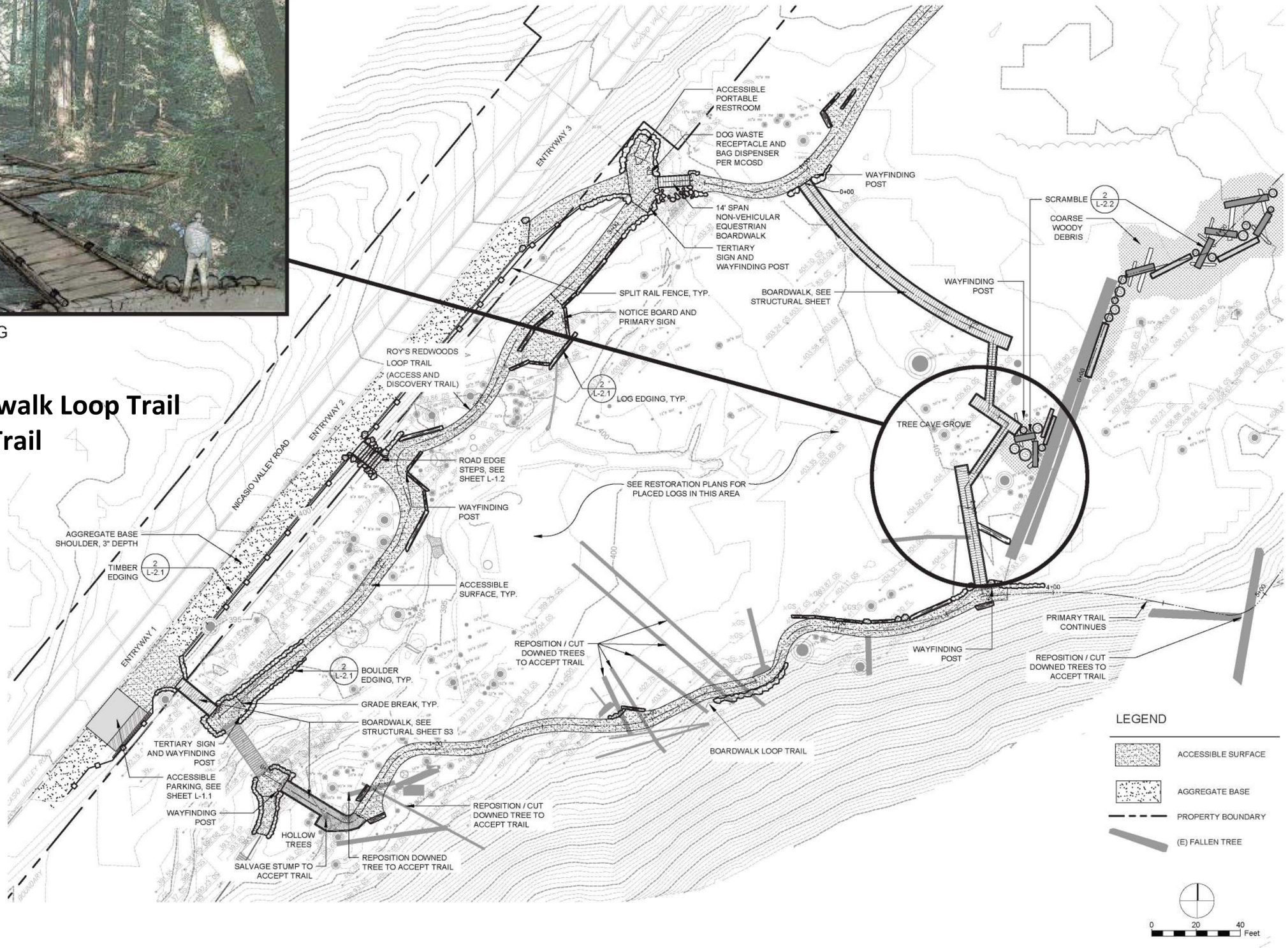
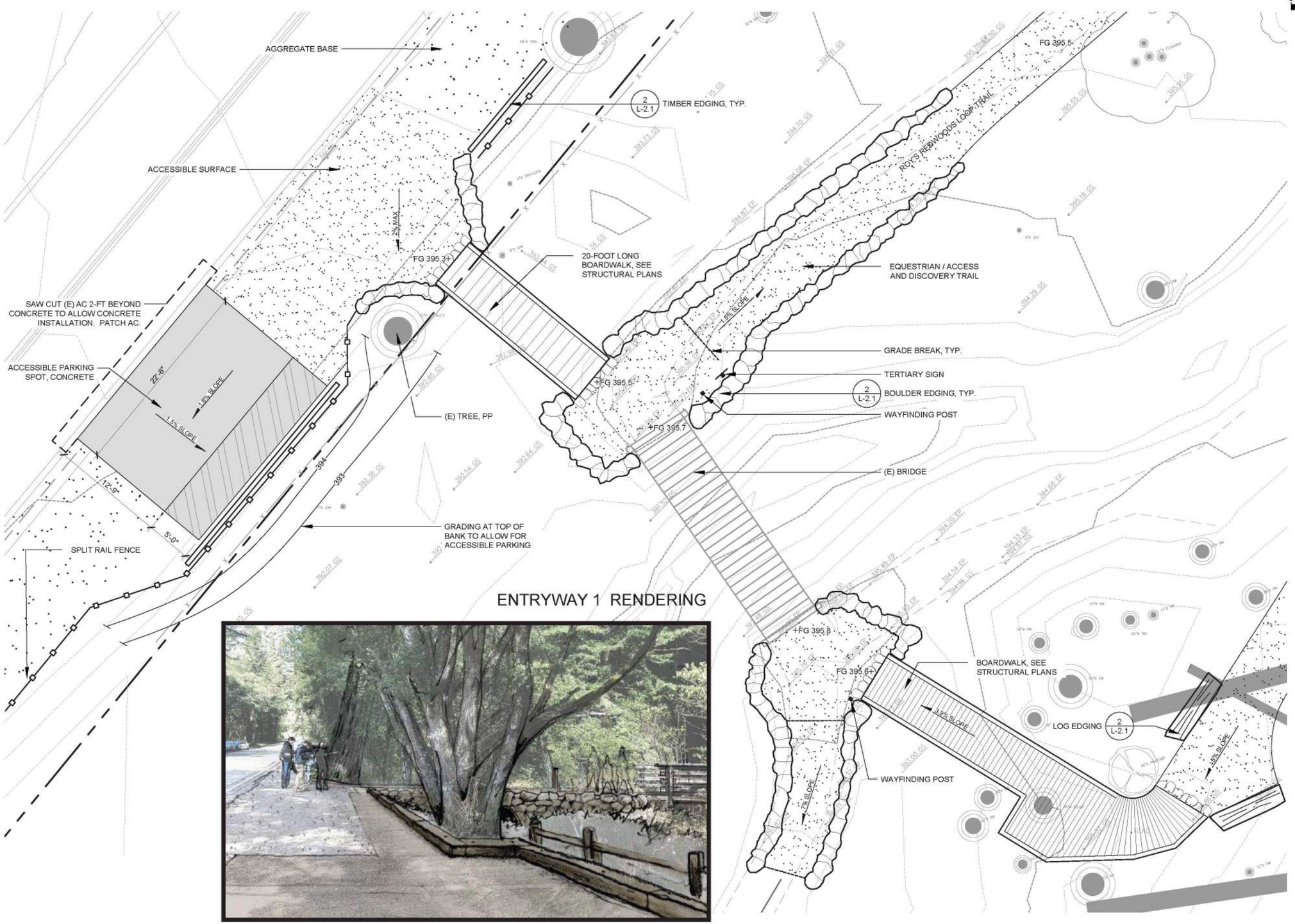


Figure 8: Entryway 1 - Inclusive Access



ENTRYWAY 1 RENDERING

Figure 9: Entryway 2

ENTRYWAY 2 RENDERING

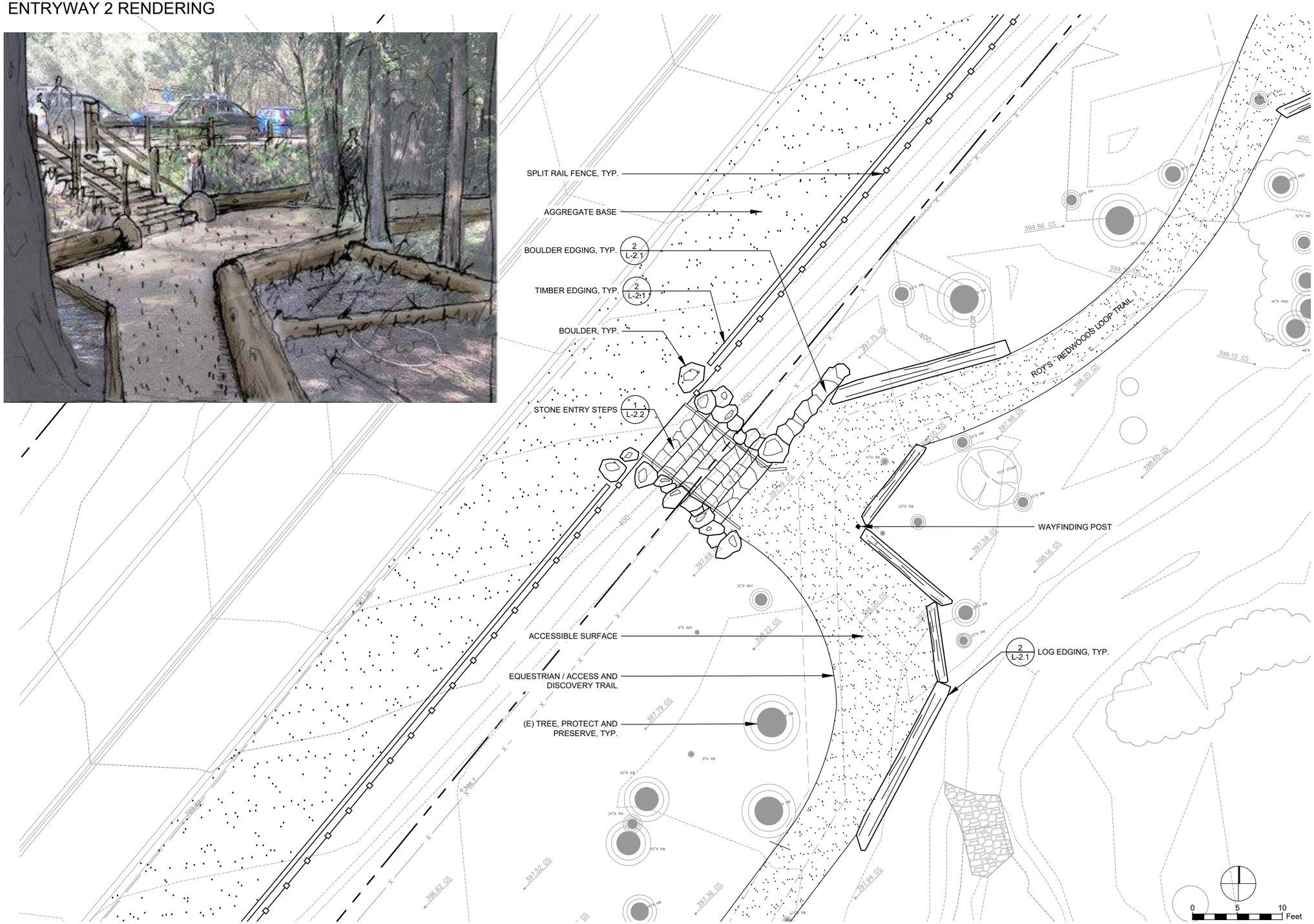
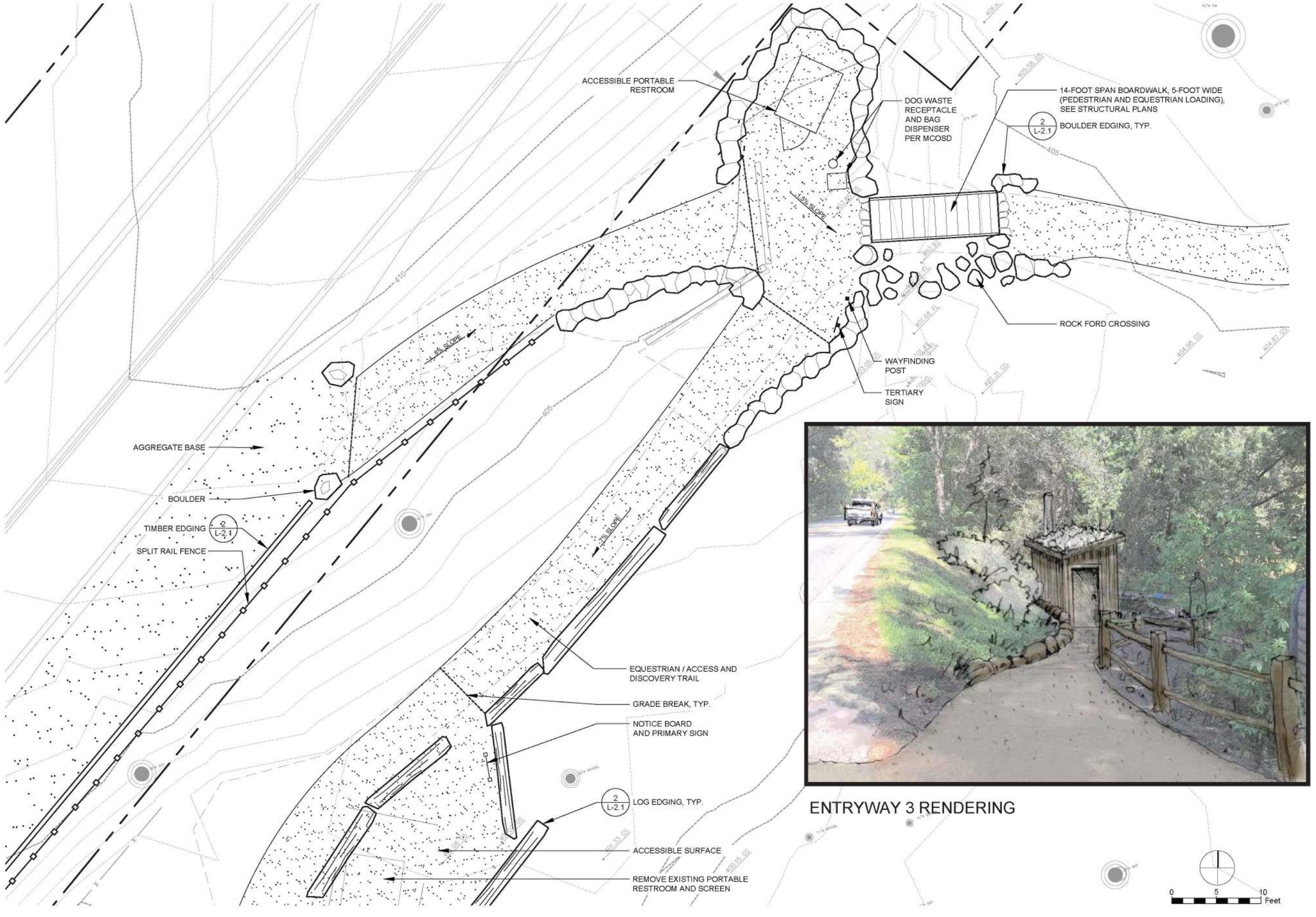


Figure 10: Entryway 3



ENTRYWAY 3 RENDERING

REVEGETATION LEGEND

SYMBOL/HATCH	QUANTITY	PLANTING ZONES
	16,100 SF	VALLEY FLOOR PLANTING - SHADE
	27,300 SF	VALLEY FLOOR PLANTING - SUN
	5,500 SF	CHANNEL/STREAM BANK PLANTING
	42,290 SF	MEADOW ACCESS STAGING AREA
	33,690 SF	AERATE AND DE-COMPACT TO A DEPTH OF 6"-8" INSTALL NATIVE SEED (SUN/SHADE MIX)

Figure 11: Habitat Restoration Areas

SUNNY VALLEY FLOOR PLANTING AND AIR TILLING, TYP.

RIDGE TRAIL

FAIRY RING TRAIL

AIR TILL TO DECOMPACT AND RESTORE HIGH USE AREAS OUTSIDE OF NEW TRAIL NETWORK. USE AIR-SPADE OR SIMILAR EQUIPMENT THAT WILL NOT DAMAGE TREE ROOTS. COVER DECOMPACTED AREA WITH 4" OF REDWOOD MULCH. TYP.

SEED AND MULCH MEADOW ACCESS AND STAGING AREA, SEE TREATMENT LEGEND

ROY'S REDWOODS LOOP TRAIL

SW 12 STRAW WATTLE, TYP.

STAGING AREA

FLAG

CHANNEL & STREAM BANK PLANTING

RF 12 RESTORATION FENCING, TYP.
INSTALL TO PREVENT USE OF RESTORED ACCESS ROUTES. EXACT LOCATION TBD IN FIELD.

APPROXIMATE WETLAND LIMITS

RF 9 RESTORATION FENCING, TYP.
INSTALL TO PREVENT ACCESS TO RESTORED AREAS OUTSIDE OF TRAIL NETWORK. EXACT LOCATION TBD IN FIELD.

SCRAMBLE TRAIL

FLOODPLAIN TRAIL

N50° 39' 52"W
10.00'

555.89'
N39° 20' 08"E

APPROXIMATE WETLAND LIMITS

STREAM BANK PLANTING

925.52'
N39° 20' 08"E

FOREST TRAIL

SUNNY VALLEY FLOOR PLANTING AND AIR TILLING, TYP.

401.46 FT

BOARDWALK LOOP TRAIL

FOR STUDY PURPOSES ONLY
NOT FOR CONSTRUCTION

VERIFY SCALES
ONE INCH

PRUNUSKE CHATHAM, INC.
400 MORRIS STREET, SUITE G
SEBASTOPOL, CA 95472
(707) 824-4600

PREPARED FOR:
MARIN COUNTY PARKS
3501 CIVIC CENTER DR #260
SAN RAFAEL, CA 95903

REVISIONS	DATE	BY

PRELIMINARY
DATE - Nov 30, 2022

DATE: 11/30/2022
SCALE: 1"=40'
MAPPING BY: JRH
DESIGNED BY: LH, MJ, JRH
DRAFTED BY: JRH, DG
CHECKED BY: MJ

ROY'S REDWOODS
HYDROLOGIC RESTORATION
REVEGETATION PLAN

SHEET
11
OF 12

Acad File Name:G:\Acad Dwgs CIV3D\Marin County Parks\Roy's Redwoods\Dwgs\CEQA\FIG1.dwg
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Figure 12: Proposed Trail Treatments

- Existing trail to remain
- Existing trail to be upgraded
- New trail construction
- Active decommission of existing trail
- Passive trail decommissioning
- Incised channel
- Ephemeral stream
- Intermittent stream

Roy's Redwoods Loop Trail
Ridge Trail
Fairy Ring Trail
Roy's Redwoods Loop Trail
Meadow Trail
Forest Trail
Mossy Rocks Trail
Fairy Ring
Fairy Ring Trail
Flood Plain Trail
Forest Trail
Scramble Trail
Entryway
Boardwalk Loop Trail
Upper Larsen Creek
Forest Trail
Boardwalk Loop Trail
Roy's Redwoods Loop Trail

*** This map does not reflect** planned restoration of high visitor impact areas other than social trails.
+ Social trails mapped in 2018.

ROY'S REDWOODS RESTORATION PROJECT

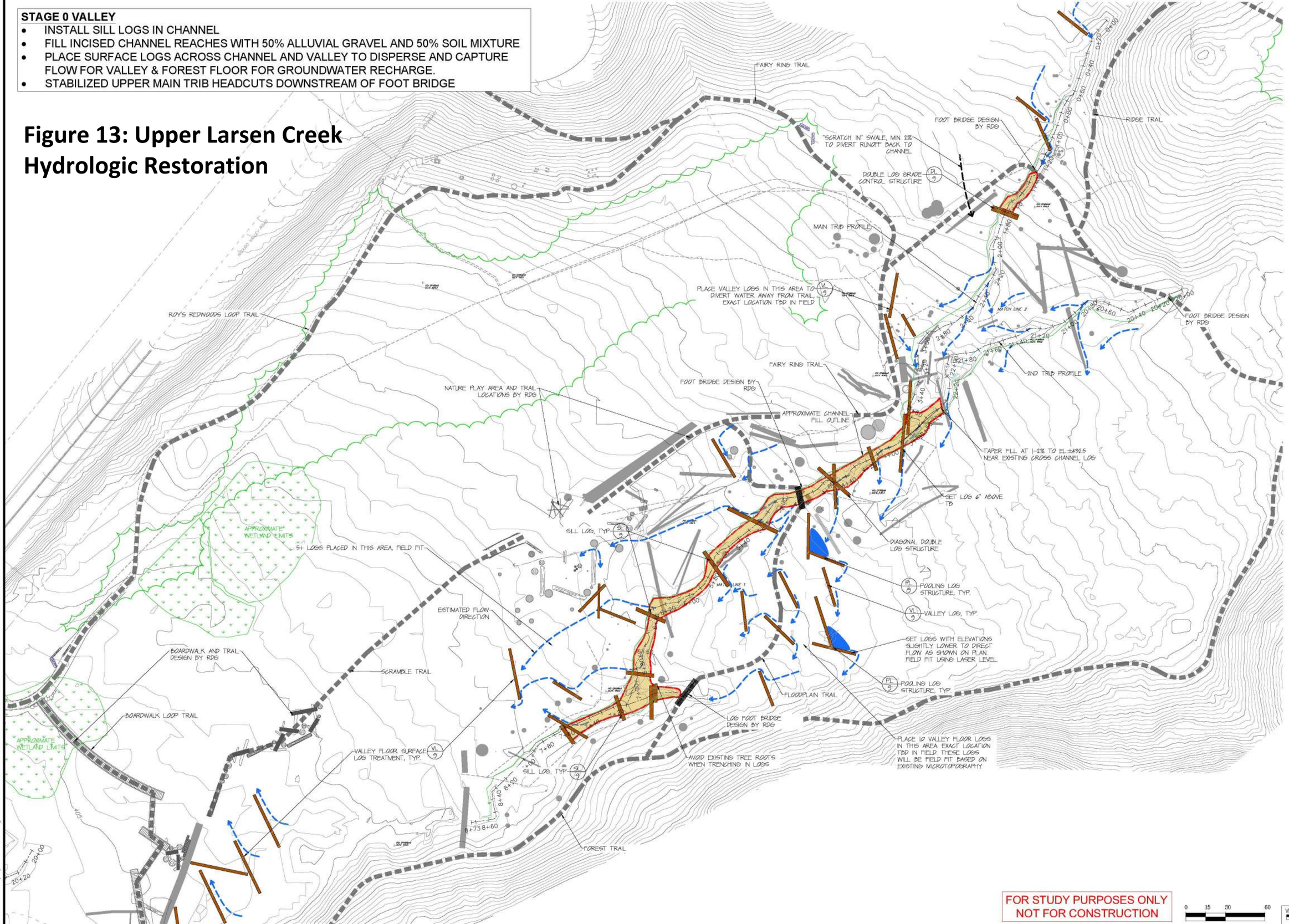
0 250 500 Feet

TRAIL TREATMENTS MAP

STAGE 0 VALLEY

- INSTALL SILL LOGS IN CHANNEL
- FILL INCISED CHANNEL REACHES WITH 50% ALLUVIAL GRAVEL AND 50% SOIL MIXTURE
- PLACE SURFACE LOGS ACROSS CHANNEL AND VALLEY TO DISPERSE AND CAPTURE FLOW FOR VALLEY & FOREST FLOOR FOR GROUNDWATER RECHARGE.
- STABILIZED UPPER MAIN TRIB HEADCUTS DOWNSTREAM OF FOOT BRIDGE

Figure 13: Upper Larsen Creek Hydrologic Restoration



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PREPARED FOR:
MARIN COUNTY PARKS
3501 CIVIC CENTER DR #260

PRUNUSKE CHATHAM, INC.
AGRICULTURE & NATURAL RESOURCES

REVISIONS	DATE	BY
PRELIMINARY		

DATE: 10/12/2022
SCALE: 1"=30'
MAPPING BY: JRH
DESIGNED BY: LH, MJ, JRH
DRAFTED BY: JRH, DG

ROY'S REDWOODS
HYDROLOGIC RESTORATION
PLAN - VALLEY

SHEET
4
OF 12

Figure 14: Stream Evolution Model

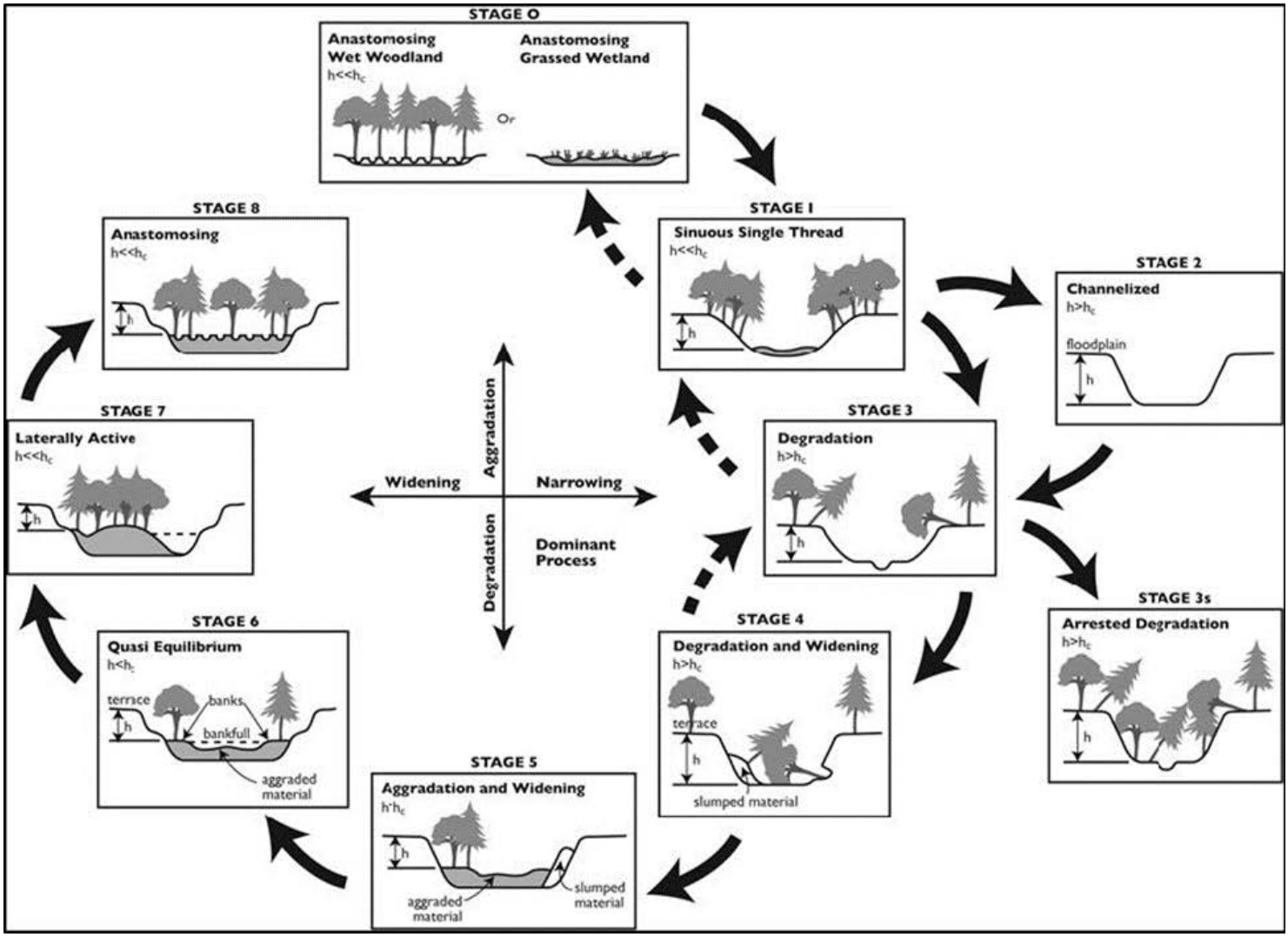


Figure 15: Channel Types

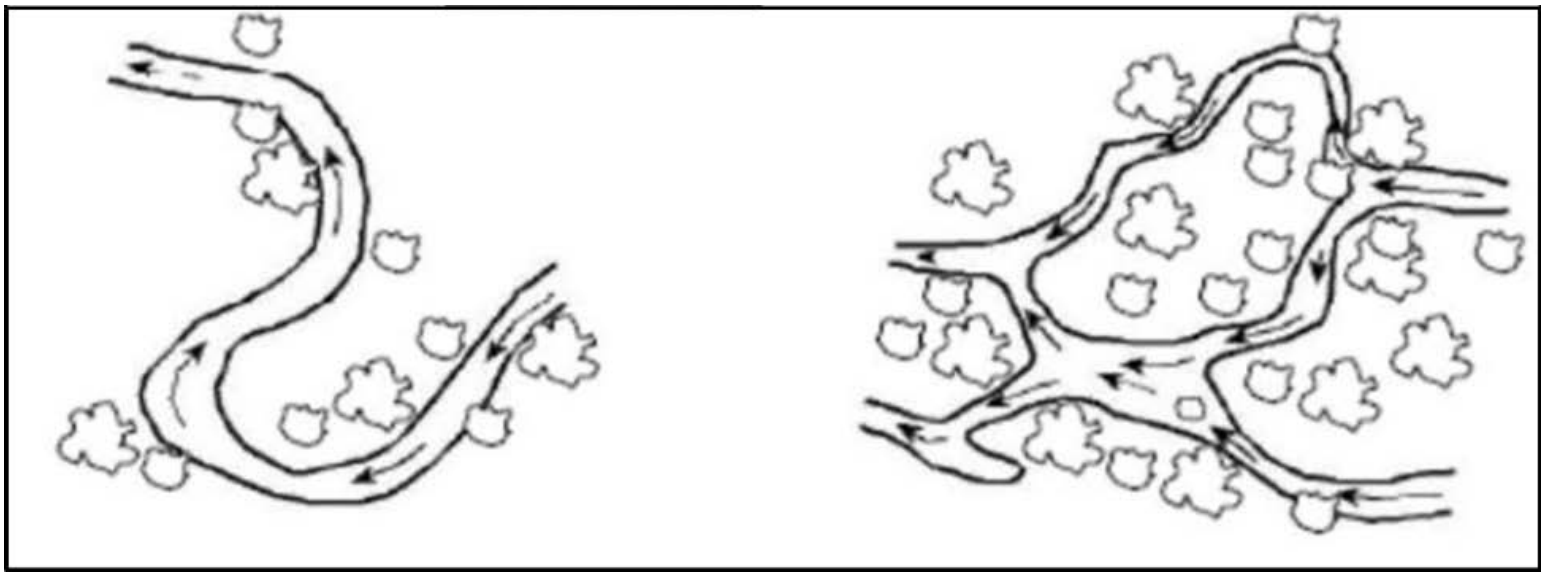


Figure 16: Hydrologic Restoration Areas

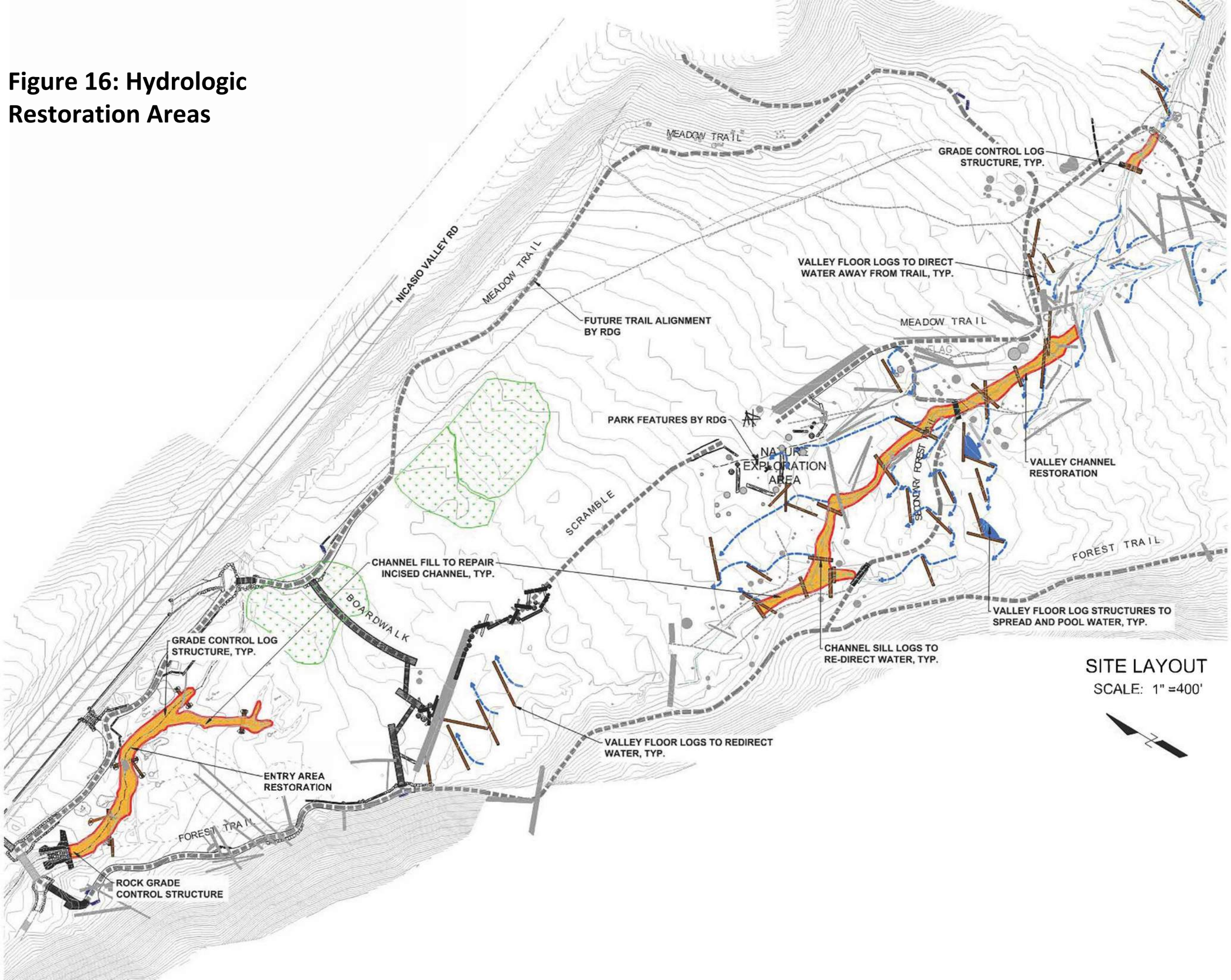
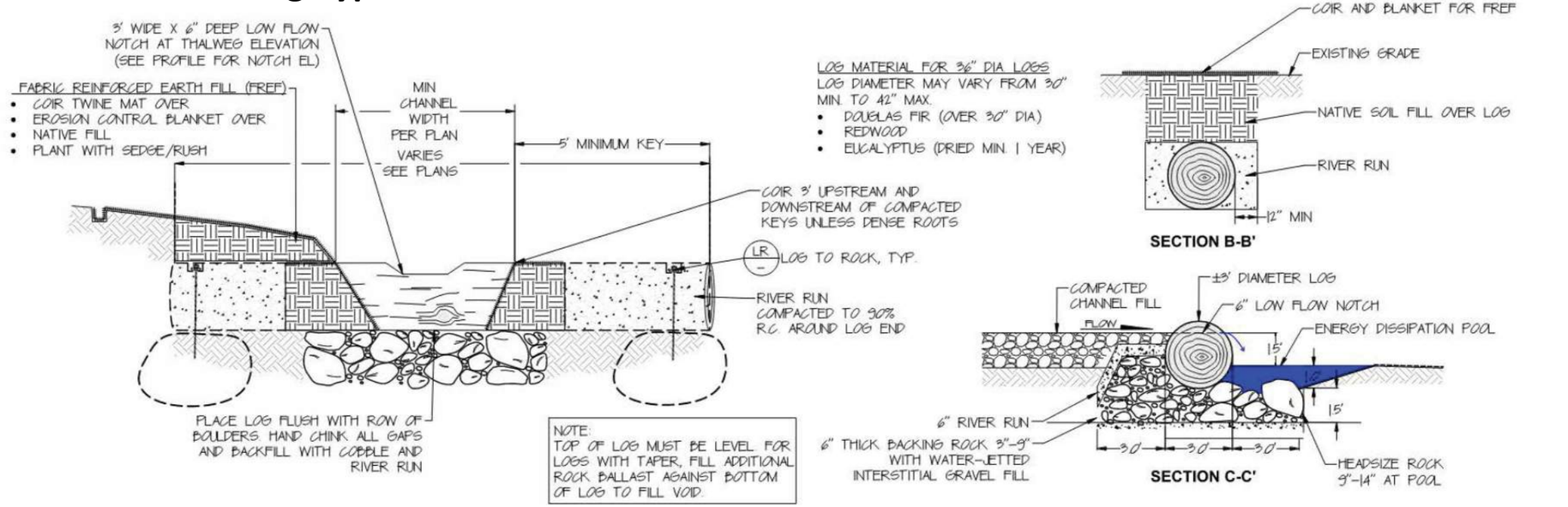
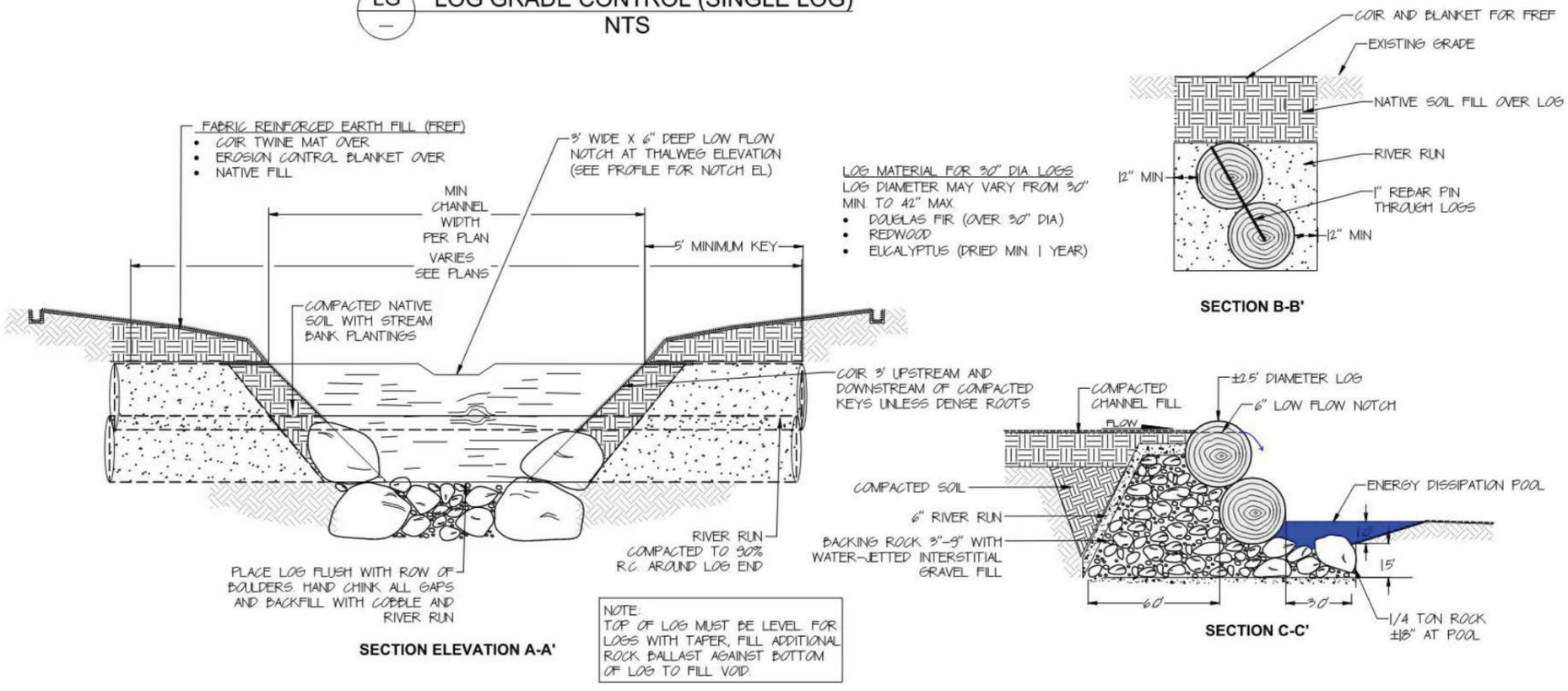


Figure 17: Grade Control Log Typicals



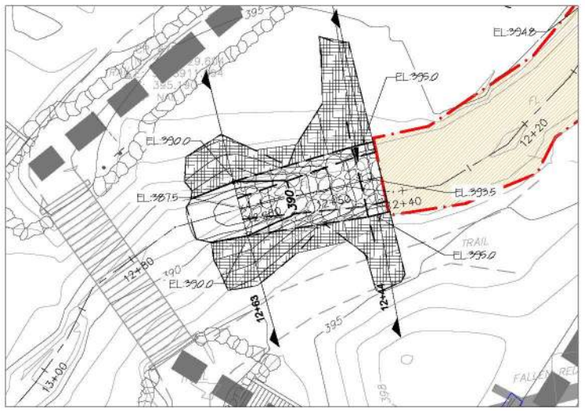
LG — LOG GRADE CONTROL (SINGLE LOG)
NTS



DL — LOG GRADE CONTROL (DOUBLE LOG)
NTS

ENTRY AREA REHABILITATION

- INSTALL ROCK AND LOG GRADE CONTROL STABILIZED MAIN TRIBUTARY HEADCUTS
- PARTIALLY FILL INCISED CHANNEL REACHES WITH FOLLOWING STREAMBED MIXTURE:
  - 60%: 3" MINUS ROCK
  - 20%: RIVER RUN
  - 10%: GABION ROCK (4"x8" ROCK)
  - 10%: NATIVE SANDY SOIL



BOULDER CASCADE GRADING
1"=10'

Figure 18: Western Tributary Hydrologic Restoration

FOR STUDY PURPOSES ONLY
NOT FOR CONSTRUCTION

0 10 20 60

VERIFY SCALES

PRUNUSKE CHATHAM, INC

PREPARED FOR:
MARIN COUNTY PARKS
3501 CIVIC CENTER DR #260

REVISIONS	DATE	BY
PRELIMINARY	10/12/2022	

DATE: 10/12/2022
SCALE: 1"=20'
MAPPING BY: JRH
DESIGNED BY: LH,MJ,JRH

ROY'S REDWOODS
HYDROLOGIC RESTORATION

SHEET 5 OF 13

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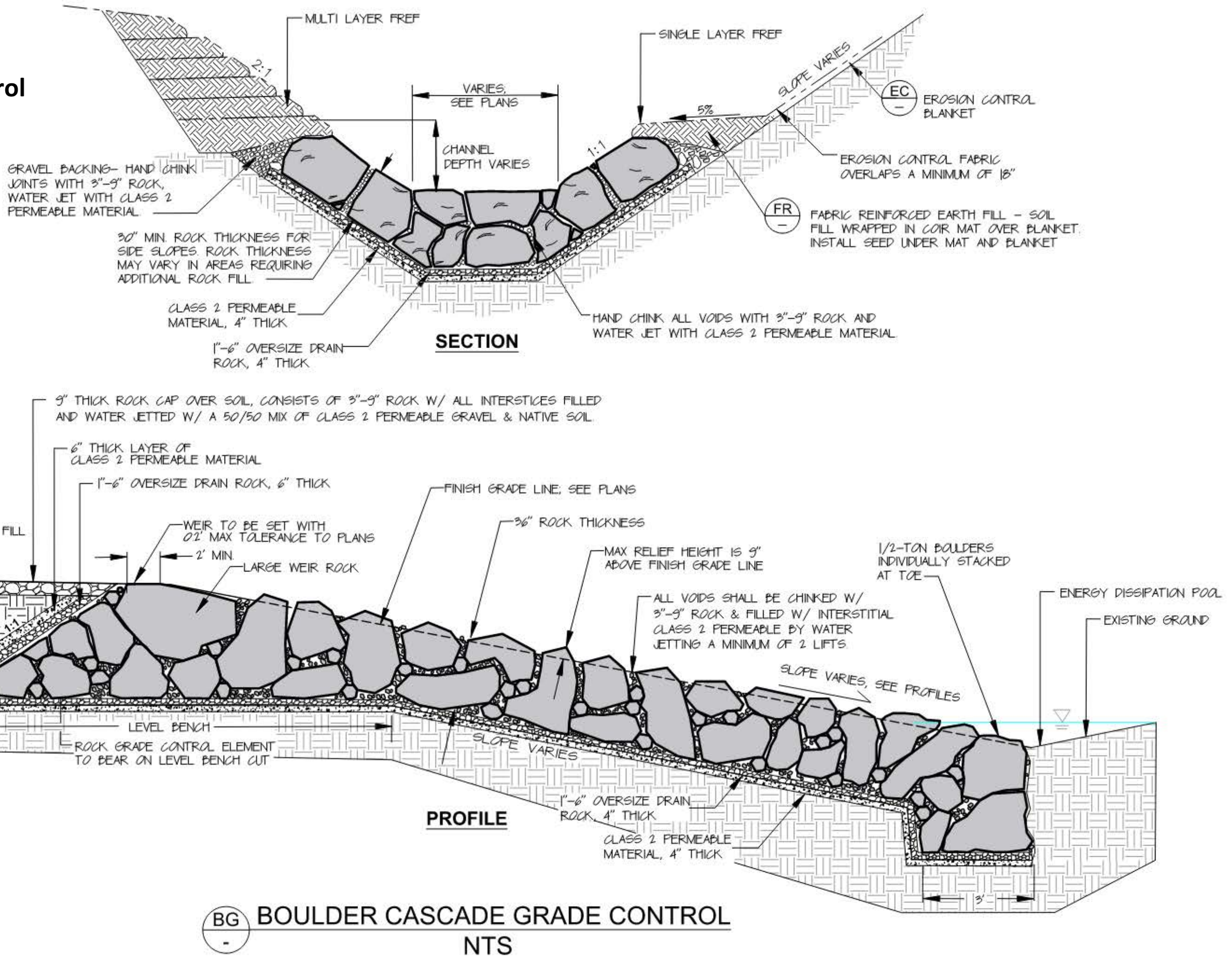
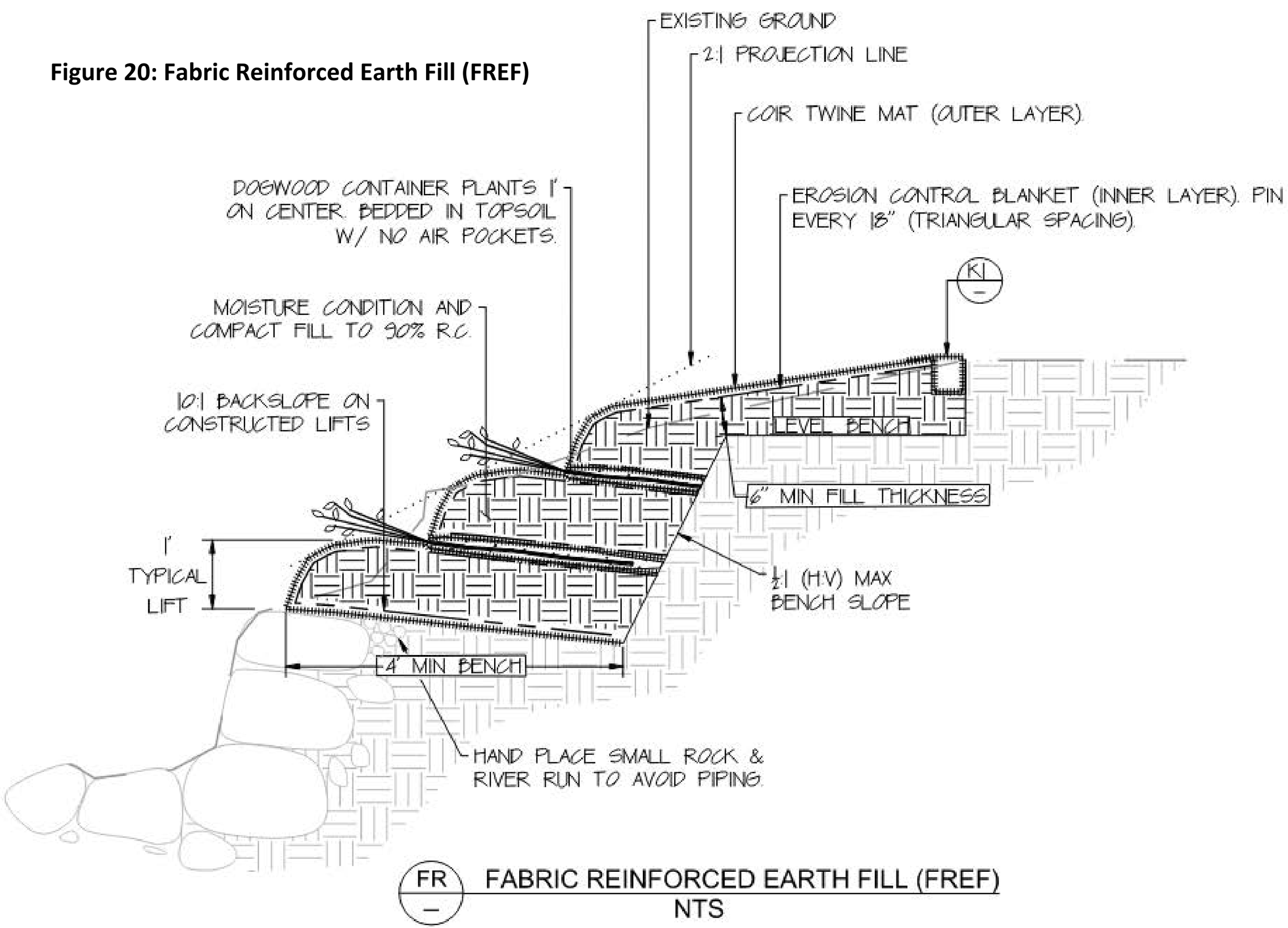
Figure 19: Boulder Cascade Grade Control



BG - BOULDER CASCADE GRADE CONTROL

NTS

Figure 20: Fabric Reinforced Earth Fill (FREF)



FR — FABRIC REINFORCED EARTH FILL (FREF)
NTS

Figure 21: Construction Access Plan

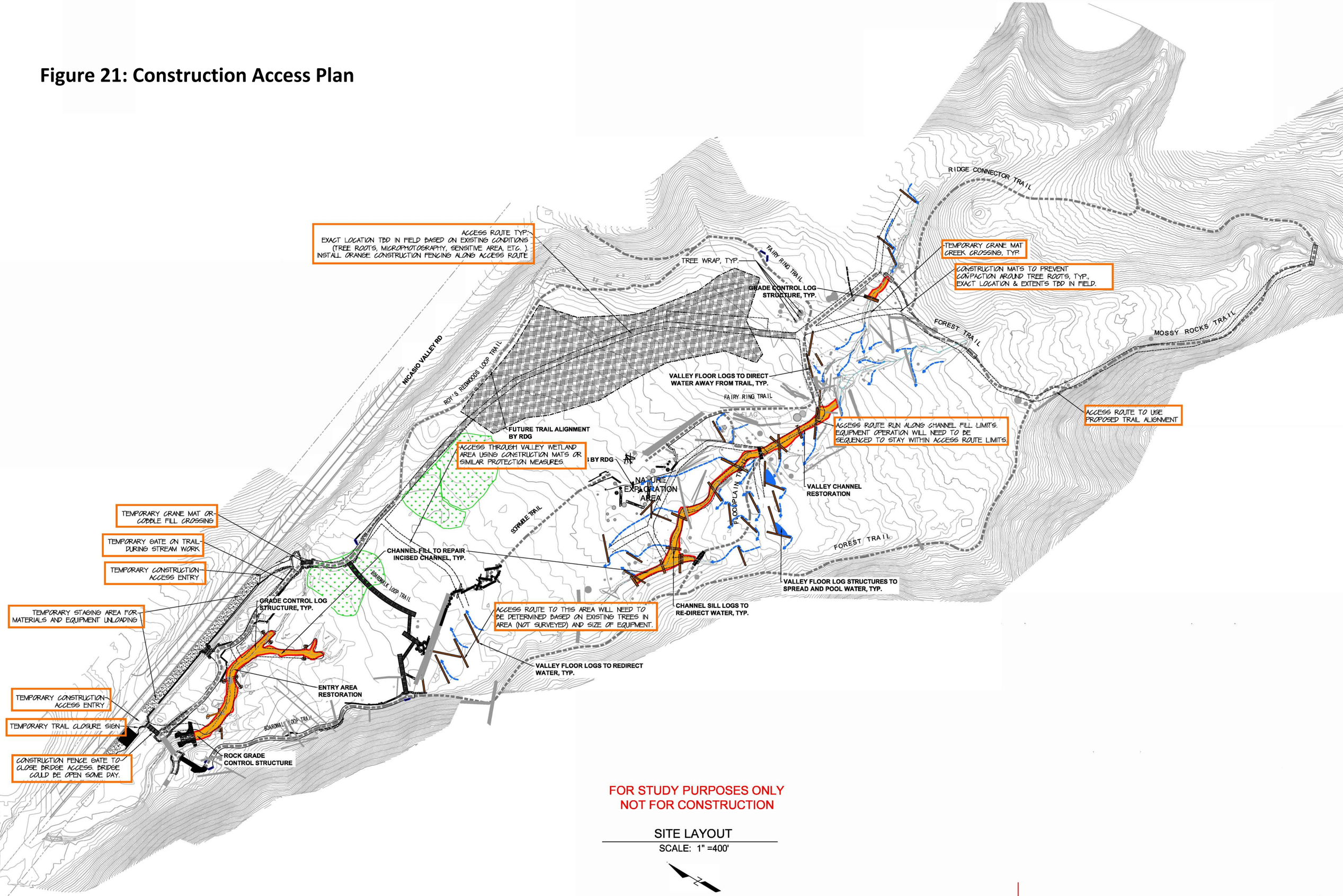


Figure 22: Marin County Preserves by Region

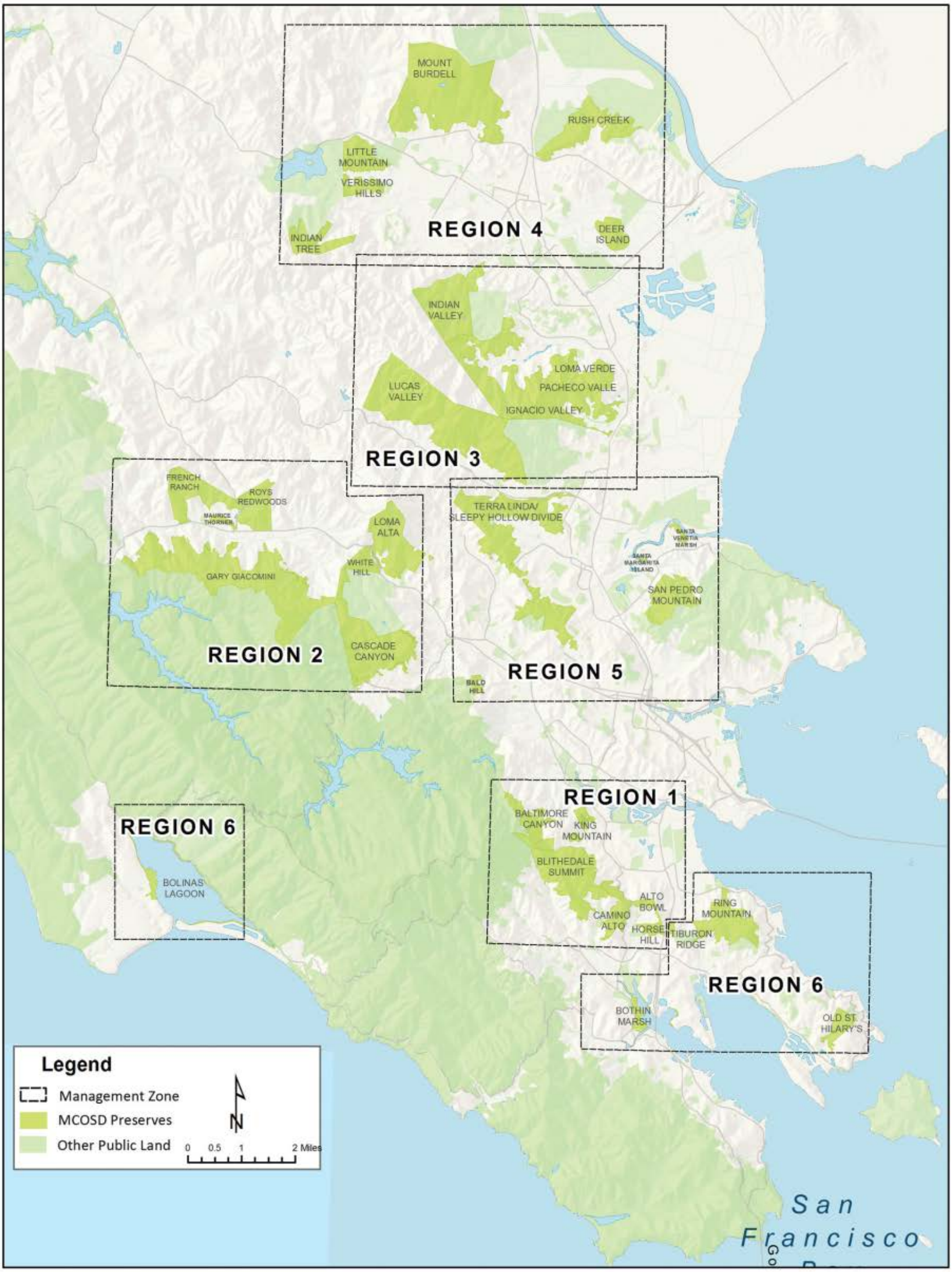


Figure 23: Region 2 Trail Designations

French Ranch OSP

Maurice Thorner OSP

Roy's Redwoods OSP

Spirit Rock Meditation Center

San Geronimo Valley Golf Course

San Geronimo Estates

Gary Giacomini OSP

Loma Alta OSP

Triple C Ranch

White Hill OSP

Arequipa Girl Scout Council

Camp Tamarancho

Cascade Canyon OSP

Cascade Canyon Bridges

Kent Lake

Peters Dam Road

Pine Mountain Ridge

The Saddle

Marin Municipal Water District

Provisonal, formal designation subject to MMWD Board Approval

MCOSD Roads

- Local Road
- Fire Road
- Abandoned Road
- Narrow Trail
- Wide Trail

MCOSD Preserves

Other Public Lands

Trail Designation

- Designated Trail
- Provisonal, formal designation subject to minor improvements
- Provisonal, formal designation subject to resolution of issues of right-of-way and minor improvement.

Trails not currently managed but proposed for designation will not be open for legal useuntil approved for use by the District. Any necessary trail improvements and environmental review will preclude opening of trails for use.

1:13,000

Figure 24: Marin Vegetation Management Zones

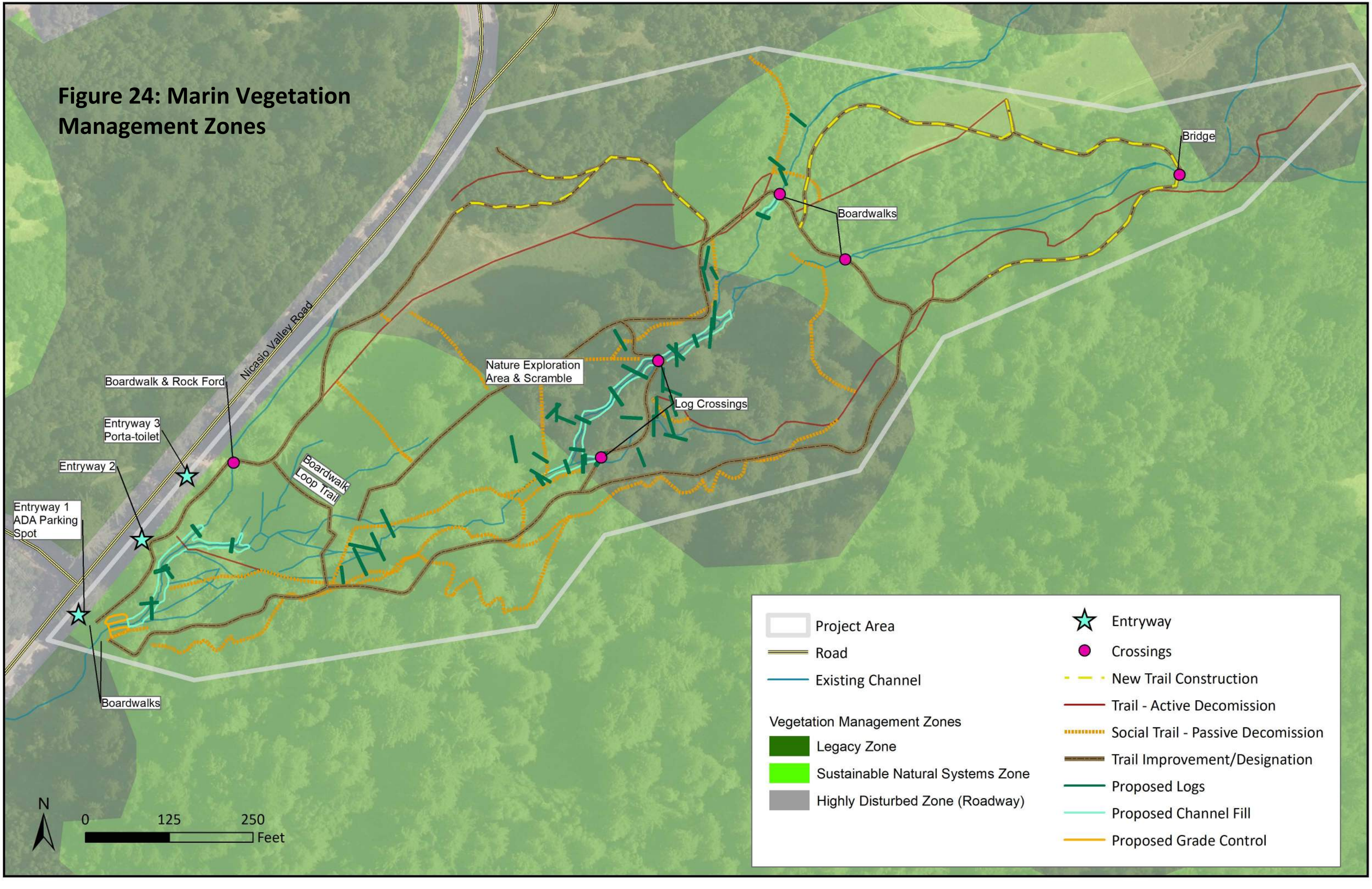
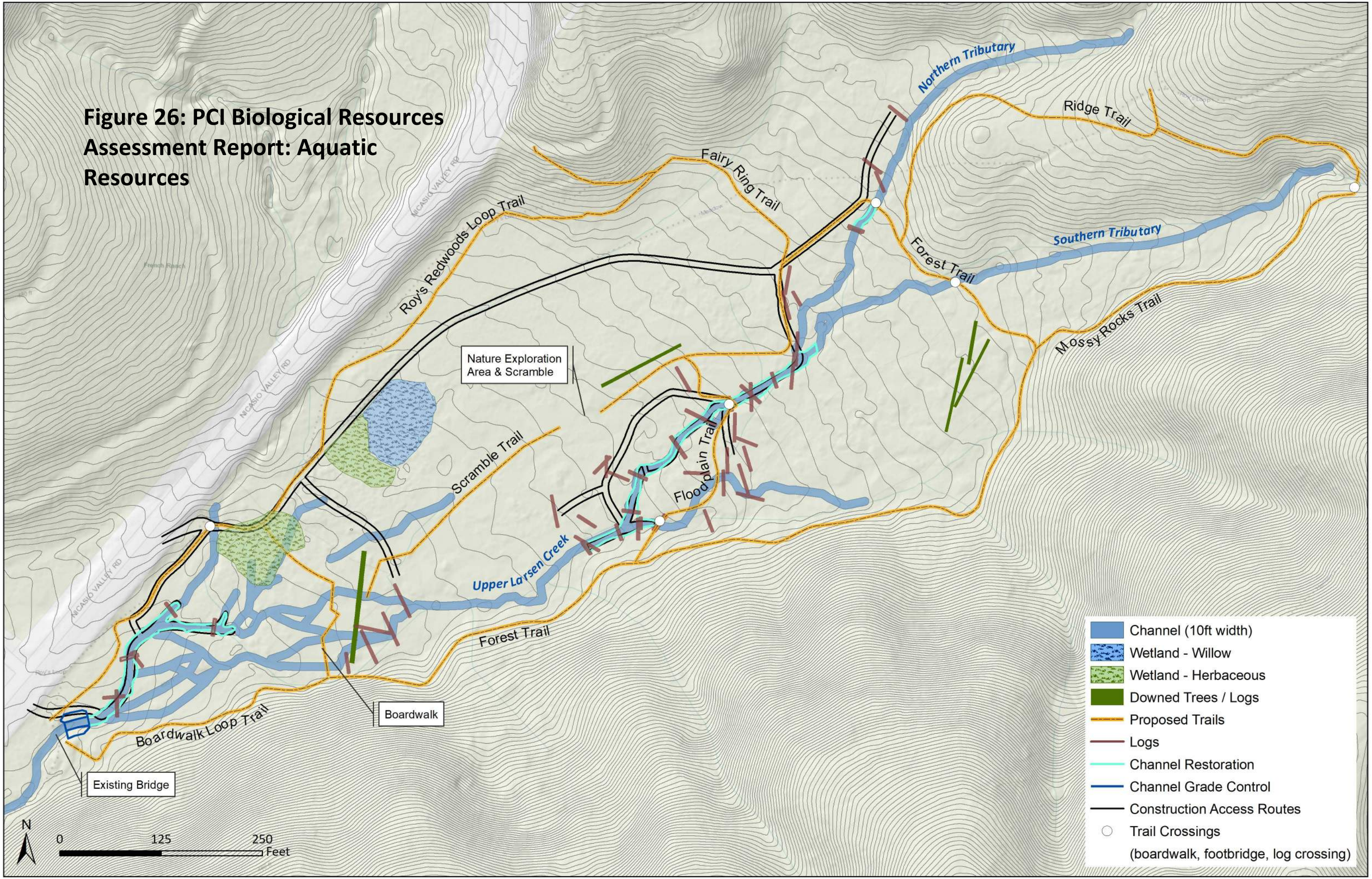


Figure 25: PCI Biological Resources Assessment Report - Vegetation Types

Figure 26: PCI Biological Resources Assessment Report: Aquatic Resources



DETERMINATION

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

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

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Rachel Reid — January 31, 2023

Rachel Reid, Environmental Coordinator — Date

Marin County Community Development Agency

Summary of the CEQA Analysis

This Initial Study utilizes the checklist included as Appendix G to the CEQA Guidelines. The checklist includes the following 21 resource areas as listed in the Determination page above. For each topic area, the checklist includes specific questions. For each question, one of four responses is given:

No Impact	The proposed project will not have the impact described.
Less than Significant Impact	The proposed project may result in the impact described, but at a level that is less than significant. Mitigation is not required, however, may be included to further reduce the impact.
Potentially Significant Unless Mitigated	The proposed project may result in the impact described at a level that is potentially significant. The incorporation of proposed mitigation measures would reduce the potentially significant impact to a less-than-significant level. For these responses, proposed mitigation measures are included after the discussion of the potential impact.
Potentially Significant Impact	The proposed project may have the impact described at a level that is potentially significant. The potentially significant impact cannot be reduced to a less-than-significant level with the incorporation of proposed mitigation measures, requiring preparation of an Environmental Impact Report.

Each question is answered by evaluating the proposed project as a whole, considering the potentially significant environmental impacts that could occur for any phase of the proposed project. The Checklist includes a discussion of the potential impacts and reasoning of the response provided. The Initial Study Checklist is included in this document after the Project Description. The Initial Study concluded that implementation of the proposed project would not result in any Potentially Significant Impacts that could not be mitigated to a less-than-significant level. Most questions were answered with a No Impact or Less than Significant Impact response. Mitigation Measures have been included to address potentially significant impacts in the Biological Resources. With implementation of these mitigation measures, potentially significant environmental impacts would be reduced to a less-than-significant level.

The Initial Study concluded that implementation of the proposed project would not result in any potentially significant impacts that could not be mitigated to a less-than-significant level. Most questions were answered with a No Impact or Less than Significant Impact response. Mitigation measures have been included to address potentially significant impacts and/or augment RTMP BMPs in the Biological Resources section of the CEQA Checklist. The three biologic resources mitigation measures are listed below. With implementation of the RTMP Policies and BMPs and these mitigation measures, potentially significant environmental impacts would be reduced to a less-than-significant level.

Proposed Mitigation Measures

Dusty-footed Woodrat Nest Protection

The RTMP does not include BMPs regarding protection of dusty-footed woodrat nests. Dusty-footed woodrats provide an important food source for northern spotted owls, and loss of existing woodrat nests during implementation of the proposed project would remove their food source.

Mitigation Measure BIO-1: Identify and Protect Dusty-Footed Woodrat Nests

The MCOSD shall survey for dusty-footed woodrat nests and protect or relocate all dusty-footed woodrat nests that cannot be avoided during project implementation. A biologist shall survey along the new Roy's Redwoods Loop Trail segments, along both the Ridge and Mossy Rocks trails, and any other location within the project site identified by a qualified biologist within 30 days prior to construction to determine if nests are present and to identify ones that cannot be avoided. If none are found, then no additional measures are necessary.

If a woodrat house is identified within a work area, an exclusion zone shall be erected around the existing woodrat houses using flagging or a temporary fence that does not inhibit the natural movements of wildlife, such as steel T-posts and a single strand of yellow rope or similar materials. The work area would be relocated as necessary to avoid removing woodrat houses, even if avoidance is by only a few feet. The orientation of the work area would allow for escape routes to nearby suitable habitat, meaning that the work area would not completely surround the protected woodrat house. If woodrat houses cannot be avoided, CDFW would be contacted for approval to relocate individuals and dismantle the nest. Relocation efforts shall be guided by a qualified biologist.

Special-status and Nesting Bird Protection

The RTMP includes measures to protect nesting birds; however, the BMP does not provide buffers by species or guild. The MCOSD would implement the following mitigation measure to protect nesting birds during critical nesting time periods.

Mitigation Measure BIO-2: Special-status and Nesting Birds Protection

The MCOSD shall implement the following seasonal restrictions to protect nesting birds. If work occurs outside the nesting bird window of January 1 to July 31, surveys and avoidance measures would not be necessary for special-status and nesting birds. The broadest nesting bird window based on Table 6 would be January 01 – October 31. The project area does not include habitat for double-crested cormorant, herons, egrets, bitterns, and these species would not be affected by implementation of the proposed project; therefore, the nesting bird window of January 1 – July 31 is appropriate for the proposed project.

- Surveys shall be conducted within seven days of the start of active ground-disturbing activities within the general buffers identified in Table 3: Guideline Buffer by Species or Guild. If the work area is left unattended for more than seven days following the initial surveys, additional surveys shall be completed. This timing is standard protocol based on knowledge of Marin and Sonoma Counties bird nesting season, with raptors and hummingbirds building nests as early as January and the peak typically from late April through May. Any active nests found will be given a protective buffer to avoid disturbances and monitored until the chicks fledge. Ongoing construction monitoring of active nests shall occur to ensure no nesting activity is disturbed.
- If the biologist finds no active nesting or breeding activity, work can proceed without restrictions.
- If active raptor or owl nests or active nests of other special-status birds are identified within the buffer area guidelines included in Table 3, a qualified biologist shall determine whether construction activities may impact the active nest or disrupt reproductive behavior. If the

biologist determines construction would not affect an active nest or disrupt breeding behavior, construction can proceed without restrictions. The determination of disruption shall be based on the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; and the line of sight between the nest and the disturbance. If the biologist determines activities would be detrimental to the species nest, the buffer area guidelines identified in Table 3: Guideline Buffers by Species or Guild would be established until the nest has been vacated, meaning that the chicks have fledged.

- If state and/or federally listed birds are found breeding within the construction area, activities shall be halted until the chicks have fledged. If construction activities must continue and would incur take of the listed species, the MCOSD would consult with the CDFW and USFWS prior to the initiation of work that would result in take. If construction activities must continue and would not incur take of the listed species, the MCOSD would establish the buffer area guidelines included in Table 3, until the nest has been vacated, meaning that the chicks have fledged.

Table 3: Guideline Buffer by Species or Guild

Species/Guild	**Recommended Buffer meters/feet**	**Nesting Season**
Diurnal Raptors (i.e.: Cooper's hawk)	76 meters (250 feet)	January 01 – July 31
Owls (except northern spotted owl)	50 meters (160 feet)	January 01 – July 31
Marbled Murrelet	402 meters (1,320 feet or ¼ mile)	March 01 – September 30
Northern Spotted Owl	402 meters (1,320 feet or ¼ mile)	February 01- July 31
Double-crested Cormorant	50 meters (160 feet)	March 01 – October 31
Herons/Egrets/Bitterns	100 meters (330 feet)	January 01 – Sept. 30
Waterfowl	30 meters (100 feet)	March 01 – July 31
California black rail	213 meters (700 feet)	February 01 – August 31
Larger Passerines: Corvids (crows, jays), Thrushes	20 meters (65 feet)	March 01 – July 31
Most Songbirds	10 meters (30 feet)	March 01 – July 31
Hummingbirds	10 meters (30 feet)	January 01 – July 31
Woodpeckers	15 meters (50 feet)	March 01 – July 31
Band-tailed Pigeon (BTPI)	30 meters (100 feet)	March 01 – July 31
Pigeons/Doves (except BTPI)	20 meters (65 feet)	March 01 – July 31
Species of Special Concern (olive-sided flycatcher, grasshopper sparrow, San Pablo song sparrow)	22 meters (75 feet)	March 01 – July 31

Species/Guild	Recommended Buffer meters/feet	Nesting Season
Blackbirds (tri-colored and red-winged)	30 meters (100 feet)	March 01 – July 31
Turdidae (robins, thrushes)	20 meters (65 feet)	March 01 – July 31
Killdeer	22 meters (75 feet)	March 01 – July 31

Native Tree Protection

The RTMP does not include BMPs to address tree pruning. While tree pruning required to implement the proposed project would be minimal and would not result in a potentially significant environmental impact, the MCOSD would implement the following tree protection measure:

Mitigation Measure BIO-3: Protect Native Trees

MCOSD shall ensure that the following measures are implemented during project activities to protect native trees:

- Minimize pruning. Light pruning may occur at any time of year. Heavy pruning may cause problems due to vigorous sprouting and subsequent witches broom or powdery mildew. Heavy pruning shall be done on deciduous trees in the winter.
- Minimize impacts within the Root Protection Zone (RPZ), which is defined as 1.5 times the dripline radius measured from the tree trunk and extends approximately three feet below the soil surface.
- Soil compaction within protected tree perimeters shall be avoided to the extent feasible.
- Heavy equipment, vehicles, and/or construction materials shall not be parked or stored beneath trees or operated within the delineated protected perimeter.
- Develop a tree replacement plan for any tree removed based on the ratios shown in Table 4.

Table 4: Tree Replacement Ratios

Tree Type	Diameter DBH[35]	Replacement Ratio
Oaks	5-10 inches	4:1
Oaks	10-15 inches	5:1
Oaks	15 inches and above	15:1
Native trees	3-6 inches	3:1
Native trees	6 inches	6:1
Non-native trees	Any size	1:1

Construction Traffic

The RTMP does not include project-specific traffic hazard mitigation measures. Traffic hazard measures implemented during construction would not result in a potentially significant environmental impact. The MCOSD would implement the following hazard reduction measure.

[35] Diameter at breast height, or DBH, is the standard for measuring trees. DBH refers to the tree diameter measured at 4.5 feet above the ground.

Mitigation Measure TRA-1: Reduce Construction Traffic Risks

The MCOSD shall require the construction contractor to implement measures to reduce traffic hazards along Nicasio Valley Road. The following construction-period measures shall be employed:

- Parking shall be prohibited in the construction loading/unloading areas and shall be clearly marked for No Parking.
- When construction vehicles are present in the shoulder staging areas, appropriate construction signing shall be provided in advance of the staging areas in both directions on Nicasio Valley Road. Signs shall indicate warning for construction ahead and shoulder closed ahead for direction where construction is occupying shoulder areas
- During the period where construction vehicles bring in large equipment, the contractor shall use warning flaggers on Nicasio Valley Road in both directions. Flaggers shall be active during the period until construction vehicles are completely off of the travel way.
- If construction loading/unloading activity requires vehicles to remain in the Nicasio Valley Road travelway, one lane road operation shall be used with flaggers provided in advance of both directions of travel.
- All construction related signs and use of traffic cones should meet standards and guidelines provided in the California MUTCD and/or local County standards.

CEQA Checklist
Aesthetics

Except as provided in Public Resources Code Section 20199, would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? *(Public views are those that are experienced from publicly accessible vantage points)*. If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Setting

The project area is located within the 293-acre Roy's Redwoods Open Space Preserve at the headwaters of the east fork of Larsen Creek in the San Geronimo Creek watershed and the San Geronimo Valley, West Marin County near San Geronimo Village and the town of Woodacre, CA as shown on Figure 1. The primary entrance to the Roy's Redwoods Open Space Preserve is located on Nicasio Valley Road approximately 0.5 miles north of the intersection of Nicasio Valley Road and Sir Francis Drake Boulevard. It is surrounded by a large and mostly undeveloped parcel to the north and east; the San Geronimo Commons; the French Ranch Open Space Preserve to the west; and the Maurice Thorner Memorial Open Space Preserve, San Geronimo Village, and San Geronimo Treatment Plant to the south.

The proposed project area is located in the northwestern portion of the Preserve as shown on Figure 1. The project area encompasses the valley floor within the Roy's Redwoods Open Space Preserve, covering approximately 19 acres, and includes redwood forest, a perennial meadow, and seasonal wetlands. Upper Larsen Creek and three tributaries flow through the alluvial valley floor. Redwood-California bay and California bay forests occupy a majority of the proposed project area with smaller areas of coastal brambles, arroyo willow thicket, and brown-headed rush wetlands, and non-native grassland present throughout the northern portion of the area.

The proposed project would improve existing trails to increase proper drainage and prevent erosion, upgrade existing trails to provide inclusive access, and realign existing trail segments to provide sustainable

trail connections with improved drainage. The existing entryway along Nicasio Valley Road would be improved and two additional entryways would be constructed along Nicasio Valley Road to increase visitor safety and provide quick access to the Preserve from Nicasio Valley Road. A total of 6,465 feet of existing social trails would be decommissioned and revegetated to blend the trail corridors back into the surrounding landscape. Approximately 1.14 acres of heavily used and degraded areas of the alluvial valley floor would be rehabilitated to increase natural regeneration of native vegetation, and a multi-threaded wetland-channel complex would be created to restore Upper Larsen Creek.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to Aesthetics. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

Potentially significant environmental impacts associated with aesthetics can be subjective in nature because the response to aesthetics varies from person to person. In terms of methodology, potentially significant environmental impacts to aesthetics have been determined by identifying whether project elements would result in the loss or degradation of a scenic attribute or in a demonstrable negative effect to overall visual quality.

a) Would the Project have a substantial adverse effect on a scenic vista? No Impact

A scenic vista can be defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. There are no officially designated scenic vistas in or near the proposed project area. The Roy's Redwoods Open Space Preserve includes non-designated scenic vistas and implementation of the proposed project would blend into the existing environment and would not result in an adverse effect on scenic vistas.

The proposed project has been designed to avoid tree removal, minimize vegetation removal during construction of new and realigned trails, and increase vegetation in locations throughout the proposed restoration areas and along actively decommissioned trails. Vegetation removal would not result in a substantial adverse effect on scenic vistas because a large portion of the project area is heavily vegetated and areas that are not vegetated now would receive revegetation treatment with implementation of the proposed project. The minor vegetation removal associated with trail construction and trail realignment would not result in a substantial adverse effect on a scenic vista.

Proposed project features including bridges, boardwalks, and the relocation of the existing porta-toilet would improve overall character as seen from scenic vistas along Nicasio Valley Road and from within the Roy's Redwoods Open Space Preserve. The proposed bridge and boardwalks would replace informal trails that cross through Upper Larsen Creek and its tributaries and through wetlands and potentially wet areas. No vegetation grows at the social trail crossings and along the social trails through the wetlands. The proposed bridge and boardwalk crossings would improve overall scenic views by providing features in character with the surrounding landscape and improving vegetation cover where social trails have left the site bare. The porta-toilet would be relocated to a location outside the floodplain and from an area that is visible from visitors accessing the Preserve from Nicasio Valley Road. The new porta-toilet location would be partially screened by existing vegetation and it would not be readily visible from visitors at entryways 1 and 2. Figure 10 provides a rendering of the proposed porta-toilet in the new location. The proposed trail features and newly located porta-toilet would have a net benefit on the views from scenic vistas.

b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? No Impact

Scenic resources can be defined as those landscape patterns and features that are visually or aesthetically pleasing. These include, but are not limited to, trees, rock outcroppings, and historic buildings. Scenic areas, open spaces, rural landscapes, and vistas also contribute to a net visual benefit for the viewer. The California Department of Transportation (Caltrans) manages the California Scenic Highway Program to protect State highways located in areas of outstanding natural beauty. The state legislature created the California's Scenic Highway Program in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment. There are no designated scenic highways in Marin County and the proposed project contains no structures, historic or otherwise[36]. Implementation of the proposed project would have no impact to scenic resources within a state scenic highway.

c) In non-urbanized areas, would the Project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? Less than Significant Impact

Changes to visual character can be defined as the perceived contrast between the existing visual elements of an area and how the area would look after the project is implemented, as a measure of how compatible the project would be with the existing visual environment after it is implemented. The proposed project is located within an existing open space preserve, which is accessed by the public for outdoor recreation. Publicly accessible vantage points would be from the existing and proposed trails, though a small portion of the area is visible from Nicasio Valley Road.

Proposed changes to the road-shoulder parking and existing entryway improvements would be visible as motorists drive along Nicasio Valley Road and as visitors enter the Preserve. Visitors currently park along the shoulder, which would continue with implementation of the proposed project. A new inclusive access parking spot would be added, and the shoulder would be improved for parking. An existing fence line between the roadway shoulder and the trails within the Preserve would be reinstalled and improved; however, fence materials and character would not change. The existing entryway would be improved, and two additional entryways would be constructed to improve safety for visitors along Nicasio Valley Road and to improve site conditions associated with soil erosion caused by visitor access. An existing porta-toilet would be relocated out of the floodplain to a site adjacent to the existing Preserve entryway. The visual character of the new porta-toilet location coupled with screening would have a beneficial effect on the aesthetics in the area. None of the proposed facilities visible from Nicasio Valley Road would change the character of the area because similar facilities already exist, and the new facilities would conform to the existing character of the local area. Construction activities would be visible during the construction period, but the visual changes would be temporary and would only occur for the duration of construction. The impact would be less than significant.

The remaining project area is only slightly visible from Nicasio Valley Road; however, all the proposed activities would be visible to visitors within the Preserve. Trail work to improve drainage and reduce erosion and trail improvements to provide inclusive access would fit within the character of the overall landscape. Trail construction would meet RTMP standards, which would ensure the trails remain within the character of the open space preserve. Construction of boardwalks and other stream or wetland crossings would likely

[36] California Department of Transportation (Caltrans). 2021. California Scenic Highway Mapping System. LINK: Scenic Highways | Caltrans Viewed on September 30.

improve the visual character of the area and guide visitor use to more sustainable locations. Trail decommissioning would facilitate blending the closed trail segments into the existing landscape as they recover and revegetate after elimination of public access. Although trail construction would be visible to visitors, the visual impact would be temporary. The proposed project would not result in significant changes in the visual character, and the potential impact would be less than significant.

Implementation of the proposed ecological and hydrologic restoration activities would include rehabilitation of heavy use areas throughout the alluvial valley floor, measures to arrest further degradation of the banks and channel of Upper Larsen Creek, and reestablishment of a multi-threaded wetland-channel network through the valley floor that would improve the overall visual character of the site. Heavy visitor use has resulted in compaction and loss of native vegetation in heavily visited and highly visible areas. Rehabilitation would improve visual character by guiding public use along trails and by restoring the area to look and function similar to redwood forest floors in areas less disturbed by human activity. Although visitors would see heavy equipment and disturbed ground during construction, the potential impact would be temporary and less than significant.

Changes to the visual environment during construction would include construction equipment staged at the site, disturbed land, and temporary stormwater protection measures such as fiber rolls and straw. After construction, the new and modified trail segments and decommissioned areas would be visible, but as new vegetation grows, it would soften the visibility of these changes.

Operation of the proposed project would involve use of the trails for recreation, similar to existing conditions, and trail maintenance would occur as needed, and therefore, would result in less than significant impacts.

Given the design of the changes to be generally compatible with semi-natural areas, their location in the visual setting, and the limited scale compared to the entire preserve, implementation of the proposed project would result in a less-than-significant impact on visual quality and character of public views.

d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? No Impact

New sources of light and glare can occur from lighting associated with buildings and from exterior light sources such as street lighting, building illumination, security lighting, and landscape lighting. Glare is an objectionable brightness, the effect usually created by the reflection of sunlight or artificial light from highly polished surfaces, including windows and automobile glass during the daytime. During nighttime, glare is usually the result of the viewer being within the line of sight of a bright source of light, such as from a building or vehicle headlamps that contrast with surrounding low-ambient light conditions. Light pollution is an unwanted consequence of outdoor lighting and includes such effects as sky glow, light trespass, and glare. Light trespass is light cast where it is not wanted or needed, such as light from a streetlight or a floodlight that illuminates a neighbor’s bedroom at night making it difficult to sleep.

The Roy’s Redwoods Open Space Preserve does not contain any sources of light or glare. The proposed project would not add any new sources of light or glare, and therefore, the proposed project would result in no impact on day or nighttime views in the area.

Agricultural and Forestry Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Setting

The California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP) provides a classification system based on technical soil ratings and current land use. The FMMP is an informational service only and does not have regulatory authority over local land-use decisions. The minimum land use mapping unit is ten acres unless specified; the map incorporates smaller units of land into the surrounding map classifications. Pursuant to CEQA Guidelines Appendix G, the term "Farmland" refers to FMMP map categories Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (hereafter collectively referred to as "Farmland"). Generally, any conversion of land from one of these categories to a lesser quality category or a non-agricultural use would be an adverse impact. These map categories are as follows:

a) **Prime Farmland:** Land which has the best combination of physical and chemical characteristics to produce crops. It has the soil quality, growing season, and moisture supply needed to produce

sustained high yields of crops when treated and managed, including water management, according to current farming methods.

b) **Unique Farmland***:* Land of lesser quality soils used to produce specific high economic value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of a specific crop when treated and managed according to current farming methods. It is usually irrigated but may also include non-irrigated orchards or vineyards.

c) **Farmland of Statewide Importance***:* Land that is like Prime Farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.

Roy's Redwood Open Space Preserve does not contain any prime, unique, or important farmland. The California Department of Conservation maps this area as "Other"[37].

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to Agriculture and Forestry Resources. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to agriculture and/or forestry resources if the project will alter existing agricultural land uses or land use designations. Generally, any conversion of land from one of the Farmland categories to a lesser quality category or a non-agricultural use would be a potentially significant impact.

a) Would the Project convert prime farmland, unique farmland, or farmland of statewide importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use? No Impact

The Roy's Redwoods Open Space Preserve does not include mapped Farmlands, and it does not support agricultural use[38]. The project area would remain as open space preservation and recreation following implementation of the proposed project. Therefore, the proposed project would result in no impact from conversion of Farmland to a non-agricultural use.

b) Would the Project conflict with existing zoning for agricultural use, or a Williamson Act contract? No Impact

The Roy's Redwoods Open Space Preserve is designated for open space uses. There are no designated agricultural lands or Williamson Act contracted parcels on the site. Therefore, implementation of the proposed project would result in no impact to existing zoning for agricultural use or a Williamson Act contract.

[37] California Department of Conservation, 2016. Marin County, Important Farmland Data Availability LINK: Marin County Farmland Data

[38] ibid

c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land *(as defined in Public Resources Code §12220(g)),* timberland *(as defined by Public Resources Code §4526),* or timberland zoned Timberland Production (as defined by Government Code §51104(g))? No Impact

In accordance with the definition provided in California Public Resources Code Section 12220(g), “forest land” is land that can support, under natural conditions, 10 percent native tree cover of any species, including hardwoods, and that allows for the preservation or management of forest-related resources, such as timber, aesthetic value, fish and wildlife, biodiversity, water quality, recreational facilities, and other public benefits. "Timberland" means land, other than land owned by the federal government and land designated as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees.

Zoning for the Roy’s Redwoods Open Space Preserve is Open Space. The project area includes forest lands; however, no timberland or timberland production occurs on site. Implementation of the proposed project would result in no impact to lands zoned as forest land, timberland, or timberland production.

d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use? No Impact

As described above, the Roy’s Redwoods Open Space Preserve is used for preservation and outdoor recreation, does not contain zoned forest land, and is not used for any timber related activities. Therefore, implementation of the proposed project would have no impact from the loss or conversion of forest land to a non-forest use.

e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? No Impact

The Roy’s Redwoods Open Space Preserve does not include farmland but does support forest land. Implementation of the proposed project would not convert farmland to a non-agricultural use or convert forest land to a non-forest use; therefore, implementation of the proposed project would result in no impact associated with farmland or forest land conversion to non-agricultural or non-forest use.

Air Quality

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b. Result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors or dust) adversely affecting a substantial number of people?	☐	☐	☐	☒

Setting

Marin County is part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). Air quality in the region is affected by natural factors, such as proximity to the bay and ocean, topography, and meteorology, as well as by anthropogenic factors related to air pollution from human activities. The Bay Area is characterized by its Mediterranean climate, with warm, dry summers and cool, wet winters. Sensitive receptors to substantial pollutant concentrations refers to those facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. There are no air quality standards for odors.

The coastal and southern portions of Marin County are often subject to cool marine air and substantial fog. Temperatures in these areas remain relatively steady throughout the year as a result of this marine influence. Eastern Marin County is warmer, with less fog, and more seasonal variability in temperature. Prevailing winds throughout the County are generally from the northwest, with wind speeds highest along the coast. Annual rainfall in Marin County is 37 to 49 inches. Winter rains account for the majority of rainfall in the County.

In general, ambient air quality in a region depends on the quantities of pollutants emitted by sources within the area, transportation of pollutants to and from surrounding areas, local and regional meteorological conditions, and the surrounding topography. Air quality is characterized by the concentration of pollutants in the atmosphere and/or emissions of pollutants. Units of concentration are typically expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$) and emissions are typically expressed as pounds per day (lb/day) or tons per year.

The Federal Clean Air Act (CAA) and the California Clean Air Act form the basis of the air quality regulations and programs that govern the project area and the wider SFBAAB. Air quality is monitored and regulated by the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Bay Area Air Quality Management District (BAAQMD).

A region's success in promoting good air quality is measured by comparing the concentration of pollutants in the atmosphere to the known safe level set as State and federal standards. Chemicals with potential

basin-wide effects are regulated under the CAA in two groups: 1) toxic air contaminants with immediate, acute toxicity effects and 2) criteria pollutants that are common chemicals with long-term health effects. Acutely toxic chemicals are problematic at any concentration; however, the effect of criteria contaminants depends on the amount of exposure over time. Criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), sulfates, lead, and fine (PM2.5) and coarse (PM10) particulate matter.

EPA sets limits on maximum atmospheric concentration for each criteria pollutant. The State of California is required to use these limits, but may also set higher standards when CARB determines that doing so would protect human health. When an area is at or below the regulatory standard, it is said to be "Attainment" for that pollutant. The SFBAAB is designated nonattainment for the federal and state ozone standards, the state PM10 standard, and the federal and state PM2.5 standards[39]. The SFBAAB is designated attainment or unclassified for all other state and federal air quality standards.

Accordingly, the pollutants of greatest concern in Marin County are ozone and particulate matter. Ozone is primarily a problem in the summer, and PM2.5 pollution is a problem in the winter. Marin County in general does not experience problems with ozone, but the hilly terrain and colder winter temperatures can trap PM2.5 near the surface, sometimes resulting in air quality that exceeds health standards.

Ozone is not emitted directly, but is formed in the atmosphere through chemical reactions between precursor chemicals, including CO, NO_2, and volatile organic compounds (VOCs). Motor vehicles are the largest source of ozone precursor emissions. Particulate matter is divided into two categories: coarse particulate matter with a diameter of 10 microns or less (PM10) and fine particulate matter with a diameter of 2.5 microns or less (PM2.5). High concentrations of particulate matter can impact human health, as well as contribute significantly to regional haze and reduced visibility. PM10 is produced by combustion, industrial processes, motor vehicles, and grading and construction. PM10 emissions associated with motor vehicle use are primarily generated by re-suspended road dust, rather than direct vehicle emissions. PM2.5 is most commonly generated through combustion, including wood burning furnaces and regional wildfires.

In Marin County, air pollution potential is highest in the eastern portion of the county where population and development are most concentrated. The project area is located in western Marin County where air pollution potential is generally lower. Though the county does not have many polluting industries, air quality along the U.S. 101 corridor, which is 6.5 miles from the project area, may be affected by emissions from increasing motor vehicle use within and through the county.

Air quality in Marin County is generally very good. The BAAQMD measures air quality in Marin County at a monitoring station in San Rafael. With the exception of PM10 and PM2.5, this monitoring station has not reported any exceedances of ambient air quality standards over the past five years[40].

Air pollutants can be locally problematic when they occur at high densities or when the source is close to a sensitive receptor. The project area is located approximately 3.2 miles northwest of the city of Fairfax city limits and approximately one mile north of the unincorporated town of Woodacre. Lands surrounding the project area consist primarily of open space, low density residential, and agriculture. Other than nearby residences, the nearest sensitive receptors to Roy's Redwoods Open Space Preserve are San Geronimo Preschool and Lagunitas Elementary School, which are approximately 0.5 mile to the south and west, respectively.

[39] BAAQMD 2017a. LINK: BAAQMD 2017a

[40] BAAQMD 2020. LINK: BAAQMD Air Monitoring Data

Applicable RTMP Policies and BMPs

The MCOSD would incorporate the following applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts associated with air quality. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Policy SW.29: Retrofit or Upgrade Construction Equipment
- Air Quality-1: Implement BAAQMD Measures
- Air Quality-2: Minimize Dust Control Emissions during Construction
- Air Quality-3: Enhanced Dust Control during Construction
- Air Quality-4: Dust Control During Construction in Sensitive Resource Areas

CEQA Context

A project would normally result in significant impacts to air quality if changes to existing air quality would result from construction, operation, use, and/or maintenance activities from implementation of the project. The proposed project has been evaluated to determine if changes to existing air quality would result from construction, public use, operations, and/or maintenance.

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan? No Impact

The applicable air quality plan for the project is the BAAQMD's 2017 Clean Air Plan: Spare the Air, Cool the Climate (2017 CAP) adopted in April 2017, which provides a regional strategy to reduce air pollution and thereby protect public health and climate[41]. The 2017 CAP describes how the BAAQMD will continue progress towards attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. Regarding climate protection, the 2017 CAP focuses on achieving greenhouse gas reduction targets for 2030 and 2050, such as for methane and carbon dioxide. The 2017 CAP includes control measures designed to decrease emissions of air pollutants most harmful to Bay Area residents, including ozone and particulate matter.

The BAAQMD published CEQA Air Quality Guidelines in May 2017 (2017 BAAQMD Guidelines) to assist in evaluating the potential air quality impacts of proposed projects in the SFBAAB during the environmental review process consistent with CEQA requirements. Per the 2017 BAAQMD Guidelines, the BAAQMD considers a project consistent with the CAP if it: 1) can be concluded that a project supports the primary goals of the CAP (by showing that the project would not result in significant and unavoidable air quality impacts); 2) includes applicable control measures from the CAP; and 3) does not disrupt or hinder implementation of any CAP control measure[42].

Because the proposed project would not result in new long-term operations-related emissions and construction-related emissions would be short-term and less than significant (see Impact b, below), implementation of the proposed project would not conflict with the primary goals of the 2017 CAP. The CAP includes 85 control measures across nine sectors: stationary (industrial sources), transportation, energy, buildings, agriculture, natural and working lands, waste management, water, and super-GHG pollutants. The proposed project would not include new stationary sources or new permanent mobile sources, would not introduce a new land use, and would not use a substantial amount of energy. The proposed project would incorporate all applicable control measures and implementation of the project would not hinder implementation of any control measures included in the CAP. Additionally, the proposed project would

[41] BAAQMD Clean Air Plan, Spare the Air, Cool the Climate. 2017b. LINK: BAAQMD: Clean Air Plan , April.

[42] ibid

incorporate applicable RTMP Air Quality BMPs to avoid air quality impacts. Therefore, implementation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plan, and there would be no impact.

b) Would the Project result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard? Less than Significant

The SFBAAB is designated nonattainment for the federal and State ozone standards, the state PM10 standard, and the federal and state PM2.5 standards, which is primarily to the region's development history. Generally, no individual project is large enough to result in nonattainment of air quality standards on its own. Instead, individual project emissions can cumulatively contribute to adverse air quality conditions. If an individual project's contribution to the existing cumulative impact is considerable, then the project's impact on air quality would be considered significant.

The proposed project would result in minor criteria pollutant emissions during construction. Construction of the proposed project would include use of heavy equipment, which would result in direct emissions of criteria pollutants. Grading activities and the movement of equipment and workers within the project area would also result in some fugitive dust emissions. Additionally, MCOSD employees and contractors driving to and from the site would result in emissions from vehicle use. These construction-related emissions would be temporary and short-term in nature and would cease after construction of the project. In addition, the MCOSD would implement RTMP BMPs to reduce emissions associated with project implementation. These BMPs require the MCOSD to implement measures to reduce emissions and control dust during and after construction.

The proposed project would not result in additional emissions associated with ongoing operation. The proposed project would be located in Roy's Redwoods Open Space Preserve, which is currently maintained by MCOSD staff and utilized by the public for low-intensity outdoor recreation. The proposed project would not change the level of ongoing operation and maintenance activities on Roy's Redwoods Open Space Preserve.

The 2017 BAAQMD Guidelines provide a process for evaluating the proposed project's impact related to criteria pollutant emissions and its potential to cause or contribute to a violation of air quality standards[43]. The first step in this process is to evaluate whether the project meets the screening criteria defined in the 2017 BAAQMD Guidelines. If the project meets all screening criteria, its impact is considered to be less than significant and further detailed analysis of potential project emissions is not required.

Table 3-1 of the 2017 BAAQMD Guidelines provides the following screening criteria size thresholds for the proposed project's land use of city park: 2,613 acres for operational criteria pollutants, 600 acres for operational greenhouse gases (GHG), and 67 acres for construction-related emissions (PM10). The total area associated with the project is approximately 19 acres, so the proposed project size is well below the described screening criteria size thresholds. The proposed project would not include demolition, simultaneous occurrence of more than two construction phases, simultaneous construction of more than one land use type, extensive site preparation, or material transport greater than 10,000 cubic yards requiring considerable haul truck activity. Additionally, the proposed project would incorporate applicable RTMP Air Quality BMPs, as noted above, which would ensure that all basic construction measures recommended by the BAAQMD would be implemented during project construction. As a result, the proposed project would meet all of the screening criteria identified in the 2017 BAAQMD Guidelines and the project would not result in a cumulatively considerable net increase of any criteria pollutant. Therefore, both construction-period and operational impacts associated with the proposed project would result in a

[43] BAAQMD 2017b. BAAQMD Clean Air Plan, Spare the Air, Cool the Climate.

less-than-significant increase of ozone and particulate matter, the criteria pollutants for which the Bay Area Air Basin is in non-attainment under applicable federal and state ambient air quality standards.

c) Would the Project expose sensitive receptors to substantial pollutant concentrations? Less than Significant

Sensitive receptors are areas that are occupied by populations that are more susceptible to adverse effects from pollutants, such as children, the elderly, and people with illnesses. Sensitive receptors include facilities such as schools, hospitals, and communities for the elderly. Aside from nearby residences, the closest sensitive receptors to the project area are San Geronimo Preschool and Lagunitas Elementary School, which are approximately 0.5 mile to the south and west, respectively.

Implementation of the proposed project would contribute to a minor temporary increase in air pollutants associated with project construction as a result of vehicle emissions, operation of construction equipment, and ground disturbance. However, these emissions would be temporary, and vehicle and equipment related emissions would not result in localized concentrations of any criteria pollutants that would impact sensitive receptors. Project construction would result in fugitive dust emissions associated with grading and the movement of equipment and staff around the proposed project area. However, the project would implement RTMP Air Quality BMPs 1 through 4, which include rigorous dust control measures. As a result, the proposed project would not result in fugitive dust impacts to nearby residential areas or other sensitive receptors.

The significance of impacts to sensitive receptors is also dependent on the chance of contracting cancer from exposure to Toxic Air Contaminants (TACs) or of having adverse health effects from exposure to non-carcinogenic TACs. Construction equipment can produce substantial amounts of diesel particulate matter, which has been identified by CARB as a TAC. A project is considered to have a significant impact if the incremental cancer risk at a receptor exceeds 10 in a million. Health risk is evaluated for sensitive receptors within a 1,000-foot radius of a project's impact area. There are no sensitive receptors within 1,000 feet of the proposed project. The nearest residences to the project area are approximately 1,650 feet away and Lagunitas Elementary School and San Geronimo Preschool are approximately 0.5 mile away or 2,640 feet away.

The Office of Environmental Health Hazard Assessment (OEHHA) does not recommend assessing cancer risk for projects lasting two months or less[44]. The proposed project would require more than two months of construction, however there are no sensitive receptors or residences within a 1,000-foot radius of the project's impact area, so a cancer-risk assessment is not required. Additionally, the proposed project would incorporate RTMP Policy SW.29, which would ensure that equipment used during project construction include diesel particulate filters or have electric, Tier III, or Tier IV off-road engines, as applicable. As a result, the project would not expose sensitive receptors to any substantial concentrations of diesel particulate matter or other TACs.

Implementation of the proposed project would not result in any long-term or chronic exposure of sensitive receptors to substantial pollution concentrations. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with exposure of sensitive receptors to substantial pollution.

[44] Office of Environmental Health Hazard Assessment. 2015.

d) Would the Project result in other emissions, such as those leading to odors, adversely affecting a substantial number of people? No Impact

There are no air quality standards for odors. Odor impacts are subjective as odor sensitivity varies from person to person. Odor impacts are related, to some degree, to the distance from the origin of the odor to the receptor. Offensive odors rarely impact public health; however, odors can cause headaches and on-going odors can result in a negative impact to quality of life. In general, the types of land use that could result in potential odor emissions include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations.

BAAQMD's Regulation 7 – Odorous Substances[45] places general limitations on odorous substances and specific emission limitations on certain odorous compounds. These substances and compounds include dimethylsulfide, ammonia, mercaptans calculated as methylmercaptan, phenolic compounds calculated as phenol, and trimethylamine. The proposed project would not utilize these substances or compounds during construction or operation and maintenance activities, and therefore the proposed project would be in compliance with this regulation.

Implementation of the proposed project would neither result in any major sources of odor nor introduce land uses that would pose potential future odor emissions. Short-term construction equipment related emissions, including diesel exhaust and fuel vapors, have the potential to result in short-term generation of odor emissions. These odor emissions would be temporary and would dissipate rapidly in the air, decreasing with distance from the source, thus minimizing potential exposure to persons utilizing open space near the project area. Implementation of the proposed project would not result in odor emissions that would adversely affect a substantial number of people. Therefore, implementation of the proposed project would not result in odor emissions that would adversely affect a substantial number of people.

[45] Bay Area Air Quality Management District (BAAQMD). Regulation 7 Odorous Substances. 1982. LINK: BAAQMD: Odorous Substances Documents

Biological Resources

Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Setting

The project area encompasses the old growth redwood grove and adjacent portions of the Roy's Redwoods Open Space Preserve in the San Geronimo Valley in West Marin County as shown on Figures 1 and 2. The primary entrance to the Roy's Redwoods Open Space Preserve is located on Nicasio Valley Road approximately 0.5 miles north of the intersection of Nicasio Valley Road and Sir Francis Drake Boulevard. The Preserve is surrounded by a large and mostly undeveloped parcel to the north and east; the former San Geronimo Golf Course and the French Ranch Open Space Preserve to the west; and the Maurice Thorner Memorial Open Space Preserve, San Geronimo Village, and the San Geronimo Treatment Plant to the south.

The proposed project site includes the valley floor, which is dominated by redwood forest and a non-native meadow, with patches of bay forest, wetland, and riparian scrub. The site includes approximately 11.1 acres of redwood forest, 5.1 acres of California bay forest, 0.16 acres of Arroyo willow thicket, 0.23 acres of brown-headed rush wetland, and 2.9 acres of non-native grassland. The Roy's Redwoods Open Space Preserve is located in the Larsen Creek watershed, and Upper Larsen Creek and several tributaries flow through the alluvial valley and redwood grove and onto the San Geronimo Commons below the project site. Habitat quality in Upper Larsen Creek and its tributaries in the proposed project area is degraded, with incised channel reaches that are disconnected from the adjacent floodplains[46].

Roy's Redwoods Open Space Preserve currently contains 4.1 miles of designated roads and trails. Numerous social trails and heavily compacted areas are spread across the valley floor as a result of visitor use, and the project aims to decommission and restore most of these areas and focus visitor use along a sustainable trail network that provides access to areas that users want to visit.

Biological Resources Study

To assist with understanding how implementation of the proposed project could affect biological resources, the MCOSD contracted with Prunuske Chatham, Inc. (PCI), who prepared the Roy's Redwoods Open Space Preserve Biological Resources Assessment Report (PCI Biology Report)[47] in 2021. PCI assessed biological resources and habitats within the project area and evaluated potential impacts to these resources from the implementation of the proposed project. Wildlife and botanical surveys of the project area were conducted to evaluate the potential for presence of special-status wildlife, compile an inventory of species observed and wildlife habitats, evaluate existing habitats, and evaluate potential impacts on resources resulting from project implementation. PCI conducted full floristic botanical surveys on April 15 and July 2, 2020, with supplemental assessments on July 11, 2017 and November 4, 2020. Information included in the PCI Biology Report was used extensively in preparation of the Biological Resources section of this CEQA Initial Study Checklist. The report is available for review at the Marin County Parks and Open Space District Administrative Office.

The project area evaluated in the PCI Biology Report includes approximately 19 acres, including the project site and a surrounding area buffer. While the PCI Biology Report describes the biological resources occurring or potentially occurring with the project area, only a portion of the project area would be disturbed by project-related improvements and construction activities. The vegetation types in the project area are shown on

Figure 25 PCI Biological Resources Assessment Report - Vegetation Types

[46] A floodplain is an area of flat land alongside a river that gets covered in water when the river or stream floods.

[47] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Assessment Report. October 2021.

Vegetation Communities

PCI identified six vegetation types within the project area as shown in Table 4 and illustrated on Figure 29. The vegetation types within the project area are dominated by Redwood-California bay forest and a non-native meadow, with patches of bay forest, wetland, and riparian scrub.[48] The table below lists vegetation types and alliances present within the project area and is followed by a general overview of the plant community composition at the project site based on PCI's field surveys.

Table 5: Vegetation Types within the Project Area

Community Type	Vegetation Type	Vegetation Alliances Present	Sensitivity	CDFW Rank[49]	Acres/ Square Feet in Project Site
Forest	Redwood – California bay forest	*Sequoia sempervirens-Umbellularia californica* Alliance	y	G3S3.2	11.1/ 483,516
	California bay forest	*Umbellularia californica* Alliance	y	G4S3	5.1/ 222,156
Shrubland	Coastal brambles	*Rubus ursinus* Alliance	y	G4S3	0.03/ 1,307
	Arroyo willow thicket	*Salix lasiolepis Alliance*	y	G4S4	0.16/ 6,969
Herbaceous	Brown-headed rush wetland	*Juncus phaeocephalus Provisional Alliance*	y	G3?/S3?	0.23/ 10,019
	Non-native grassland	*Avena spp-Bromus spp* Alliance	n	NA	2.90/ 126,324
		Cynosurus echinatus-Arrhenatherum elatius/Dichelostemma capitatum Provisional Association	n	NA	

[48] Vegetation types are based on the classification system used by Manual of California Vegetation Online (CNPS 2021b).

[49] Alliances ranked G3S3 or lower are considered by CDFW to be of high inventory priority (CNPS 2020b). Non-native alliances (a.k.a. Semi-natural stands) are not ranked. "G" indicates conservation priority at the global level, and "S" refers to the state level. 1 = critically imperiled; 2 = imperiled; 3 = vulnerable; 4 = apparently secure; 5 = secure. "?" indicates the need for further study

PCI evaluated where the proposed project elements would overlap with the vegetation communities with the project area and determined trail construction and trail crossings would occur in all the vegetation types across the project site. Results of the evaluation are presented in Table 6.

Table 6: Trail Construction and Access and Staging by Vegetation Types

	Redwood-California Bay Forest (square feet)	California Bay Forest (square feet)	Brown-headed Rush Wetland (square feet)	Non-native Grassland (square feet)
Trail Construction	16,870	6,100	360	3,400
Trail Crossings	1,510	240	200	345
Staging and Access	--	--	--	42,290
Total	18,380	6,340	560	46,035

PCI biologists also evaluated the vegetation communities where the proposed restoration and rehabilitation activities would occur. Results indicate restoration and rehabilitation activities would occur within all the vegetation communities within the project area. Table 6 provides the acres of proposed revegetation and improved habitat conditions by vegetation types across the proposed project area.

Table 7: Restoration Areas by Vegetation Types

	Redwood-California Bay Forest (square feet)	California Bay Forest (square feet)	Brown-headed Rush Wetland (square feet)	Non-native Grassland (square feet)
Designated Trail Decommissioning	880	857	-	7,285
Social Trail Decommissioning	15,115	2,486	430	631
Ecologic and Hydrologic Rehabilitation Areas	42,305	6,075	4	1,100
Total	58,300	9,418	434	9,016

Sensitive Plant Communities

Sensitive plant communities[50] are those that are of limited distribution statewide or within a county or region, those that are particularly threatened by human activity, or those that provide especially important ecological values. The California Department of Fish and Wildlife's List of California Terrestrial Natural Communities and the Manual of California Vegetation[51] indicate which plant communities are sensitive within the state of California; other communities may be sensitive based on federal or local (county)

[50] Sensitivity based on federal (U.S. Army Corps of Engineers; Section 404), state (CDFW), and local (Marin County) policies.

[51] Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009.

regulations. Within the project area, all of the vegetation other than non-native grassland is considered sensitive.

Forest

Redwood-bay forest occupies the majority of the project area[52] along Upper Larsen Creek. The redwood grove is located along the southern half of the valley and extends up the adjacent north-facing slope. The grove includes numerous old-growth trees, as well as large secondary-growth trees originating from logged or naturally fallen trees that have regrown. Generally, the trees appear to be in good condition, with robust canopies and healthy foliage. In relatively undisturbed parts of the grove, there is a complex understory of natives including California bay (*Umbellularia californica*) and big leaf maple trees (*Acer macrophyllum*), shrubs including snowberry (*Symphoricarpos albus*), wood rose (*Rosa gymnocarpa*), poison oak (*Toxicodendron diversilobum*), California hazelnut (*Corylus cornuta ssp. californica*), and California blackberry (*Rubus ursinus*), and herbs like Western sword fern (*Polystichum munitum*), wood fern (*Dryopteris arguta*), false Solomon's seal (*Maianthemum stellatum*), bee plant (*Scrophularia californica*), trail plant (*Adenocaulon bicolor*), and stream violet (*Viola glabella*). Redwood saplings are also found in these undisturbed areas. The understory has been lost from many places by trampling and compaction from visitors. Invasive species are rare in most of the grove, but Himalayan blackberry (*Rubus armeniacus*) is abundant along the lower portion of the creek. At the northern end of the project area, the forest transitions to a bay-dominated community. Understory is limited in this area.

Shrubland

Stands of California blackberry mixed with poison oak occur in the transitional zone between the meadow and the redwood grove. Native sneezeweed (*Helenium puberulum*) is present there, as well as non-native bullthistle (*Cirsium vulgare*), Italian thistle (*Carduus pycnocephalus*), teasel (*Dipsacus* sp.), and Himalayan blackberry. A thicket of arroyo willow (*Salix lasiolepsis*) is present in the southeastern side of the meadow, adjacent to the wetland and blackberry stands.

Herbaceous

Non-native Grasslands

The meadow area vegetation has been shaped by a history of livestock grazing, which occurred prior to the 1980s, and perhaps cultivation to support livestock. The meadow is dominated by non-native grasses such as false oat-grass (*Arrhenatherum elatius*), common velvet grass (*Holcus lanatus*), dogtail grass (*Cynosurus echinatus*), rye grass (*Festuca perennis*), wild oats (*Avena barbata* and *A. fatua*), and bromes (*Bromus diandrus* and *B. hordeaceus*). A dense, monotypic stand of perennial false oat-grass is present on the southern side of the meadow trail, while the northern side of the trail is dominated by annual oats and bromes. Remnant patches of native perennial grasses such as California oatgrass (*Danthonia californica*), blue wildrye (*Elymus glaucus*), common brome (*Bromus vulgaris*), and perennial forbs such as blue dicks (*Dichelostemma capitatum ssp. capitatum*) are found growing among the mostly non-native plant assemblage.

Brown-headed Rush Wetland

A wetland occurs at the down-valley end of the meadow; it is dominated by brown-headed rush (*Juncus phaeocephalus*) and other common moisture-dependent herbaceous species like native California buttercup (*Ranunculus californicus var. californicus*) and winter cress (*Barbarea orthoceras*) and non-native pennyroyal (*Mentha pulegium*).

[52] Project area refers to the larger area within which biological resources could be subject to effects (e.g., disturbance to wildlife from construction-related noise). The project area includes lands surrounding the proposed project site for trail closure, decommissioning, and restoration; new trail construction; social trail upgrade; and revegetation.

PCI biologists evaluated the proposed project to determine disturbance within each vegetation types within the project area

Aquatic Resources

PCI conducted an aquatic resources assessment of wetlands and waters within areas proposed for restoration where structures, fill, site access, or staging are proposed. Three wetlands were mapped in the aquatic resource study area as shown on Figure 26. Study results indicate a total of 0.39 acres of wetlands in the proposed project area, primarily located along the existing Meadow Trail on the western portion of the proposed project area.

Upper Larsen Creek flows through the project area, including its three tributaries: the northern, southern, and western tributaries. The northern and southern tributaries flow into upper Larsen Creek near the edge of the alluvial valley. These tributaries are steep and flow into upper Larsen Creek downstream of the Forest Trail. The western tributary does not flow through the valley within Roy's Redwoods, but rather parallels Nicasio Valley Road after entering the Preserve at a culvert under the road. The western tributary and upper Larsen Creek join together near the Preserve entrance along Nicasio Valley Road at the downstream limits of the project area. The length of stream channel surveyed and mapped is approximately 2,600 linear feet.

Figure 26: PCI Aquatic Resources Assessment Findings

Wildlife Habitat

The project area is dominated by redwood forest with a narrow band of California bay forest at the upstream end of the site. The forests are bordered by annual grassland and patches of seasonal wetland and a willow thicket, and seasonal stream channels flow through the project site. Habitats within the project area support a variety of terrestrial birds, mammals, amphibians, reptiles, and invertebrates. Birds represent the most abundant and prominent wildlife species within these habitats.

The forested habitat within the proposed project area supports a variety of mammals. The diversity of the forested habitats within the proposed project area and their proximity to aquatic habitats also provides excellent foraging and roosting habitat for bats, including several special-status species. The forest floor, woody debris piles, and layers of duff provide habitat for amphibians. Special-status California giant salamanders are known to occur within the Roy's Redwoods Open Space Preserve. There is anecdotal evidence suggesting this species utilizes the stream channel and surrounding woodlands near a spring box in the upper elevations of the Preserve outside the project site[53]. The redwood forest in the proposed project area may be used as non-breeding upland habitat. Stream channels within the project site may be used as seasonal foraging habitat, movement corridors, and refuge, while suitable upland habitat for California giant salamanders is present within the proposed project site.

The proposed project would be located in the Larsen Creek watershed with proposed project elements occurring within Upper Larsen Creek and its tributaries. The stream channels flowing through the proposed project site are important habitat for a variety of aquatic-associated species. The channels only flow seasonally, but they provide an important water source for local wildlife. Persistent water provides potential habitat for aquatic macroinvertebrates which serve as the food base for both terrestrial and other aquatic species. Shallow pockets of water may provide breeding habitat for common amphibians such as the Sierra tree frog, which is most active during winter months. Due to the lack of persistent flows, the channels do not support fish or other wildlife species requiring perennial water.

[53] Project site refers to the area that would experience project-related temporary or permanent effects caused by surface disturbance, vegetation removal, or other alterations of habitat within the project construction area.

Special-Status Plants

The laws comprising California's legal framework and authority for plant species conservation include the FESA, CESA, the NPPA, and CEQA[54]. Special-status plants include: those listed as endangered, threatened, or rare; those listed as candidates for listing under FESA or CESA; those listed as rare under the NPPA; those meeting the definition of rare or endangered under CEQA[55]; those identified by the plant species listed by the California Department of Fish and Wildlife and California Native Plant Society as California Rare Plant Rank 1, 2 and 3 under CEQA Guidelines Section 15380; and some List 4 plants based on CNPS guidelines; and those considered locally significant.

Based on the background literature review[56], a number of special-status plant species were identified as having potential to occur within the project area; however, no special-status species were observed during site visits that occurred on July 11, 2017, April 15 and July 2, 2020, and November 4, 2020. Benson[57] reported no special-status species following surveys in 2016. Although the Roy's Redwoods Open Space Preserve is relatively rich in native plant species, there are no unique substrates such as serpentine, limestone, or heavy clay or alkaline soils, and there are no particularly rare habitats such as dunes, maritime chaparral, or specialized wetland types typical of special-status plants in Marin County.

Special-Status Wildlife

The presence of special-status wildlife species on MCOSD lands has been well documented through focused surveys, and other observations made by MCOSD staff and the public. PCI evaluated data collected and maintained by the MCOSD and reviewed the CNDDB and other sources[58]. Wildlife surveys were conducted to evaluate the potential presence of special-status wildlife, compile an inventory of species observed and wildlife habitats, and complete an evaluation of existing habitats within the project area and project site.

Based on the background literature review, a number of special-status animal species were identified as having the potential to occur in or near the project area. Species with reported observations in close proximity to the project area and/or in habitat types of relevance were evaluated. Species that only occur in habitats that are not present within the project area or require specific microhabitat conditions not present within the project area are not discussed further. A complete list of species evaluated and detailed species and listing status[59] descriptions are available upon request.

The MCOSD biologists have documented five special-status animal species within Roy's Redwoods Open Space Preserve: northern spotted owl (*Strix occidentalis caurina*), olive-sided flycatcher (*Contopus cooperi*), Cooper's hawk (*Accipiter cooperi*), pallid bat (*Antrozous pallidus*), and American badger (*Taxidea taxus*)[60]; although several of these species are not present in the project site. PCI also notes the presence

[54] FESA is Federal Endangered Species Act, CESA is California Endangered Species Act, NPPA is the Native Plant Protection Act, and CEQA is the California Environmental Quality Act.

[55] CEQA Guidelines §15380(b) and (d)

[56] See Special-status Wildlife below.

[57] Benson, S. 2016. Grassland Community Assessment. Roy's Meadow, Roy's Redwood Preserve, Marin County Open Space District. Prepared for Marin County Parks and Open Space District. September 19, 2016.

[58] The background literature and database search completed for the PCI Biology Report included a comprehensive review of special-status plant and animal species reported within the region. The search focused on reported occurrences within western Marin County, the Lagunitas Creek watershed and adjacent watersheds, species reported on the San Geronimo 7.5' USGS quadrangle where the project is located and adjacent quads (e.g., Novato, Bolinas, and San Rafael), and/or species known locally to occur in habitat types within the project area.

[59] Listing Status: FE-federally listed as endangered, FT-federally listed as threatened, BCC-Bird of Conservation Concern, SE-state listed as endangered, ST-state listed as threatened, Candidate SE-state candidate to be listed as endangered under CESA Candidate ST-state candidate to be listed as threatened under CESA, FP-State of California fully-protected species, SSC-California Species of Special Concern, and WL-Watch List.

[60] MCOSD 2016a. Vegetation and Biodiversity Management Plan, October.

of California giant salamander (*Dicamptodon ensatus*) based on anecdotal information. Additional bird species, herpetofauna, and fisheries resources are also reported within the region. The following section describes those species with potential for occurrence within the project site and those species of regional significance that were evaluated as part of the site analysis for the proposed project.

Birds

Over 502 bird species have been documented in Marin County, including 157 that are known to breed in Marin County[61]. These include a wide range of species from habitat specialists to generalist, year-round residents, winter residents, summer residents, spring and fall migrants, and rare vagrants. Many of these species occur within the project area. A number of native birds are listed as special-status species including Allen's hummingbird, golden eagle, Nuttall's woodpecker, oak titmouse, olive-sided flycatcher, osprey, and rufous hummingbird.

Northern Spotted Owl

The northern spotted owl (*Strix occidentalis caurina*, FT, ST) occurs from southern British Colombia south to Marin County, California. They are an uncommon, permanent resident of forest habitats with a dense closed canopy of mature and old-growth trees, with multi-layered canopies of varying size and age. These forests typically are 150-200 years old. They require these multi-layered closed canopies for nesting, roosting, and foraging. At the southern edge of their range in Marin County, the habitat associations differ. In this region, they can be found in younger forests with structural diversity and occasionally more open woodlands. The majority of the local territories in Marin County occur in canyon bottoms and mid-slope locations and often in association with perennial streams. Northern spotted owls utilize habitat with the project area.

In Marin County, dusky-footed woodrats comprise the bulk of their diet, making up over 75% of their diet by weight. They also prey on small mammals and birds. Northern spotted owls show strong site fidelity and commonly occupy the same home range year-round; they typically show strong site fidelity for nesting locations and activity centers[62]. They typically form long-term pair bonds. The breeding period generally lasts from early March through June, rearing two young per season. A pair of owls may utilize the same breeding site for 5 to 10 years; however, they may not breed every year. Individual territories are typically several hundred acres. The spotted owl has experienced a population decline due to the loss and degradation of existing mature and old growth forests and, most recently, the establishment of barred owls in the west.

Marin County populations of northern spotted owl have been closely monitored by Point Blue Conservation Science since 1997[63],[64]. Surveys have been completed on forests managed by the MCOSD and Marin Municipal Water District to monitor populations over time for population trends and reproductive success,

[61] Shuford, W.D. 1993. The Marin County Breeding Bird Atlas. A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

[62]"Spotted owls have been characterized as central-place foragers, where individuals forage over a wide area and subsequently return to a nest or roost location that is often centrally-located within the home range" (Rosenberg and McKelvey 1999). Activity centers are a location or point within the core use area that represent this central location. Nest sites are typically used to identify activity centers, or in cases where nests have not been identified, breeding season roost sites or areas of concentrated nighttime detections may be used to identify activity centers" (U.S. Fish and Wildlife Service 2011)." CDFW 2019

[63] Cormier, R. L. 2020. Northern Spotted Owl Monitoring on Marin County Parks and Marin Municipal Water District Lands, 2020 Report. Point Blue Conservation Science, Petaluma, CA.

[64] Point Blue Conservation Science (Point Blue). 2020. Northern Spotted Owl Monitoring on Marin County Open Space District and Marin Municipal Water District Lands, 2020 Report. Report to Marin County Parks and Marin Municipal Water District 2020.

and to determine occupancy and nesting status. The National Park Service also closely tracks owl populations on federal lands[65].

The old growth forests within the Roy's Redwoods Open Space Preserve provide viable nesting habitat and foraging habitat. Owls may forage at the project site and nest nearby in the project area. The area also provides habitat for dusky-footed woodrats, which are the key food source for the northern spotted owl in Marin County.

Point Blue has completed annual monitoring of the northern spotted owls at Roy's Redwoods Open Space Preserve since 2004[66]. Monitoring found nesting pairs within the Roy's Redwoods Open Space Preserve have successfully fledged at least one young in 2005, 2006, 2009, 2010, 2011 and 2016[67]. During the remaining years, birds were either considered non-nesting or their nesting status was unknown. Northern spotted owls have not been documented nesting within the proposed project site[68] since 2006. The nearest observation of a non-nesting pair is from 2012; the sighting was within 50 feet of the boundary of the project site. In 2020, a pair of owls produced a nest with young approximately 1,300 feet southeast of the project site. A pair also nested and produced young in this area in 2021, and a nest was located in the same general location in 2022. Owl nesting activity has been centered around this location since 2018. Based on monitoring data, owl nesting locations have changed over time, but have been generally concentrated in the central portion of the old growth forest, which is located outside the project site but within the Preserve. Dusky-footed woodrat nests have been observed just outside the project site in the general vicinity of the redwood forest edge near the junctions with the Roy's Redwoods Loop Trail and David Hansen Trail[69]. Although woodrat nests have not been documented within the project site, woodrats are most likely present in the project area[70] given the reported occurrence elsewhere within the Preserve[71].

Marbled Murrelet

The marbled murrelet (*Brachyramphus marmoratus*, FT, SE) is Pacific seabird belonging to the family Alcidae. They are an uncommon, permanent resident of the west coast from California to Alaska. They are a small seabird (9.75 inches in length) with a slender black bill. Marbled murrelets spend the majority of their lives on the ocean. They forage for small fish and plankton in offshore areas and along the rocky coastline. Courtship, preening, foraging, and molting occur in near-shore waters, but it has an unusual nesting behavior. Unlike most alcids[72], it does not nest in burrows or cliff colonies, but uses old-growth forests dominated by conifers and redwoods. A single egg is laid on a platform of lichen and moss on large tree limbs. Nesting occurs from late March to late September. Adult movements to and from the nest occur at any time of the day but most often at dusk and dawn. Young typically fly directly to the ocean at fledging. Breeding success is very low. There is reportedly only one nesting attempt per year. The principal factor in the decline of this species has been attributed to the loss of old-growth forests[73].

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[65] Ellis TD. 2018. Monitoring northern spotted owls on federal lands in Marin County, California: 2017 report. Natural Resource Report. NPS/SFAN/NRR—2018/1677. National Park Service. Fort Collins, CO.

[66] Unknown Author. 2017. Roy's Redwoods Site Inventory & Analysis Workshop Citing Point Blue Bird Observation unpublished reports.

[67] Marin County Parks. 2021. Northern Spotted Owl GIS Data. Provided by Marin County Parks.

[68] Project site refers to the area that would experience project-related temporary or permanent effects caused by surface disturbance, vegetation removal, or other alterations of habitat within the project construction area.

[69] Parks Conservancy. 2018. Roy's Redwoods Site Analysis Technical Memo. November 9, 2018.

[70] Project area refers to the larger area within which biological resources could be subject to effects (e.g., disturbance to wildlife from construction-related noise). The project area includes lands surrounding the proposed project site for trail closure, decommissioning, and restoration; new trail construction; social trail upgrade; and revegetation.

[71] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Report.

[72] A bird of the Alcidae family

[73] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Report.

Marbled murrelets are a permanent resident along the Marin Coast, but sightings are uncommon during the breeding season. There are no historical records for marbled murrelets at inland locations in Marin County[74],[75]. There have been a few "unverified sightings" reported in Marin County since 1990; however, "systematic surveys have been conducted in Muir Woods National Monument and no murrelets have been detected"[76]. Suitable nesting trees may be present within the project site and larger Preserve, but based on the available information and published documents, there are no reported nesting sightings of marbled murrelet in Marin County, including Roy's Redwoods[77].

California Giant Salamander

California giant salamanders (*Dicamptodon ensatus*, SCC) occur in wet coastal forests near permanent and semi-permanent streams and springs. This species is one of the largest terrestrial salamanders in North America. Breeding occurs mostly in spring, but sometimes fall. Eggs are laid in water and larvae exhibit an enlarged tail fin for swimming with external gills. They transform into land dwelling salamanders with lungs around 18 to 24 months. They consume a wide variety of animals from small invertebrates to salamanders, rodents, and lizard – they exhibit a sit and wait feeding style. This species is endemic to California. Habitat alteration is the primary threat to this species.

California giant salamander occur in wet coastal forests near permanent and semi-permanent streams and springs. Numerous sightings have been documented in San Geronimo Creek and the surrounding watersheds. There is an occurrence in an unnamed tributary to San Geronimo Creek from 2015 located 0.7 miles overland from the project site and 2.25 miles via stream channel[78]. Giant salamanders are known to occur in the Roy's Redwoods Open Space Preserve with anecdotal evidence suggesting this species utilizes the stream channel and surrounding woodlands near a spring box in the upper elevations of the Preserve where perennial water is present, which may support suitable larval habitat. The Roadkill Index also has verified records of specimens recorded along Nicasio Valley Road north of Roy's Redwoods Preserve[79]. Suitable upland habitat for California giant salamanders is present within the proposed project site and larger Roy's Redwood Open Space Preserve. Within the project site, the redwood forest may be used as non-breeding upland habitat for adults; the understory duff may provide refuge and terrestrial foraging habitat for adults. Stream channels within the project site may be used as seasonal foraging habitat, movement corridors, and refuge; however, successful breeding is not feasible, because the stream channels within the project site provide only a seasonal water source and would not allow for successful transformation of larvae.

Foothill Yellow-legged frog

Foothill yellow-legged frogs (*Rana boylii*, SSC) are found in or near partly shaded rocky streams from near sea level to 6,300 feet in a variety of habitats. Breeding generally occurs from mid-March to early June after high winter flows have subsided. Egg masses are attached to the downstream side of rock and gravel in shallow, slow, or moderate-sized streams. Tadpoles require three to four months to attain metamorphosis. Adults take aquatic and terrestrial invertebrates, and tadpoles graze along rocky stream bottoms on algae and diatoms. During all seasons, this species is generally found in or within close proximity to streams.

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[74] Paton, P.W.C and C.J. Ralph. 1990. Distribution of the Marbled Murrelet at Inland Sites in California. Northwestern Naturalist 71:72-84.

[75] Shuford, W.D. 1993. The Marin County Breeding Bird Atlas. A Distributional and Natural History of Coastal California Birds. California Avifauna Series 1. Bushtit Books, Bolinas, CA.

[76] Golden Gate National Recreation Area (GGNRA). 2020. Endangered Birds. LINK: GGNRA Endangered Birds

[77] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Report.

[78] California Department of Fish and Wildlife (CDFW). 2021a. California Natural Diversity Database, RareFind Version 5.0, Spotted Owl Viewer, and BIOS. California Department of Fish and Game. Sacramento, CA. LINK: Wildlife.Ca.Gov Spotted Owl Viewer

[79] Unknown Author. 2018. Roy's Redwoods Site Analysis Technical Memo. November 9, 2018.

Primary threats to this species include water management practices, non-native predators, pesticides, recreational activities along streams, habitat loss, and disease.

Historically, foothill yellow-legged frogs were found throughout Marin County based on a large number of specimens collected from 1891-1972[80]. Individuals were collected in the Lagunitas Creek watershed, including San Geronimo Creek downstream of the project site. Within San Geronimo Creek, collections were made in 1952; the collection was 1 mile southeast of the project site or 3 stream miles. Foothill yellow-legged frogs are now reported extirpated from Lagunitas Creek below Peters Dam. There are no collections reported for the Larsen Creek watershed.

Frogs were also collected in Nicasio Creek in 1931; this collection was 0.75 miles north of the project site. There is a 2018 sighting further to the north in Nicasio Creek. These sightings are the nearest observations to the project site but are hydrologically disconnected with movement between Larsen Creek (Roy's Redwoods) and Nicasio Creek highly unlikely.

Foothill yellow-legged frogs have been extirpated from most of their former locations and watersheds within Marin County. The most significant population persists in Little Carson Creek and Big Carson Creek tributaries. A population also exists in San Anselmo Creek, which is a tributary to Corte Madera Creek. There may be small remnant populations in Tomales Bay tributaries. It is unlikely that frogs are present in San Geronimo Creek and its tributary Larsen Creek, based on the lack of recent confirmed sightings[81].

Suitable habitat for foothill yellow-legged frogs is not present within the project site. Stream channels flowing through the site are ephemeral and intermittent and typically flow seasonally during the winter and spring. There is only one intermittent stream on the Roy's Redwoods Open Space Preserve that is spring fed with perennial pools[82]; the stream flows in this location are not adequate to sustain a viable foothill yellow-legged frog population. These pools are approximately 1,500 feet upstream of the project site.

California Red-legged frog

California red-legged frogs (*Rana draytonii*, FT, SSC) are the largest native frog in the western U.S. with females reaching up to 5¼ inches in length and males being slightly smaller. They are most common in marshes, streams, lakes, reservoirs, ponds, and other water sources with plant cover. Breeding occurs in deep, slow-moving waters with dense shrubby or emergent vegetation from late November through April. Floating egg masses are attached to emergent vegetation near the water's surface. Tadpoles require 3½ to 7 months to attain metamorphosis. During the non-breeding season, California red-legged frogs can remain at the breeding site (in the presence or absence of water) or move into surrounding non-breeding habitats. Factors contributing to declining populations include degradation and loss of habitat through agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, non-native plants, impoundments, water diversions, degraded water quality, use of pesticides, and introduced predators. Predation by introduced species has been a significant factor in their decline, especially non-native American bullfrog, crayfish, and fish[83].

California red-legged frogs are known to occur in many small coastal drainages, ponds, and stock ponds in Marin County, especially in the vicinity of Point Reyes, Drakes Estero, Mount Tamalpais, and the Tiburon

[80] CDFW 2021a. California Natural Diversity Database, RareFind Version 5.0, Spotted Owl Viewer, and BIOS. California Department of Fish and Game. Sacramento, CA. LINK: California Natural Diversity Database

[81] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Report.

[82] Prunuske Chatham, Inc. (PCI) 2018. Roy's Redwoods Hydrology Study - An Evaluation of the Geomorphic and Hydrologic Functioning of the Upper Larsen Creek Tributaries and Alluvial Valley, Including Recommendations for Protection and Enhancement. August 31, 2018.

[83] Prunuske Chatham, Inc. 2021. Roy's Redwoods Open Space Preserve Biological Resources Report.

peninsula[84]. The nearest reported occurrence to the proposed project site is from the outflow at Kent Lake, just upstream of the confluence with Lagunitas Creek[85]. The adult sighting location is 2.75 miles southwest of the project site, and there are additional sightings within 4 to 5 miles of the Roy's Redwoods Open Space Preserve in the Olema and Pine Gulch Creek watersheds.

California red-legged frogs have not been documented within Roy's Redwoods Open Space Preserve or the larger Larsen Creek watershed[86]. However, potential breeding ponds are present on the west side of Nicasio Valley Road on the adjacent San Geronimo Commons. It is unclear if these ponds have ever been surveyed for California red-legged frogs, but non-native American bullfrogs are present in the ponds, which may preclude California red-legged frogs from occupying the site. The ponds are hydrologically connected to Roy's Redwoods Open Space Preserve by an underground culvert. No suitable breeding habitat is present in the proposed project site or the larger Roy's Redwoods Open Space Preserve area. If the nearby golf course ponds are occupied by California red-legged frogs, it is feasible, but unlikely, that frogs could move upstream into the project site. Suitable habitat for this species is not present within the project site.

Western Pond Turtles

Western pond turtles (*Actinemys marmorata*, SSC) are the only native turtle in Marin County. They are most commonly found in or near permanent or semi-permanent water sources in a variety of suitable habitats below 4,700 feet elevation. This omnivorous species requires basking sites, such as emergent logs, rocks, mud banks, or mats of aquatic vegetation, for thermoregulation. Underwater retreats are also required for predator avoidance. Nesting sites of this species have been found some distance, up to 1,300 feet or more, from aquatic habitat. Three to 14 eggs are laid in shallow holes dug by the female from April through August. Nest sites include, but are not limited to, areas with sparse vegetation of short grasses and forbs, in hard-packed clay or silt soils, and along south- or west-facing slopes. Eggs hatch in late summer or fall, but the juveniles remain buried until the following spring; thus, nests are vulnerable to trampling year-round. Pond turtles have also been found using upland sites for aestivation and overwintering. They are dietary generalists consuming a variety of food items including aquatic invertebrates, carrion, and vegetation. Pond turtles experienced a population decline across their range due to commercial hunting during the late 1800s and early 1900s when they were harvested for use in soups and stews. Continued threats to this species include loss and degradation of habitat and widespread introduction of non-native predators including bullfrogs and fish.

Pond turtles are fairly widespread in western Marin in the watersheds draining into Tomales Bay. Marin Municipal Water District (MMWD) monitors the population of turtles at Alpine Lake and Lake Lagunitas[87]. Lake Lagunitas is the healthiest of the sites monitored by MMWD and supports the largest number of native turtles within the Mt Tamalpais watershed. Alpine Lake/Bon Temp Creek support small populations of pond turtles. The nearest reported occurrence of western pond turtle is from an undated collection near Nicasio within 2.7 miles of the project site. Western pond turtles have not been documented within Roy's Redwoods Open Space Preserve or the larger Larsen Creek watershed[88].

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[84] U.S. Fish and Wildlife Service (USFWS). 2002. Recovery Plan for the California Red-legged Frog (Rana aurora draytonii). Portland, Oregon.

[85] CDFW 2021a. California Natural Diversity Database, RareFind Version 5.0, Spotted Owl Viewer, and BIOS. California Department of Fish and Game. Sacramento, CA. LINK: CDFG California Natural Diversity Database

[86] ibid

[87] Marin Municipal Water District (MMWD). 2018. Turtle Observer Program Report 2018. LINK: MMWD Turtle Observer Report

[88] CDFW 2021a

Suitable habitat for pond turtles is not present within the project site. Stream channels flowing through the site are ephemeral and intermittent and typically flow seasonally during the winter and spring. There are no ponds of persistent pools that would support basking, foraging, cover, or other key life history requirements.

Special-status and Common Bat Species

There are approximately 25 bat species with known occurrences within Northern California, and a number of these species have a high probability of occurring within the project area. Bats are highly mobile with many being migratory. Foraging habitats range from woodlands, forests, and grasslands to open water. All of Marin County's bat species are insectivorous and feed by echolocation. Bats use caves, mines, buildings, bridges, tree hollows, and other natural and man-made crevices for roosting. Focused surveys for bats were not performed as part of this biological assessment; however, a number of bat species are likely to utilize the project site and surrounding forests. Three special-status bat species – pallid bat, Townsend's big-eared bat, and hoary bat– are reported within the region[89]. Additional special-status bats may occur in the area, but bat species are typically underrepresented in the CNDDB.

Pallid bat *(Antrozous pallidus, SSC, Western Bat Working Group high priority species).*
Pallid bats occur in grassland, shrubland, forest, and woodland habitats at low elevations up through mixed coniferous forests. Roosting sites include caves, mines, crevices, buildings, and hollow trees during the day, and more open sites used at night. Pallid bats are year-round residents throughout most of their range. Suitable habitat is present within the project area.

Townsend's big-eared bat *(Corynorhinus townsendii, SSC, Western Bat Working Group high priority species).*
Townsend's big-eared bat occurs in low to mid-elevation mesic habitats including riparian, mixed forest, coniferous forest, prairies, and agricultural lands. They utilize edge habitat for foraging and their roosting sites include caves, mines, tunnels, buildings, and other man-made structures. Suitable habitat is present within the project area.

Hoary bat *(Lasiurus cinereus, SSC, Western Bat Working Group medium priority species).*
Hoary bats occur in open habitat or habitat mosaics. They require medium to large trees for cover and habitat edges and/or open areas for foraging habitat. They tend to be solitary roosting in trees and foliage, and they are widespread in California except patchy in desert regions. Mating occurs during fall migration and young are born the following June. Their favored food is moths. Suitable foraging habitat is present within the project area.

Suitable roosting and foraging habitat for bats is present within the project site. Bats may roost in the large trees, especially in tree hollows and crevices, found within the project area. The project area also supports suitable foraging habitat and invertebrate food sources are likely to be abundant.

Fisheries and Other Aquatic Resources

The Roy's Redwoods Open Space Preserve is located within the Larsen Creek watershed, a tributary to San Geronimo Creek, and then Lagunitas Creek. The Lagunitas Creek watershed is critical habitat for several federal and state listed species, including coho salmon, steelhead, and California freshwater shrimp[90]. The lower reaches of Larsen Creek, downstream of Roy's Redwoods through the former San Geronimo Golf Course property, are used by coho salmon and steelhead for spawning and rearing, and the habitat conditions in the lower reaches are moderately supportive. Salmonids cannot access Upper Larsen Creek within Roy's Redwoods due to several passage barriers, namely a 9-foot-high bedrock ledge, piped channel reach, two on-stream ponds, and a culvert. It is unknown whether the section of Upper

[89] ibid

[90] Coho salmon - central California coast ESU (*Oncorhynchus kisutch*) are federally and State-listed as endangered. Steelhead central California coast DPS (*Oncorhynchus mykiss irideus*) are federally listed as threatened. The California freshwater shrimp (*Syncaris pacifica*) is federally listed as endangered.

Larsen Creek through Roy's Redwoods ever supported salmonid use, or if it could, given its alluvial fan morphology and intermittent flows[91].

While the project site does not provide habitat for salmonids and other aquatic species, including California freshwater shrimp, restoration of the site would provide a fully functioning headwaters alluvial valley and redwood grove that traps fine sediment, attenuates downstream peak flows, and maximizes groundwater infiltration and storage. Although salmonids are using Lower Larsen Creek, the channel is deeply incised into the alluvial valley and disconnected from the floodplain. The channel has cut down to bedrock along much of its length, the pools are infrequent and relatively shallow, and the riffles become disconnected by late summer requiring summer salvage operations and relocation of salmonids into stream reaches with perennial flow.

Protected Nesting Birds

Nesting native bird species are protected under both federal and state regulations. According to U.S. Fish and Wildlife Service, under the federal Migratory Bird Treaty Act (MBTA) of 1918[92], "it is unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the Interior. Some regulatory exceptions apply. Take is defined as: 'pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect.'" Bald and golden eagles are also protected under the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c) of 1940.

Birds and their nests are also protected under the California Fish and Wildlife Code (§3503 and §3513). Under §3503, "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Under §3513, "it is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act." The federal Endangered Species Act and California Endangered Species Act also protect nesting threatened and endangered bird species.

Most bird species are protected under the MBTA[93] and California Fish and Game Code.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to biological resources. The applicable RTMP Policies and BMPs are listed in the Project Description and provided, in their entirety, in Appendix A.

- Policy SW.24: Minimize Intrusions Larger Contiguous Habitat Areas and Wildlife Corridors
- General-1: Limit Work Area Footprints in Sensitive Resource Areas
- General-2 Modify Construction Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation
- General-3: Minimize Potential for Erosion
- General-4: Control Food-related Trash
- General-5: Modify Construction Methods Relating to Soil Disturbance, Restrict Use of Offsite Soil, Aggregate, or Other Construction Materials
- General-6: Prevent or Reduce Potential for Pollution
- General-8: Control Noise

[91] PCI 2021

[92] MBTA; 50 CFR 10.13

[93] ibid

- General-9: Conduct Worker Training
- General-10: Road and Trail Inspections
- General-11: Management of Sudden Oak Death
- Sensitive Natural Resources-1: Modify Management Practices Near Sensitive Natural Resources
- Special-Status Wildlife-1: Literature Reviews
- Special-Status Wildlife-2: Preconstruction Surveys
- Special-Status Wildlife-3: Seasonal Restrictions During Bird Nesting Season
- Special-Status Wildlife-8: Worker Awareness Training
- Special-Status Wildlife-9: Construction Monitoring
- Special-Status Wildlife-11: Noise Control
- Special-Status Wildlife-12: Trash Control
- Special-Status Wildlife-13: Road and Trail Inspection
- Special-Status Plants-7: Revegetation with Native, Geographically Appropriate Plant Species
- Special-Status Plants-8: Worker Awareness Training
- Special-Status Plants-11: Reuse and Replanting of Native Trees and Shrubs
- Special-Status Plants-12: Ripping and Recontouring Roads
- Invasive Plants-1: Compliance with Integrated Pest Management Ordinance
- Invasive Plants-2: Herbicide Use Near Sensitive Natural Resources
- Invasive Plants-3: Survey and Control of Invasive Plants in Project Footprint
- Invasive Plants-4: Limited Soil Disturbance
- Invasive Plants-5: Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles
- Invasive Plants-6: Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces
- Invasive Plants-7: Monitor and Control of Invasive Plants in Road and Trail Management Work Areas
- Invasive Plants-9: Road and Trail Inspections
- Invasive Plants-10: Monitoring Decommissioned Areas

CEQA Context

A project would normally result in significant impacts to biological resources if it substantially modifies sensitive habitats, adversely affects wetlands, negatively affects endangered plant and/or animal species, or conflicts with established policies, ordinances, or plans associated with the protection of biological resources.

a) Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? Less than Significant Impact with Mitigation

Special-Status Plants

No special-status plants were identified in the proposed project area; therefore, no impacts would occur.

Common Wildlife

Implementation of the proposed project could modify wildlife habitat, potentially resulting in disturbance, displacement, or mortality of common terrestrial wildlife species during project construction. Wildlife species could be temporarily displaced during implementation of trail decommissioning, trail construction, bridge and boardwalk construction, and during the time period when equipment is working in Upper Larsen Creek to create a wetland/stream complex, Stage Zero conditions. Wildlife would be expected to temporarily

vacate the site during implementation of these elements of the proposed project; however, common wildlife is expected to move back into the area after restoration efforts cease and revegetation efforts are complete or colonize adjacent habitats. Wildlife is expected to return to the disturbed areas following the completion of construction activities because the disturbance from equipment and construction activities would be temporary and the site conditions following construction would provide improved habitat quality for the displaced species[94].

Construction of the proposed trail segments could modify wildlife habitat, potentially resulting in disturbance, displacement, or mortality of common terrestrial wildlife species. Mobile wildlife species could be temporarily displaced as a result of trail construction; however, these species would be expected to move back into the area after construction or colonize adjacent habitats. Trail decommissioning would improve site conditions for common wildlife through focusing visitor access to select trails that can sustain visitor use while discouraging visitor access in areas more sensitive to site degradation. Work areas would be limited to minimize disturbance to only areas needed to accommodate construction as required in BMP General 1-Limit Work Area Footprints in Sensitive Resource Areas. Vegetation removal would not result in habitat modifications that could cause potential impacts on general wildlife species that are known to occur within the study area or have the potential to occur within the project area.

The proposed creation of a wetland-channel complex conditions through the alluvial valley is expected to improve habitat conditions for general wildlife. The resulting condition would feature a network of patchy wetlands without a distinct channel and result in a multi-threaded, braided, or wandering flow pattern across the alluvial valley floor through the proposed project site[95][96]. The Hydrologic Restoration section of the Project Description provides a thorough explanation of the anticipated results from implementation of the project in terms of changes in the site conditions within Upper Larsen Creek and across the redwood forest valley. Habitat would improve with the enhanced conditions along Upper Larsen Creek and as a result of decreased visitor access through sensitive areas where common wildlife use habitat.

With implementation of applicable RTMP Policies and BMPs included as part of the project, impacts on general wildlife and wildlife habitat would be less than significant. The policies and BMPs are designed to minimize or avoid potential environmental impacts to biological resources through limiting vegetation removal and protecting vegetation from unnecessary disturbance, educating workers about potential wildlife in the area and what to do if wildlife are encountered during work, and controlling noise that can disturb wildlife. RTMP Policies and BMPs specifically identified for application during the design and implementation of the proposed project to protect general wildlife include the following:

- RTMP Policy SW.24: Minimize Intrusions into Larger Contiguous Habitat Areas and Wildlife Corridors,
- RTMP BMP General-1: Limit Work Area Footprints in Sensitive Resource Areas,
- RTMP BMP General-2: Modify Construction-related Vegetation Management Methods in and near Wetlands Riparian Vegetation,
- RTMP BMP General-3: Minimize Potential for Erosion,
- RTMP BMP General-4: Control Food-related Trash and RTMP BMP Special-Status Wildlife-12: control Trash,
- RTMP BMP General-5: Modify Construction Methods Relating to Soil Disturbance, Restrict use of Offsite Soil, Aggregate, or Other Construction Materials,

[94] PCI. 2021. Biological Resources Assessment Roy's Redwoods Restoration Project. Woodacre, CA. October

[95] Cluer, B. and Thorne, C. 2013. A Stream Evolution Model Integrating Habitat and Ecosystem Benefits. River Research and Applications. John Wiley & Sons, Ltd.

[96] PCI. 2021. Biological Resources Assessment Roy's Redwoods Restoration Project. Woodacre, CA. October

- RTMP BMP General-6: Prevent or Reduce Potential for Pollution,
- RTMP BMP General-8: Control Noise and RTMP BMP Special-Status Wildlife-11: Noise Control,
- RTMP BMP General-9 to conduct worker training for biological resources, and
- RTMP BMP General-10: Road and Trail Inspections and RTMP BMP Special-Status BMP Wildlife-13: Road and Trail Inspections.

Implementation of these RTMP policies and BMPs would protect general wildlife and their habitat; additional mitigation measures would not be required to address potential impacts to general wildlife and habitat.

Special-Status Wildlife

Implementation of the proposed project could modify habitat and potentially result in disturbance, displacement, or mortality of special-status wildlife including northern spotted owl, California giant salamander, three special-status bat species, and nesting birds if present in the area during construction. Mortality of special-status wildlife species could occur if individuals are present in the proposed project area during implementation of trail decommissioning and new trail construction, or when equipment are in upper Larsen Creek to create the proposed wetland/stream complex.

The project site does not support habitat for several special-status species discussed above. The lack of habitat throughout the project site for marbled murrelet, foothill yellow-legged frog, California red-legged frog, and western pond turtle means the project would result in no impact on these species. The proposed development of a wetland-channel complex through the alluvial valley would improve habitat for the frogs and turtle, and these species may move into the area following implementation of the proposed project. These species are not addressed further.

Northern Spotted Owl

Northern spotted owls have not been documented nesting within the proposed project site since monitoring began in 1999, though owls are known to nest in other parts of the Roy's Redwoods Open Space Preserve The nearest observation of a non-nesting pair is from 2006 and the observation was made within 50 feet of the proposed project site. In 2020 and 2021, a pair of owls produced a nest with young approximately 1,300 feet to the southwest of the project site[97]. Owl nesting activity has been centered around this location since 2018. Northern spotted owls may use habitat in the project site for roosting and foraging. The proposed project has been designed to avoid tree removal; therefore, an active northern spotted owl nest would not be impacted. Further, consistent with the recommendation of RTMP BMP Special-Status Wildlife-4: Avoidance and Protection of Northern Spotted Owl, the MCOSD would survey the area to determine if active nests are present before initiating any work. If active nests are located within a distance that construction noise could impact nesting owls, the proposed project would be constructed outside of the northern spotted owl nesting season to avoid impacts. Given that no potential nest trees would be removed and construction noise-related disturbance of an active nest would be avoided by completing preconstruction surveys and constructing the project outside of the nesting season if nesting is identified, potential impacts to northern spotted owl would be less than significant.

Although not a listed species, local concern has been raised for the common dusky-footed woodrat because it is a primary prey species for the Northern spotted owl. Dusty-footed woodrats provide an important food source for northern spotted owls, and loss of existing woodrat nests during implementation of the proposed project would remove a potential food source. Suitable woodland habitat for dusky-footed woodrat is present within portions of the Roy's Redwoods Open Space Preserve although no woodrat nests were observed during surveys conducted for the PCI Biology Report. However, it is possible that vegetation

[97] Project site refers to the area that would experience project-related temporary or permanent effects caused by surface disturbance, vegetation removal, or other alterations of habitat within the project construction area.

removal associated with implementation of the proposed project could result in the loss of a woodrat nest. The loss of or disturbance to dusky-footed woodrat or its nest would be a potentially significant impact because the loss of woodrats could indirect affect Northern spotted owl. The RTMP BMPs do not address protection of dusty-footed wood rat nests. Therefore, Mitigation Measure BIO-1: Protect Dusty-footed Woodrat Nests, is included to augment the measures specified in the RTMP and require pre-construction surveys for dusty-footed wood rats' nests along new trail routes and other key potentially affected by construction. The additional protection specifies the need to protect or relocate nests located within the project site.

Mitigation Measure BIO-1: Identify and Protect Dusty-Footed Woodrat Nests

The MCOSD shall survey for dusty-footed woodrat nests and protect or relocate all dusty-footed woodrat nests that cannot be avoided during project implementation. A biologist shall survey along the new Roy's Redwoods Loop Trail segments, along both the Ridge and Mossy Rocks trails, and any other location within the project site identified by a qualified biologist within 30 days prior to construction to determine if nests are present and to identify ones that cannot be avoided. If none are found, then no additional measures are necessary.

If a woodrat house is identified within a work area, an exclusion zone shall be erected around the existing woodrat houses using flagging or a temporary fence that does not inhibit the natural movements of wildlife, such as steel T-posts and a single strand of yellow rope or similar materials. The work area would be relocated as necessary to avoid removing woodrat houses, even if avoidance is by only a few feet. The orientation of the work area would allow for escape routes to nearby suitable habitat, meaning that the work area would not completely surround the protected woodrat house. If woodrat houses cannot be avoided, CDFW would be contacted for approval to relocate individuals and dismantle the nest. Relocation efforts shall be guided by a qualified biologist.

California Giant Salamander

Suitable upland habitat for California giant salamanders is present within the project site. Giant salamander may use the redwood forest as non-breeding upland habitat for adults, and the understory duff may provide refuge and terrestrial foraging habitat for adults. Upper Larsen Creek may be used as seasonal foraging habitat, movement corridors, and refuge; however, successful breeding is not possible because the stream channels within the project site provide only a seasonal water source and would not allow for successful transformation of larvae. If a California giant salamander is present in the project area during construction, individuals may be harmed, or mortality could occur. The proposed project would be constructed during the dry season when Upper Larsen Creek and the tributaries are dry. Dry season construction would reduce the likelihood of the presence of giant salamanders in the project site when disturbance would occur. Although California giant salamander is not specifically addressed by the RTMP, required protections for other species would still afford the salamander protection. The RTMP BMPs to protect special-status wildlife species would be incorporated into the project. Implementation of preconstruction surveys as specified in RTMP BMP Special-Status Willdife-2: Preconstruction Surveys, requires a qualified biologist survey the proposed project area to determine presence of California giant salamander and avoid impacts if salamanders are present. A worker awareness training required in RTMP BMP Special-Status Wildlife-8: Worker Awareness Training would increase worker awareness and understanding of the species. Implementation of RTMP BMP Sensitive Natural Resources-1: Modify Management Practices near Sensitive Natural Resources would also require an evaluation of potential modifications needed to protect this species. Therefore, the direct loss of giant salamander would be avoided, and related impacts would be less than significant. No additional measures would be required.

Nesting Birds

The plant communities with the project area provide potential habitat for special-status birds and nesting birds, though none were observed during the surveys completed as part of the Prunuske Chatham Report for the proposed project. Implementation of the proposed project could occur during nesting season, which could affect special-status and nesting birds. Construction activities could also remove the nesting and foraging habitat of special-status birds through direct removal of habitat or could result in disruption of breeding and foraging habitat due to construction noise.

Trail construction and trail crossings would occur in all the vegetation types across the project site and the vegetation could provide habitat for nesting birds. Although many of the proposed trails would be constructed in areas void of understory vegetation due to trampling by visitors, trail construction would result in understory vegetation loss as shown in Table 6. Trail construction, trail crossing installation, and access and staging could impact up to 71,315 square feet or 1.64 acres of vegetation. Loss of understory vegetation could decrease the nesting habitat available at the project site.

The proposed project would also include decommissioning of social trails and the existing Meadow Trail to restore these areas and facilitate revegetation in currently denuded areas. Heavy use area would be rehabilitated across the valley floor and through all vegetation communities to improve site conditions through decompaction and revegetation efforts. Improved understory vegetation conditions would increase the available habitat for nesting birds. Table 7 provides the acres of proposed revegetation and improved habitat conditions by vegetation types across the proposed project area. A total of 77,170 square feet or 1.77 acres of improved habitat conditions for nesting birds.

A comparison of Table 6 and Table 7 indicates the amount of vegetation removed to accommodate trail construction would be less than the amount of revegetation and nesting bird habitat improvement across all vegetation types with implementation of the proposed project and there would be no net loss of nesting bird habitat and the impact on nesting bird habitat would be less than significant.

Implementation of the proposed project could occur during nesting season, which could affect special-status and nesting birds. Potential impacts on special-status and migratory birds that could result from project construction activities include the destruction of eggs or occupied nests, mortality of young, and the abandonment of nests with eggs or young birds prior to fledging. Such potential construction-related impacts on special-status and migratory birds could be significant.

Construction-related noise impacts could occur within the project area in locations that support habitat potentially used by special-status and nesting birds. Impacts on nesting birds could occur if nests are present in or near the work area. Construction noise would occur during entryway construction, roadway shoulder improvements, trail decommissioning, trail realignment, trail upgrades, and grading associated with creation of wetland-channel complex conditions as these activities would require the use of mechanized equipment. Construction noise that occurs during critical nesting periods could result in abandonment of nests prior to eggs hatching or before young birds have fledged. Such potential impacts on nesting birds could be significant.

The proposed project would incorporate all applicable RTMP Policies and BMPs to minimize or avoid potential environmental impacts to biological resources, including special-status and nesting birds. Implementation of Mitigation Measure BIO-2 clarifies how RTMP BMP Special-Status Wildlife-3: Seasonal Restrictions During Bird Nesting Season would be implemented and would supersede the buffers included in the RTMP BMPs. In addition, implementation of Mitigation Measure BIO-2, along with implementation of applicable RTMP BMPs, would mitigate potential impacts on special-status and nesting birds to less than significant levels by requiring pre-construction surveys by a qualified biologist to determine whether special-status or bird nests are present at or near construction activities and by providing appropriate distance

between the proposed construction activities and by implementing related protection measures. The requirements are specified in RTMP BMPs Special-Status Wildlife-2: Preconstruction Surveys and Special-Status Wildlife-3: Seasonal Restrictions During Bird Nesting Season.

Mitigation Measure BIO-2: Special-Status and Nesting Birds Protection

The MCOSD shall implement the following seasonal restrictions to protect nesting birds. If work occurs outside the nesting bird window of January 1 to July 31, surveys and avoidance measures would not be necessary for special-status and nesting birds. The broadest nesting bird window based on Table 3would be January 01 – October 31. The project area does not include habitat for double-crested cormorant, herons, egrets, or bitterns and these species would not be affected by implementation of the proposed project; therefore, the nesting bird window of January 01 – July 31 is appropriate for the proposed project.

- Surveys shall be conducted seven days prior to the start of active ground-disturbing activities within the general buffers identified in Table 3. If the work area is left unattended for more than seven days following the initial surveys, additional surveys shall be completed. This timing is standard protocol based on knowledge of Marin and Sonoma Counties bird nesting season, with raptors and hummingbirds building nests as early as January and the peak typically from late April through May. Any active nests found will be given a protective buffer to avoid disturbances and monitored until the chicks fledge. Ongoing construction monitoring of active nests shall occur to ensure no nesting activity is disturbed.
- If the biologist finds no active nesting or breeding activity, work can proceed without restrictions.
- If active raptor or owl nests or active nests of other special-status birds are identified within the buffer area guidelines included in Table 3: Guideline Buffer by Species or Guild, a qualified biologist shall determine whether construction activities may impact the active nest or disrupt reproductive behavior. If the biologist determines construction would not affect an active nest or disrupt breeding behavior, construction can proceed without restrictions. The determination of disruption shall be based on the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; and the line of sight between the nest and the disturbance. If the biologist determines activities would be detrimental to the species nest, the buffer area guidelines identified in Table 3 would be established until the nest has been vacated, meaning that the chicks have fledged.
- If state and/or federally listed birds are found breeding within the construction area, activities shall be halted until the chicks have fledged. If construction activities must continue and would incur take of the listed species, MCOSD would consult with the CDFW and USFWS prior to the initiation of work that would result in take. If construction activities must continue and would not incur take of the listed species, the MCOSD would establish the buffer area guidelines included in Table 3 until the nest has been vacated, meaning that the chicks have fledged.

Table 3: Guideline Buffer by Species or Guild

Species/Guild	Recommended Buffer meters/feet	Nesting Season
Diurnal Raptors (i.e.: Cooper's hawk)	76 meters (250 feet)	January 01 – July 31
Owls (except northern spotted owl)	50 meters (160 feet)	January 01 – July 31
Marbled Murrelet	402 meters (1,320 feet or ¼ mile)	March 01-September 30
Northern Spotted Owl	402 meters (1,320 feet or ¼ mile)	February 01- July 31
Double-crested Cormorant	50 meters (160 feet)	March 01 – October 31
Herons/Egrets/Bitterns	100 meters (330 feet)	January 01 – September 30
Waterfowl	30 meters (100 feet)	March 01 – July 31
California black rail	213 meters (700 feet)	February 01 – August 31
Larger Passerines: Corvids (crows, jays), Thrushes	20 meters (65 feet)	March 01 – July 31
Most Songbirds	10 meters (30 feet)	March 01 – July 31
Hummingbirds	10 meters (30 feet)	January 01 – July 31
Woodpeckers	15 meters (50 feet)	March 01 – July 31
Band-tailed Pigeon (BTPI)	30 meters (100 feet)	March 01 – July 31
Pigeons/Doves (except BTPI)	20 meters (65 feet)	March 01 – July 31
Species of Special Concern (olive-sided flycatcher, grasshopper sparrow, San Pablo song sparrow)	22 meters (75 feet)	March 01 – July 31
Blackbirds (tri-colored and red-winged)	30 meters (100 feet)	March 01 – July 31
Turdidae (robins, thrushes)	20 meters (65 feet)	March 01 – July 31
Killdeer	22 meters (75 feet)	March 01 – July 31

Special-status and Common Bats

There are approximately 25 bat species known to occur in California, and a number of these species have a high probability of occurring within the project area and adjacent lands. Bats are highly mobile; many are migratory. Foraging habitats range from woodlands, forests, and grasslands to open water. Three special-status species (Townsend's big-eared bat, pallid bat, hoary bat) have potential to occur within the Preserve based on nearby observations[98]. Additional bat species identified as having moderate to high priority for conservation by the Western Bat Working Group may also occur within the project area. Special-status and common bats may use cavities, crevices, foliage, and exfoliating bark for roosting, but the presence of large maternity colonies would be restricted to trees with large cavities. The proposed project does not include tree removal and construction would be limited to daylight hours only; therefore, the implementation of the proposed project would not cause harm to roosting bats and related impacts would be less than significant.

[98] Townsend, S. 2016. Acoustic Monitoring for Bats at Indian Valley and Ignacio Valley OSP, Marin County. Memo to Marin County Parks dated August 19, 2016.

Potential Indirect Biological Resources Project Impacts

Visitor traffic through wetlands, across stream channels, through other sensitive area, and across heavily visited sites throughout the proposed project area currently mobilizes fine sediment and accelerates erosion to Upper Larsen Creek and its tributaries. Upper Larsen Creek is in a degraded condition subject to downcutting and erosion during larger storm events. The proposed project would implement improvements throughout the project site for wildlife species. Trail improvements would prevent future erosion and sedimentation along social trails located in sensitive habitats. Upgrading trails that do not drain properly would improve water quality through the area for species that use the aquatic habitat in the alluvial valley. Decommissioning trails through wetlands and other sensitive areas would allow the area to revegetate and would restore habitat for common and special-status wildlife species. Implementation of the proposed project would have a net benefit on species by rehabilitating over two acres of heavy visitor use areas throughout the valley floor to reduce soil compaction and increase natural regeneration of native vegetation and retaining downed trees and small wood structures as presented in Table 7: Restoration Areas by Vegetation Types. These understory improvements would increase the structural diversity of the forest and improve habitat conditions for owls and their prey and habitat for other special-status wildlife species.

The proposed creation of the wetland-channel complex through the alluvial valley would improve site conditions through the project site by creating conditions comprised of a patchy wetland with a braided multi-threaded or meandering single-threaded channel system. This condition would increase stability of the banks that are currently downcut and eroding, and reduce erosion caused by visitor access through the valley floor. The proposed project would widen the stream corridor and is expected to expand aquatic habitat for common and special-status wildlife across the alluvial valley.

Potential increased visitor use resulting from implementation of the proposed project, as discussed in the Recreation Section of this document. is not expected to degrade habitat quality or cause harm to wildlife because wildlife that inhabit the area are acclimated to human interaction. Focusing visitors to a sustainable trail network and reducing the unstainable social trail network would improve habitat conditions for special-status and common wildlife by eliminating access through wetlands and areas subject to sheet flow and providing boardwalks and bridges over restored stream channels. The proposed project would not include trail alignments that would guide visitors closer to northern spotted owl nesting areas and existing conditions in areas where owls have nested in the past would remain.

b) Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? Less than Significant with Mitigation

Sensitive plant communities are those that are of limited distribution statewide or within a county or region, those that are particularly threatened by human activity, or those that provide especially important ecological functions. The California Department of Fish and Wildlife's List of California Terrestrial Natural Communities and the Manual of California Vegetation[99] indicate which plant communities are sensitive within California. Within the project area, the redwood-California bay forest, California bay forest, coastal brambles/willow thicket, and brown-headed rush wetland plant communities are considered sensitive. Impacts on natural communities could be potentially significant.

Proposed trail construction would require removal of some understory vegetation within sensitive plant communities, resulting in vegetation loss, soil disturbance, and soil compaction as shown in Table 5. Trail improvements along the Mossy Rock Trail, Forest Trail, and Roy's Redwoods Loop Trail and the

[99] Sawyer, J., T. Keeler-Wolf, and J. Evens. 2009. A Manual of California Vegetation. Second Edition. California Native Plant Society and California Department of Fish and Game. Sacramento, CA.

realignment of the Ridge Trail would occur through the bay forest. These trails improvements would provide more sustainable trails from the alluvial valley to the upper reaches of the Roy's Redwoods Loop Trail and would result in approximately 6,100 square feet of understory vegetation disturbance. Trail improvements and new trail construction along the Boardwalk Loop Trail, Fairy Ring Trail, Floodplain Trail, Mossy Rocks Trail, Roy's Redwoods Loop Trail, and the Scramble would result in approximately 16,870 square feet of understory disturbance. Overhanging tree branches may be trimmed to provide a safe trail for users in these areas. An area approximately one foot on each side of the trail would also be disturbed to accommodate construction, but disturbance in these areas would be temporary and the area would be replanted following trail construction.

The proposed project includes construction of a bridge, boardwalks, and log crossings. Each installation would result in removal of understory vegetation; however, no tree removal would be required to accommodate construction. Boardwalks would impact up to approximately 1,350 square feet of understory vegetation within the redwood-California bay community and 200 square feet of brown-headed rush wetland. Understory in the boardwalk locations include shrubs, forbs, and grasses. Installation of the two log crossings along the Floodplain Trail would occur within the redwood-California bay community and impacts in these areas would total 75 square feet though there is very little existing understory cover at these sites. Construction of the two boardwalks on the Forest Trail would impact 60 square feet of understory within the bay forest at each location, and construction of the proposed bridge on the Mossy Rocks Trail across the southern tributary of Upper Larsen Creek would impact up to approximately 120 square feet of understory vegetation. Tree pruning may be required, but no tree removal would be anticipated at any crossing location. Overall, conditions within all sensitive plant communities would improve with implementation of the proposed project.

The proposed project would include trail decommissioning along the northern and southern tributaries of Upper Larsen Creek would occur within the California bay forest. Existing social trails through the bay forest would be decommissioned and native vegetation replanted resulting in improved understory conditions across approximately 9,500 square feet of this vegetation type. The existing Meadow Trail would be decommissioned as part of the proposed project, including sections adjacent to brown-headed rush wetland and an arroyo willow thicket. Approximately 450 square feet of revegetation would occur with implementation of the proposed project within the brown-headed rush wetland plant community. Nearly all the remaining proposed project elements would occur in the redwood-California bay forest through the alluvial valley including trail drainage improvements, trail decommissioning, and ecological and hydrological restoration. Proposed revegetation efforts following trail decommissioning and rehabilitation of heavy visitor use areas would include planting of native trees, shrubs, forbs, and grasses where robust natural regeneration is unlikely. Conditions within this sensitive forest type would be improved through decompaction of existing poor soil conditions and revegetation efforts designed to improve understory quality and vegetation quantity. In addition, decommissioning social trails and improving network trails would guide visitor use to locations that are stable and can sustain visitor access.

The proposed project has been designed to avoid tree removal; however, there are a number of bay trees that have fallen over but may still be alive. Some downed trees may need to cut to accommodate trail realignment. Work in and adjacent to Upper Larsen Creek for hydrologic restoration would require use of mechanized equipment, and equipment access would occur near existing redwood and bay trees. The RTMP does not include BMPs to address tree pruning and/or removal or impacts in the root zone of native trees. While tree pruning and removal required to implement the proposed project would be minimal and would not result in a potentially significant environmental impact, the MCOSD would implement Mitigation Measure BIO-3 to limit impacts on native trees by minimizing pruning and protecting tree root zones and through replacement of cut trees.

Mitigation Measure BIO-3: Protect Native Trees and Tree Replacement

The MCOSD shall ensure that the following measures are implemented during project activities to protect native trees:

- Minimize pruning. Light pruning may occur at any time of year. Heavy pruning may cause problems due to vigorous sprouting and subsequent witches broom or powdery mildew. Heavy pruning shall be done on deciduous trees in the winter.
- Minimize impacts within the Root Protection Zone (RPZ), which is defined as 1.5 times the dripline radius measured from the tree trunk and extends approximately three feet below the soil surface.
    - Soil compaction within protected tree perimeters shall be avoided to the extent feasible.
    - Heavy equipment, vehicles, and/or construction materials shall not be parked or stored beneath trees or operated within the delineated protected perimeter.
- Develop a tree replacement plan for any tree removed based on the ratios shown in Table 8.

Table 8: Tree Replacement Ratios

Tree Type	Diameter DBH[100]	Replacement Ratio
Oaks	5-10 inches	4:1
Oaks	10-15 inches	5:1
Oaks	15 inches and above	15:1
Native trees	3-6 inches	3:1
Native trees	6 inches	6:1
Non-native trees	Any size	1:1

With the implementation of the following BMPs from the RTMP, impacts to native plants and sensitive plant communities would be less than significant, and overall impacts are expected to be positive. RTMP BMP General 1: Limit Work Area Footprints in Sensitive Resource Areas would limit work area footprints to only those areas necessary to construct the project. RTMP BMP General-3: Minimize Potential for Erosion, would require revegetation of areas affected by construction with native, geographically appropriate plant species as described in RTMP BMP Special-status Plants-7. Overall, the proposed project would result in the restoration of over 77,170 square feet or 1.77 acres of degraded heavy use areas within the sensitive forest and wetland natural communities within Roy's Redwoods Open Space Preserve.

The proposed project would benefit sensitive and other habitats by reducing trail redundancy, reducing erosion, improving infiltration, revegetating degraded areas, and reducing habitat fragmentation. The proposed project is not expected to result in substantial adverse effects on sensitive natural communities identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. In addition to the native tree mitigation measure, the MCOSD would implement applicable RTMP BMPs to minimize potential impacts on sensitive natural communities, and the impacts would be less than significant.

c) Would the Project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? Less than Significant with Mitigation

Wetlands, creeks, streams, and permanent and intermittent drainages are subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) under Section 404 of the Federal Clean Water Act (CWA). The

[100] Diameter at breast height, or DBH, is the standard for measuring trees. DBH refers to the tree diameter measured at 4.5 feet above the ground.

California Department of Fish and Wildlife generally has jurisdiction over creeks, streams, and drainages, together with other aquatic features that provide an existing fish and wildlife resource pursuant to Sections 1602-1603 of the California Fish and Game Code. The California Department of Fish and Wildlife asserts jurisdiction to the outer edge of vegetation associated with a riparian corridor. Creeks and wetlands are subject to regulation of the Regional Water Quality Control Board (RWQCB) under both the federal CWA and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7).

Upper Larsen Creek and its tributaries are jurisdictional, and numerous existing trails cross the channels throughout the project area. These crossings are shown on Figure 5. A proposed bridge would be placed over the southern tributary to provide sustainable access over the creek along the Ridge and Mossy Rock trails. The proposed bridge would be placed above the jurisdictional channel and bridge footings would be placed at or above the top of bank to avoid placement of fill material into the channel at this location. Flow would not be affected by placement of the bridge because the bridge would be constructed to pass flows from a 100-year rainfall event. The proposed boardwalks would be placed along the Forest Trail at the southern and northern tributaries to provide improved crossing conditions where visitors currently ford the channels with no existing formal crossing. The proposed boardwalks would be placed above the channel to avoid placement of fill in the waterway at these locations to the extent feasible. The proposed Floodplain Trail would upgrade an existing social trail through the area. Two log crossings would be installed at sites along the route between the Fairy Ring Trail and the Forest Trail. The log crossings would use existing logs in the area to provide a formal location for visitors to cross. Construction of the proposed Boardwalk Trail would require installation of boardwalks that would cross over the lower reaches of Upper Larsen Creek and the western tributary and over a wetland near the northern junction of the Boardwalk Trail and Roy's Redwoods Loop Trail. These proposed boardwalks would span the small channels and surrounding wetlands, where feasible, to avoid placement of fill material. However, the segment of boardwalk placed over the wetland at the northern end of the Boardwalk Trail would result in approximately 3.3 cubic yards of fill material in the wetland from placement of boardwalk footing every five feet as required for structural stability. An additional 0.85 cubic yards of fill material would be placed at a second location along the Boardwalk Trail to accommodate construction across a wetland.

The goals of the proposed project include restoration and enhancement of the hydrologic function within the area and improve conditions along Upper Larsen Creek while providing improved visitor access. Implementation of the proposed project would reduce erosion, store sediment on-site, improve groundwater recharge, and replace episodic peak winter flows through the depositional alluvial valley with slower flows that persist longer into the dry season. The proposed project would improve soil conditions, resiliency of the redwood forest ecosystem, and water quality for salmonid habitat downstream. Nonetheless, equipment (small excavator) would need to temporarily enter Upper Larsen Creek during the dry season to fill the degraded and incised channel reaches to create the proposed wetland-channel complex. Construction in Upper Larsen Creek and its tributaries would cause temporary disturbance in areas under state and federal jurisdiction.

Restoring hydrologic processes and functions within the alluvial valley would require installation of rock and log grade control structures and grading in Upper Larsen Creek and the northern and western tributaries to reduce create the wetland-channel complex, to eliminate downcutting, and to increase channel stability. Incised channel reaches would be filled with soil and gravel to allow a stable, multi-threaded channel to develop where the incised channel currently exists and to achieve the goals of wetland-channel Stage Zero complex. Approximately 8,300 square feet of channel area would be graded and filled to create the wetland-channel conditions through the valley floor and rock and log grade control structures would be installed resulting in 625 cubic yards of material that would include soil, gravel, rocks, and logs. Approximately 5,500 square feet of area along the channel and streambank would be planted following grading and structure placement.

Large, downed logs would be relocated across the valley floor to help slow water flow and allow water to infiltrate into the soil and reduce flow velocities to prevent downcutting. Construction of the proposed project would require the use of heavy equipment that would access the work area along the existing channel. Construction within wetlands and creeks and earthwork requiring use of heavy equipment would be limited to the dry season when the wetlands and channels are dry and no dewatering would be required to accommodate construction. Work areas would be limited to minimize disturbance to only areas needed to accommodate construction as required in BMP General 1-Limit Work Area Footprints in Sensitive Resource Areas. In addition, where vehicle travel or other soil disturbance cannot be avoided in wetland areas, the smallest tracked vehicle feasible would be used and trench plates, construction mats, or similarly protective means would be installed to prevent soil compaction. The areas would be restored if unacceptable soil compaction or other damage occurs.

Impacts on jurisdictional resources would be less than significant with implementation of applicable RTMP BMPs, implementation of the wetland and soil protection measures included as part of the proposed project, and implementation of the recommended mitigation measure. Implementation of the applicable RTMP BMPs would protect aquatic resources by avoiding resources where feasible and by protecting resources where construction activities must occur within wetlands and within stream channels. Implementation of the applicable RTMP BMPs would reduce potential impacts from sedimentation and contamination by implementing erosion control measures that include limiting work and modifying construction in sensitive areas and wetlands, modifying methods to control erosion, preventing and reducing pollution, conducting worker training, and monitoring. The following RTMP BMPs would specifically be used

- General-1: Limit Work Area Footprints in Sensitive Resource Areas
- General-2: Modify Construction-Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation
- General-3: Minimize Erosion
- General-5: Modify Construction Methods Relating to Soil Disturbance, Restrict use of Offsite Soil Aggregate, or Other Construction Materials
- General-6: Prevent or Reduce Potential for Pollution
- General-9: Conduct Worker Training
- General-10: Road and Trail Inspections

Overall, the potential impacts from the placement of fill into jurisdictional waters would be beneficial because implementation of the proposed project, including the placement of fill into jurisdictional waters, would increase the overall biological function of the area.

d) Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? Less than Significant

Wildlife corridors are described as pathways or habitat linkages that connect discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or manmade obstacles such as urbanization. They allow for the movement and migration of animals and plants, and are critical for the maintenance of ecological processes and viable populations of plants and animals by promoting (1) the continual exchange of genes between populations, which helps to maintain genetic diversity; (2) access to adjacent habitat areas that provide additional territory for foraging and breeding; (3) greater carrying capacity; and (4) routes for colonization of new habitat following locational population extinctions or habitat recovery from ecological catastrophes.

Habitat linkages are broader stretches of open space that allow for the movement of multiple species and maintenance of ecological processes. These linkages do not have to provide continuous habitat but could also be patches of suitable areas that support movement from one patch to another to allow dispersal and migration. Habitat linkages reduce the adverse effects of habitat fragmentation that can lead to decreased gene flow for small animals, such as amphibians, reptiles, and rodents.

Native wildlife nursery sites are specific areas where certain species return yearly to breed, birth, and raise juveniles. For example, most salmonids require gravel beds in the upper reaches of a stream. There is a distinction between wildlife nursery sites and other breeding sites that do not have specific habitat conditions. In other words, a tree with a bird nest is not necessarily a wildlife nursery site.

The project area is located in an undeveloped area and is surrounded by open space. Wildlife currently use the project area for local and regional movements, and implementation of the proposed project is not expected to adversely impact wildlife movements. The proposed project does not include construction of any structures that would inhibit wildlife movement. Implementation of the proposed project would not result in significant impacts on wildlife movement activity in the surrounding area because proposed construction would take place during the day and the temporary disturbance would cease immediately after project construction. Implementation of the proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites within the project area or the surrounding area. The proposed creation of the wetland-channel complex would expand the riparian corridor through the alluvial valley and provide increased biological function for both resident and migratory species.

Under existing conditions, resident wildlife have likely habituated to human activity along the trail system. Although recreational use of the Roy's Redwoods Open Space Preserve may increase with the addition of new trail features and the new Scramble and Nature Exploration Area included in the proposed project, the types of recreational use within the Preserve would remain essentially unchanged, except visitors would be excluded from sensitive areas with the implementation of the proposed trail decommissioning and repair of currently impacted heavy use areas. Implementation of the proposed project would improve conditions for resident wildlife that use habitat in the Preserve.

The proposed project would decommission and restore social trails that would improve habitat conditions for wildlife in the area. Construction of proposed trail segments would provide visitor access in areas that can support visitor use without degrading site conditions and redundant trail segments would be eliminated to reduce public access within more continuous habitat areas; therefore, implementation of the proposed project would not interfere with the movement of native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The impact would be less than significant, and no additional mitigation measures would be required.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Less than Significant Impact with Mitigation

The project area is located within unincorporated Marin County, and the area is governed by the Marin Countywide Plan[101]. The Countywide Plan contains goals and policies to protect natural resources and manage invasive species and the spread of plant pathogens. The RTMP incorporates existing policies from the Countywide Plan and the MCOSD's Policy Review Initiative. Consistency with the RTMP assumes consistency with the Countywide Plan.

Implementation of the proposed project would conform to the goals and policies of the RTMP and therefore also with Marin Countywide Plan. The RTMP BMPs and additional mitigation measures discussed under

[101] County of Marin, 2007. Marin Countywide Plan, November

(a) through (d) in this section would ensure avoidance and protection of special-status plants and animals and other sensitive resources protected under the Countywide Plan. The following provides a review of the conformance of the proposed project with respect to the Marin Countywide Plan goals to provide access to public open space, to protect trees and woodlands, and to manage invasive plant species and the spread of plant pathogens.

Native Tree Protection. The Native Tree Preservation and Protection Ordinance establishes regulations for the preservation and protection of native trees in the non-agricultural unincorporated areas of Marin County by limiting tree removal in a manner that allows for reasonable use and enjoyment of private property. The purpose of the ordinance is to establish regulations for the preservation and protection of native trees. This ordinance applies only to "protected trees," generally prohibiting the removal of native trees between 6 and 10 inches in diameter, depending on the species. As a public agency, the MCOSD is exempt from this ordinance per Marin County Code Section 22.06.050 – Exemptions from Land Use Permit Requirements. Nonetheless, the MCOSD would incorporate the intent of the Native Tree Preservation and Protection Ordinance as part of its standard practices.

The proposed project has been designed to avoid tree removal; however, construction of the proposed new trails may require trimming tree limbs to create a safe trail corridor. The RTMP does not include BMPs to address tree pruning; therefore, implementation of Mitigation Measure BIO-3 would limit impacts on native trees by minimizing pruning and protecting tree root zones.

Invasive Species Management. Invasive plant species are present within the project particularly in disturbed areas along trails, roads, and other places where vegetation has been cleared or soil disturbed. Invasive species are those that have been introduced from other parts of the world that tend to grow and spread rapidly. They often create dense stands where little else can grow and change habitat conditions in ways that are detrimental to native plant and wildlife species. They can also increase fire hazards. Implementation of the proposed project would involve equipment operation, grading, and other disturbances that could result in the introduction or spread of invasive plant species along actively decommissioned trails and along the three proposed new trails, which could result in the spread of invasive species into adjacent areas.

The RTMP Invasive Plants BMPs address reducing the spread of invasive species. These BMPs are listed below and included in their entirety in Appendix A. These BMPs have been incorporated into the proposed project and no additional mitigation measures are required.

- Invasive Plants-3: Survey and Control of Invasive Plants in Project Footprint
- Invasive Plants-4: Limited Soil Disturbance
- Invasive Plants-5: Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles
- Invasive Plants-6: Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces
- Invasive Plants-7: Monitor and Control of Invasive Plants in Road and Trail Management Work Areas
- Invasive Plants-10: Monitoring Decommissioned Areas

Sudden Oak Death. *Phytophthora ramorum* and other common plant pathogens have the potential to spread, especially as public uses increase, climate changes, and plants become more stressed. The RTMP includes BMP General-11: Management of Sudden Oak Death to reduce and control the spread of Sudden Oak Death within the MCOSD system. This BMP would be incorporated into the proposed project. No additional mitigation measures would be required.

f) Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? No Impact

Habitat Conservation Plans (HCPs) are planning documents required as part of an application for an incidental take permit. They describe the anticipated effects of the proposed take; how those impacts would be minimized or mitigated; and how the HCP is to be funded. HCPs can apply to both listed and non-listed species, including those that are candidates or proposed for listing. An HCP can apply to individual projects that affect a limited number of species or can be regional plans to address endangered species impacts in an area from otherwise legal development.

A Natural Community Conservation Planning program (NCCP) takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. It is broader in its orientation and objectives than the California and federal Endangered Species Acts, as these laws are designed to identify and protect individual species that have already declined in number significantly. An NCCP identifies and provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.

There are no adopted HCPs or NCCPs in Marin County, and therefore, implementation of the proposed project would not conflict with an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

Cultural Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Setting

Cultural and Historical Resources Studies

Evans & De Shazo, Inc. conducted a Historic Property Survey of the project area and prepared a report for the proposed project in 2021[102]. The study included a cultural resources literature search completed at the Northwest Information Center of the California Historical Resources Information System (CHRIS), additional records search and literature review, initial Native American Consultation with the Native American Heritage Commission and outreach to Tribal representatives, and an archaeological survey of the project area. This study satisfies the requirements of RTMP BMP Cultural Resources-1: Historical and Archaeological Resource Mapping and Cultural Resources-2: Consultation with Northwest Information Center. Much of the setting information and environmental impact analysis is based on information contained in the study.

CHRIS records search identified no cultural resources within or adjacent to the area, and no cultural resources or archaeological site indicators were identified within the study area during the survey. No historic resources/or properties are listed on federal, state, or local inventories within or abutting the proposed project. The Native American Heritage Commission responded that there are no sacred sites within the vicinity of the study area but recommended contacting the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Indian Rancheria to gather additional information about the area. Evans & De Shazo sent an email to FIGR and to the Guidiville Indian Rancheria on December 1, 2020, to request additional information; however, no responses were received.

Evans & De Shazo concluded that no historic property would be affected by the proposed project. Due to the presence of alluvial soil deposits along upper Larsen Creek, there could be potential for buried prehistoric archaeological resources in the lowest elevation portions of the project area. However, Evans & De Shazo found the potential for any buried prehistoric archaeological resources to be unearthed as a result of project activities to be low, as the maximum depth of ground disturbance would be approximately 12 inches below the surface.

As a result, the study does not provide any project-specific recommendations. However, general recommendations were provided in the event that previously undiscovered buried archaeological resources

[102] Evans & De Shazo 2021. Results of a Historic Property Survey for the Proposed Trails/Restoration Project at Roy's Redwoods Preserve, San Geronimo, Marin County, California. January 24, 2021

were encountered during implementation of the project. If an archaeological deposit is encountered, all work within 50 feet of the discovery would stop until a qualified archaeologist evaluates the find and provides recommendations for further treatment, if warranted. Construction and potential impacts to the area(s) within a radius determined by the archaeologist shall not recommence until the assessment is complete. Similar recommendations are made for the potential discovery of human remains. These recommendations have been incorporated into the proposed project through RTMP BMP Cultural Resources-6: Construction Recovery Protocol and RTMP BMP Cultural Resources-7: Human Remains.

Project Area History

In northern California, archaeological evidence suggests human occupation had occurred by at least 12,000 years ago. Initial use of the area was for hunting and gathering resources by highly mobile, extended families who had limited exchange systems or social structure. With the introduction of a milling technology and, eventually, a dependence on an acorn economy, population growth, expansion, and trade systems were developed. Sociopolitical complexity and status distinctions based on wealth are also observable in the archaeological record, by an increased range and distribution of trade goods such as shell beads and obsidian tools, which are possible indicators of both status and increasingly complex exchange systems. At Euro-American contact, Marin County was inhabited and controlled by the Coast Miwok people. They settled in large, permanent villages and also used seasonal camps and task-specific locations. Their society consisted of many tribelets that were small independent groups of usually related family members occupying a specific territory and speaking the same language or dialect. The Coast Miwoks pursued a subsistence cycle focused on gathering and harvesting seasonally available resources. This group managed their environment to improve and maintain it to suit their needs. Inter-tribelet relationships were socially and economically advantageous, offering marriage partners, information, and materials and services not available locally. In Marin County, Native American archaeological sites are typically recorded on terraces adjacent to creeks and springs, along ridgelines, and within rock outcroppings.

Between A.D. 1579 to 1603, contact with native populations likely occurred during the voyages of Drake, Cermeño, and possibly Vizcaino. In this area, Spanish interaction resumed with the local Native Americans probably somewhat before the establishment of Mission Dolores in San Francisco in 1776. Later, Mission San Rafael Arcángel was founded in December 1817. After secularization of the missions, large areas of land were opened for land grants. The project area was part of the 8,701-acre Rancho Cañada de San Geronimo land grant held by Rafael Cacho. The rancho was sold in 1857 to Adolph Mailliard, who established three dairy ranches in the area. In the late 1860s, Mailliard sold 420 acres, including the project area, to James and Thomas Roy, who operated a dairy ranch on the property. The property was sold by Thomas's son, Ralph Roy, to the Lagunitas Development Company and was subdivided, with a portion of it becoming the San Geronimo Country Club Golf Course. Plans for developing the remainder of the property fell through and, in 1978, the Marin County Open Space District acquired 293 acres and established Roy's Redwoods Open Space Preserve.

Applicable Regulations

National Historic Preservation Act Context

The proposed project would likely require a Section 404 Permit from the Army Corps of Engineers, and therefore, would be subject to compliance with Section 106 of the National Historic Preservation Act[103] to address potential impacts to historic properties. This includes resources that are eligible for listing on the National Register of Historic Places (NRHP).

Section 106 of the National Historic Preservation Act

[103] 54 USC 306108

Federal protection of resources is legislated by the NHPA of 1966 as amended by 16 U.S. Code 470, the Archaeological Resource Protection Act of 1979, and the Advisory Council on Historical Preservation. These laws and organizations maintain processes for determination of the effects on historical properties eligible for listing in the NRHP.

Section 106 of the NHPA and accompanying regulations[104] constitute the main federal regulatory framework guiding cultural resources investigations and require consideration of effects on properties that are listed in or may be eligible for listing in the NRHP. The NRHP is the nation's master inventory of known historic resources. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, and cultural districts that are considered significant at the national, state, or local level. The formal criteria[105] for determining NRHP eligibility are as follows:

1. The property is at least 50 years old however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP;
2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:
    a. Events: Association with events that have made a significant contribution to the broad patterns of history.
    b. Persons: Association with the lives of persons significant in the past.
    c. Architecture: Distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction.
    d. Has yielded, or may be likely to yield, information important to prehistory or history (information potential).

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee recognition in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. The potential effects of a proposed project on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time period, and thereby lacks "focus," it is considered not eligible for the NRHP. In further expanding upon the generalized National Register criteria, evaluation standards for linear features such as roads, trails, fence lines, railroads, ditches, and flumes are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: size and length; presence of distinctive engineering features and associated properties; structural integrity; and setting. The highest probability for National Register eligibility exists within the intact, longer segments, where multiple criteria coincide.

Secretary of the Interior's Standards

The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Secretary's Standards) provide guidance for working with historic properties. The Secretary's Standards are used by CEQA lead agencies to evaluate proposed rehabilitative work on historic properties. They are a useful analytic tool for understanding and describing the potential impacts of proposed changes to historic resources. Projects

[104] 36 Code of Federal Regulations (CFR) Part 800

[105] 36 CFR 60.4

that comply with the Secretary's Standards benefit from a regulatory presumption that they would not result in a significant impact to a historic resource. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of a historic property.

In 1992, the Secretary's Standards were revised so they could be applied to all types of historic resources, including landscapes. They were reduced to four sets of treatments to guide work on historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. The four distinct treatments are defined as follows:

- Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.
- Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.
- Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.
- Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

The appropriate treatment for any renovation project under the Secretary's Standards for Treatment of Historic Properties is rehabilitation. There are no existing structures within the project area, historic or otherwise.

AB 52 Consultation

Assembly Bill 52 (AB 52) is described in the Tribal Cultural Resources section of this Checklist. MCOSD sent letters to the Federated Indians of Graton Rancheria (FIGR), the Guidiville Indian Rancheria and the Coast Miwok Tribal Council of Marin (CMTCM) to inform them about the proposed project and to invite the tribes to consult with the MCOSD regarding the proposed project. The invitation to consult letters were sent on July 19, 2021, and were consistent with RTMP BMP Cultural Resources-3: Tribal Consultation. No response was received from the FIGR or the GIR. The CMTC provided a response but did not respond to the MCOSD's attempt to set up a tribal consultation meeting.

On November 10, 2020 Evans & DeShazo, Inc. Archaeology and Historic Preservations submitted a request to the Native American Heritage Commission (NAHC) for a sacred lands inventory and Native American contacts list for the proposed project. The NAHC responded on November 18, 2020 concluding that the sacred lands file inventory was negative for the presence of sacred sites within or near the project area and recommend that the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Indian Rancheria (GIR) be contacted to request further information about Native American traditional cultural resources within or near the project area that could be affected by the proposed project and to inquire about Native American issues related to the proposed project. Evans & DeShazo contacted the FIGR and the GIR on December 1, 2020 and did not receive responses from either tribe.

The MCOSD staff provided notification of the proposed project to the FIGR the GIR, and the Coast Miwok Tribal Council of Marin (CMTCM) on July 19, 2021 and asked if a consultation process pursuant to California Assembly Bill 52 should be initiated. The notification satisfies RTMP BMP Cultural Resources-3: Tribal Consultation. FIGR provided an email confirming receipt of this notification but no further comments and did not respond to the MCOSD's request to meet. The GIR did not respond. The CMTCM provided a response including a formal AB52 request from the Tribal Council designating a contact person to consult on the proposed Roy's Redwoods Open Space Preserve Restoration Project but did not follow up with the MCOSD's request to meet. The MCOSD will include the FIGR, the GIR, and the CMTCM in the public notice for public review of this Initial Study.

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to biological resources. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Cultural Resources-1: Historical and Archaeological Resource Mapping
- Cultural Resources-2: Consultation with Northwest Information Center
- Cultural Resources-3: Tribal Consultation
- Cultural Resources-6: Construction Discovery Protocol
- Cultural Resources-7: Human Remains
- Cultural Resources-8: Community Awareness

CEQA Context

Cultural and historical resources are nonrenewable and are easily damaged or destroyed. Potential impacts to cultural and historical resources are determined by analyzing the potential effect of implementing the proposed project to known and unknown cultural and historical resources.

a) Would the Project cause a substantial adverse change in the significance of a historic resource pursuant to §15064.5? Less than Significant Impact

Historical resources are defined by State CEQA Guidelines Section 15064.5 as "Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Generally, a resource shall be considered historically significant if the resource meets the criteria for listing on the California Register of Historical Resources."

No historic resources or properties were identified, or are listed on federal, state, or local inventories within or abutting the project area during the Evans & DeShazo records search or site assessment. Although no historic resources were identified in the project area, and the project area has a low probability of containing buried historic resources, it is still possible that ground disturbing activities associated with the project could reveal unknown historic resources. To address this issue, the proposed project would implement the applicable RTMP BMPs, which would ensure that the implementation of the proposed project would not result in significant impacts to currently undocumented historic resources. RTMP BMP Cultural Resources-6: Construction Discovery Protocol provides a process to follow in the event a previously undiscovered historic resource is unearthed during construction. Following the procedures in RTMP BMP Cultural Resources-6 would provide the protections needed to avoid a substantial adverse change in the significance of historic resources pursuant to CEQA Guidelines Section 15064.5. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with a

substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5.

b) Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? Less than Significant

An archaeological resource is defined by Public Resources Code Section 21083.2 as "an archaeological artifact, object, or site, about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information
2. Has a special and particular quality such as being the oldest of its type of the best available example of its type
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

No archaeological resources have been identified within the project area. However, based on the presence of alluvial soil deposits along upper Larsen Creek and evaluation by Evans & DeShazo, there is the potential for buried prehistoric archaeological resources to be present in the lower elevation of the project area. As a result, ground disturbing activities associated with the proposed project could reveal previously undiscovered buried archaeological resources. To address this issue, the proposed project would implement the applicable RTMP BMPs, which would ensure that the implementation of the proposed project would not result in significant impacts to undiscovered buried archaeological resources. Specifically, BMP Cultural Resources-6: Construction Discovery Protocol provides a process to follow in the event a previously undiscovered archaeological resource is unearthed during construction. BMP Cultural Resources-7: Human Remains provides the necessary series of steps required to protect human remains. These BMPs conform with the general protection measures recommended by Evans & DeShazo. Additionally, the MCOSD would directly contact the Federated Indians of Graton Rancheria and Guidiville Indian Rancheria in the event that cultural resources are inadvertently discovered. Following the procedures in the BMPs would provide the protections needed to avoid a substantial adverse change in the significance of any archaeological resources pursuant to State CEQA Guidelines Section 15064.5. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with a substantial adverse change in the significance of historic resources pursuant to State CEQA Guidelines Section 15064.5.

c) Would the Project disturb any human remains, including those interred outsides of formal cemeteries? Less than Significant

Section 7050.5 of the California Health and Safety Code states that it is a misdemeanor to knowingly disturb a human burial and Section 5097.99 of the Public Resources Code defines the obtaining or possession of Native American remains or grave goods to be a felony. Buried human remains, by law, must be reported to the County Coroner. The disposition of Native American burials is within the jurisdiction of the Native American Heritage Commission (NAHC), who has the statutory authority to mediate agreements regarding the disposition of Native American remains. In cases in which human remains are known or believed to be likely, consultation with the NAHC is initiated early in the planning process so that the consultations with appropriate Native American most likely descendant occurs and agreement regarding the disposition of the remains can be reached.

Human remains are not known to be present in the project area. However, ground disturbance associated with the project could reveal unknown human remains. Should this occur, the MCOSD would follow state

law and contact the County Coroner and the NAHC. Additionally, the MCOSD would directly contact the Federated Indians of Graton Rancheria and Guidiville Indian Rancheria in the event that human remains are inadvertently discovered. The proposed project includes implementation of applicable RTMP BMPs, including Cultural Resources-7: Human Remains, which identifies protocols to follow should human remains be uncovered during implementation of the proposed project. For these reasons, implementation of the proposed project would not result in a significant impact should human remains be encountered during project implementation, including those interred outside of formal cemeteries.

Energy

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Setting

Current energy use within the project area is very minimal. Recreational visitors may use small amounts of fuel to drive to and from the Roy's Redwoods Open Space Preserve, and personal motorized vehicles are prohibited from entering the Preserve. Similarly, MCOSD rangers and maintenance staff drive to and from the project area and use petroleum during routine maintenance activities such as mowing and weed whacking, trash service, and porta-toilet maintenance. There is no electrical use in the project area or at the Preserve.

Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses greenhouse gas emissions and associated energy use across the State and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030. The California Air Resources Board (CARB) is tasked with the implementation of AB 32 through the development of a Scoping Plan, which is to be updated every five years. CARB produced its second update to the Scoping Plan in 2017[106]. The Scoping Plan's objective for natural lands is to maintain them as a carbon sink while minimizing emissions, including emissions from energy use, associated with factors such as management and wildfire.

Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 1990 levels by 2020[107]. Efficient energy use is a key component to achieving these emissions reduction goals.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate the following applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts associated with energy use. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Policy SW.29: Retrofit or Upgrade Construction Equipment

CEQA Context

In order to ensure that energy implications are considered in project decisions, CEQA Section 21100(b)(3) requires that the potential energy impacts of a proposed project be considered, with emphasis on avoiding

[106] California Air Resources Board. 2017. California's 2017 Climate Change Scoping Plan

[107] Marin County. 2014. Climate Action Plan. August

or reducing inefficient, wasteful, and unnecessary consumption of energy. Appendix F of the CEQA Guidelines provides guidance for assessing the significance of potential energy impacts.

a) **Would the Project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?** Less than Significant

The proposed project would not result in measurable incremental increases in the use of fuel. During construction, the proposed project would require the use of diesel-powered heavy equipment to perform construction work and gas-powered vehicles to access the site and bring materials and equipment to the area. Equipment would include excavators, skid steer, dozer, track truck skid loader, dump truck, chipper, ATVs, water truck, power saws, and other hand tools. As described in the Project Description, construction would take up to eight months over two dry season construction windows, and equipment would be operated approximately eight to ten hours a day during the construction period. Construction would be performed by a contractor and the construction crew would make daily trips to the project site during the construction period. Up to five MCOSD staff members would drive to and from the project site each day during construction to perform construction-related tasks, monitor construction activity, and to ensure that all RTMP BMPs and Mitigation Measures are implemented. Given the temporary nature of construction and the limited size of the proposed project elements, energy consumption required for construction of the proposed project would not be significant in scale and would not have a measurable effect on local and regional energy supplies. Additionally, implementation of RTMP Policy SW-29: Retrofit or Upgrade Construction Equipment would ensure that the MCOSD uses the most efficient equipment available and conducts the project in an energy efficient manner. Neither construction nor operation of the proposed project would result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction.

Operation of the proposed project would occur as described in the Project Description and would continue in a manner similar to existing conditions. Energy demands associated with operation and maintenance would include truck trips to and from the site for MCOSD staff to patrol and maintain the area. The frequency of staff operations and maintenance activities would not increase as a result of the proposed project.

The proposed project may result in an increase in visitation and public use of Roy's Redwoods Open Space Preserve, which may result in increased energy consumption associated with visitor vehicle trips to the area. The proposed project would include improvements to the existing parking area on the Nicasio Valley Road shoulder to improve visitor safety and would include conversion of one existing parking spot to an inclusive access spot. However, the proposed parking improvements would not increase parking capacity, and no new parking spots would be created as part of the proposed project. The W-Trans Traffic Study[108] indicates the proposed project may result in up to eight additional weekday vehicle trips and 11 additional weekend vehicle trips and there may be times when parking is unavailable to an individual Roy's Redwoods Open Space Preserve visitor. It is assumed individual visitors would choose to visit one of the other preserves in the area and the increase in visitor vehicle trips would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Any potential impact on energy consumption from increased visitation would be less than significant. Construction and operation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources.

[108] W-Trans. 2021. Traffic Study for Roy's Redwoods Preserve Trail Project. November.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency? No Impact

The proposed project would use energy during construction, including the use of heavy equipment and truck trips associated with construction personnel and the MCOSD employees driving to and from the site and from material deliveries. Operation and maintenance activities would be similar to existing conditions and energy use would not significantly increase compared to baseline conditions. Implementation of Policy SW-29: Retrofit or Upgrade Construction Equipment would ensure that the MCOSD uses the most efficient equipment available and conducts the project in an energy efficient manner. The proposed project would not conflict with renewable energy or energy efficiency plans, including goals set forth in AB 32, the objectives of the 2017 CARB Scoping Plan, and the goals and policies contained in Marin County's Countywide Plan and Climate Action Plan. Therefore, the proposed project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Geology and Soils

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:?				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Setting

Geology within the project area consists primarily of the Franciscan Complex mélange, with alluvium (Holocene or Pleistocene) occurring in the lower elevation areas along Larsen Creek. The Franciscan complex mélange is a tectonic mixture of variably sheared shale and sandstone dating to the Jurassic Age (200 to 145 million years ago). The alluvium formation is fine to coarse sand, gravel, silt, and clay that is deposited in channels and associated environments. This formation was likely formed during the Holocene Epoch (11,700 years ago to the present).

The Roy's Redwoods Open Space Preserve is located within the central portion of the Coast Range Physiographic Province of California, composed of a series of northwest-southeast aligned coastal mountain chains dominated by a similar trending San Andreas Fault Zone[109]. Marin County has several faults delineated by the California Division of Mines and Geology, with the San Andreas Fault being the only fault identified by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, an active portion of the Hayward fault lies near the county. There is a 62 percent likelihood of fault rupture with a magnitude of 6.7 or greater to occur on one of the San Francisco Bay Area active faults, including the San Andreas or the Hayward faults, before the year 2032[110]. It is also possible, but with a low probability, that earthquakes may occur on inactive or previously unidentified faults. No mapped faults or earthquake fault zones are identified in the project area[111].

Ground rupture is a geologic hazard in areas immediately adjoining a fault. The project area does not immediately adjoin any mapped fault.

Land subsidence is the sinking of a large area of ground surface in which the material is displaced vertically downward, with little or no horizontal movement. Subsidence problems are common in the diked baylands because of the highly compressible nature of the existing fill. Areas susceptible to earthquake-induced settlement include those areas underlain by thick layers of colluvial material or un-engineered fill. Land within the proposed project area is not susceptible to land subsidence.

The main geologic hazards for the MCOSD's open space areas and trail infrastructure are landslides and other related slope stability hazards under strong seismic shaking, or more commonly, during intense rainfall events that quickly saturate the soil. Landslides are the downward movement of materials such as rock, soil, or fill. Debris flows are a rapid downslope movement of thick slurry composed of loose soil, rock, and organic material entrained with air and water; a debris avalanche is a more rapid or extreme debris flow. The size of landslides can vary from small events to massive slides containing millions of cubic yards. A landslide may move rapidly, as in a soil or rock avalanche, or it may move slowly. A similar but much slower movement is called creep. The proposed project area is mapped as flat or, along the slopes, few landslides[112].

Ground shaking is one of the key geologic hazards associated with seismic activity, with some areas more susceptible to strong shaking and potential damage due to their proximity to the fault zone or their underlying soil composition. Soils most susceptible to seismic shaking amplification tend to be younger alluvial deposits, bay mud, and artificial fill found in the lower lying areas around open water including Bolinas, San Pablo, and Richardson Bays. Road and trail stability are also influenced by the underlying soils, which indicates how easily they are compacted and eroded, and how stable they are on slopes. The project area is prone to severe ground shaking during an earthquake along the San Andreas[113]. Liquefaction

[109] Marin County Open Space District (MCOSD). 2014a. Road and Trail Management Plan. November.

[110] Marin County. 2007. Marin Countywide Plan, November.

[111] ABAG. 2020b. Ground Shaking Map. Earthquake Shaking Hazard Maps. Accessed September 27.

[112] ABAG. 2020d Landslide Maps, accessed September 27.

[113] ABAG. 2020b. Ground Shaking Map. Earthquake Shaking Hazard Maps. Accessed November 20.

potential in the project area is primarily very low given the site topography and soil types in the area, with a small portion of the project area along Nicasio Valley Road mapped as moderate[114].

Soils in the study area are mapped a Blucher-Cole complex, 2-5 percent slopes, along Nicasio Valley Road; Dispea-Barnabe very gravelly loams, 30-50 percent slopes, through the bulk of the redwood grove in the project area; and Tocaloma-Saurin association, extremely steep, along the sloping ridges of the project area[115]. Blucher-Cole complex soils consist of alluvium derived from sandstone, granite, or shale and occur on basin floors and alluvial fans. In a typical profile, Blucher-Cole complex soils include clay loam from the surface to a depth of 5 inches, followed by silty clay loam from 5 to 14 inches, and silty clay from 14 to 60 inches below the surface. Dipsea-Barnabe very gravelly loam soils and Tacaloma-Saurin association soils both consist of residuum weathered from sandstone and shale and occur on hills and hill slopes. In a typical profile, Dipsea-Barnabe very gravelly loam soils consist of very gravelly loam from the surface to a depth of 8 inches, followed by very gravelly clay loam from 8 to 25 inches, very gravelly loam from 25 to 48 inches, and bedrock from 48 to 52 inches below the surface. The profile of Tacaloma-Saurin association soils includes loam from the surface to a depth of 19 inches, followed by very gravelly loam from 19 to 39 inches, and bedrock from 39 to 43 inches below the soil[116]. Blucher-Cole complex soils have a low potential for expansion, Dipsea-Barnabe very gravelly loam soils have a high potential for expansion, and Tacaloma-Saurin soils have a moderate potential for expansion.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to geology and soils. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- General-3: Minimize Potential for Erosion
- General-4: Modify Construction Methods Relating to Soil Disturbance, Restrict Use of Offsite Soil, Aggregate, or Other Construction Materials
- Water Quality-2: Temporary Erosion and Sediment Control
- Water Quality-3: Erosion Control Measures
- Water Quality-6: Grading Windows
- Geologic Hazards-1: Assessment and Requirements in Areas of Potential Geologic Hazard
- Geologic Hazards-2: Construction in Areas of Slides and Debris Flows

CEQA Context

A project would normally result in a significant impact to geology and soils if it would result in substantial erosion, expose people to major geologic hazards, or a permanent loss of natural geologic resources created by a substantial change in topography or land subsidence.

[114] ABAG 2020c. Liquefaction Map. Liquefaction Hazard Maps. Accessed November 20.

[115] NRCS. 2021. Custom Soil Resource Report for Marin County, California. September 27.

[116] Evans & De Shazo. 2021.

a) Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. No Impact

No portion of the project area is located within an Alquist-Priolo Earthquake Fault Zone and there are no mapped active faults in the project area. The nearest known active earthquake fault is the San Andreas Fault, located approximately 5.5 miles to the west. Implementation of the proposed project would not be located in areas prone to ground rupture and the project would not increase the risk of ground rupture in the area. Therefore, implementation of the proposed project would result in no impact associated with rupture of a known earthquake fault involving risk of loss, injury, or death.

ii) Strong seismic ground shaking? No Impact

Ground shaking is one of the key geologic hazards associated with seismic activity, with some areas more susceptible to strong shaking and potential damage due to their proximity to the fault zone or their underlying soil composition. Soils most susceptible to seismic shaking amplification tend to be younger alluvial deposits, bay mud, and artificial fill found in the lower lying areas around open water including Bolinas, San Pablo, and Richardson Bays.

The project area is located in an area that could experience earthquakes and ground shaking; however, the proposed project would not directly or indirectly result in substantial adverse effects from strong ground shaking. Proposed habitat restoration, hydrologic restoration, access improvements, and trail work, including trail decommissioning, new trail construction, and trail improvements, would not result in substantial adverse effects related to ground shaking. In addition, the proposed project does not include construction of any occupied structures that could pose a safety hazard to trail users and would not substantially alter the existing conditions or introduce new hazards that could contribute to strong seismic ground shaking. Implementation of the proposed project would support existing outdoor recreation uses and would not alter or introduce substantial adverse effects related to strong seismic ground shaking, including the risk of loss, injury, or death involving strong seismic ground shaking. Therefore, implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking.

iii. Seismic-related ground failure, including liquefaction? No Impact

Liquefaction can result when strong ground shaking, such as during an earthquake, occurs in loose granular soils in saturated conditions.

ABAG has identified the liquefaction hazard at the project sites as “very low” to “moderate” based on California Geologic Survey data[117]. The only soils in the project area with moderate potential for liquefaction are the Blucher-Cole complex soils along Nicasio Valley Road, the soils throughout the remainder of the project area are not prone to liquefaction. The proposed project would not affect the risk of seismic-related ground failure and liquefaction in the project area. Therefore, implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure including liquefaction.

[117] ABAG 2020c. Liquefaction Map. Liquefaction Hazard Maps.

iv. Landslides. Less than Significant

Landslides are the downward movement of materials such as rock, soil, or fill. Debris flows are a rapid downslope movement of thick slurry composed of loose soil, rock, and organic material triggered by prolonged intense rainfall.

The project area is mapped as flat land or few landslides by both ABAG and Marin County[118]. Official trails in the proposed project area are located on gentle slopes and with no landslides identified. Several of the social trails are in degraded condition, though no active or dormant landslides have been identified.

Trail decommissioning measures would be used to rehabilitate degraded habitat, promote natural revegetation, and deter future use. Active trail decommissioning would include slope recontouring, tread decompaction and cross-drain installation to reduce concentrated water runoff to improve infiltration and promote revegetation to improve conditions. The trail tread would be scarified where needed to reduce compaction and improve revegetation success and improve infiltration. The proposed new trail construction and trail improvements are proposed on contour in areas that are not prone to landslides[119].

The proposed project would not expose recreational users to new hazards. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with risk of loss, injury, or death involving landslides.

b) Would the Project result in substantial soil erosion or the loss of topsoil? Less than Significant

Erosion is a natural process whereby soil and highly weathered rock materials are worn away transported, most commonly by wind or water. Soil erosion can become problematic when rapid soil loss and the development of erosional features, such as incised channels, rills, and gullies undermine roads, buildings, or utilities or when erosion results in impacts to water quality, aquatic resources, and other natural resources. Natural rates of erosion can vary depending on slope, soil type, and vegetative cover.

Soils in the study area are mapped a Blucher-Cole complex, Dispea-Barnabe very gravelly loams, and Tocaloma-Saurin association and range from somewhat poorly drained to well drained. These soils are susceptible to erosion, especially when subject to concentrate runoff. Evidence of concentrated runoff is present throughout the proposed project area.

The breakdown of soil under heavy trail use often leads to accelerated erosion and trail rutting[120]. One of the primary purposes of the RTMP and the proposed project is to establish and maintain a sustainable system of roads and trails that meet design and management standards. This includes reduction of soil erosion from trails.

Currently, a network of social trails weaves through environmentally sensitive areas within the project area, exacerbating erosion and impacting the hydrologic functioning of the upper Larsen Creek. The proposed trail decommissioning would reduce existing erosion by re-contouring, trail tread decompaction, and cross-drain installation to reestablish drainage patterns and improve infiltration. These measures would reduce existing erosion problems.

Construction of the new trails and trail improvements would not increase erosion. The proposed new trails would be constructed on contour or on gentle slopes, and trail construction would include use of outsloping,

[118] ABAG 2020c. Liquefaction Map. Liquefaction Hazard Maps.

[119] ibid

[120] MCOSD. 2014b. Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report, November.

rolling dips, and water bars to provide a well-drained trail surface to reduce the risk of concentrated runoff and subsequent erosion consistent with the RTMP and as described in the Project Description.

Hydrologic and geomorphic evaluation showed that Upper Larsen Creek and the tributaries in the project area are impacted and subject to erosion. Incision, knickpoints, lack of connection to the floodplain, rills, and other evidence of erosion have been observed throughout the project area. The proposed hydrologic restoration is intended to restore Upper Larsen Creek and tributaries, and increase floodplain connectivity throughout the alluvial valley in the project area. This would slow flow velocities, increase infiltration, and ultimately reduce erosion and channel incision in the project area.

The proposed project includes implementation of RTMP BMP General-3: Minimize Potential for Erosion and RTMO BMP Water Quality-2: Temporary Erosion and Sediment Control both of which require project be designed to limit disturbed areas and minimize potential for erosion and requires temporary erosion and sediment control on all disturbed areas resulting from project construction. The MCOSD would use silt fences, erosion control blankets, and mulch to prevent significant erosion during and after construction to reduce erosion to less than significant levels. Decommissioning of actively eroding social trails and restoring hydrologic conditions would improve drainage and reduce erosion of topsoil. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with substantial soil erosion or the loss of topsoil.

c) Would the Project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? No Impact

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static forces, such as gravity, or dynamic forces, such as earthquake. Slope stability can depend on several complex variables, including the geology, structure, and the amount of groundwater present, as well as external processes such as climate, topography, slope geometry, and human activity. Liquefaction is the rapid loss of shear strength experienced in saturated, predominantly loose granular soils below the groundwater level during strong earthquake ground-shaking and occurs due to an increase in pore water pressure. Earthquake-induced settlement of soils results when relatively unconsolidated granular materials experience vibration associated with seismic events. The vibration causes a decrease in soil volume as the soil grains tend to rearrange into a denser state. This decrease in volume and consolidation of soil can result in the settlement of overlying structural improvements.

As noted in the setting section, the Roy's Redwoods Open Space Preserve has few landslides and is not prone to increased risk of landslide. Nonetheless, shallow landslides have occurred within the MCOSD's preserves in recent years from high intensity and long-duration storm events. The slides usually occur in areas where steep slopes lack vegetation and are over-steepened due to bank erosion, or along ravines or swales with higher levels of surface and groundwater. Conditions where landslides have occurred within the MCOSD's preserves do not exist within the proposed project area, which is largely forested and highly vegetated. The soils in the area are not prone to liquefaction, nor are they prone to subsidence. In addition, the proposed project area is not located on an unstable geologic unit. The proposed project would not result in any on- or off-site landslide, lateral spreading, subsidence, or liquefaction. Therefore, implementation of the proposed project would not cause a geologic unit or soil to become unstable and result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, and there would be no impact.

d) Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? Less than Significant

Expansive soils expand and contract in response to changes in soil moisture, most notably when near-surface soils change from saturated to dry and back again. Generally, the expansiveness relates to the clay content in the soil. These soils often expand in the winter and shrink in the dry summer months. The soil types in the project area have variable potential for expansion: Blucher-Cole complex soils have a low potential for expansion, Dipsea-Barnabe very gravelly loam soils have a high potential for expansion, and Tacaloma-Saurin soils have a moderate potential for expansion. However, implementation of the proposed project on soils mapped as potentially expansive would not increase risks to life or property. The proposed project does not include construction of any structures and would not substantially alter the existing use of the property. Therefore, implementation of the proposed project would result in a less-than-significant impact on direct or indirect risks to life or property associated with expansive soils.

e) Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? No Impact

Implementation of the proposed project would not generate wastewater and would not include the installation or use of any septic tanks or alternative wastewater disposal systems. Therefore, implementation of the proposed project would result in no impact associated with septic tanks and alternative wastewater disposal systems.

f) Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? No Impact

Geology within the project area consists primarily of the Franciscan Complex mélange, with alluvium (Holocene or Pleistocene) occurring in the lower elevation areas along Larsen Creek. The Franciscan complex mélange is a tectonic mixture of variably sheared shale and sandstone dating to the Jurassic Age (200 to 145 million years ago). The alluvium formation is fine to coarse sand, gravel, silt, and clay that is deposited in channels and associated environments. This formation was likely formed during the Holocene Epoch (11,700 years ago to the present). A records search showed that no recorded fossil sites are located within Marin County, although there are multiple records of invertebrate and plant fossils assigned to the Holocene or recent epoch[121]. No unique geologic features were identified in the proposed project area.

Trail decommissioning, new trail construction and trail improvement, habitat restoration, and hydrologic restoration would disturb only the top foot of soil and no deep excavation is proposed as part of the project. The bridge and boardwalk footings would all be excavated to less than 12 inches deep. Therefore, implementation of the proposed project would not directly or indirectly destroy unique paleontological resources or site or unique geologic features and there would be no impact.

[121] Marin County Open Space District (MCOSD). 2014a. Road and Trail Management Plan. November.

Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Setting

Global climate change is the observed increase in average global temperatures, along with other changes in climatic factors such as wind, precipitation, and storm frequency and intensity. Climate change can result from natural factors and processes, but recent trends in global climate change, including the marked increase in global temperatures over the past half-century, are primarily attributable to human activities. By trapping heat in the atmosphere, greenhouse gas (GHG) emissions, which result from a wide array of human activities such as the burning of fossil fuels and deforestation, are a primary cause of human-induced climate change.

GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_20), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Known as Global Warming Potential (GWP), the potency of each GHG and its relative contribution to global climate change can vary widely depending on the ability of the GHG to trap heat in the atmosphere and its atmospheric lifetime. GWP is measured relative to CO_2, the most abundant GHG, which has a GWP of 1. Methane has a GWP of 28-36, nitrous oxide has a GWP of 265-298, and the GWP of HFCs and PFCs can be in the tens of thousands[122]. Total GHG emissions are typically measured in metric tons of CO_2 equivalent ($MTCO_2e$).

There are two means for reducing GHGs in the atmosphere: cutting emissions of GHGs and increasing sequestration, the process by which atmospheric GHGs are stably incorporated into non-mobile forms such as trees and soil. In California, there are four significant pieces of legislation seeking to address climate change and GHG emissions:

- Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses total GHG emissions across the State and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030.
- Senate Bill (SB) 375 requires reduction of emissions from automobiles and light trucks.
- SB 97 requires consideration of climate change in all environmental assessments under CEQA, regardless of the specific source of GHGs or other climate change effects.
- SB 32 sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030.

[122] U.S. Environmental Protection Agency (EPA). 2021. Understanding Global Warming Potential. LINK: US EPA Understanding Global Warming Potential. Accessed October 28, 2021.

The California Air Resources Board (CARB) is tasked with the implementation of AB 32 through the development of a Scoping Plan, which is to be updated every five years. CARB produced its second update to the Scoping Plan in 2017[123]. The Scoping Plan identifies natural lands, such as open space, and working lands, defined as agricultural lands, as a critical component to the State's climate change strategy and notes their potential to be both a source and a sink for GHG emissions. In recent years, natural and working lands in California have experienced significant carbon loss, primarily as a result of wildfire. The Scoping Plan states that the objective for natural lands such as Roy's Redwoods Open Space Preserve is to promote their role as a carbon sink while minimizing GHG and other emissions associated with factors such as management and wildfire.

GHG emissions are also regulated by the Bay Area Air Quality Management District (BAAQMD). The BAAQMD 2017 CEQA Guidelines provide standards for analyzing a project's potential impacts on GHG emissions and thresholds of significance for operational emissions[124]. The BAAQMD 2017 Clean Air Plan also addresses climate change and GHG emissions. For natural lands such as Roy's Redwoods Open Space Preserve, the Clean Air Plan focuses primarily on increasing carbon sequestration[125].

Locally, the Marin County Climate Action Plan 2030 provides GHG reduction goals and measures for unincorporated Marin County, which includes Roy's Redwoods Open Space Preserve, with the overall goals of (1) reducing emissions to 60 percent below 2005 levels by 2030 and (2) drawing down GHG emissions to below zero by 2045[126]. GHG emissions in unincorporated Marin County were estimated to total 493,985 $MTCO_2e$ in 2005 and 380,318 in 2018, representing a 23 percent reduction over this time period[127]. Of the 2018 total, the agricultural sector accounted for 32 percent, the transportation for 31 percent, the built environment natural gas for 24 percent, the built environment electricity for 6 percent, waste for 5 percent, wastewater and off-road for one percent, and water for less than one percent. The Climate Action Plan provides a range of strategies and actions for achieving GHG emission reduction targets across all of these sectors.

Applicable RTMP Policies and BMPs

MCOSD would incorporate the following RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts from increased GHG emissions. The RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Policy SW.29: Retrofit or Upgrade Construction Equipment
- Air Quality-1: Implement BAAQMD Measures

CEQA Context

A project would normally result in a significant impact on GHG emissions if it results in a significant increase in GHG emissions or conflicts with a plan, policy or regulation intended to reduce GHG emissions.

a) Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Less than Significant

Construction of the proposed project would result in minor GHG emissions from the use of equipment and vehicles. Construction of the proposed project would require limited use of heavy equipment, including excavators, skid steer, dozer, track truck, skid loader, dump truck, chipper, ATVs, and water truck, as well

[123] California Air Resources Board (CARB) 2017. California's 2017 Climate Change Scoping Plan.

[124] BAAQMD 2017b. Clean Air Plan, Spare the Air, Cool the Climate.

[125] BAAQMD 2017c. California Environmental Quality Act Air Quality Guidelines. May.

[126] Marin County. 2020. Climate Action Plan 2030. December.

[127] ibid

as hand tools. The fossil fuel combustion from use of this equipment would result in emissions of CO_2 and other GHGs. Emissions would also result from MCOSD staff and contractors driving to and from the site each day during the construction period. These construction-related emissions would be limited as a result of the temporary nature of the construction and the relatively small scale of the proposed improvements.

Operation of the proposed project would occur as described in the project description and would continue in a manner similar to existing conditions. GHG emissions associated with operation and maintenance would result from truck trips to and from the site for MCOSD staff to patrol and maintain the area as well as from vehicle trips from users driving to and from Roy's Redwoods Open Space Preserve. The frequency of staff operations and maintenance activities would not increase as a result of implementation of the proposed project as the project would alleviate trail-related erosion and increase trail sustainability.

Visitation and public use of Roy's Redwoods Open Space Preserve may increase as a result of implementation of the proposed project. W-Trans conducted traffic counts along Nicasio Valley Road between April 30 and May 1, 2021[128] and results indicate the roadway is carrying between 2,300 and 2,900 vehicles per day. W-Trans identified a potential for an additional 8-weekday vehicle trips and 11 vehicle trips per weekend day trips following the potential project implementation. W-Trans did not identify a lack of parking to accommodate visitors during their traffic counts and site evaluations; nonetheless, there may not always be sufficient parking for the additional visitors resulting from implementation of the proposed project. Although the proposed project would improve site conditions at the existing parking spots and add a new, inclusive parking spot, the improvements would not increase or decrease available parking. Visitors arriving when no parking is available may drive past the Preserve several times while looking for a place to park. Some visitors may choose to visit other preserves in the area and others may leave if parking is not available. The additional vehicle trips could result in a slight, unquantifiable increase in greenhouse gas emissions if they arrive at the Preserve when parking is not available. Given the small number of additional vehicle trips expected as a result of the proposed project, the speculative nature of determining how many times a visitor may drive past the site searching for parking, and the lack of a means to calculate individual vehicle trip impacts on greenhouse gas emissions or excessive energy use, the MCOSD determines the operation of the proposed project would not significantly increase GHG emissions relative to existing baseline conditions.

The 2017 BAAQMD Guidelines provide a process for evaluating the proposed project's impact on GHG emissions[129]. The first step in this process is to evaluate whether the project meets the screening criteria defined in the 2017 BAAQMD Guidelines. If the project meets all screening criteria, its impact is considered to be less than significant and further detailed analysis of potential project emissions is not required.

Table 3-1 of the 2017 BAAQMD Guidelines provides the following screening criteria size thresholds for the proposed project's land use of city park: 2,613 acres for operational criteria pollutants, 600 acres for operational GHGs, and 67 acres for construction-related emissions (PM10). The total disturbance area associated with the proposed project is approximately 2.5 acres within a 19.5-acre area, so the proposed project size is well below the described screening criteria size thresholds. The entire size of Roy's Redwoods Open Space Preserve is 293 acres, also well below the screening size for operational GHG emissions. The proposed project would not include demolition, simultaneous occurrence of more than two construction phases, simultaneous construction of more than one land use type, extensive site preparation, or material transport greater than 10,000 cubic yards requiring considerable haul truck activity. The proposed project would generate 650 cubic yards the import of soil, rock, and logs for construction. Additionally, the proposed project would incorporate applicable RTMP BMPs, including Policy SW.29: Retrofit or Upgrade Construction Equipment and Air Quality-1: Implement BAAQMD Measures, which

[128] W-Trans Traffic Study. Roy's Redwood Open Space Preserve. 2021.

[129] BAAQMD 2017c. California Environmental Quality Act Air Quality Guidelines. May

would further reduce the GHG emissions associated with construction and operation of the project. The specific BAAQMD measures are listed in Appendix C of the 2017 BAAQMD Guidelines. As a result, the proposed project would meet all of the screening criteria identified in the 2017 BAAQMD Guidelines and the project would not result in GHG emissions that would have a significant impact on the environment. Therefore, construction and operation of the proposed project would result in a less-than-significant impact associated with the generation of GHGs, either directly or indirectly, that may have a significant impact on the environment.

b) Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? No Impact

Neither construction nor operation of the proposed project would result in GHG emissions that would have a significant impact to the environment. The proposed project does not create any new stationary or mobile sources of GHG emissions and does not alter land use or otherwise inhibit carbon sequestration. In fact, the carbon sequestration potential of the project area would likely increase as a result of the proposed restoration of the alluvial valley. The project would not conflict with the GHG reduction goals and policies set forth in statewide legislation, the CARB Scoping Plan, the BAAQMD Clean Air Plan, the Marin Countywide Plan, or the Marin County Climate Action Plan. Therefore, implementation of the proposed project would result in no impact associated with a conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g. Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Setting

California Health and Safety Code Section 25501 defines hazardous material as a material that, because of its quantity, concentration, or physical or chemical characteristics, poses significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment, or a material specified as hazardous by ordinance.

The MCOSD uses a limited amount of hazardous materials at Roy's Redwoods Open Space Preserve during routine maintenance that includes the use of motorized equipment for vegetation control, trail maintenance, and routine patrols. The vehicles and equipment utilized by the MCOSD contain hazardous materials, including gasoline, lubricants, and other solutions. However, no hazardous material is stored at or within the Roy's Redwoods Open Space Preserve.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate the following RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to hazards and hazardous materials. The RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist
- General-6: Prevent or Reduce Potential for Pollution
- Water Quality-4: Prevent or Reduce the Potential for Pollution

CEQA Context

A project would normally result in a significant impact on hazards and hazardous materials if the project would expose people and/or the environment to hazards or hazardous materials.

a) **Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?** Less than Significant

Construction of the proposed project would include the use of vehicles and equipment that require small quantities of hazardous materials, including fuel and lubricants. Operation of the proposed project would occur as described in the Project Description and would continue in a manner similar to existing conditions. Operation and maintenance activities would include the operation of vehicles and equipment that use hazardous materials, including fuel and lubricants. However, operation of the proposed project would not result in an increase in the transport, use, or disposal of hazardous materials relative to baseline conditions.

Any time such materials are used, transported, or disposed there is the potential for spills or other releases of the materials, which could affect MCOSD staff, construction workers, recreational users, and the environment. Transport of hazardous materials to and from the project area could result in an incremental increase in the potential for accidents. However, existing laws and regulations govern the storage, transport, use, and disposal of hazardous materials. Caltrans and the California Highway Patrol (CHP) regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Regulations and criteria for the disposal of hazardous materials mandate disposal at an appropriate landfill. The California Occupational Safety and Health Administration (Cal-OSHA) enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees. The transport, use,

and disposal of hazardous materials for the construction and operation of the project would be adequately controlled through these existing regulatory requirements and the potential for impacts would be less than significant.

Additionally, the proposed project includes implementation of RTMP BMPs that would further reduce any potential hazards to the public and the environment. BMPs General-6 and Water Quality-4 provide guidance for the safe use and disposal of materials, including hazardous materials, during construction and operation of the project. Implementation of these BMPs would ensure that the project would not create a significant hazard to the public or the environment through the transport, use, or disposal of hazardous materials. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

b) **Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?** Less than Significant

As described under a), above, the project would involve construction activities that use limited quantities of hazardous materials, such as fuel and lubricants. Operation of the proposed project would require occasional use of vehicles and equipment, with associated hazardous materials, but is not anticipated to increase the use of such materials relative to baseline conditions. Construction and operation of the proposed project could incrementally increase the potential for accidents involving the release of hazardous materials into the environment. However, as described above, the project would be subject to federal, state, and local laws and regulations governing hazardous materials and BMPs included in the MCOSD's RTMP would be implemented, which would reduce the likelihood of accidental release into the environment. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

c) **Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?** Less than Significant

The closest schools to the project area are San Geronimo Preschool and Lagunitas Elementary School, which are approximately 0.5 mile to the south and west, respectively. There are no existing or planned schools within ¼ mile of the project area or the wider Roy's Redwoods Open Space Preserve. Although highly unlikely, implementation of the proposed project could result in the release of hazardous materials from routine transportation or use of hazardous materials such as oils, lubricants and other fluids required for construction and/or operation equipment. Potential releases would be limited to fluids used for construction equipment, which would be onsite in small quantities. Since the proposed project is located more than ¼-mile from any school, there is a very low potential for a spill to affect a school. Construction and operation activities associated with implementation of the proposed project would be subject to federal, state, and local laws and regulations governing hazardous materials and all applicable policies and BMPs included in the MCOSD's RTMP would be implemented, including measures to prevent pollution and reduce the likelihood of accidental release. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with the emission of hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school.

d) Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? No Impact

The Hazardous Waste and Substance Sites (Cortese) List, maintained by the California Environmental Protection Agency and the California Department of Toxic Substances, is the official database of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Cortese List shows several active sites in the general vicinity of Roy's Redwoods Open Space Preserve; however, the nearest site is over 4.1 miles away from the project area. The project area is not located on a hazardous materials site. Therefore, implementation of the proposed project would result in no impact associated with creation of a significant hazard to the public or the environment due to its location on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

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

The project area is located approximately seven miles west of the San Rafael Airport and is outside the geographic boundary of the airport's land use plan. The proposed project would implement improvements to the trail system and create a wetland/stream Stage Zero complex across the alluvial valley in Roy's Redwoods Open Space Preserve. The proposed project does not include any new housing or office space. The proposed project and its proximity to the airport would not result in a safety hazard or excessive noise relative to baseline conditions for staff or recreational users at Roy's Redwoods Open Space Preserve. Implementation of the project would not conflict with the airport land use plan for the San Rafael Airport. Therefore, implementation of the proposed project would result in no impact associated with creation of a safety hazard or excessive noise for people residing or working in the project area.

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? Less than Significant

The proposed project area is located in San Geronimo Valley adjacent to Nicasio Valley Road and north of Sir Francis Drake Boulevard within the area addressed in the Marin County Fire Department's Community Wildfire Protection Plan[130]. Sir Francis Drake Boulevard serves as the main evacuation route for the San Geronimo area. Nicasio Valley Road serves as an alternative evacuation route, only to be used if directed by local fire authorities[131]. Construction activities would occur adjacent to Nicasio Valley Road to implement the proposed entryway and parking improvements and the eastern shoulder would be used to provide access for construction equipment and construction materials. Construction is not expected to block the roadway entirely; however, traffic lanes may be temporarily reduced to one-way traffic during delivery of equipment or materials at infrequent times during construction. No materials or equipment would be stored along the roadway shoulder as shown on Figure 25 Material and equipment would be moved to a staging area within the Roy's Redwoods Open Space Preserve immediately following delivery. Temporary one-way passage along Nicasio Valley Road would not physically stop all traffic, and implementation of the proposed project would result in a less-than-significant impact associated implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

[130] Marin County Fire Department, Community Fire Protection Plan. 2016. LINK: MCFD Community Fire Protection Plan.

[131] Marin County Fire Department, Fire Safe Marin. 2021. Accessed October 5, 2021. LINK: MCFD Fire Safe Marin.

g) Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires? Less than Significant

Roy's Redwoods Open Space Preserve is not located in an area mapped wildland-urban interface (WUI); however, areas to the north and south of the Preserve are mapped as WUI. Marin County mapped the area in and around the Roy's Redwoods Open Space Preserve as moderate fire risk[132]. Equipment used during construction and maintenance activities associated with the proposed project could generate sparks which could result in wildland fire. The MCOSD would require the contractor and maintenance staff to implement applicable policies and BMPs included in the MCOSD's RTMP to minimize risk of wildfire that could be initiated from equipment used to construct and maintain the proposed project, such as requiring vehicles be equipped with fire extinguishers to address small fires ignited by construction or maintenance activities before a wildland fire develops. The MCOSD's RTMP BMP SW-26 allows the MCOSD to temporarily or permanently close preserves or restrict uses in preserves to reduce fire risk during periods of high fire danger. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with the exposure of people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

[132]Marin County GeoHub. 2021. LINK: Marin County GeoHub. Accessed on October 5.

Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☐	☒
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
d. impede or redirect flood flows?	☐	☐	☒	☐
e. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
f. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Setting

Roy's Redwoods Open Space Preserve is located within the headwaters of the east fork of Larsen Creek in the San Geronimo Creek-Lagunitas Creek watershed in west Marin County. The project area is an alluvial valley and redwood grove within Roy's Redwoods Open Space Preserve. Fed by drainages originating from surrounding ridges, Upper Larsen Creek and several tributaries flow through this alluvial valley in the project area before passing under Nicasio Valley Road and entering the San Geronimo Commons downstream of the project area, as shown on Figure 4. Roy's Redwoods Hydrology Setting. The streams within the project area are classified as either ephemeral or intermittent, meaning that they flow seasonally, primarily in response to rainfall, during the winter and spring. Prior to historic and recent land use management practices, the stream channels likely disappeared through the valley as they spread out in alluvial fans and had to flow around downed redwood trees. This condition, where streams become multi-threaded across an alluvial fan, flow into wetlands, lose a distinctive single bed-and-bank form, and are well connected to their floodplain is known as a Stage Zero wetland/stream complex[133]. Streams in a Stage Zero condition provide the highest ecosystem and hydrologic value within the wetland-channel complex. The streams in the project area are currently incised and disconnected from the valley floor floodplain, which lowers the water table, reduces groundwater infiltration, and increases flood peaks and sediment delivery downstream.

Currently, the existing multi-use trails, as well as an extensive network of social trails, cross the streams in several locations via unimproved crossings. The social trails and gathering areas have trampled the native understory and hardened the soil, which causes increased runoff and downstream sedimentation. Many of the trails are also currently wet during the rainy season and are flooded during rainfall events.

The proposed project would include decommissioning social trails and creating a sustainable designated trail network within the project area. Proposed trail improvements would include upgrading trail crossings over stream channels and wetlands with a bridge, rock crossing, log crossing, or boardwalks to provide visitors safe passage without degrading creeks and wetlands. The proposed crossing locations are shown on Figure 5. The proposed project would decommission the existing Meadow Trail and replace it with a new segment of the Roy's Redwoods Loop Trail to remove trails from the alluvial valley to the extent possible. The new segment of the Roy's Redwoods Loop Trail would be located out of the valley and onto the forested slope as shown on Figure 6. An existing social trail that traverses the valley in the redwoods would be upgraded to the Fairy Ring Trail and Floodplain Trail. A Nature Exploration Area and Scramble would be constructed to allow visitors the opportunity to experience the redwood forest and floodplain without damaging more vulnerable locations through the alluvial valley. Social trails at the southern end of the project area would be replaced with a series of boardwalks to protect the soil and vegetation and to provide year-round access. The designated trail would become the Boardwalk Trail.

In addition to trail improvements and decommissioning, the proposed project would include specific hydrological restoration actions within the Roy's Redwoods Open Space Preserve's alluvial valley. The hydrologic restoration actions are designed to slow storm and floodwaters down, spread them across the valley's floodplain, and increase infiltration to recharge groundwater. Incised sections of Upper Larsen Creek and the northern and western tributaries would be filled with locally collected sediment and through natural processes to fully reconnect the channels with the surrounding floodplain and raise the water table, which would improve the hydrologic conditions for the redwood trees and understory shrubs and plants. Redwood logs would be placed within the channels and around the valley floor to help slow stormwater flows and capture sediment within the valley. Revegetation of severely compacted areas and decommissioned social trails would help restore the valley floor ecosystem. The stretch of Upper Larsen Creek, including the western tributary, that parallels Nicasio Valley Road and the entrance area would be

[133] For more information on Stage Zero streams, the stream evolution model, and related research, visit the LINK to StageZeroRestoration.com.

modified to increase channel stability and function. Two headcuts and two channel knickpoints would be stabilized using redwood logs and boulder anchors. The channel bed would be filled with soil and gravel imported from local sources to approximately six inches to help elevate the water table in this reach and protect redwood roots that have become exposed since the channel incised. Near the downstream end of Upper Larsen Creek within the Preserve, upstream of the existing trail network's bridge, a boulder ramp would be installed to stabilize a headcut and safely transition flows into a deep, narrow channel and through the culvert under Nicasio Valley Road.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to hydrology and water quality. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Water Quality-1: Modifications to RTMP Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas
- Water Quality-2: Temporary Erosion and Sediment Control
- Water Quality-3: Erosion Control Measures
- Water Quality-4: Preventing or Reducing the Potential for Pollution
- Water Quality-5: Road and Trail Inspections
- Water Quality-6: Grading Windows
- Water Quality-8: Proper Disposal of Excess Materials
- Water Quality-9: Sidecasting Construction Material

CEQA Context

A project would normally result in a significant impact to hydrology or water quality if it would substantially degrade water quality, contaminate a public water supply, substantially degrade or deplete groundwater resources, interfere substantially with groundwater recharge, encourage activities that result in the use of large amounts of water, use water in a wasteful manner, or cause substantial flooding.

a) Would the Project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality? Less than Significant

Earthwork and construction activities associated with trail realignments, improvements, and decommissioning, hydrological restoration, and habitat restoration could result in waste discharges or sedimentation that could affect water quality through erosion caused from grading and earthmoving operations and a release of fuels or other chemicals used during construction. All of these activities would take place within the alluvial valley and in close proximity to watercourses. Some activities, including hydrological restoration, would include work within the watercourses. Grading and earthmoving would expose soil during construction and could result in erosion, with excess sediments carried in stormwater runoff to the tributaries or Upper Larsen Creek. Implementation of the proposed project would incorporate and be consistent with the above RTMP Water Quality BMPs, and implementation of these measures would protect water quality through the following actions including implementation of temporary sediment-control measures and stabilization of areas where construction has disturbed soil, prevention of pollution through working training and immediate response to inadvertent spills, constructing only during allowable work windows, and post-construction trail monitoring and maintenance. The following RTMP BMPs would be implemented:

- Water Quality-1: Modifications to RTMP Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas
- Water Quality-2: Temporary Erosion and Sediment Control

- Water Quality-3: Erosion Control Measures
- Water Quality-4: Preventing or Reducing the Potential for Pollution
- Water Quality-5: Road and Trail Inspections
- Water Quality-6: Grading Windows
- Water Quality-8: Proper Disposal of Excess Materials
- Water Quality-9: Sidecasting Construction Material

As described in detail in the Project Description, 6,465 feet of social would be decommissioned to close trails in sensitive areas and to reduce trail redundancy. Passive trail decommissioning would not include earthwork, and therefore, would not result in water quality impacts. Approximately 3,750 feet of existing social trails would be closed using passive methods that would include a combination of revegetation efforts and physical barriers to eliminate use and disguise the trail. These activities would not result in water quality impacts. Approximately 2,715 feet of social and network trails would require more active methods to decommission trails, including use of heavy equipment to recontour slopes, decompact trail tread, and blend the previous trail segment into the surrounding landscape. As noted above, applicable RTMP BMPs would be implemented during construction and the impact to water quality from active decommissioning of social trails would be less than significant.

Operation of the proposed project would include ongoing maintenance by MCOSD staff and public use of the project area, similar to existing conditions. Operation of the project could result in a moderate increase in users, however, the MCOSD would implement RTMP BMP General-10: Road and Trail Inspection and measures described in the Project Description under the Post-Project Maintenance and Monitoring Section to monitor visitation for any impacts to sensitive resources and water quality. Operation of the project would not include additional activities or introduce any new uses that would have the potential to impact surface or ground water quality relative to baseline conditions, and therefore would result in a less-than-significant impact on water quality. Ultimately, operation of the project would be anticipated to result in a net benefit to water quality relative to baseline conditions, as a result of the proposed hydrologic restoration that would improve conditions within the alluvial valley and the proposed trail decommissioning, trail improvements, and crossings that would reduce ongoing impacts to water quality from visitor use.

Implementation of the RTMP BMPs, policies, and design standards, plus implementation of the proposed erosion control measures included as part of the project, would minimize potential water quality impacts from construction activities in and around watercourses. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with a potential violation of water quality standards or waste discharge requirements, and a less-than-significant impact associated with potential degradation of surface or ground water quality. Furthermore, implementation of the proposed project would benefit surface water quality by improving the trail system, removing erosive and unsustainable social trails, and actively restoring the hydrologic functioning of the project area.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin? No Impact

Improving groundwater recharge is one of the primary objectives of the proposed project. Realignment of the trail network out of the floodplain and channels, decommissioning and revegetation of compacted gathering areas and social trails, filling incised sections of the creek to spread water across the valley floor, and installing redwood logs throughout the valley to slow stormwater runoff would all work together to restore the ecologic processes that maximize groundwater recharge. The proposed project would not introduce new groundwater uses. Neither construction nor operation of the project would decrease

groundwater supplies or interfere with groundwater recharge. Therefore, implementation of the proposed project would have no impact associated with substantially decreased groundwater supplies or substantial interference with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) Result in substantial erosion or siltation on- or off-site? Less than Significant

The realignment and extension of the trail network around the alluvial valley and through the redwood grove of the Roy's Redwoods Open Space Preserve has been designed to reduce trail-related erosion and sedimentation. The current locations of the Meadow Trail, Ridge Trail, and Mossy Rocks Trail experience substantial stormwater flows and erosion along portions of their length. These trails would be realigned to reduce erosion, and the existing locations decommissioned and revegetated. The proposed Fairy Ring, Forest, Floodplain, and Boardwalk Loop trails would replace several social trails that crisscross the valley floor and have caused erosion of the floodplain and creeks. The proposed improvements would ensure the trails are properly drained, minimize future maintenance, improve sustainability, and improve user safety. The proposed new trails would be surfaced with natural pervious materials and would include permanent and frequent drainage control to prevent concentrated runoff and substantial erosion. In accordance with RTMP BMP General-10: Road and Trail Inspections, the MCOSD would also implement a post-construction trail monitoring program described in the Maintenance section of the Project Description to ensure the proposed project successfully prevents erosion and runoff from currently eroding sites within Upper Larsen Creek and the northern and western tributaries and proposed new trails adequately drain and do not result in runoff during project operation.

The proposed project includes decommissioning multiple social trails and gathering areas that have compacted soil and created nearly impervious surfaces that concentrate rainfall runoff and promote erosion. These trail segments would be decommissioned, mulched, and revegetated with native redwood understory plants to improve infiltration. The MCOSD would also decommission several sections of social trails by blocking them with redwood logs or split-rail fencing where needed to prevent public access. The proposed trail decommission methods would be designed to reduce existing erosion and prevent future erosion from the sites.

The proposed hydrologic restoration actions within the alluvial valley are designed to reduce channel erosion and incision and promote deposition of sediment in the alluvial valley to reduce sedimentation in downstream salmonid-bearing reaches of Larsen Creek. Ultimately, all of these project elements would result in a beneficial effect and would reduce erosion and siltation both on- and off-site.

Construction of the proposed project would include use of heavy equipment to perform ground-disturbing construction activities, including grading along new and decommissioned trails and within hydrologic restoration areas. The proposed project also includes construction of a bridge, boardwalks, and rock and log crossings across water features. These activities could result in soil disturbance that could cause erosion or siltation. However, the proposed project includes implementation of RTMP BMPs that would reduce the potential for erosion and siltation during project construction. These BMPs include Water Quality-2 Temporary Erosion and Sediment Control, Water Quality-3 Erosion Control Measures, and Water Quality-6 Grading Windows. These BMPs would restrict grading to the dry season and would require implementation of measures to reduce erosion and sedimentation during and after construction. Implementation of these BMPs would ensure that construction of the project would have a less-than-significant impact related to erosion and siltation.

Therefore, implementation of the proposed project would result in a less-than-significant impact associated with substantial erosion or siltation on- or off-site from alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces.

ii) **Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?** No impact (Beneficial)

Drainage improvements for the proposed new trail construction and existing trail improvement would include installation of rolling dips and outsloping of the trails. Rolling dips are drainage dips excavated into the trail to convey water off the trail and into stable, undisturbed ground. Outsloped tread is a technique that alters the trail to be lower on the outside or downhill side of the trail than it is on the inside or bank side. Outsloping allows water to sheet drain across the trail naturally. The tread would be outsloped at two to five percent to promote adequate drainage. The proposed project would include the installation of drainage features, such as rolling dips, at various locations along the proposed trail alignments where outsloping is not possible. The net effect of these improvements is to move water off the trail surfaces as quickly as possible and drain them into the adjacent natural landscape where water can infiltrate into the soil without causing soil erosion.

The project area is not located within a 100-year flood hazard zone[134]. The proposed project would beneficially reduce peak flood flows through the site and would not affect the risk of flooding downstream. The proposed hydrologic restoration actions and decommissioning of social trails and compacted gathering areas would attenuate flood flows and reduce the amount of surface runoff through the project area by creating a forested wetland complex through the valley that would slow the flow of water during higher flows by spreading water across the valley floor and promoting infiltration. Placement of energy dissipaters in the form of large woody material located throughout the valley floor would help slow down and distribute flow through the floodplain, which would dissipate the erosive forces of water and restore hydrologic functions. Development of a meandering flow pattern through the valley would reestablish connection of Upper Larsen Creek to the floodplain and reduce the concentration of flows through the currently degraded reaches of Upper Larsen Creek.

Placement of rock and wood structures in the lower reaches of Upper Larsen Creek as part of the proposed project would also serve the slow water flow and prevent further downcutting of the channel. Reducing the number of social trails located in sensitive areas would increase infiltration and reduce the rate of surface runoff from previously compacted areas.

New trail segments and upgraded trails would be constructed to properly drain to vegetated areas to prevent concentrated runoff and the potential resulting increased flood flows. Proposed decommissioning of social trails and rehabilitating heavy visitor use areas would increase infiltration and reduce flood flows.

Given that the proposed project elements are designed to increase infiltration and spread flows across the valley floor, implementation of the proposed project would reduce the rate and the amount of surface runoff through the project area. Implementation would not increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

[134] Association of Bay Area Governments. 2021. Hazard Viewer Map. hLINK: ABAG:ttps://abag.ca.gov/our-work/resilience/data-research/hazard-viewer. Accessed October 22, 2021.

iii) **Create runoff which would exceed capacity of stormwater drainage systems or provide additional sources of polluted runoff?** No Impact

The project area does not contain existing stormwater drainage systems, and none are planned as part of the proposed project. Although the length of network trails would increase from 3.7 miles to 4.1 miles within the Roy's Redwoods Open Space Preserve as a result of the proposed project, the proposed rehabilitation of heavy visitor use areas and proposed social trail decommissioning would decrease the amount of existing impervious areas within the project area. Implementation of the proposed project would result in 1.4 miles of designated trail within the project area, which represents a decrease of one mile of trail with the decommissioning of social trails. As a result, the proposed project would decrease the potential for accelerated runoff within the project area and the rate of runoff would be expected to decrease. The proposed project includes drainage improvements to decommissioned trails, improved existing trails, and new trail construction, including installation of rolling drainage dips and trail cross drains. Implementation of the proposed hydrologic restoration elements would alter existing drainage patterns within the project area by reconnecting Upper Larsen Creek to its adjacent floodplain through the alluvial valley portion of the project site. Implementation of the proposed project would not increase peak streamflow in Upper Larsen Creek where it exits the Roy's Redwoods Open Space Preserve and flows under Nicasio Valley Road. The transition from the Stage Zero wetland complex through the project area to Larsen Creek would not result in flows that exceed the capacity of the culverts under Nicasio Valley Road. Therefore, the proposed project would not exceed the capacity of a stormwater drainage system or provide additional sources of polluted runoff. Implementation of the proposed project would reduce the concentration of runoff and water velocity over what currently occurs in the valley and off the trails, which would be beneficial to reduce potential gully formation and for groundwater recharge potential.

iv) **Impede or redirect flood flows?** Less than Significant

The project area is not located within a designated flood zone; however, a majority of the project site is located in the Upper Larsen Creek floodplain. An existing porta-toilet would be relocated adjacent to the improved Entryway 3 and outside the floodplain as part of the proposed project. Relocation of the porta-toilet would, remove it from the floodplain and eliminate the existing potential flood flow obstruction. The proposed social trail decommissioning, restoration of heavily impacted areas within the alluvial valley, and proposed hydrologic restoration would attenuate peak flood flows within the project area, reducing concentrated flow and associated erosion as discussed above under impact evaluation iii). Flows through the alluvial valley would be spread across the floodplain, which would be beneficial for reestablishing the historic wetland-channel complex hydrologic conditions. Localized flow patterns within the project area would change as a result of the proposed project, as flows would be spread across the valley floor which would attenuate peak flood flows and increase infiltration. The effect would be beneficial.

The relocated segment of the Roy's Redwoods Loop Trail and the upgraded Forest Trail would be constructed above the valley floor and would not impede flood flows. Proposed designated trail upgrades within the valley floor would not impede or redirect flood flows as they would be constructed primarily at ground level to accommodate flood flows across them. The proposed project would include installation of new, formal stream and wetland crossings along trails through the alluvial valley. These proposed crossings would provide improved visitor access through the valley floor while protecting stream channels and wetland. The boardwalks and rock crossings have been designed to allow flood flows to the pass over the structures and not redirect flows. The proposed bridge and associated bridge footings would be placed above the top of bank of the southern tributary, which would allow 100-year flood flows to pass under the bridge. Installation of the new bridge would not impede or redirect flood flows, and the impact would be less than significant.

d) Would the Project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation? No Impact

The project area is not located in an area subject to the effects of a tsunami[135] or seiche[136], or near a large body of water that would be subject to seiches or tsunami[137]. There are no creeks or rivers in the project area that are within a flood hazard zone. The project area is within an existing open space preserve and no pollutants are found within areas that would be inundated during flooding and implementation of the proposed project would not increase the risk of pollutant releases. Therefore, implementation of the proposed project would have no impact associated with the risk the release of pollutants due to inundation by seiche, tsunami, or flood.

e) Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan? No Impact

There is no sustainable groundwater management plan developed for the Lagunitas Creek and San Geronimo Valley groundwater basin. Lagunitas Creek, which is downstream of the project area, is listed as a Clean Water Act Section 303(d) Impaired Waters and the Basin Plan[138][139] was amended in 2014 by Board Order R2-2014-0027. Implementation actions for the Basin Plan are outlined in the Lagunitas Creek Fine Sediment Reduction and Habitat Enhancement Plan, which lists channel incision, floodplain disconnection, and reduced large wood accumulations as primary factors in detrimental sediment delivery mechanisms, and states that historically many of the tributaries would have stored the coarse and most of the fine sediments in alluvial fans[140].

The proposed project would restore the valley and creeks to a functioning alluvial fan condition by filling incised channels and loading large redwood logs throughout the valley to slow floodwaters and trap sediment. Social trails and unimproved stream crossings that contribute to erosion and fine sediment delivery would be reduced. The proposed trail network was designed to minimize future erosion and fine sediment delivery by relocating the trails out of the floodplain; elevating them above the floodplain with boardwalks, logs, and boulders where they cross the floodplain; and installing bridges and crossing logs to span defined stream channels. The proposed project would implement actions that improve water quality conditions in the project area and in downstream salmonid habitats by reducing erosion in accordance with the Basin Plan. None of the proposed actions would conflict with either a water quality control plan or a sustainable groundwater management plan. The proposed project would not utilize groundwater during construction or operation, and none of the proposed improvements would impede groundwater recharge. Ultimately, the proposed wetland-channel complex hydrologic restoration is anticipated to improve groundwater recharge in the project area. Therefore, implementation of the proposed project would not

[135] Tsunami is a long high sea wave caused by an earthquake, submarine landslide or volcanic eruption, or other disturbance. The speed of tsunami waves is a factor of ocean depth, not distance from the ocean. Tsunami waves build to higher heights as they travel inland as the depth of the ocean decreases.

[136] Seiche is a temporary standing wave in the water level of a lake or partially enclosed body of water, usually caused by changes in atmospheric pressure caused by earthquakes or landslides.

[137] Marin Map 2020e. Map Showing Tsunami from 2017.

[138] San Francisco Bay Regional Water Quality Control Board. 2019. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) LINK: SFBRWQCB: Basin Plan

[139] The Basin Plan is used as a regulatory tool by the Regional Water Board. Regional Water Board orders cite the Basin Plan's water quality standards, prohibitions, and other programs of implementation applicable to a particular discharge or category of discharge.

[140] San Francisco Bay Regional Water Quality Control Board. 2014. Lagunitas Creek Watershed Fine Sediment Reduction Plan and Habitat Enhancement Plan. LINK: SFBRWQCB: Lagunitas Creek Watershed plan.

conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Land Use and Land Use Planning

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

Setting

The project area is located within Roy's Redwoods Open Space Preserve in unincorporated Marin County. Surrounding land uses immediately west include the French Ranch Open Space Preserve and Maurice Thorner Memorial Preserve, both owned and managed by the MCOSD, and the San Geronimo Commons currently owned by the Trust for Public Land. Other nearby land uses include single family residential to the south and agriculture to the west, north, and east. Roy's Redwoods Open Space Preserve is governed by the Marin Countywide Plan and zoning ordinance[141]. The land use designation is Open Space and the parcel is zoned Open Area (OA)[142].

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to land use and planning. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to land use and planning if it would conflict with the adopted land use and zoning regulations or if it would disrupt or divide the physical arrangement of an established community.

a) Would the Project physically divide an established community? No Impact

The project area is located entirely within Roy's Redwoods Open Space Preserve, which is zoned Open Area and is managed for public recreation and natural open space values. The project area is surrounded by primarily open space and agricultural property, with some single-family residential parcels to the west and south. The proposed project would include trail decommissioning, new trail construction and improvement, habitat and hydrologic restoration, and access improvements. None of the proposed activities include construction of features that would physically divide an established community. For this reason, implementation of the proposed project would not physically divide an established community.

[141] Marin County, 2007. Marin Countywide Plan. LINK: Marin Countywide Plan

[142] Marin County. 2021. MarinMap Online Viewer.
LINK: MarinMap Online Viewer. Accessed October 14, 2021.

b) Would the Project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? No Impact

The proposed project is subject to the MCOSD governing and guidance documents listed in the Project Description, and the applicable RTMP polices would be met with implementation of the proposed project. Specifically, this proposed project is designed to decommission social trails that cause erosion and impacts to sensitive habitat as addressed in RTMP Policy SW-2: System Roads and Trails and RTMP Policy SW-3: Social Trails. The proposed project also addresses Policy SW-4: Overall Reduction of Road, Trail, and Visitor Impacts through reducing the overall impact by decommissioning trails, improving and constructing new trails that are stable and sustainable, and restoring sensitive habitat features that have been degraded over time by visitor use and other factors.

In addition, the Marin Countywide Plan policies apply to the proposed project. Implementation of the proposed project would not change or otherwise affect land use designations, zoning, or existing use of the property. Public recreation would continue, which is consistent with the applicable land use and zoning designations. Therefore, implementation of the proposed project would have no impact associated with a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mineral Resources

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Setting

The State Mining and Reclamation Act of 1975 requires that counties adopt policies to protect certain state-designated mineral resource sites from land uses that preclude or inhibit mineral extraction needed to satisfy local market demand on a timely basis. The purpose of the Act is to ensure that construction materials are available to all areas of the state at a reasonable cost. Mineral resources are present throughout much of Marin County and extraction of these resources has occurred throughout the history of human habitation of the area. Presently, mining operations are primarily related to the extraction of rock, sand, and earth for use in construction and related activities. The California Geological Survey (CGS) has mapped and classified areas of significant mineral resources in the North Bay as MRZ-2[143]. The project area and all surrounding lands are classified as MRZ-3, "areas containing mineral resources of undetermined significance." No significant deposits of any mineral resources, including Portland cement concrete-grade aggregate, asphalt-grade aggregate, and Class II base-grade aggregate, are known to occur within the project area.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to mineral resources. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to mineral resources if a loss of known mineral or of a locally important mineral resources recovery area occurred from implementation of the project.

a) Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? No Impact

The proposed project would implement social trail decommissioning, designated trail construction and improvement, access improvements, and habitat and hydrologic restoration within Roy's Redwoods Open Space Preserve. The project area is designated by CGS to be an MRZ-3 area with mineral resources of undetermined significance. The proposed project does not include any change in land use that would result in the loss of availability of any mineral resource that may be present in the area relative to baseline conditions. The project area is currently a public open space preserve and this land use would not change

[143] Areas designated MRZ-2 are "areas underlain by mineral deposits that geologic data indicate to be significant. Contains known economic mineral deposits." (CGS 2013)

as a result of the project. Additionally, the proposed project does not include mineral extraction or excavation sufficient to affect any potential underlying mineral resources in the project area. Therefore, implementation of the proposed project would have no impact associated with the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

b) Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? No Impact

The Marin Countywide Plan recognizes the MRZ-2 zones designated by CGS as significant mineral resource sites and provides policies for preserving such sites. However, as described above, the project area is not located within an MRZ-2 zone and would not result in the loss of availability of any known mineral resources of value and the proposed project does not include mineral extraction or excavation sufficient to affect potential underlying mineral resources. Therefore, implementation of the proposed project would have no impact associated with the loss of availability of a locally important mineral resource recover site delineated on a local general plan, specific plan, or other land use plan.

Noise

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Setting

Noise is defined as unwanted sound and is a subjective reaction to the physical phenomenon of sound. Noise interferes with sleep, speech, recreation, and tasks demanding concentration or coordination. The result is an increase in public annoyance with the noise source and a decrease in environmental quality. How humans perceive noise can be further influenced by how quiet background sound levels are and the kind of sound being generated. For instance, the same noise source would tend to sound louder at night, when background sound levels are generally lowest. Two common noise metrics account for this variability: the day-night average level (Ldn) is a 24-hour average noise level that adds 10 dB to nighttime noise between 10:00 p.m. and 7:00 a.m.; and the Community Noise Equivalent Level (CNEL) is identical to Ldn but adds an additional 5 dB to noise between 7:00 p.m. and 10:00 p.m.

Sound is compression waves that can travel through air, earth, and water. The most common unit of sound measurement is the decibel (dB). The threshold of hearing is considered to be 0 dB, and the range of sounds in normal human experience is 0 to 140 dB. Each 10 decibels reflect a 10-fold increase in noise intensity. Sound waves travel at different frequencies. Because sound drops off with distance, all sound measurements are reported with distance from the source. The decibel scale is further refined to measure human hearing by using an A-weighted scale (dBA) that counts sounds within the center of human hearing frequencies as louder.

Human response to sound and noise is subjective and can vary greatly from person to person, depending on a variety of factors including the intensity, frequency, and pattern of the sound, the background or ambient sound present without the unwanted sound, and the activity of the individual when the unwanted sound is occurring. Noise can interfere with concentration, communication, and sleep, and at high levels, can result in hearing damage. According to the U.S. Department of Housing and Urban Development's

1985 Noise Guidebook[144], permanent physical damage to human hearing can begin with prolonged exposure to noise levels higher than 85 to 90 dBA. Prolonged noise exposure in excess of 75 dBA increases body tension, which can affect blood pressure, functions of the ear, and the nervous system. In comparison, extended periods of noise exposure above 90 dBA would result in permanent cell damage. To avoid adverse effects on human physical and mental health in the workplace or in communities, the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) requires the protection of workers from hearing loss when the noise exposure equals or exceeds an 8-hour time-weighted average of 85 dBA[145].

Some people and circumstances are more vulnerable to the adverse effects of noise than others. Known as “sensitive receptors,” these include residences, schools, hospitals, long-term care facilities, places of public worship, and libraries. Noise level is often evaluated at the nearest sensitive receptor.

Table 9 shows typical noise levels associated with common activities.

Table 9: Noise Levels from Common Areas

Activity	**dBA**
Rock band (near amplifier)	110
Jet fly-over at 1,000 feet	105
	100
Gas lawnmower at 3 feet	95
	90
Diesel truck 50 mph at 50 feet	85
	75
Gas lawnmower at 100 feet	70
Normal Speech at 3 feet	65
Heavy traffic at 300 feet	60
Large business office	55
Quiet urban area in day	50
Normal speech at 50 feet	45
Quiet urban area at night	40
Quiet rural area at night	25

Source: Caltrans 2009

The ambient noise level, commonly known as background or pre-project noise levels, is defined as the noise from all sources near and far and usually refers to the noise level that is present before a noise source being studied is introduced. In very quiet environments, virtually any change in local activities would cause an increase in noise levels and a loss of "peace and quiet." Such increases may be considered significant by residents in these areas, even if the measured increase is small.

Noise impacts can be organized into three categories. The first category comprises audible increases in noise levels noticeable to humans. Audible increases in noise levels generally refer to a change of 3.0 dBA or greater because this level has been found to be barely perceptible in outdoor environments. The second category, potentially audible, refers to a change in the noise level between 1.0 and 3.0 dBA which is the range of noise levels that has been found to be noticeable only in laboratory environments. The last category is changes in noise levels of less than 1.0 dBA that are inaudible to the human ear. In terms of CEQA analyses, the audible changes in existing ambient or background noise levels associated with a proposed project are considered.

[144] U.S. Department of Housing and Urban Development. The Noise Guidebook. May 1985.

[145] Occupational Safety & Health Administration, 2011. Regulations, Standards 29 CFR, Occupational Noise Exposure 1910.95.

Existing noise levels at most of the MCOSD's preserves are similar to that found in rural areas of Marin County, except where preserves abut developed residential areas or major transportation facilities such as U.S. Highway 101. When situated near residential areas or roadways, noise levels within preserves would be dominated by those sources. In general, noise levels within and adjacent to the MCOSD preserves typically range from 40-60 dBA in the daytime and from 20-40 dBA at night[146]. Nicasio Valley Road travels immediately west of Roy's Redwoods Open Space Preserve while other parts of the Preserve are surrounded by open space. Road noise from Nicasio Valley Road is noticeable within the western part of the project area, especially during morning and evening commute hours. Roadway noise can be heard along the roadway shoulder and into the Preserve, primarily along the Roy's Redwoods Loop Trail and the existing Meadow Trail. The roadway noise dissipates as visitors move further into the Preserve. Generally, the noise level at the Roy's Redwoods Open Space Preserve is considered typically quiet with noise levels in the 35 to 55 dBA range during the daytime. The closest residence is located along West Nicasio Road approximately 1,650 feet west of Nicasio Valley Road.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate the following RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to noise. The RTMP Policies and BMPs are listed in the text below and provided, in their entirety, in Appendix A.

- Noise-1: County Noise Ordinance Requirements
- Noise-2: Noise Control during Construction within and adjacent to Sensitive Wildlife Populations

CEQA Context

A project would normally result in a significant impact to noise if it would substantially exceed or increase the ambient noise levels for adjoining areas or if it exceeded the noise levels recommended in an adopted plan or noise ordinance. Noise impacts are assessed by first determining which project components would generate noise and then comparing the anticipated noise levels with existing noise levels from other sources in the project area and with past land uses practices on the property.

a) **Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?** Less than Significant

Construction of the proposed project would require use of heavy equipment, including an excavator, skid steer with a mulching attachment, bulldozer, dump truck, chipper, power saws and other hand tools that would generate noise. Construction would occur over two four-month summer construction seasons. Work would occur Monday through Friday between 7:00 a.m. to 6:00 p.m. During project construction activities involving the use of heavy equipment or chainsaws, noise levels could reach a maximum of 85 dBA at a distance of 50 feet[147]. The closest residence is 1,650 feet west of the project area, and noise levels associated with construction would be less than significant at the residential property boundary. Noise levels decrease by 6 dB with each doubling of distance, peak construction noise from the project area would reach a maximum of 55 dBA at the nearest residences[148], which is within the typical daytime noise levels. Any perceivable increases in noise at the nearest residence resulting from construction activities would be temporary, given the short construction period required for implementation of the proposed project.

The Marin County Noise Ordinance establishes that authorized construction activities occurring between 7:00 a.m. and 6:00 p.m. on weekdays and between 9 a.m. and 5 p.m. on Saturdays are exempt from the

[146] Marin County Open Space District (MCOSD). 2014a. Road and Trail Management Plan. November.

[147] Caltrans. 2009. Technical Noise Supplement

[148] Office of Environmental Health Hazard Assessment. 2015 Noise Manual

noise standards contained within the ordinance. As noted above, construction of the proposed project would occur during these time frames. Therefore, project construction would not result in noise levels in excess of standards established in the local noise ordinance.

Construction of the proposed project would include implementation of RTMP noise BMPs to further reduce potential noise impacts. BMP Noise-1 would reduce noise impacts by ensuring that all construction and maintenance activities occur in accordance with Marin County day and time restrictions. BMP Noise-2 would ensure that equipment and vehicles used for the project construction and maintenance utilize the best available noise-control techniques. With implementation of these BMPs, the construction and operation of the project would not result in noise levels that exceed local standards.

Operation of the proposed project would result in occasional noise from the use of vehicles and tools for trail maintenance. However, the proposed project is not anticipated to require additional maintenance beyond the current level of maintenance required for the Roy's Redwoods Open Space Preserve because the proposed project would develop a more sustainable condition to accommodate the existing and anticipated future visitors to the Roy's Redwoods Open Space Preserve. Trail maintenance needs is expected to decrease following implementation of the proposed project Public use following implementation of the proposed project is also not anticipated to result in any increase in noise levels at Roy's Redwoods Open Space Preserve, although an increase in visitor use could result from the overall improvements within the project area and development of new recreational features include the Scramble and the Nature Exploration Area. The proposed project would include improvements to the existing parking area on Nicasio Valley Road shoulder and conversion of one existing parking spot to an inclusive access parking spot. Available parking would not increase with the proposed project. Any potential increase in visitor use would not result in significant noise impacts because recreation noise would be from unamplified voices and such recreational use is already part of the existing condition within the project area. Vehicle noise from Nicasio Valley Road would remain and noise from the roadway can be heard from a large portion of the proposed project area under existing conditions and this condition would not change. As a result, operation of the proposed project would not result in potentially significant noise impacts exceeding existing baseline conditions.

The proposed project would not result in a permanent increase in ambient noise levels in its vicinity compared to existing conditions during construction or post-construction operation. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

b) Would the Project result in generation of excessive groundborne vibration or groundborne noise levels? Less than Significant

Noticeable or distressing groundborne vibration is commonly caused by heavy construction such as pile driving, blasting, or heavy-tracked construction equipment, as well as by trains and other vehicles with significant mass and speed. Vibration can cause damage to buildings and roadways depending on the magnitude of vibration and proximity to the vibration-producing action.

There are no adopted state or local policies or standards for groundborne vibration or noise. Vibration can be detectable by humans at levels as low as 0.50 millimeter per second (0.02 inch per second), when background noise and vibration levels are low[149]. Vibration intensity is typically expressed as peak particle velocity (PPV), the maximum speed at which the ground moves while it temporarily shakes, measured in

[149] Caltrans. 2013. Transportation and Construction Vibration. September

inches per second. The Federal Transit Administration (FTA) has published guidance for assessing vibration impacts[150]. According to the FTA, fragile buildings can be exposed to groundborne vibration PPV levels of 0.5 inch per second without experiencing damage. This threshold is typically used to evaluate potential vibration impacts.

Construction of the proposed project would result in minor groundborne vibration from the operation of construction equipment, including a mini excavator, dozer, water truck, and compactor. Actual vibration levels would vary depending on soil conditions, construction methods, and equipment used. The typical vibration levels for common construction equipment are shown in Table 10.

Table 10: Groundborne Vibration from Construction Equipment
(Source: FTA 2006)

Equipment	PPV (in/sec) at 25 feet
Compactor/Vibratory Roller	0.210
Large bulldozer	0.089
Loaded trucks	0.076
Small bulldozer	0.003

As indicated in the table above, construction of the project would generate vibration levels well below the 0.5 in/sec PPV threshold that could cause groundborne vibration impacts to nearby buildings, even if multiple pieces of construction equipment were operating within 25 feet of a building. Construction activities associated with the proposed project would take place within the undeveloped Roy's Redwoods Open Space Preserve; the nearest residences are approximately 1,650 feet away from proposed construction at its closest location. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with the generation of excessive groundborne vibration or groundborne noise levels.

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

The project area is located approximately seven miles west of the San Rafael Airport and is outside the geographic boundary of the airport's land use plan. The proposed project would implement improvements to the trail system and create wetland-channel Stage Zero conditions along Upper Larsen Creek across the alluvial valley in Roy's Redwood Open Space Preserve. The project and its proximity to the airport would not result in exposure to excessive noise relative to existing baseline conditions for staff or recreational users at Roy's Redwood Open Space Preserve. Therefore, implementation of the proposed project would not expose people residing or working in the project area to excessive noise levels associated with a private airstrip, airport land use plan, public airport or public use airport.

[150] Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment

Population and Housing

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Setting

The project area is located within Marin County and adjacent is to open space and residential land uses. This area is governed by the 2007 Marin Countywide Plan. The project area's land use designation is Open Space (OS) and the parcel is zoned Open Area (OA). These designations preclude residential and commercial development on the area and the area is largely undeveloped, aside from amenities for passive recreation such as trails and fire roads.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to population and housing. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to population and housing if it would cause substantial population growth or would remove existing housing.

a) Would the Project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? No Impact

The proposed project would not include any new housing or businesses or the extension of roads or other infrastructure that would potentially lead to future residential or commercial development. Implementation of the proposed project would not result in the need for new permanent workers or otherwise induce population growth. Therefore, implementation of the proposed project would have no impact associated with the inducement of substantial unplanned population growth in an area, either directly, such as by proposing new homes and businesses, or indirectly such as through extension of roads or other infrastructure.

b) Would the Project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere? No Impact

The proposed project area is undeveloped open space and no housing would be affected by implementation of the project. There is no housing within Roy's Redwoods Open Space Preserve and implementation of

the proposed project would not result in any housing displacement. Therefore, implementation of the proposed project would have no impact associated with the displacement of existing people or housing or necessitate the construction of replacement housing.

Public Services

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Setting

The project area is existing open space within Marin County. The Woodacre Fire Station is the headquarters for the Marin County Fire Department and provides wildland fire protection as well as emergency medical care, and paramedics in Woodacre serving the San Geronimo Valley. The Roy's Redwoods Open Space Preserve is also within CalFire's State Responsibility Area (SRA) for wildfires[151]. The Marin County Sheriff's Department provides law enforcement to the San Geronimo Valley. The Sheriff's Department responds to emergencies and administers first aid. The San Geronimo Preschool, West Marin Montessori Preschool, and Lagunitas Elementary School are located on Sir Francis Drake Blvd south of the Preserve. The Roy's Redwoods Open Space Preserve is located across Nicasio Valley Road from the Maurice Thorner Memorial Preserve, north of the Gary Giacomini Open Space Preserve, and southeast from the French Ranch Preserve.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to public services. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to public services if it would result in the need for new or additional public services in order to maintain acceptable service ratios, including response times and other performance objectives.

[151] Calfire. 2021. Accessed October 6. LINK: CalFire.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

- **Fire protection?** No Impact
- **Police protection?** No Impact
- **Schools?** No Impact
- **Parks?** Less than Significant
- **Other public facilities?** No Impact

Roy's Redwoods Open Space Preserve is an existing public facility, and implementation of the proposed project would improve the existing trail system and improve ecological conditions along Upper Larsen Creek within the Preserve. The proposed trail and roadway shoulder improvements would improve safety for trail users by providing more sustainable trails to accommodate visitor use and by providing quick and safe access from the shoulder of Nicasio Valley Road into the Roy's Redwoods Open Space Preserve. Implementation of the proposed project would not increase emergency response demands, and existing emergency access would be maintained during implementation and operation of the proposed project.

The proposed project would not include new residential or commercial development and would not affect service ratios for fire or police protection, schools, or other public facilities. The trail and roadway shoulder improvements and restoration of the heavily used areas throughout the proposed project area would not necessitate the provision of new or altered government facilities. Improvements at the existing entryway and the installation of two new entryways along Nicasio Valley Road would improve safety by providing multiple entry points to the Preserve, which would allow visitors to exit the roadway shoulder more quickly[152],[153].

The improved trail network and development of the Scramble and Nature Exploration Area at the Roy's Redwoods Open Space Preserve could increase the number of visitors to the Preserve as discussed in the Project Description; however, the project would not increase parking availability. The proposed project would include improvements to the existing parking area on Nicasio Valley Road shoulder and would include conversion of one existing parking spot to an inclusive access stall. Converting one existing parking spot to an inclusive access spot and creating inclusive access along existing trails would likely increase the diversity of potential preserve visitors. Increasing the diversity of visitors would not increase the need for additional public services.

As discussed in the Potential Increased Visitation section in the Recreation Section of this document, visitation to the Roy's Redwoods Open Space Preserve would likely increase with implementation of the proposed project. An increase in visitation to the Roy's Redwoods Open Space Preserve could also increase visitors to the Maurice Thorner Memorial Preserve, Gary Giacomini Open Space Preserve, and the French Ranch Preserve, which are located in close proximity to the proposed project area. Although visitation to the nearby preserves may increase, no trail or parking improvements are proposed at these preserves as part of the proposed project. The MCOSD would continue to maintain and monitor all the preserves as discussed in the Post-Project Monitoring, Maintenance, and Remediation section of this document. The MCOSD would detect and respond to trail issues identified during monitoring efforts at Roy's

[152] Jon Campo Marin County Open Space District. 2021. Pers.Com.

[153] W-Trans. Roy's Redwoods Project Traffic Study. 2021.

Redwoods Open Space Preserve and the other preserves in the area. Therefore, any potential impacts from increased visitation would be identified and corrected and the impact would be less than significant.

Emergency access to the project area and Roy's Redwoods Open Space Preserve as a whole would be maintained during project construction and operation. An increase in visitors at the Roy's Redwood Open Space Preserve coupled with the increase in visitor safety along Nicasio Valley Road resulting from implementation of the proposed project would not increase emergency response demands relative to baseline conditions. Therefore, implementation of the proposed project would not result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.

Recreation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☒	☐	☐
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

Setting

Roy's Redwoods Open Space Preserve is an outdoor recreational facility owned and operated by the MCOSD and utilized by walkers, hikers, cyclists, equestrians, and other outdoor enthusiasts. Recreationists use both established network trails and social trails in the project area. The Preserve is located in unincorporated Marin County in the San Geronimo Valley near the town of Woodacre. The project area consists of approximately 19 acres in the western portion of Roy's Redwoods Open Space Preserve.

The purpose of the proposed project is to implement the RTMP to provide the public with a safe multi-use trail system to enhance the visitor experience, reduce environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of trails that meet design and management standards and provide safe and sustainable year-round access through the alluvial redwood valley. An additional purpose of the proposed project is to implement the Marin County Parks Inclusive Access Plan (IAP). The objectives of the proposed project include:

1) restoring and enhancing the health and resiliency of the redwood forest by restoring healthy soil conditions through decompaction of social trails and heavy visitor use areas, re-establishing a diverse forest understory plant community, and reducing impacts to wildlife habitat and the forest ecosystem by limiting the number and distribution of trails through the forest;
2) restoring and enhancing hydrologic process and function by obstructing the development and persistence of incised channels through the alluvial valley floor, re-establishing a multi-threaded and dynamic channel network that is closely connected to the floodplain, storing a majority of the total sediment delivered to the valley floor on-site, and reducing winter peak flows and increasing the volume and longevity of spring and summer low flows; and
3) improving the visitor experience by providing an immersive visitor experience that is consistent with restoration goals, providing safe and sustainable year-round access to the bay and redwood forest portion of the Roy's Redwoods Open Space Preserve, improving access consistent with the MCOSD's Inclusive Access Plan, and providing visitor interpretive services.

Visitors access Roy's Redwoods Open Space Preserve through an existing entryway along Nicasio Valley Road. The current road shoulder along Nicasio Valley Road is used by visitors as informal parking to access the Preserve. Visitors park on both the east and west shoulders of Nicasio Valley Road, and visitors often cross the roadway to access the Preserve. Informal parking can accommodate approximately 24 vehicles at any one time. Visitor use of the Roy's Redwoods Open Space Preserve increased during the coronavirus pandemic and visitor parking along the roadway shoulder expanded, with visitors parking further south along both sides of Nicasio Valley Road. In 2020, the Marin County Department of Public Works installed no parking signs on the western side of Nicasio Valley Road for approximately 200 feet north from West Nicasio Road to provide improved line-of-sight for residents when turning into and out of West Nicasio Road. Visitors can still park along the shoulder away from the "no parking zone," and the "no parking zone" remains in place.

Potential Increased Visitation Study

The MCOSD conducted visitor use data collection over a four-week period in August 2021 to understand the existing pre-project use of Roy's Redwoods Open Space Preserve. The daily survey recorded trail users inbound and outbound on the trail and indicated an average of approximately 51 visitors per day on weekdays and approximately 100 visitors per day on weekends. Visitor use peaked between 10:00 a.m. and 2:00 p.m. daily. The visitor use data revealed that approximately 86 percent of visitors were pedestrian, approximately 3 percent were equestrians, and approximately 0.5 percent were bicyclists. Additionally, approximately 10 percent of visitors brought dogs. The visitor use data collection did not indicate which visitors arrived by vehicle, so for purposes of estimating the potential visitation increase that could be attributed to implementation of the proposed project, the average approximation of 51 visitors per day on weekdays and 100 visitors per day on weekends was used.

Roy's Redwoods Open Space Preserve is 293 acres in size and currently includes 3.13 miles of designated trail, which demonstrates that only a small portion of the total acreage includes trails for public use. Within the project area, there is 0.4 mile of existing designated trail and two miles of existing social trail for a total of 2.4 miles of existing trail. Generally, an increase in vehicle trip generation and visitation is correlated to an increase in trail mileage because an increase trail mileage would translate to an increase in the capacity to accommodate visitors, and therefore an increase in the number of visitors. The proposed project would decrease existing trail mileage by approximately one mile but would provide new recreational features including the Nature Exploration Area and Scramble. Although trail mileage in the project area would decrease by one mile, the proposed project is not expected to result in fewer visitors because the new recreational features would likely attract new or more frequent visitors. It is anticipated that Roy's Redwoods Open Space Preserve would experience increased visitation over time regardless of the proposed project due to population increase and an increase in the popularity of outdoor recreation experienced in recent years.

The W-Trans Traffic Study concluded that the proposed project could result in an increase of eight additional daily weekday vehicle trips and 11 additional daily weekend vehicle trips. W-Trans also assumed vehicle occupancy at 1.25 pedestrians, bicyclists, or equestrians per vehicle, which would result in 10 additional visitors per weekday and 14 additional visitors per weekend day arriving by car. This would increase average weekday visitors arriving by car to 60, representing a potential increase in visitation of approximately 20 percent, and would increase average weekend visitors by car to 114 representing a potential increase in visitation of approximately 14 percent. Implementation of the post-project monitoring, maintenance and remediation described in the Operations and Maintenance section of this document would conduct visitor use data collection in years 1, 2 and 5 after project implementation to capture visitor use trends by the use of trail cameras installed for a four-week period. Comparison of the visitor use data collect pre-project with that collected in years 1, 2, and 5 after project implementation would provide the actual percentage of an increase or decrease in visitation at Roy's Redwoods Open Space Preserve attribute to

implementation of the proposed project, population increase, and increased popularity of outdoor recreation.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts from MCOSD's road and trail system and to improve the recreational experience. The RTMP Policies and BMPs that apply to specific CEQA Checklist topic areas are listed in each section of this checklist and are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact to recreation if it would conflict with the established recreational uses of the project area or cause accelerated degradation of a recreational facility.

a) **Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?** Less than Significant with Mitigation

The proposed project has been designed to restore degraded resources and protect sensitive areas, while improving site access and community-desired activities. The intention is to protect the diverse biological resources that the area offers, improve hydrologic function, preserve the rich history of the landscape, and provide access and amenities for visitors to enjoy the Roy's Redwoods Open Space Preserve through development of a trail circulation system that achieves multiple benefits to habitat restoration, hydrologic restoration, and an immersive and sustainable visitor experience. The proposed project would improve the trail system, shoulder parking, and Preserve entryways in the project area such that existing and future potential visitation increases could be accommodated without resulting in potentially significant environmental impacts.

The purpose of the proposed project is to implement the MCOSD's Road and Trail Management Plan (RTMP) to provide the public with a safe multi-use trail system to enhance the visitor experience, reduce environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of trails that meet design and management standards and provide safe year-round access through the alluvial redwood valley. An additional purpose of the proposed project is to implement the Marin County Parks Inclusive Access Plan (IAP). Besides increasing inclusive access along several trails, uses along the trails in the project area would not change. Figure 6: Proposed Trail System, included in the Project Description section of this document, shows the uses for each network trail segment. Equestrians would still be allowed along the Roy's Redwoods Loop Trail from the Preserve entryways along Nicasio Valley Road to the existing segments of the Roy's Redwoods Loop Trail north of the project area. The Roy's Redwoods Loop Trail to the new Fairy Ring Trail would provide inclusive access from the Preserve entryways to the Nature Exploration Area for an out-and-back trail route. The new Boardwalk Trail would provide inclusive access in the southwestern portion of the Preserve. All elements of the proposed project would be implemented to better accommodate visitors and provide inclusive access in a sustainable manner.

The MCOSD expects an increase in the number of visitors to use the Roy's Redwoods Open Space Preserve with the overall improvements throughout the project area and the addition of new recreational features including an Access and Discovery inclusive trail and the Scramble and Nature Exploration Area. The proposed project would include improvements to the existing parking area on the Nicasio Valley Road shoulder which would include conversion of one existing parking spot to an inclusive access spot. The improvements along the existing parking area and the conversion of an existing parking spot to an inclusive access spot would not expand parking capacity; therefore, the amount of roadway shoulder parking available along Nicasio Valley Road would not change with implementation of the proposed project.

The limited parking availability would continue to limit and meter daily visitor numbers, though the annual number of visitors to Roy's Redwood Open Space Preserve may increase as previously discussed. The proposed project has been designed to improve existing conditions within the valley floor of the Roy's Redwoods Open Space Preserve and to create a sustainable network of trails for visitors to enjoy. The proposed project would reduce existing and prevent future impacts resulting from visitor use. To ensure environmental impacts do not occur from increased visitor use, the MCOSD would implement post-project monitoring, maintenance, and remediation as described in the Operations and Maintenance section of this document to monitor trail conditions and respond to issues through trail maintenance, additional erosion control, additional revegetation, increased visitor outreach and education, and installation of deterrents such as logs and fencing to discourage visitor access in locations of trail closures and decommissionings. Public education would communicate rationale for the trail closures and how resources are protected by visitors remaining on designated trails. Educational programs would provide information to increase visitor awareness of the resource protection, how remaining on designated trails helps resource protection, and how visitors can distinguish designated trails from informal, visitor-created, social trails. Monitoring would provide the MCOSD with information about the effectiveness of the trail decommissioning efforts and the visitor education program.

The MCOSD anticipates an increase in the number of visitors to the Roy's Redwoods Open Space Preserve after implementation of the proposed project due to the overall site improvements. Increased visitor use of the Roy's Redwoods Open Space Preserve may increase visitation to the Maurice Thorner and French Ranch Open Space preserves, which are located west of Nicasio Valley Road. Visitors to Maurice Thorner and French Ranch Open Space Preserves can park along Nicasio Valley Road at the Roy's Redwoods Open Space Preserve to access trails on the adjacent preserves. Neither Maurice Thorner nor French Ranch provide designated on-site or roadway parking and none are proposed as part of this project; therefore, available parking would also limit and meter daily visitors to these preserves as well. The MCOSD would implement the Post-Project Monitoring, Maintenance, and Remediation described in the Operations section of this document. This would include monitoring changes in trail conditions at surrounding preserves including the Maurice Thorner and French Ranch Open Space Preserves using established photo-monitoring points. If warranted, the MCOSD would implement additional corrective actions such as trail and roadway improvements for trails in Maurice Thorner and/or French Ranch Open Space Preserves.

The proposed project would not include new, off-site facilities to accommodate recreationists. Although Nicasio Valley Road is currently a Class III bike route, the *Marin County Unincorporated Area Bicycle and Pedestrian Master Plan*[154] has identified the section of Nicasio Valley Road along the project frontage for future Class II bike lanes, which will provide better access to bicyclists. Implementation of the proposed project would have a less-than-significant impact associated with increasing the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

b) Would the Project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment? No Impact

As discussed above, implementation of the proposed project would not require construction or expansion of new recreational facilities. The proposed trails and trail improvements would result in new sustainable trails to reduce erosion, sedimentation, and habitat fragmentation and improve the visitor experience. The existing porta-toilet would be relocated from its current location in the floodplain to a site adjacent to the upgraded existing entryway. Trash facilities would be located adjacent to the porta-toilet as is the case currently. No other recreational facilities would be required as a result of the proposed project.

[154] Marin County Unincorporated Area Bicycle and Pedestrian Master Plan

The proposed project has been designed to minimize potential adverse physical effects on the environment through design and all applicable RTMP Policies and BMPs would be implemented. This Initial Study has identified potentially significant impacts that could result from implementation of the proposed project even with implementation of applicable RTMP Policies and BMPs and has included mitigation measures to reduce the potentially significant environmental impacts to natural resources to a less-than-significant level.

With the implementation of the applicable RTMP Policies and BMPs and the implementation of mitigation measures included in this Initial Study, implementation of the proposed project would not result in an adverse physical effect on the environment. The proposed project consists of improvements to an existing trail system at an existing recreational facility and does not involve construction of a new recreational facility or expansion of an existing recreational facility. Therefore, implementation of the proposed project would result in no impact associated with recreational facilities or the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Transportation

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b. Conflict with or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d. Result in inadequate emergency access?	☐	☐	☐	☒

Setting

The proposed project is located within unincorporated Marin County and is subject to the Marin Countywide Plan. The Transportation Authority of Marin (TAM) is the congestion management agency and transportation sales tax authority for Marin County. TAM is responsible for managing a variety of transportation projects and programs throughout the County and works closely with eleven cities and towns and the County government. TAM is also responsible for developing and overseeing a Congestion Management Program that monitors local multi-modal transportation networks, including monitoring of levels of service on roadways throughout the County, and works to improve all methods of transportation locally and regionally. The 2019 Congestion Management Program is the most recent biennial update of the program document[155].

Roy's Redwoods Open Space Preserve does not have dedicated parking areas. Visitors typically utilize on-street parking along Nicasio Valley Road to access the project area. There is no direct public transportation to the Preserve, but Golden Gate Transit Bus #23 services San Geronimo Valley Drive. From there, visitors can walk about 0.5 mile to the existing trailhead. The proposed project includes a new van accessible parking space[156] would be created along the paved shoulder of Nicasio Valley Road adjacent to the Roy's Redwoods Open Space Preserve entrance and improvements to the roadway shoulder parking. These improvements would not provide additional parking capacity on the roadway shoulder.

Visitors access Roy's Redwoods Open Space Preserve through an existing entryway along Nicasio Valley Road. The current road shoulder along Nicasio Valley Road is used by visitors as informal parking to access the Preserve. Visitors park on both the east and west shoulders of Nicasio Valley Road, and visitors often

[155] Transportation Authority of Marin (TAM). Marin County, Final 2019 Congestion Management Program (CMP) Update 2019 P 117

[156] In accordance with CBC 11B-208.2.4; ADA 208.2.4

cross the roadway to access the Preserve. Informal parking can accommodate approximately 24 vehicles at any one time. Visitor use of the Roy's Redwoods Open Space Preserve increased during the coronavirus pandemic and visitor parking along the roadway shoulder expanded, with visitors parking further south along both sides of Nicasio Valley Road. In 2020, the Marin County Department of Public Works installed no parking signs on the western side of Nicasio Valley Road for approximately 200 feet north from West Nicasio Road to provide improved line-of-sight for residents when turning into and out of West Nicasio Road. Visitors can still park along the shoulder away from the "no parking zone," and the "no parking zone" remains in place.

W-Trans completed an analysis of the potential traffic impacts associated with the proposed project. The study addressed the potential traffic safety impacts associated with construction and operation of the proposed project. W-Trans assessed existing traffic volumes along Nicasio Valley Road between April 30 and May 1, 2021. Results indicate the roadway carries about 2,300 to 2,900 vehicles per day with a weekday afternoon peak hour car volume of approximately 300 vehicles, and a weekend midday peak hour volume of 230 vehicles. The report notes that according to Marin County, Nicasio Valley Road is expected to have 2,700 vehicles per day in 2040[157].

W-Trans evaluated potential vehicle trip generation resulting from implementation of the proposed project using standard rates published by the Institute of Transportation Engineers[158] and data visitor data collected by the MCOSD during the summer of 2021. The W-Trans Traffic Study estimated visitors currently generate approximately 74 vehicle trips per day based on MCODS' survey results of 46 weekday users of trails[159]. The study concluded visitors currently generate 10 vehicle trips during a weekday afternoon peak hour and 25 vehicle trips during the peak weekend hour. The W-Trans Traffic Study concluded that the proposed project could result in an increase of eight additional daily vehicle trips from 74 daily trips to 82 daily trips with the proposed project. Analysis of the existing vehicle trips to the Preserve with 3.7 miles of existing trails indicates the estimated vehicle trip rate on a weekday daily basis is 20 vehicle trips per mile of trail. Further analysis indicates visitors to the Preserve generate 10 vehicle trips during the weekday p.m. peak hour or 2.7 trips per miles of trail and 25 vehicle trips during the weekend peak hour or 6.8 vehicle trips per miles of trail. Results also indicate the proposed project could increase weekday afternoon peak hour trips from 10 to 11 and weekend peak hour trips from 25 to 28 trips. W-Trans also assumed a conservative estimate of vehicle occupancy at 1.25 pedestrians, bicyclists, or equestrians, which would result in 10 additional visitors per weekday and 14 additional visitors per weekend day arriving by car. This would increase average weekday visitors arriving by car to 60, representing a potential increase in visitation of approximately 20 percent, and would increase average weekend visitors by car to 114 representing a potential increase in visitation of approximately 14 percent.

The MCOSD conducted visitor use data collection over a four-week period in August 2021 to understand the existing pre-project use of Roy's Redwoods Open Space Preserve. The daily survey recorded trail users inbound and outbound on the trail and indicated an average of approximately 51 visitors per day on weekdays and approximately 100 visitors per day on weekends. Visitor use peaked between 10:00 a.m. and 2:00 p.m. daily. The visitor use data revealed that approximately 86 percent of visitors were pedestrian, approximately 3 percent were equestrians, and approximately 0.5 percent were bicyclists. Additionally, approximately 10 percent of visitors brought dogs. The visitor use data collection did not indicate which visitors arrived by vehicle, so for purposes of estimating the potential visitation increase that could be attributed to implementation of the proposed project, the average approximation of 51 visitors per day on weekdays and 100 visitors per day on weekends was used.

[157] TADM 2015 and 2014 Rave Model Data.

[158] Published in the Trip Generation Manual, 11th Edition, 2021.

[159] 46 users/1.25 users per vehicle x 2 trips per vehicle

Generally, an increase in vehicle trip generation and visitation is correlated to an increase in trail mileage because an increase trail mileage would translate to an increase in the capacity to accommodate visitors, and therefore an increase in the number of visitors. The proposed project would decrease existing trail mileage by approximately one mile but would provide new recreational features including the Nature Exploration Area and Scramble. These new recreational features could increase in the number of visitors and visitor vehicle trips. Although trail mileage in the project area would decrease by one mile, the proposed project is not expected to result in fewer visitors because the new recreational features would likely attract new or more frequent visitors. It is anticipated that Roy's Redwoods Open Space Preserve would experience increased visitation over time regardless of the proposed project due to population increase and an increase in the popularity of outdoor recreation experienced in recent years.

The W-Trans Traffic Study also included an evaluation of vehicle miles traveled (VMT) using guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory 2018*. The guidance identifies several criteria that may be used to jurisdictions to identify certain projects that are unlikely to have a VMT impact, and therefore, can be "screened" from further VMT analysis. A screening criterion applicable to the proposed project is a project that generates fewer than 100 vehicle trips per day. The project currently generates 74 vehicle trips per day with up to 82 weekday vehicle trips anticipated, which falls below the 110 vehicle trips threshold for VMT analysis.

W-Trans evaluated collision history and U-turn safety along Nicasio Valley Road to determine existing traffic safety hazards near the Roy's Redwood Open Space Preserve. No demonstrated existing or potential future safety concerns were identified. The W-Trans Traffic Study concluded the roadway provides sufficient characteristics to allow vehicles to complete a U-turn safely with no changes to that condition expected with implementation of the proposed project.

The W-Trans Traffic Study noted pedestrians can safely cross Nicasio Valley Road safely with adequate sight lines available along the straight roadway and emergency vehicles and personnel can access the Roy's Redwood Open Space Preserve from the roadway with no changes with implementation of the proposed project.

W-Trans addressed potential construction-related impacts on traffic and traffic safety along Nicasio Valley Road. Construction of the proposed project would require two temporary construction loading/unloading zones on the shoulder of Nicasio Valley Road to unload equipment and material. W-Trans concluded the temporary use of the temporary staging areas along the roadway shoulder would temporarily slow vehicle traffic along the roadway. W-Trans identified several measures needed to ensure proper vehicle safety conditions along Nicasio Valley Road during construction.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to transportation. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

Effective January 1, 2020, CEQA documents are required to utilize the vehicle miles traveled (VMT) methodology to analyze transportation impacts unless the project meets one or more screening criteria. Vehicle miles traveled refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Automobile delay, represented by level of service (LOS) analysis, does not constitute a significant effect on the environment though it can still be utilized as an augment to the required VMT analysis. Other considerations include conflict with programs, plans, ordinances, or policies that address circulation systems including transit, roadway, bicycle, and pedestrian facilities; an increase in hazards due to road geometry or project design features; and inadequate emergency access.

a) Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities? No Impact

The proposed project would implement improvements to the recreational trail network within the proposed project area in Roy's Redwoods Open Space Preserve, including roadway shoulder improvements, new trail and entryway construction, trail upgrades, social trail decommissioning, and ecologic and hydrologic restoration activities in the western portion of Roy's Redwoods Open Space Preserve. The purpose of the project is to implement the MCOSD's RTMP to provide the public with a safe multi-use trail system to enhance the visitor experience, reduce the environmental impacts on sensitive resources by reducing erosion, and establish a sustainable system of trails that meet design and management standards to provide safe, year-round access along the trail alignment. An additional purpose of the proposed project is to implement the Marin County Parks Inclusive Access Plan (IAP). The proposed project would not affect the transportation networks beyond the boundaries of Roy's Redwoods Open Space Preserve and would have no impact on the wider circulation system in the San Geronimo Valley or in unincorporated Marin County because the proposed project would complete improvements on the shoulder of Nicasio Valley Road and would not alter transportation networks or circulation systems. Implementation of the project would not conflict with the Marin Countywide Plan or the TAM 2019 Congestion Management Program because the proposed project estimated increased traffic volumes would remain within acceptable volumes to accommodate the anticipated increase peak afternoon and peak weekend traffic volumes[160], emergency vehicle access would not change, and evacuation routes would be maintained. The W-Trans Traffic Study concluded visitors to the Roy's Redwoods Open Space Preserve can safely access the area via Nicasio Valley Road and can safely make U-turns when arriving or when leaving the Preserve and the condition would not change with implementation of the proposed project because the roadway configuration would not change. Pedestrians can safely cross the roadway with adequate sight distance to make a safe crossing currently, and the proposed project would not alter sight distances. Implementation of the proposed project would not change sight distances or pose new safety hazards. For these reasons, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. There would be no impact.

The Marin Countywide Plan and Marin County's Congestion Management Program contain policies to encourage non-vehicle modes of travel and the proposed project would be consistent with these plans. The proposed project consists of improvements to the existing trail system at Roy's Redwoods Open Space Preserve, which would benefit existing pedestrian and bicycle facilities. Therefore, implementation of the proposed project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Implementation of the proposed project would result in a beneficial effect on existing equestrian and pedestrian facilities at Roy's Redwoods Open Space Preserve and the nearby residential community.

b) Would the Project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)? Less than Significant

CEQA Guidelines Section 15064.3(b) describes the criteria for analyzing transportation impacts associated with the proposed project's projected increase in vehicle miles traveled (VMT), which refers to the amount and distance of automobile travel attributable to a project. Based on the guidance provided in Section 15064.3(b), a qualitative analysis of VMT is appropriate for this project, as potential VMT impacts relate primarily to construction traffic with fewer than 110 vehicle trips per day.

[160] Marin County Congestion Map. LINK: Marin County Congestion Map. Accessed on October 25, 2022

Construction of the proposed project would result in temporary transportation-related impacts as a result of workers, equipment, and materials being transported to and from the site during the two four-month summer construction periods. This could result in a temporary increase in vehicle trips along Nicasio Valley Road and other nearby roadways. Construction of the proposed project would require three to five trips for equipment hauling and a total of approximately 58 truck trips for materials delivery[161]. Construction would also require approximately ten vehicle trips per day for staff and workers throughout the two four-month construction periods, as well as daily water truck trips for dust control.

Operation of the proposed project would likely increase vehicle trips as additional visitors come to the Roy's Redwoods Open Space Preserve to experience the new amenities such as the Nature Exploration Area, Scramble, and boardwalks The project currently generates an average of 74 vehicle trips per day, and the W-Trans Traffic Study concluded an increase of eight additional daily weekday vehicle trips would be expected with implementation of the proposed project. The resulting average trip generation of 82 weekday daily vehicles would fall within the small project screening criteria.

The California Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA[162] states that "absent substantial evidence indicating that a project would generate a potentially significant level of VMT, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact." As described above, neither construction nor operation of the proposed project would generate vehicle trips above the 110 vehicle trips per day. Project construction would require an average of 11 vehicle trips per day during the two four-month construction periods, well below the 110-trip-per-day screening threshold. Additional user trips associated with operation of the proposed project would also be well below this threshold. Maintenance of the project would be anticipated to match existing baseline conditions, thus no increase in VMT is anticipated from MCOSD staff trips for maintenance and patrol as a result of the project. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with a conflict or inconsistency with CEQA Guidelines Section 15064.3, subdivision (b).

c) **Would the Project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?** Less than Significant with Mitigation

A majority of the proposed project would take place within open space property owned and managed by the MCOSD. Roadway shoulder improvements and creation of an inclusive access parking spot would occur within the right-of-way and road shoulder along Nicasio Valley Road. The proposed project would include decommissioning trails and improving the condition of network trails within the Roy's Redwoods Open Space Preserve, and the proposed project would not increase hazards due to any geometric design feature or incompatible uses as the proposed project would not change the shape or use of Nicasio Valley Road. The W-Trans Traffic Study evaluated existing safety concerns with visitor access at Nicasio Valley Road. W-Trans evaluated the collision history to determine any trends or patterns that would indicate an existing safety issue. The traffic study evaluated collision rates for the period from October 1, 2015 through September 30, 2020. Collision rates for Nicasio Valley Road were compared to the average collision rate for similar facilities statewide, and results indicate that there are not demonstrated safety concerns present at the site. The proposed project, including the proposed trail and roadway shoulder improvements, would not change or increase the collision rates along Nicasio Valley Road.

[161] Implementation of the proposed would require an estimated 80 cubic yards of rock, which would require eight truck trips and 500 cubic yards of soil and gravel, which would require 50 truck trips based on an assumed 10 cubic yard capacity for typical dump trucks. Additional material deliveries would include planting and erosion control materials, posts and wood for split rail fencing, and miscellaneous construction materials and tools.

[162] Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018

W-Trans also evaluated the need for improvements to Nicasio Valley Road to provide safe access to the Roy's Redwoods Open Space Preserve. They evaluated the need for a specific location designated for U-turns and the safety of visitors making U-turns on Nicasio Valley Road near the Preserve entrance. The evaluation determined there is sufficient room for vehicles to use West Nicasio Road to safely perform a U-turn to park while maintaining adequate sight distance for oncoming traffic. This condition would not change within implementation of the proposed project. Results also indicate that the vehicles parked at Roy's Redwoods Open Space Preserve have sufficient room within the existing roadway to safely complete U-turns before heading south on Nicasio Valley Road towards San Rafael. A driveway to private residences approximately 3,500 feet north of West Nicasio Road would be available for larger vehicles to safely turn. The existing site distances and U-turn abilities would not change with implementation of the proposed project.

Parking is restricted on the opposite side of Nicasio Valley Road from Roy's Redwoods Open Space Preserve for approximately 200 feet north of West Nicasio Road; however, there is some shoulder parking. Pedestrians must cross the roadway to access the Preserve. W-Trans determined adequate sight distances exist along the straight section of Nicasio Valley Road where crossings occur. Implementation of the proposed project would slightly improve conditions by providing three improved entrances to the Preserve along Nicasio Valley Road, which would allow pedestrians to exit the roadway more efficiently than under current conditions.

Access to the project area for heavy equipment and materials would occur from Nicasio Valley Road. Construction is not expected to block the roadway entirely; however, traffic lanes may be temporarily reduced to one-way traffic during delivery of equipment or materials at infrequent times during construction. No materials or equipment would be stored along the roadway shoulder. Material and equipment would be moved to a staging area within the Roy's Redwoods Open Space Preserve immediately following delivery. These temporary access sites would be located at the proposed Entryway 1 and at the existing Preserve entryway as shown on Figure 25: Construction Access Plan. Vehicle traffic on Nicasio Valley Road may be slowed or stopped when construction vehicles and equipment move into and out of the site, which may cause unsafe driving conditions and the impact could be significant. In order to ensure proper vehicle safety conditions along Nicasio Valley Road during construction, the MCOSD would implement the following mitigation measure:

Mitigation Measure TRA-1: Reduce Construction Traffic Risks

The MCOSD shall require the construction contractor to implement measures to reduce traffic hazards along Nicasio Valley Road. The following construction-period measures shall be employed:

- Secure necessary approvals from the Marin County Department of Public Works for temporary construction-period work on the roadway shoulder.
- Parking should be prohibited in the construction loading/unloading areas on the shoulder of Nicasio Valley Road and should be clearly marked for No Parking.
- When construction vehicles are present in the shoulder staging areas, appropriate construction signing shall be provided in advance of the staging areas in both directions on Nicasio Valley Road. Signs shall indicate warning for construction ahead and shoulder closed ahead for direction where construction is occupying shoulder areas
- During the period where construction vehicles bring in large equipment, the contractor shall use warning flaggers on Nicasio Valley Road in both directions. Flaggers shall be active during the period until construction vehicles are completely off of the travel way.

- If construction loading/unloading activity requires vehicles to remain in the Nicasio Valley Road travelway, one lane road operation shall be used with flaggers provided in advance of both directions of travel.
- All construction related signs and use of traffic cones should meet standards and guidelines provided in the California Manual on Uniform Traffic Control Devices and/or local County standards.

Based on conclusions included in the W-Trans Traffic Study, implementation of the proposed project would result in no impact associated with a substantial increase in hazards due to a geometric design feature such as sharp curves or dangerous intersections, or incompatible uses such as farm equipment. Construction activities would be less than significant with the proposed mitigation measure TRA-1: Reduce Construction Traffic Risks, which is designed to reduce hazardous conditions associated with construction access along Nicasio Valley Road.

d) Would the Project result in inadequate emergency access? No Impact

Emergency access to the proposed project area and to Roy's Redwoods Open Space Preserve as a whole would be maintained during project construction and operation. Additional emergency access for the Roy's Redwoods Open Space Preserve, outside of the project area, could happen from Sir Francis Drake Boulevard and potentially through the San Geronimo Commons. The proposed project would not change emergency access roads. Therefore, the implementation of the proposed project would have no impact on emergency access to the Roy's Redwoods Open Space Preserve.

Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Potentially Significant Impact**	**Less than Significant with Mitigation**	**Less-than-Significant Impact**	**No Impact**
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k)?	☐	☐	☒	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Setting

Assembly Bill 52 (AB52) is a CEQA amendment approved September 24, 2014, that provides California Native American tribes on the Native American Heritage Commission (NAHC) list the right to consult with a CEQA lead agency prior to the release of a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report for a project if they have requested AB52 consultation. AB52 also established the Tribal Cultural Resources section of the CEQA Checklist, which requires CEQA lead agencies to consider tribal cultural values when assessing project impacts and mitigation and requires formal notice to tribes who request it and meaningful consultation. The MCOSD has received notices from the Federated Indians of Graton Rancheria (FIGR), the Ione Band of Miwok Indians (IBMI), and from the Coast Miwok Tribal Council of Marin (CMTCM). The CMTCM is not a recognized tribe by the State of California or the federal government however, the County of Marin honors their request to receive notices regarding proposed projects.

Consultation is defined as the meaningful and timely process of seeking, discussing, and considering carefully the views of others, in a manner that is cognizant of all parties' cultural values and, where feasible, seeking agreement. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance.

CEQA defines tribal cultural resources as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that meet the following criteria listed in the Public Resources Code (PRC) Section 21074 definition of tribal cultural resources:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
  - Included or determined to be eligible for inclusion in the CA Register of Historic Resources.
  - Included in a local register of historical resources as defined in PRC Section 5020.1(k)[163].
  - A resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c)[164]. In applying the criteria set forth in PRC Section 5024.1(c), for the purposes of this paragraph, the Lead Agency shall consider the significance of the resource to a CA Native American tribe.
  - A cultural landscape that meets the above criteria is a tribal cultural resource to the extent that the landscape is geographically defined in terms of size and scope of the landscape.
  - A historical resource described in PRC Section 21084.1[165], a unique archaeological resource described in PRC Section 21083.2(g),[166] or a non-unique archaeological resource as defined in PRC 21083.2(h)[167] if it conforms to the criteria of subdivision (a)[168].

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[163] Local register of historical resources" means a list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.

[164] A resource may be listed as an historical resource in the California Register if it meets any of the following National Register of Historic Places criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

[165] A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. For purposes of this section, an historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources. Historical resources included in a local register of historical resources, as defined in subdivision (k) of Section 5020.1, or deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, are presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. The fact that a resource is not listed in, or determined to be eligible for listing in, the California Register of Historical Resources, not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 shall not preclude a lead agency from determining whether the resource may be an historical resource for purposes of this section.

[166] As used in this section, "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

[167] As used in this section, "nonunique archaeological resource" means an archaeological artifact, object, or site which does not meet the criteria in subdivision (g). A nonunique archaeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects.

[168] As part of the determination made pursuant to Section 21080.1, the lead agency shall determine whether the project may have a significant effect on archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those

While CEQA evaluates potential impacts on a physical aspect, tribal cultural resources can also include intangible attributes such as their association with historical events, oral history, customs, and traditions. Both tangible and intangible factors should be considered, evaluated, and managed together.

Studies

Cultural and Historical Resources Studies

Evans & DeShazo, Inc. conducted a Historic Property Survey of the project area and prepared a report for the proposed project in 2021[169]. The study included a cultural resources literature search completed at the Northwest Information Center of the California Historical Resources Information System (CHRIS), additional records search and literature review, initial Native American Consultation with the Native American Heritage Commission and outreach to Tribal representatives, and an archaeological survey of the project area. This study satisfies the requirements of RTMP BMP Cultural Resources-1: Historical and Archaeological Resource Mapping and Cultural Resources-2: Consultation with Northwest Information Center. Much of the setting information and environmental impact analysis is based on information contained in the study.

Historical and archaeological resource mapping and consultation with the Northwest Information Center occurred and results are presented in the 2021 Evans & DeShazo report[170]. CHRIS records search identified no cultural resources within or adjacent to the area. No cultural resources or archaeological site indicators were identified within the study area during the survey. No historic resources/or properties are listed on federal, state, or local inventories within or abutting the project. The Native American Heritage Commission responded that there are no sacred sites within the vicinity of the study area but recommended contacting the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Indian Rancheria to gather additional information about the area. Evans & DeShazo sent an email to FIGR and to the Guidiville Indian Rancheria on December 1, 2020, to request additional information; however, no responses were received.

Evans & DeShazo concluded that no historic property would be affected by the proposed project. Due to the presence of alluvial soil deposits along Upper Larsen Creek, there could be potential for buried prehistoric archaeological resources in the lowest elevation portions of the project area. However, Evans & DeShazo found the potential for any buried prehistoric archaeological resources to be unearthed as a result of project activities to be low, as the maximum depth of ground disturbance would be approximately 12 inches below the surface.

As a result, the study does not provide any project-specific recommendations. However, general recommendations were provided in the event that buried archaeological resources were encountered during implementation of the project. If an archaeological deposit is encountered, all work within 50 feet of the discovery would stop until a qualified archaeologist evaluates the find and provides recommendations for further treatment, if warranted. Construction and potential impacts to the area(s) within a radius determined by the archaeologist shall not recommence until the assessment is complete. Similar recommendations are made for the potential discovery of human remains. These recommendations have been incorporated into the proposed project through RTMP BMP Cultural Resources – 6: Construction Recovery Protocol and RTMP BMP Cultural Resources-7: Human Remains.

resources. An environmental impact report, if otherwise necessary, shall not address the issue of nonunique archaeological resources. A negative declaration shall be issued with respect to a project if, but for the issue of nonunique archaeological resources, the negative declaration would be otherwise issued.

[169] Evans & DeShazo 2021

[170] ibid

AB 52 Consultation

In compliance with Assembly Bill 52 (AB 52), MCOSD sent letters to the Federated Indians of Graton Rancheria (FIGR), the Guidiville Indian Rancheria and the Coast Miwok Tribal Council of Marin (CMTCM) to inform them about the proposed project and to invite the tribes to consult with the MCOSD regarding the proposed project. The invitation to consult letters were sent on July 19, 2021, and were consistent with RTMP BMP Cultural Resources-3: Tribal Consultation. No response was received from the FIGR or the GIR. The CMTC provided a response but did not respond to the MCOSD's attempt to set up a tribal consultation meeting.

On November 10, 2020 Evans & DeShazo, Inc. Archaeology and Historic Preservations submitted a request to the Native American Heritage Commission (NAHC) for a sacred lands inventory and Native American contacts list for the proposed project. The NAHC responded on November 18, 2020 concluding that the sacred lands file inventory was negative for the presence of sacred sites within or near the project area and recommend that the Federated Indians of Graton Rancheria (FIGR) and the Guidiville Indian Rancheria (GIR) be contacted to request further information about Native American traditional cultural resources within or near the project area that could be affected by the proposed project and to inquire about Native American issues related to the proposed project. Evans & DeShazo contacted the FIGR and the GIR on December 1, 2020 and did not receive responses from either tribe.

The MCOSD staff provided notification of the proposed project to the FIGR the GIR, and the Coast Miwok Tribal Council of Marin (CMTCM) on July 19, 2021 and asked if a consultation process pursuant to California Assembly Bill 52 should be initiated. The notification satisfies RTMP BMP Cultural Resources-3: Tribal Consultation. FIGR provided an email confirming receipt of this notification but no further comments and did not respond to the MCOSD's request to meet. The GIR did not respond. The CMTCM provided a response including a formal AB52 request from our Tribal Council designating a contact person to consult on the proposed Roy's Redwoods Open Space Preserve Restoration Project but did not follow up with the MCOSD's request to meet. The MCOSD will include the FIGR, the GIR, and the CMTCM in the public notice for public review of this Initial Study.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to tribal cultural resources. The applicable RTMP Policies and BMPs are listed in the Project Description and are provided, in their entirety, in Appendix A.

- Cultural Resources-6: Construction Discovery Protocol
- Cultural Resources-7: Human Remains
- General-11: Management of Sudden Oak Death

CEQA Context

A project would normally result in a significant impact to tribal cultural resources if it would adversely change the significance of a tribal cultural resource, including those identified by tribes.

a) **Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code §5020.1(k)?** Less than Significant

Public Resources Code Section 21074 defines tribal cultural resources and PRC Section 5020.1(k) defines the local register of historic resources, both of which are included in the Setting section of this Tribal Cultural Resources section.

No cultural resources, artifacts, indications of fossil soils, or historic resources/or properties that are listed on federal, state, or local inventories were identified within or adjacent to the project area. No resources listed or eligible for listing in the California Register of Historic Resources or in a local register of historical resources as defined in PRC Section 5020.1(l) were identified in the proposed project area[171]. The proposed project includes implementation of the cultural resource protection BMPs from the RTMP to protect any undocumented historic resources and tribal cultural resources that may be present in the project area. Although no resources were identified in the project area during the evaluation conducted for this project, previously undiscovered resources or human remains could be discovered during project implementation and two RTMP BMPs address the steps necessary to protect previously undiscovered resources. Cultural Resources-6: Construction Discovery Protocol addresses the requirements and steps the MCOSD would follow if a previously undiscovered resource is found during construction activities. Cultural Resources-7: Human Remains addresses the process required in the event a human skeleton is uncovered during construction. Therefore, implementation of the proposed project would not result in a substantial adverse change in the significance of a tribal cultural resource cultural landscape listed or eligible for listing on the California Register of Historical Resources. Additionally, the MCOSD would directly notify FIGR and the Guidiville Indian Rancheria of any inadvertent discovery of cultural or historical resources, human remains, and/or tribal cultural resources.

For these reasons, implementation of the proposed project would result in a less-than-significant impact associated with a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k).

[171] Evans & De Shazo 2021. Results of a Historic Property Survey for the Proposed Trails/Restoration Project at Roy's Redwoods Preserve, San Geronimo, Marin County, California. January 24, 2021

b) Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. Less than Significant

Public Resources Code Section 21074 defines tribal cultural resources and PRC Section 5024.1(c) defines the criterial used to determine if a resource can be considered for listing on the California Register of Historic Resources, both of which are included in the Setting section above. MCOSD sent letters to the Federated Indians of Graton Rancheria (FIGR), the Guidiville Indian Rancheria and the Coast Miwok Tribal Council of Marin (CMTCM) to inform them about the proposed project and to invite the tribes to consult with the MCOSD regarding the proposed project. The invitation to consult letters were sent on July 19, 2021, and were consistent with RTMP BMP Cultural Resources-3: Tribal Consultation. No response was received from the FIGR or the GIR. The CMTC provided a response but did not respond to the MCOSD's attempt to set up a tribal consultation meeting.

Although no resources were identified in the project area during the evaluation conducted for this the proposed project, previously undiscovered resources or human remains could be discovered during project implementation and two RTMP BMPs address the steps necessary to protect previously undiscovered resources. Cultural Resources-6: Construction Discovery Protocol addresses the requirements and steps the MCOSD would follow if a previously undiscovered resource is found during construction activities. Cultural Resources-7: Human Remains addresses the process required in the event a human skeleton is uncovered during construction. The MCOSD would directly notify the Guidiville Indian Rancheria and the Federated Indians of Graton Rancheria of any inadvertent discovery of cultural or historical resources, human remains, and/or tribal cultural resources. Therefore, implementation of the proposed project would result in a less-than-significant impact associated with a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1.

Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d. Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Setting

The proposed project would take place on Roy's Redwoods Open Space Preserve, an undeveloped open space preserve owned and operated by the MCOSD for natural resource preservation and public outdoor recreation. Roy's Redwood Open Space Preserve has an existing porta-toilet and portable hand wash station neither of which are connected to municipal utilities. A spring box is connected to a water trough for equestrian use; however, the spring box would not be impacted by the project. Other facilities include trails, fire roads, gates, signage, and trash and recycling bins.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to utilities and service systems. The RTMP Policies and BMPs are provided, in their entirety, in Appendix A.

CEQA Context

A project would normally result in a significant impact on utilities and service systems if it would exceed or conflict with existing standards, service capacities, and/or entitlements. Potentially significant impacts to

utilities and service systems have been evaluated by determining new or altered services that would be required to implement the proposed project.

a) Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects? No Impact

The proposed project would include improvements to the trail system in the western portion of Roy's Redwoods Open Space Preserve, including new trail construction, trail upgrades, social trail decommissioning, trailhead construction, and hydrologic and ecological restoration. An inclusive parking spot and the roadway shoulder adjacent to the Preserve along Nicasio Valley Road would also be included in the proposed project. Water needed during construction of the proposed project would be imported to provide construction-related dust control. Implementation of the proposed project would rely on construction equipment powered by diesel fuel and gasoline and would not require or impact any electrical infrastructure. Therefore, implementation of the proposed project would result in no impact associated with the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects.

b) Would the Project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years? No Impact

The project area is within the service area of the Marin Municipal Water District. Currently, Roy's Redwoods Open Space Preserve, including the project area, does not receive water service and none would be installed as part of the project. During project construction, minor amounts of imported water may be required for dust control. The proposed project would also require minimal amounts of water for seasonal irrigation of revegetated areas during the plant establishment period. Proposed revegetation would utilize native vegetation appropriate for site conditions as described in the Project Description, and irrigation requirements would be minimal. If required, the MCOSD would irrigate plantings by hand utilizing either a truck-mounted or ATV-mounted water tank. Irrigation would not require installation of a tank and irrigation lines. The MCOSD would utilize recycled wastewater whenever it is available. Operation of the project would not require new water use beyond the plant establishment period. Implementation of the proposed project would not create new demands for water supply and would not include or require any drinking fountains, irrigation, or water facilities. Therefore, implementation of the proposed project would result in no impact associated with the sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.

c) Would the Project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? No Impact

There are no existing or proposed sewer-connected restrooms, water facilities, or wastewater service at the project area. The relocated porta-toilet would continue to be served once per week and wastewater would be trucked off site and disposed of properly. Implementation of the project would not require wastewater treatment and would have no effect on wastewater treatment capacity. Therefore, implementation of the proposed project would result in no impact associated with adequate wastewater treatment capacity to serve the project's projected demand in addition to the provider's existing commitments.

d) Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? No Impact

The MCOSD would dispose of waste generated from the project site at the Redwood Landfill, located in Novato. Redwood Landfill has a maximum permitted throughput capacity of 2,300 tons per day and a remaining design capacity of 26,000,000 cubic yards[172]. Project construction would likely generate small amounts of waste, but most of the waste that would be generated would be green waste that would remain onsite and the volume of any waste that would be off-hauled would not be sufficient to affect landfill capacity. The proposed project would comply with applicable County, State, and federal regulations regarding solid waste disposal. The majority of waste generated by construction of the proposed project would consist of wood and green waste resulting from vegetation trimming and trail maintenance; this waste would remain on-site. Operation of project would result in small amounts of waste generation from maintenance activities and public use of the project area. However, the waste generated by operation of the project would not noticeably exceed baseline conditions. Construction and operation of the proposed project would not generate solid waste in excess of any state or local standards or in excess of local capacity. Therefore, implementation of the proposed project would result in no impact associated with generation of solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.

e) Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? No Impact

The majority of the waste generated by project construction would be wood and green waste that would not be hauled off-site. Waste from operation of the project, from trail users and periodic maintenance activities, would not exceed baseline conditions. The proposed project would comply with all federal, state, and local management and reduction statutes and regulations related to solid waste. Therefore, implementation of the proposed project would result in no impact associated with compliance with federal, state, and local management and reduction statutes and regulations related to solid waste.

[172] CalRecycle. 2021. LINK: Cal Recycle: Solid Waste Activity.

Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Setting

Roy's Redwood Open Space Preserve is not located in an area mapped wildland-urban interface (WUI)[173]; however, lands to the north and south of the Preserve are mapped as WUI. In accordance with California Public Resource Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, Marin County has mapped areas of significant fire hazards because of fuels, terrain, weather, and other relevant factors. Marin County mapped the area in and around the Roy's Redwoods Open Space Preserve as moderate fire risk[174]. The Roy's Redwoods Open Space Preserve is also within CalFire's State Responsibility Area (SRA) for wildfires[175]. The Dickerson Fire Road provides emergency access into and out of the Roy's Redwoods Open Space Preserve. Sir Francis Drake Boulevard serves as the main evacuation route for the San Geronimo area. Nicasio Valley Road serves as an alternative evacuation route, only if directed by local fire authorities[176].

[173] The wildland urban interface is an area where human made structures and infrastructure such as e.g., cell towers, schools, and water supply facilities are in or adjacent to areas prone to wildfire.

[174] Marin County GeoHub. 2021. LINK: Marin County GeoHub. Accessed on October 5.

[175] Calfire. 2021. Accessed October 6. LINK: Calfire.

[176] Marin County Fire Department, Community Fire Protection Plan. 2016. LINK: MCFD Community Fire Protection Plan.

Applicable RTMP Policies and BMPs

The MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to wildfire. The MCOSD currently implements the following RTMP Policy and would continue to do so regardless of whether the proposed project is implemented.

- RTMP Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist

CEQA Context

A project would normally result in a significant impact on wildfire if it is located in or near state responsibility areas or lands classified as a very high fire hazard severity zone and would increase wildfire risk, increase air pollution concentration from wildfire due to topographic features or prevailing winds, increase risk to people or structures form post-wildfire flooding or landslides, or conflict with an adopted emergency response plan or emergency evacuation plan.

a) Would the Project impair an adopted emergency response plan or emergency evacuation plan? Less than Significant

The proposed project area is located in San Geronimo Valley adjacent to Nicasio Valley Road and north of Sir Francis Drake Boulevard within the area addressed in the Marin County Fire Department's Community Wildfire Protection Plan[177]. Construction activities would occur adjacent to Nicasio Valley Road to implement the proposed entryways and parking improvements and the eastern shoulder would be used to provide access for construction equipment and construction materials. Construction is not expected to block the roadway entirely; however, traffic lanes may be temporarily reduced to one-way traffic during delivery of equipment or materials at infrequent times during construction. No materials or equipment would be stored along the roadway shoulder. Material and equipment would be moved to a staging area within the Preserve immediately following delivery to keep the roadway clear. Temporary one-way passage along Nicasio Valley Road would not physically stop all traffic. In order to ensure proper emergency vehicle access along Nicasio Valley Road during construction, the MCOSD would implement Mitigation Measure TRA-1: Reduce Construction Traffic Risks as discussed in the Transportation section. For these reasons, implementation of the proposed project would result in a less-than-significant impact associated with implementation of an adopted emergency response plan or emergency evacuation plan.

b) Due to slope, prevailing winds, and other factors, would the Project exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? Less than Significant

Implementation of the proposed project would not exacerbate wildfire risks in the area. The proposed project would decommission social trails, upgrade some existing trails to allow inclusive access, relocate trails to more sustainable locations, rehabilitate heavily impacted areas in the alluvial valley, improve hydrologic conditions along Upper Larsen Creek, and improve roadside shoulders. Proposed trail decommissioning and proposed new trail construction would occur in areas already subject to visitor use, and no new areas would be open to the public as a result of implementation of the proposed project; therefore, the risk of wildfire would not increase.

Construction and maintenance could generate sparks and could temporarily increase fire risk. The RTMP contains policies and BMPs to reduce this hazard. RTMP Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist allows the MCOSD to temporarily or permanently close preserves or restrict uses in preserves to reduce fire risk during periods of high fire danger, including construction and maintenance activities. In addition, MCOSD vehicles are equipped with

[177] ibid

fire extinguishers to address small fires ignited by construction activities before a problem develops. The potential impact from increased fire risk associated with construction and maintenance activities would be less than significant with implementation of the RTMP measures.

Improving hydrologic condition across the alluvial valley floor through implementation of the wetland-channel corridor would provide increased surface water in the alluvial valley longer into the dry season. Expanding the wetland-channel complex through the valley and maintaining soil moisture would likely reduce fire risk in the alluvial valley; although, the existing fire risk in the area is already relatively low. However, reducing the fire risk anywhere in the Roy's Redwoods Open Space Preserve would be beneficial, especially in high use areas such as the proposed project area.

The proposed project does not include changes to Roy's Redwoods Open Space Preserve policies, and the continued use of the Preserve by visitors would not increase the fire risk. Therefore, implementation of the proposed project would result in less than significant impacts associated with exacerbation of wildfire risks that would potentially expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

c) **Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?** No Impact

Implementation of the proposed project would improve conditions of the existing trail system and roadside parking at Roy's Redwoods Open Space Preserve. There are no existing vehicular roads, water sources, power lines or other utilities within the proposed project area and none are proposed as part of the project. The proposed project includes relocation of the existing porta-toilet, and no new structures or other facilities are proposed that would be flammable or otherwise increase the wildfire risk.

The existing entryway to the Roy's Redwoods Open Space Preserves currently accommodates access for emergency vehicles. Implementation of the proposed project would eliminate vehicular access along the newly improved Access and Discovery Trail and along the decommissioned Meadow Trail. The Dickerson Fire Road, which is located within the Preserve but outside the project area, would remain open and provide emergency vehicular access. Emergency access would remain from Nicasio Valley Road; however, access from this location would provide walk-in access only. No emergency access would be lost due to implementation of the proposed project. Implementation of the proposed project would result in no impact associated with the installation or maintenance of associated infrastructure, such as roads, fuel breaks, emergency water sources, power lines, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.

d) **Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?** No Impact

Implementation of the proposed project would not change the existing fire risk. The current designation of moderate fire risk would remain within the wider Roy's Redwoods Open Space Preserve and the fire risk within the project area may decrease with implementation of the proposed project. The proposed trail decommissionings and new trail construction include drainage features designed to direct runoff off the trail onto native vegetation. The proposed trail improvements would reduce the risk of concentrated runoff, improving drainage and reducing the likelihood of runoff-induced slope instability issues should wildfire occur in the Preserve. Therefore, the proposed project would not expose people or structures to significant downstream or downslope risks due to wildfire and implementation of the proposed project would result in no impact associated with the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less-than-Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, and probable future projects.)?	☐	☐	☒	☐
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Setting

Implementation of the proposed project would result in an overall beneficial effect to the environment as it would decommission social and designated trails that are located in sensitive areas and upgrading designated trails to create a sustainable trail network that can accommodate visitors while protecting the environment. Implementation of the proposed project would also restore locations across the valley floor that are compacted and void of vegetation from high visitor use. The hydrologic restoration element of the proposed project would create a wetland-channel complex along Upper Larsen Creek and its tributaries to reconnect the creek to the adjacent floodplain, decrease erosion within the channel, and improve conditions for groundwater recharge. Potential impacts described in this document could result from implementation of the proposed project would be temporary and mitigation measures have been included in this document to reduce the significant of potentially significant impacts to less than significant levels. MCOSD would implement applicable Road and Trail Management Plan Best Management Practices described in this document, and would implement the mitigation measures included in this document to reduce potential impacts not addressed by the Road and Trail Management Plan to reduce impacts to less than significant levels.

a) **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?** Less than Significant with Mitigation

As discussed in the Biological Resources Section of this document, while the potential exists for northern spotted owls, California giant salamanders, special-status bats, and nesting birds and raptors protected by the Migratory Bird Treaty Act (MBTA) to occur in the project area, implementation of RTMP BMPs and Mitigation Measures BIO 1 through 3 would ensure that impacts to special-status species would be less than significant. The proposed project would not be expected to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of rare or endangered plants or animals. The proposed project would decommission trails through wetlands and eliminate redundant social trails throughout the project area. Boardwalks, bridges, and log crossings would be installed where visitor access currently degrades site conditions across channels and wetlands. Decommissioning redundant trails and improving conditions at crossings would beneficially affect wetland and wildlife habitat by allowing sites to recover from intensive visitor access, provide for revegetation of the site, and allow water to more naturally infiltrate into the soil to facilitate groundwater recharge. The proposed project would improve habitat conditions for plants and wildlife that inhabit the Roy's Redwoods Open Space Preserve.

Potential impacts on natural resources resulting from potential increased visitor use is addressed in the Recreation Section of this document. After project implementation, the MCOSD would maintain the trails and facilities included in the proposed project. As the trails and facilities are designed to improve existing trail sustainability, the level of maintenance is expected to be low. Regular maintenance would include brushing of the trail corridor, maintaining the trail surface and drainage, and clearing fallen trees and trail obstructions as needed to maintain RTMP trail standards. As part of the proposed project, the decommissioned trail segments would be monitored to ensure revegetation is successful and to prevent continued use of the decommissioned trails. Corrective actions may be required to prevent access to the decommissioned trails. Monitoring and implementation of corrective actions where impacts occur would prevent potential impacts that could substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal.

As described in the Cultural Resources and Tribal Cultural Resources sections, the project area does not contain any known historic or prehistoric sites. Thus, implementation of the proposed project is not anticipated to result in potentially significant impacts related to historic or prehistoric resources. Nevertheless, implementation of RTMP BMPs would ensure that in the event that historic or prehistoric resources are discovered within the project area during construction activities, such resources are protected in compliance with the requirements of CEQA. Additionally, the MCOSD would directly notify the Federated Indians of Graton Rancheria and Guidiville Indian Rancheria of any inadvertent discovery of cultural or historical resources, human remains, and/or tribal cultural resources.

Considering the above, the proposed project would not: 1) degrade the quality of the environment; 2) substantially reduce or impact the habitat of fish or wildlife species; 3) cause fish or wildlife populations to drop below self-sustaining levels; 4) threaten to eliminate a plant or animal community; 5) reduce the number or restrict the range of a rare or endangered plant or animal; 6) eliminate important examples of

the major periods of California history or prehistory, or 7) eliminate or restrict use of a tribal resource. Therefore, a less-than-significant impact would occur.

b) **Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past, current, and probable future projects.)** Less than Significant

The proposed project is one of several trail projects that the MCOSD has constructed in the last five years as part of its implementation of the RTMP. These projects include repairs and improvements to the following trails:

- Dawn Falls Trail, Baltimore Canyon Open Space Preserve, Larkspur
- Piedmont Trail, Blithedale Summit Open Space Preserve, Larkspur
- Roy's Redwoods Loop Trail, Roy's Redwoods Open Space Preserve, San Geronimo Valley
- Cascade Canyon Fire Road, Cascade Canyon Open Space Preserve, Fairfax
- Old Railroad Grade Trail, Loma Alta Open Space Preserve, Fairfax
- Val Vista Trail, Camino Alto Open Space Preserve, Mill Valley
- Octopus Trail, Camino Alto Open Space Preserve, Mill Valley
- Contour/Candelero complex trails, Gary Giacomini Open Space Preserve, San Geronimo Valley
- Bob Middagh and Gasline trails, Alto Bowl Open Space Preserve, Mill Valley
- Hunt Camp Trail, Gary Giacomini Open Space Preserve, San Geronimo Valley
- Irving Fire Road, Terra Linda – Sleepy Hollow Divide Open Space Preserves, San Anselmo
- Ponti Ridge Trail, Pacheco Valle Preserve, Novato

MCOSD implemented improvements and repairs to several roads and trails between 2018 and 2021, including the following:

- 2021 Multiple trail improvements, Rush Creek Open Space Preserve, Novato
- 2019 Eagle Rim Trail, Mount Burdell Open Space Preserve, Novato
- 2018 Old Railroad Grade, Loma Alta Open Space Preserve, Fairfax
- 2018 Alto Bowl Fire Road, Alto Bowl Open Space Preserve, Mill Valley
- 2018 Bob Middagh Culvert Replacement, Alto Bowl Open Space Preserve, Mill Valley
- 2018 Conifer Fire Road Gary Giacomini Open Space Preserve, San Geronimo Valley
- 2020 San Carlos Fire Road, Mount Burdell Open Space Preserve, Novato
- 2020 Middle Burdell Fire Road, Mount Burdell Open Space Preserve, Novato
- 2021 Tomahawk Fire Road, Terra Linda – Sleepy Hollow Divide Open Space Preserves, San Anselmo

Additionally, the MCOSD and Marin County Parks are undergoing a planning process for several road and trail improvement projects including, but not limited to, the following:

- Cascade Canyon Trail Bridges, Cascade Canyon Open Space Preserve, Fairfax
- Toyon Fire Road, Cascade Canyon Open Space Preserve, Fairfax
- Buck Gulch Falls Trail, Ignacio Open Space Preserve, Novato
- Memorial Trail, Terra Linda Open Space Preserve, San Anselmo

All MCOSD projects would comply with the requirements of the RTMP, including Policy SW.4: Overall Reduction in Road, Trail, and Visitor Impacts, which mandates the designation of new roads and trails resulting in a net reduction of environmental impacts from the existing road and trail system. The projects

would achieve this policy goal through reducing erosion and sedimentation, improving environmental conditions at existing stream crossings, redesigning trails to avoid impacts to sensitive habitat and species, and decommissioning of existing non-designated (social) trails. In combination, these projects would result in a net improvement to the resources of the open space preserves. The trail projects included measures to avoid impacts to special-status species, sensitive habitats, nesting birds, wildlife, native trees, and aquatic and wetland resources. Future trail projects also include measures to avoid impacts.

The proposed project would include decommissioning of trails, revegetation efforts, new trail construction, upgrades to existing trails, hydrologic and habitat restoration, inclusive access parking spot, roadside shoulder improvements, and relocation of the existing porta-toilet. Although the proposed project may incrementally affect other resources that were determined to be less than significant, when viewed in conjunction with other closely related past, present, or reasonably foreseeable future projects, implementation of the proposed project would not result in a cumulatively considerable contribution to cumulative impacts and the project's incremental contribution to cumulative impacts would be less than significant.

c) **Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?** Less than Significant

The proposed project would not create substantial adverse effects on human beings due to its short duration and limited project area. The proposed project does not propose any new, inhabitable permanent structures or operations. The MCOSD would comply with all applicable MCOSD RTMP policies and BMPs during construction and operation of the proposed project. As discussed in the Air Quality, Geology and Soils, Hazards and Hazardous Materials, Greenhouse Gas Emissions, and Noise sections of this IS/MND, the proposed project would not cause substantial effects to human beings, including effects related to exposure to air pollutants, geologic hazards, GHG emissions, hazardous materials, and excessive noise. Therefore, the proposed project's impact would be less than significant.

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Appendix A: RTMP Policies and Best Management Practices

APPENDIX A – MARIN COUNTY OPEN SPACE DISTRICT ROAD AND TRAIL MANAGEMENT PLAN (RTMP) POLICIES AND BEST MANAGEMENT PRACTICES (BMPs)

POLICIES

Policy SW.1: Application of this Road and Trail Management Plan Policies

The policies and requirements of this plan will apply within all open space preserves, and within any new preserves that may be established. These policies will also apply to existing and future trail easements unless they would conflict with the terms of the easement, in which case the easement will prevail.

Policy SW.2: System Roads and Trails

The MCOSD will, following adoption of this plan, designate a system of roads and trails, referred to as "system roads and trails", in all existing and new open space preserves, through a collaborative public process. Those roads and trails eligible for consideration as part of the system must have been constructed as of November 2011. The MCOSD may improve, maintain, convert, or reroute system roads and trails according to the policies and requirements of this plan, as time and resources allow. Nonsystem roads and trails, defined as those roads and trails not designated as system roads and trails, may be decommissioned at any time, as time and resources allow.

Policy SW.3: Social Trails

For the purpose of this policy, social trails are defined as narrow pedestrian footpaths that a) were not constructed; and b) have not been improved, managed, or maintained. This definition extends to wildlife trails used occasionally by pedestrians. This plan recognizes that, for all practical purposes, social trails will continue to exist after the system of roads and trails has been designated. Social trails are not subject to closure or decommissioning unless a) their continued existence compromises public safety; b) results in unacceptable levels of erosion, or damage or disruption to plants and wildlife; c) their volume of use increases; and/or d) they are used by equestrians or bikers.

Policy SW.4: Overall Reduction of Road, Trail, and Visitor Impacts

The designated system of roads and trails will have less overall impact to resources compared to the network of roads and trails existing as of November 2011. Impacts will be reduced by decommissioning non-system roads and trails, and by the improvement, conversion, or rerouting of system roads and trails. The MCOSD will maximize the reduction of road, trail, and visitor impacts in Sensitive Resource Areas, compared to Conservation Areas and Impacted Areas. Impacted Areas will exhibit the widest range of acceptable road, trail and visitor impacts.

Policy SW.5: Policy on Pedestrian Activities

Pedestrians are encouraged to stay on system roads and trails.

Policy SW.6: Prohibition on Off-Road or Off-Trail Equestrian Use

Horses and pack animals must stay on system roads and trails, except when watering or resting the animal. Off-trail riding is prohibited. Riding or possession of a horse or pack animal on non-system roads and trails is prohibited. Riding or possession of a horse or pack animal on social trails is prohibited.

Policy SW.7: Prohibition on Off-Road or Off-Trail Bicycle Use

Mountain bikers must stay on system roads and trails designated for bicycle use. Off-trail riding is prohibited. Riding or possession of a bicycle on non-system roads and trails is prohibited. Riding or possession of a bicycle on social trails is prohibited.

Policy SW.8: Prohibition on Off-Road or Off-Trail Pedestrians with Dogs or Other Domestic Animals

Pedestrians with dogs and other domestic animals must stay on system roads and trails. Off-trail use by pedestrians with dogs and other domestic animals is prohibited. Use of non-system roads and trails, and social trails, by pedestrians with dogs and other domestic animals is prohibited.

Policy SW.9: Prohibition of Dogs within Sensitive Water Resources
Dogs are not allowed to travel, run, walk, hunt, or bathe in streams or any sensitive water bodies, such as marshes, lakes, or ponds, within the preserves.

Policy SW.10: Policy on Leash Only Preserves
Due to the occurrence of sensitive resources, dogs must be leashed on all roads and trails in those preserves currently designated as “leash only” (i.e., Cascade Canyon, Ring Mountain, and Rush Creek Preserves). The MCOSD may designate other “leash only” preserves in the future.

Policy SW.11: Policy on Leash Requirements for Dogs
Dogs must be on leash (no more than 6 feet in length) a) in all designated “leash only” preserves; and b) on all trails. Dogs may be off leash, but under voice control, only on fire roads that are not within leash only preserves. The MCOSD will identify roads passing through leash only preserves with signs. Dogs under voice control must remain on the fire road.

Policy SW.12: Road and Trail Connectivity
The MCOSD will strive to increase road and trail connectivity for all trail users. The MCOSD will strive to provide opportunities for short to medium distance loops and long-distance routes. The MCOSD may consider one-way, uphill-only, time separation, and single-use or priority-use trails to achieve these ends.

Policy SW.13: Prohibition on Dangerous Activities
Activities that exceed the established speed limit, are reckless, or pose a danger to the user or to other road and trail users, are prohibited.

Policy SW.14: Road and Trail Etiquette
All road and trail users will practice good etiquette at all times. Mountain bikers will always yield to both hikers and equestrians. Hikers will yield to equestrians. Mountain bikers must announce their presence by using a bell or calling out when overtaking other trail users.

Policy SW.15: Expectation of Active Cooperation of All Road and Trail Users
Increased trail use opportunities must be coupled with cooperation among all trail users, and with the MCOSD, to promote lawful trail use, reduce violations, reduce impacts to natural resources, prevent displacement of any trail user types, minimize disturbance to existing neighbors, and avoid endangerment of other trail users.

Policy SW.16: Prohibition of Uses
The MCOSD may prohibit certain trail uses or apply increased trail use restrictions within certain areas to enhance safety, minimize conflicts between trail users, and protect natural resources. Examples of areas where this policy may apply include, but are not limited to, those proximate to stables and those traditionally heavily traveled by equestrians, and in Sensitive Resource Areas.

Policy SW.17: Displacement of Existing Trail Users
The MCOSD will strive to prevent displacement of equestrians and pedestrians when accommodating trail access and trail connections for mountain bikers. When considering the designation of existing trails as single-use or priority-use, the MCOSD will take care to maintain connectivity between destinations for user groups historically using those trails.

Policy SW.18: Unauthorized Trail Construction and Maintenance
The MCOSD has no tolerance for unauthorized trail construction and unauthorized reopening of closed or decommissioned roads and trails. The MCOSD will prosecute such violations to the fullest extent of the law. The MCOSD will apply new deterrence methods, including rigorous investigation and increased penalties to stop such damaging and unlawful activities.

Policy SW.19: Redundant Roads and Trails
Redundant roads or trails are defined as those that roughly parallel an existing route serving essentially the same purposes, uses, and user groups. Through designation of the road and trail system, the MCOSD will reduce the overall level of redundancy compared to baseline levels and when doing so will exclude from designation the road or trail segment or segments that have the highest overall maintenance costs and the

worst profile of environmental impacts. The MCOSD may strategically retain some redundant roads and trails in the interest of separating user groups and avoiding user conflict. Redundant roads and trails that are not designated as system roads and trails will be decommissioned as time and resources allow. All decommissions of redundant fire road segments will be subject to consultation with Marin County Fire and the relevant local fire agencies.

Policy SW.20: Conversion of System Roads to Trails
The MCOSD may convert system roads to trails to protect natural resources, enhance visitor experience and/or safety, or align maintenance costs with available funds. System roads encumbered by license, lease, or easement for nonrecreational purposes, and roads required for maintenance or emergency access, may not be converted to trails unless encumbrances are removed, or roads are no longer necessary for maintenance or emergency use.

Policy SW.21: Roads or Trails Serving Nonrecreational Uses
Roads or trails subject to or encumbered by license, lease, or easement, for nonrecreational purposes, and those roads required for maintenance or emergency access, will become system roads and trails, unless encumbrances are removed, or roads are no longer necessary for maintenance or emergency use.

Policy SW.22: Protect High-Value Vegetation Types
As a general policy, visitors will be directed away from areas of high-value vegetation types, as identified in the MCOSD's mapped Legacy Vegetation Management Zones and other more site-specific biotic assessments undertaken or commissioned by the MCOSD, to prevent disturbance and adverse impact. This will be done through the appropriate placement of new and rerouted trails, by erecting fencing, or by installing educational signs that provide information about the resource values being protected.

Policy SW.23: Identify High Value Biological Resources
Designation of the road and trail system and evaluation of road and trail project proposals will be based on best available data, including inventories of wildlife, and vegetation resources. The MCOSD will undertake site specific and programmatic efforts to extend and improve upon the biological data underlying its decision-making criteria. System designations, project design, and project implementation are subject to amendment on the basis of new information.

Policy SW.24: Minimize Intrusions into Larger Contiguous Habitat Areas and Wildlife Corridors
In designating the system of roads and trails, the MCOSD will minimize their adverse effects on sensitive vegetation, as well as, habitat connectivity and migration corridors for all native species of wildlife.

Policy SW.25: Helmet Requirement
Per California state law, bicycle riders less than 18 years old are required to wear a helmet when riding on the MCOSD roads and trails.

Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist
Appropriate actions will be taken to minimize the risk of wildfire ignition when red-flag conditions exist. These actions may include prohibiting vehicle access, closing trails, or closing entire areas to all human activities until red-flag conditions expire. The public will be informed of the reasons why such actions are being taken, and areas will be patrolled to ensure compliance.

Policy SW.27: Protect High-Value Cultural and Historic Resources by Rerouting or Confining Visitor Access
Areas of high- value cultural and historic resources will be protected from disturbance and adverse impact. This will be done through the appropriate placement of trails, by erecting barriers, or other methods to discourage access.

Policy SW.28: Remove or Realign Roads and Trails Away from High-Value Cultural and Historic Resources

As a general policy, designated roads and trails will be rerouted away from high-value cultural and historic resources whenever possible and feasible. Areas where roads or trails are removed will be restored to natural conditions. The removal or realignment of roads will be done in consultation with Marin County Fire and other local fire agencies.

Policy SW.29: Retrofit or Upgrade Construction Equipment

Work with the Bay Area Air Quality Management District to implement feasible actions from the 2010 Clean Air Plan MSM C-1 – Construction and Farming Equipment. Pursue funding to retrofit the existing construction equipment engines with diesel particulate filters or upgrade to equipment with electric, Tier III, or Tier IV off-road engines. Seek to rent construction equipment that meets these criteria, if available.

Policy SW.30: Permeable Paving

For any new parking areas and other large areas of potentially impermeable surfaces, use permeable paving or an equivalent for all paved areas to provide for the infiltration of rainfall.

Policy SW.31: Floodplain Policy for New and Improved Roads and Trails

The MCOSD will review current Federal Emergency Management Agency Flood Insurance Rate Maps and other current flood maps to assess potential flood impacts to any proposed new or improved road, trail, or associated facilities located in the lower elevation bayland or coastal areas (i.e., Santa Margarita Island, Santa Venetia Marsh, Bothin Marsh, Rush Creek, Deer Island, and Bolinas Lagoon). In cases where a flood risk is identified, proposed facilities shall either be relocated outside of the flood prone area or designed and constructed in a manner to protect public safety and not increase base flood elevations. As part of public safety, the MCOSD shall also review the most current Tsunami Inundation Maps as part of the trail improvement planning efforts in those areas in order to identify areas that may require escape plans or proper notification.

Policy T.1: Loop and Long-Distance Trail Connections

When designating system roads and trails, the MCOSD will seek to maintain and/or develop new opportunities for loop and long-distance travel, when such opportunities do not conflict with resource protection or visitor safety.

Policy T.2: Visitor Amenities

The MCOSD may provide or permit visitor amenities such as a) facilities to encourage the pickup and disposal of pet waste; b) watering opportunities for horses and other pack animals; c) potable water; and d) small bike repair stations.

Policy T.3: Visitor Safety

The safety of all road and trail users depends in large part on visitor conduct. The MCOSD expects that all users will conduct themselves in a safe manner, to protect their own safety and the safety of other users. The MCOSD shall consider visitor safety in designating the road and trail system.

SPECIAL USE POLICIES

In addition to providing public access for recreational uses, the MCOSD preserves also allows uses such as commercial dog walking, recreational events, and access for utility providers such as Verizon and PG&E. There is a need for a consistent and structured approach for the MCOSD to respond to requests for special uses. New policies to accomplish this are described below.

Policy SP-1: Lease/License/Other Form of Approval Required for Land Management or Utility Activities

Consistent with the MCOSD's Nonconforming Use Policy, all agencies and service providers requesting access to open space preserves will be required to obtain a lease, license, or other form of approval from the MCOSD describing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal and weather concerns, the protection of natural resources, and the location of the activity. The MCOSD's Nonconforming Use Policy provides specific guidance for permitting use of open space by utilities, water districts, and other similar entities.

Policy SP-2: Permit Required for Organized Recreational Activities or Events

All private parties or public agencies requesting access to the MCOSD preserves for recreation-related or other special events will be required to complete and obtain a permit detailing the purpose and timing of their activities. The MCOSD may impose fees and conditions. Such conditions may include, but will not be limited to, the timing of the activity with respect to seasonal and weather concerns, the number of participants, the protection of natural resources, and the location of the activity. An administrative fee will be charged by the MCOSD for reviewing and granting any permits. Additional fees may be incurred by the applicant for administration and monitoring of the event by the MCOSD staff, or if compliance with the California Environmental Quality Act or any regulatory permit is required. The MCOSD insurance and indemnity requirements will also apply.

Policy SP-3: Prohibition on Unofficial, Non-sponsored Group Activities

Any unofficial, non-sponsored outdoor recreation event involving more than 15 participants is prohibited.

GENERAL BMPs

General 1: Limit Work Area Footprints in Sensitive Resource Areas

Limit the size of construction-related road and trail management activities to the minimum size needed to meet project objectives. BMPs include:

- Minimize project footprint. Minimize the size of the work area, including the project area, access roads, and staging areas. Wherever possible, use existing upland roads, trails, and other disturbed areas for project activities in order to reduce unnecessary disturbance, minimize soil and water erosion, and reduce overall project costs.
- Reduce or relocate footprint during planning and design phase. Reduce the work area footprint in sensitive resource areas or move the work area to common natural communities and upland areas. Implement further refinements during site preparation and construction to further reduce impacts.
- Minimize soil disturbance**.** Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants.
- Mark project footprint near sensitive natural resources. Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources.
- Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, access roads, staging areas, and areas of temporary disturbance will be minimized in size. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. No nonnative soil or fill material will be brought onsite or used during the contractor's activities unless approved by the MCOSD natural resource staff.

General-2: Modify Construction- Related Vegetation Management Methods in and near Wetlands, Riparian Vegetation

Restrict construction-related vegetation management near wetlands in a manner that reduces the potential for sediment or pollutants to enter wetlands. Implement the following BMPs, as needed:

- Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high-water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area. If construction work in wetlands and riparian areas cannot be fully avoided, consult with the appropriate state and federal agencies to obtain permits.
- Within the buffer, restrict routine vegetation management activities in creeks, streams, other waterways, and tidally influenced areas. Limit vegetation management work to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality.
- Within the buffer, limit work that may cause erosion to the low flow or low tide periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- Within the buffer, minimize erosion and sedimentation; maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the

introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap, and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

- Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings.

General-3: Minimize Potential for Erosion

Conduct road and trail activities in a manner that controls and minimizes the potential for soil erosion and contribution of sediment to wetlands. Implement the following as needed:

- To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation.
- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

General-4: Control Food-Related Trash

Food-related trash can attract wildlife to road and trail project sites. Store food-related trash in closed containers and remove from the project site daily.

General-5: Modify Construction Methods Relating to Soil Disturbance, Restrict use of Offsite Soil, Aggregate, or Other Construction Materials

Conduct construction-related vegetation management in a manner that restricts the use of offsite materials that could introduce or spread invasive plants. Implement the following as needed:

- Minimize soil disturbance. Minimize soil disturbance to the greatest extent possible to reduce the potential for introducing or spreading invasive plants, to protect topsoil resources, and to reduce available habitat for the establishment of new invasive plants.
- Do not allow the introduction of incompatible fill. Use only clean, native soils and aggregate materials from projects within the preserve or use fill that is purchased from a certified weed-free source, before allowing the importation of materials from outside the preserves. Fill materials should be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. Treat, as appropriate, to prevent the spread of invasive plants**.** Treatment may include disposal onsite within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green waste facility.
- Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, require salvage of the top 6 to 12 inches of topsoil (to retain seeds, soil mycorrhizae, and fungi) from all excavation and

disturbance areas. Require reapplication of the salvaged topsoil as a topdressing or topcoat over backfill, unless known to contain invasive plant seeds or propagules.

- Establish dedicated areas for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of vehicles and equipment will be brushed off and/or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves.
- Develop a native seed mix for erosion control. Develop the seed mixture on a project-by-project basis based on the observed mixture of native and naturalized plants in and near the impact area. Where possible, ensure that seeds are collected locally (i.e., within the same watershed or preserve as the impact), or obtained from a reputable native plant nursery specializing in seed that is collected from local sources.
- Maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized to help minimize erosion and sedimentation. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified as weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians.
- Immediately rehabilitate areas where road and trail project activities have disturbed soil. Areas disturbed by equipment or vehicles should be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include de-compacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

General-6: Prevent or Reduce Potential for Pollution

Ensure that actions are taken during ongoing road and trail project activities to prevent or reduce the potential for pollutants entering the MCOSD preserve. Implement the following as needed:

- Prohibit, or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Require placement of fuel storage and refueling sites in safe areas well away from wetlands. Safe areas include paved or cleared roadbeds, within contained areas such as lined truck beds, or other appropriate fuel containment sites. Inspect equipment and vehicles for hydraulic and oil leaks regularly. Do not allow leaking vehicles on the MCOSD preserves and require the use of drip pans below equipment stored onsite. Require that vehicles and construction equipment are in good working condition, and that all necessary onsite servicing of equipment be conducted away from the wetlands.
- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials. Absorbent materials should be on hand at all times to absorb any minor leaks and spills.

General-7: Include Standard Procedures in Construction Contracts

When using contractors to perform vegetation management, related to road and trail project activities, the MCOSD will include some or all of the following standard procedures in those contracts.

The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to protecting special-status species. Other types of timing restrictions include timing to control invasive plants; timing to avoid migration, gestation, or flowering periods for special-status species; or timing work in wetlands to the dry season.

- Establish a buffer of 100 feet from wetland and tidally influenced areas (i.e., from the ordinary high-water mark of flowing or standing water in creeks, streams, or ponds). Avoid construction work within this buffer area.
- Within the buffer, limit work that may cause erosion to low flow periods. Low flow months for local creeks are typically August to October. For tidal areas, work will not occur within 2 hours of high tide events at construction sites when high tide is greater than 6.5 feet measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- If construction work cannot be fully avoided in wetlands and riparian areas, consult with the appropriate state and federal agencies to obtain permits.
- Require the contractor to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality for road and trail project work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings.

The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor agrees to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:

- Conduct a training program for all field personnel involved with the proposed road and trail project prior to initiating project. The program will consist of a brief presentation by person's knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- Restrict work to periods when invasive plants are not in fruit or flower.
- Establish dedicated area for cleaning vehicles, inside and out, of soil or invasive plant seeds or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving preserves. Within the wash areas, the tires and body of equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Require contractors to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving preserves.
- Dispose of green waste in a manner that does not spread invasive plants. Methods include onsite disposal in an already infested area; offsite disposal to a cogeneration plant or an approved green waste composting facility).
- Protect environmentally sensitive areas. The MCOSD natural resource staff will identify any Environmentally Sensitive Areas in or near the road and trail project area prior to the start of work. Environmentally Sensitive Areas may include: special-status plant or wildlife species or their habitats (e.g., woodrat nests, habitat for special-status plant and wildlife species, individuals or populations of listed special-status plant or wildlife species or locally rare species); wetlands including creeks streams and related riparian area; and sensitive vegetation types as described in this report. The MCOSD staff and contractors will fully avoid and protect such areas during habitat restoration work or will help obtain and comply with necessary permits and regulatory requirements.
- Use locally collected plant materials for revegetation projects. Plant materials will be collected onsite at the MCOSD preserves or within the same watershed as the revegetation project. The contractor will work with the MCOSD to identify native plant nurseries that can collect and

propagate seed and other plant materials from the local area. No use of commercial grassland mixtures for erosion control unless approved in advance by the MCOSD. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use onsite.

- Protect special-status species habitat. For vegetation work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special- status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special- status species population plus a buffer should be designated as an "Environmentally Sensitive Area" using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated Environmentally Sensitive Areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the state Fish and Game Code permits and agreements.
- Restrict soil disturbance, import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. In particular, minimize the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subconsultants agree not to drive off-road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor agrees that if soil excavation is required, every attempt will be made to have a balanced cut and fill project that reuses all native soils onsite. Unless pre-approved by the MCOSD natural resource staff, there will be no use of nonnative soil or fill material during the contractor's activities.
- To minimize erosion and sedimentation, maintain erosion and sediment control devices during ground disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

Other procedures:

- All entry gates to the project site not used for construction access will be locked at all times and gates used for construction access will be locked during non-construction hours.
- All vehicles will carry a suitable fire extinguisher.
- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include de-compacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit and mark the allowable disturbance footprint with flagging or fencing. Following the end of work, scarify surface soils to retard runoff and promote rapid revegetation.

General-8: Control Noise

To reduce daytime noise and potential disturbance to wildlife species, the MCOSD will require contractors to muffle or control noise from equipment through implementation of the following measures:

- Equipment and vehicles should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds, and installation of sound blanket around the project site.

General-9: Conduct Worker Training

The MCOSD will conduct a worker-training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable in the special-status species, sensitive resource, or invasive plants known from the project area. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting). The program will include a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; and a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impacts; and the workers' responsibility under the applicable environmental regulation(s).

General-10: Road and Trail Inspections

- Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive and/or special-status natural resources. Staff will record information pertaining to the status of biophysical resources that could be affected by road or trail use, maintenance, or management activities. These inspections will monitor for the spread of invasive, exotic plants that could affect sensitive and/or special-status native plant or wildlife habitats and any other changes that could create negative impacts to known sensitive and/or special-status native plant or wildlife populations in the immediate vicinity. Staff will report any findings and make recommended corrective actions if appropriate.

General-11: Management of Sudden Oak Death

To reduce and control the spread of Sudden Oak Death (SOD) within the MCOSD system, the following practices will be implemented.

- The MCOSD staff will educate visitors about preventing the spread of Sudden Oak Death (SOD).
- The MCOSD may use interpretive signs, brochures, ranger talks, and other online and print materials that explain the importance of preventing the spread of pathogens and use of preventative measures.
- The education materials should explain that SOD occurs within the preserve; identify typical symptoms; explain that SOD can be spread by park users, especially during rainy and windy weather; and request that park visitors:
  - Use designated parking areas
  - Avoid transporting SOD on shoes, bicycles, and the feet of pet dogs and horses through the use of cleaners and disinfectants.

The MCOSD staff shall be trained about SOD host species and disease transmission pathways and, when undertaking road and trail construction and maintenance activities in areas of the preserves affected by SOD, shall implement the following measures.

- Clean equipment, boots, truck tires, and any other exposed material after working in forest and woodland habitats, with a 10% bleach solution or other disinfectant
- Avoid pruning oaks or other affected trees in wet weather.
- Avoid work in forest and woodlands during the wet season when spores are being produced and infections are starting.
- Leave potentially infected downed trees on site instead of transporting the material to an uninfected area.
- Remove potentially infected downed trees from the property only if it is the first infected tree to be detected in the area or if there is a high fire risk.

- Dispose of infected materials at an approved and permitted dump facility within the 14-county infected quarantine zone.
- If necessary to reduce safety or fire hazards or to address aesthetic or recreational impacts, cut, branch, chip, and/or split infected trees in areas where the material would be less likely to be transported to an uninfected location.
- Purchasing nursery stock for restoration plantings at nurseries that follows current BMPs for preventing the spread of SOD (consult the California Oak Mortality Task Force, **www.suddenoakdeath.org,** for current standards).
- Inspect all plant materials for symptoms of SOD before bringing any plants onto the property.

SENSITIVE NATURAL RESOURCES BMP

Sensitive Natural Resources–1: Modify Management Practices near Sensitive Natural Resources

For construction related activities requiring extensive ground disturbance in and near known sensitive biological resources, the MCOSD will assess the project or proposed action prior to the start of work to suggest modifications to standard procedures considered necessary to help ensure avoidance of impacts to special- status species and other sensitive biological resources. Actions that many be taken include one or more of the following:

- Mark project footprint near sensitive natural resources. Mark ingress/egress routes, staging areas, and sensitive resources to prevent inadvertent impacts to sensitive resources.
- Inspect ingress/egress routes, escort vehicles, and equipment onto the site if necessary to help prevent impacts on ground nesting and ground dwelling species. Work should be conducted during bird non- breeding season (published California Department of Fish and Wildlife non-breeding season dates are August 15 - March 1 but should be adjusted to local conditions).
- Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for mortality, dust impacts on vegetation and wildlife. For larger projects, water the roads for dust control near sensitive resources.

SPECIAL STATUS WILDLIFE BMPs

Special-Status Wildlife-1: Literature Reviews

Prior to all road and trail management activities, literature reviews will be conducted to determine if special-status wildlife-species or critical habitats exist within the project area.

The first source reviewed will be the MCOSD's database of special-status wildlife occurrences and sensitive habitats. This database is actively updated and maintained by the MCOSD natural resource staff and contains the most relevant data on sensitive resources on MCOSD land.

In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:

- U.S. Geological Survey topographic maps
- Aerial photographs
- California Department of Fish and Wildlife Natural Diversity Database records
- U.S. Fish and Wildlife Service quadrangle species lists
- University of California at Davis Information Center for the Environment Distribution Maps for Fishes in California
- National Marine Fisheries Service Distribution Maps for California Salmonid Species

Database searches for known occurrences of special-status wildlife species will focus on the vicinity of the project area. Biological communities will be classified as sensitive or non-sensitive as defined by the California Environmental Quality Act and other applicable laws and regulations

Special-Status Wildlife-2: Preconstruction Surveys

If it is determined that special-status wildlife species may occur in a project area, a qualified biologist will survey the area during the appropriate time window to determine the presence or absence of the species. If the species is located, the MCOSD should conduct the activity to avoid impacts to the species. If avoidance is not possible, the appropriate resource agencies will be contacted to obtain guidance or the necessary permits.

Special-Status Wildlife-3: Seasonal Restrictions During Bird Nesting Season

The MCOSD will implement the following seasonal restrictions to protect nesting birds. If work will occur outside the nesting bird window of February 1 to August 31, surveys and avoidance measures will not be necessary for nesting birds. However, surveys for special-status species may still be necessary if they are present in the area.

- Identify potential habitat for nesting birds and survey to determine if active nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint, and a ¼ mile buffer area (for raptors) or a 150 foot buffer area (for other birds). Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- If any active nests of protected bird species are found, prohibit brushing, mowing and tree removal activities at the nest site and within a buffer area until the young birds have fledged and left the site, and/ or the nest has been abandoned. The buffer area will be 50-250 feet, or as determined through consultation with the California Department of Fish and Wildlife, pursuant to section 2081 of the California Fish and Game Code and the federal Migratory Bird Treaty Act. In general, a line-of-site buffer of at least 150 feet between the nest site and road and trail management activities is recommended. For raptors, buffer distances may be increased to 250 feet or more, depending on the visual distance from the nest to the road and trail management work area, and the sensitivity of the raptor species to road and trail management activities. In addition, a 5 MPH speed limit will be enforced in and near bird nesting habitats and other sensitive habitat areas.
- If impacts to nesting birds cannot be avoided, contact the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.

Special-Status Wildlife-4: Avoidance and Protection of Northern Spotted Owl

Northern spotted owls have potential to occur on the MCOSD preserves. The MCOSD will undertake the following actions when construction-related road and trail management actions are planned to occur within or adjacent to potential northern spotted owl habitat:

- Identify potential habitat for the northern spotted owl and survey to determine if it is occupied or if active nests are present before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 150 foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- To the greatest extent possible, avoid occupied habitat completely during key northern spotted owl breeding and nesting season (March-September).
- Mark occupied habitat with flagging or temporary fencing.
- Avoid removal of trees with documented northern spotted owl nests. Removal of nest trees typically requires compensatory mitigation.
- Establish a buffer of at least 100 feet around occupied habitats. Within the buffer area, select least harmful road and trail management activities. Within the buffer area, retain old-growth forest trees and forest canopy, and minimize removal of other vegetation to the fullest extent possible.
- Avoid cutting native trees greater than 10 inches in diameter at breast height within occupied northern spotted owl habitat.
- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the northern spotted owl. The program will include the following: a photograph and description of the northern spotted owl, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.
- Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any injured northern spotted owl or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/ incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the U.S. Fish and Wildlife Service within seven days to transfer any dead or injured specimens.

Special-Status Wildlife-5: Avoidance and Protection of Double-Crested Cormorant Nests and Heron and Egret Rookery Sites

There are several known or suspected double-crested cormorant, great blue heron, snowy egret, and black-crowned night heron rookery or nesting sites existing on the MCOSD preserves. These procedures are similar to those described in Special-Status Wildlife Protection-3 for seasonal restrictions during bird nesting season but are more specific to these particular bird species and therefore supersede the more general practices for protecting all nesting birds. The MCOSD will undertake the following procedures when construction-related road and trail management is planned to occur within or adjacent to potential nesting or rookery sites for these species:

- Identify potential habitat for double-crested cormorant, heron, and egret nest and rookery sites and survey to determine if they are occupied or if nests are present before initiating road and trail management actions. Surveys will include the proposed road and trail management footprint and

a 150-foot buffer area. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.

- To the greatest extent possible, avoid nests and rookery sites completely during key breeding and nesting periods. Activities in or near known sites will be limited during the known nesting seasons for each species, or until young have fully fledged.
- Establish a buffer of at least 100 feet around rookery and nest sites. Within the buffer area, select least harmful road and trail management activities. Restrict activities within the buffer to those that will not disturb roosting or nesting behavior (e.g., noise and visual disturbances).
- Mark occupied habitat with flagging or temporary fencing.
- Prohibit the removal of known roost or nest trees. Restrict the removal of other mature riparian trees within the buffer zone.
- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by persons knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided during the nesting season (March 1 – August 31), contact the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities.
- Notify the California Department of Fish and Wildlife within 24 hours of finding any injured special-status species or any unanticipated damage to its habitat associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead animals will be sealed in a plastic zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife within seven days to transfer any dead or injured specimens.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands.
- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials**.**
- Absorbent materials will be on hand at all times to absorb any minor leaks and spills**.**

Special-Status Wildlife-6: Avoidance and Protection of California Clapper Rail, California Black Rail, and Salt Marsh Harvest Mouse

The MCOSD preserves encompass some tidal areas that are known to support, or have the potential to support, California clapper rail, California black rail and salt-marsh harvest mouse. In areas where road and trail management activities are planned to occur within or adjacent to salt marsh or brackish marsh habitats, the MCOSD will first consult with the U.S. Fish and Wildlife Service and the California Department of Fish and Wildlife to determine locations where these species could potentially be affected. The MCOSD will obtain and comply with necessary permits for working in suitable habitat for these species, including, but not limited to the following types of protective actions to prevent harm to these species:

- To the greatest extent possible, avoid occupied California clapper rail and California black rail habitat completely during key breeding and nesting periods. Noise-generating activities, including operating heavy machinery in or near known California clapper or California black rail sites, will be avoided during the nesting season (March 1 – August 31).
- During the California clapper rail and California black rail breeding season, identify potential habitat for California clapper rail and California black rail, and survey to determine if it is occupied before initiating road and trail management activities. Survey will include the proposed road and trail management footprint and a 150-foot buffer area around occupied habitat. Surveys will be conducted within 14 days of the start of active ground- disturbing activities. Occupied habitat will be marked with flagging or temporary fencing.
- Assume presence of salt marsh harvest mouse in appropriate habitats, avoid impacting these areas, and establish a protective buffer. Because the U.S. Fish and Wildlife Service frequently does not allow trapping of the salt marsh harvest mouse to determine its presence, the MCOSD will assume presence in appropriate habitats and avoid disturbing them. If appropriate habitats are present, a 200-foot buffer will be established around the habitat. If work is required within the buffer, activities will be restricted within the buffer to those that will not disturb nesting behavior (e.g., through noise or visual disturbances), and vegetation will be removed by hand under the supervision of a qualified biologist to ensure no impacts to the salt marsh harvest mouse occur.

Special-Status Wildlife-7: Protection of Fish Habitat

If crossing a stream with the potential to support fish is part of a road or trail project, proper fish passage will be designed:

- Preference will be for a bridge instead of a culvert, and an open-arch culvert instead of a pipe culvert. A bridge that will not affect streamflow will be the preferred option. If a culvert is necessary, an open-arch design that does not affect the bed or flow of the stream will be preferred. If an open arch culvert is not possible, pipe culverts will be installed slightly below grade in an area perpendicular to the crossing where the existing streamflow is linear. Resting pools will be designed above and below culverts to allow fish to rest before and after having to pass through the culvert.

Special-Status Wildlife-8: Worker Awareness Training

Conduct worker awareness training. Worker training will include the following information: a photograph and description of each special-status species, sensitive, resource, or invasive plant known from the project area; a description of its ecology and habitat needs; potentially confusing resources (e.g., similar species or habitats); an explanation of the measures being taken to avoid or reduce adverse impacts; reporting and necessary actions if sensitive resources are encountered; and workers' responsibility under the applicable environmental regulation.

Special-Status Wildlife-9: Construction Monitoring

If federal- or state-listed wildlife species are known to be present in the project area or immediate surroundings, a qualified biologist will monitor construction activities to ensure impacts to species will be avoided. If listed wildlife species are present within the immediate vicinity of the project area, a more involved monitoring program might be necessary to ensure that these species do not enter the project area. If a listed species is observed by a worker or construction monitor, work will cease immediately, and the appropriate resource regulatory agency will be contacted if necessary. A construction monitoring program will be developed for each project on a project-specific basis.

Special-Status Wildlife-10: Relocation of Special-Status Species

If federal- or state-listed wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.

Special-Status Wildlife-11: Noise Control

Utilize the best available noise-control techniques when in proximity to occupied sensitive wildlife habitat. The best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) will minimize disturbance of nearby wildlife populations.

Special-Status Wildlife Protection-12: Trash Control
Store food-related trash in closed containers and remove it from the project site daily. Food-related trash can attract wildlife to construction sites, disrupting their normal behavior patterns.

Special-Status Wildlife-13: Road and Trail Inspections
Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status wildlife species. Staff will record information pertaining to the spread of invasive exotic plants that could affect wildlife habitats and to the status and quality of any known special-status wildlife species in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings to MCOSD natural resource staff and make recommended corrective actions if appropriate.

SPECIAL STATUS PLANTS BMPs

Special-Status Plants-1: Literature Reviews

Prior to all management activities, literature reviews will be conducted to determine if special-status plant species, critical habitats, or sensitive communities exist within the project area. In addition to the MCOSD database, the following resources will be reviewed, as necessary, prior to work:

- U.S. Geological Survey topographic maps
- U.S. Fish and Wildlife Service National Wetlands Inventory maps
- Bay Area Aquatic Resource Inventory Database
- Aerial photographs
- California Department of Fish and Wildlife Natural Diversity Database records
- U.S. Fish and Wildlife Service quadrangle species lists
- California Native Plant Society inventory records

Database searches for known occurrences of special-status plant species will focus on the vicinity of the project area. Biological communities present in the project location and surrounding areas will be classified based on existing plant community descriptions described in the Preliminary Descriptions of the Terrestrial Natural Communities of California. Biological communities will be classified as sensitive or non-sensitive as defined by the California Environmental Quality Act and other applicable laws and regulations.

Special-Status Plants-2: Avoidance and Protection of Special- Status Plant Species near Road and Trail Management Projects

The MCOSD will undertake the following actions when construction-related road and trail management is planned to occur within or adjacent to special-status plant populations:

- Identify potential special-status plant habitat and survey to determine if it is occupied before initiating road and trail management activities. Surveys will include the proposed road and trail management footprint and a 100-foot buffer area around the footprint if potential special-status plant habitat exists. Surveys will be conducted within 14 days of the start of active ground-disturbing activities.
- To the greatest extent possible, avoid occupied special-status plant populations completely.
- If full avoidance is not possible, restrict work to the period when special-status plants have flowered or set seed**.**
- Establish a buffer of at least 100 feet around special-status plant populations. Within the buffer area, select the least harmful road and trail management activities.
- Mark special-status plant populations with flagging or temporary fencing.
- Prevent unnecessary vehicular and human intrusion into special-status plant species habitat from adjacent construction, maintenance, and decommissioning activities. Where necessary, reroute or sign and fence trails to avoid the special-status plant population.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near special-status plant populations. Activities will be restricted within the buffer to those that will not disturb roosting or nesting behavior (e.g., through noise or visual disturbances). Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds. Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from special-status plant populations.

- To minimize downslope erosion and sedimentation near special-status plants, maintain erosion- and sediment-control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Conduct a worker training program for all field personnel involved with the proposed road and trail management project prior to project initiation. The program will consist of a brief presentation by people knowledgeable about the special-status species. The program will include the following: a photograph and description of the special-status species, a description of its ecology and habitat needs, an explanation of the measures being taken to avoid or reduce adverse impacts, and the workers' responsibility under applicable environmental regulations. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- If impacts cannot be avoided, contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife to obtain the necessary permits before initiating road and trail management activities. Permit conditions will likely require presence of a biological monitor, installation of exclusion fencing, surveys to relocate or avoid the species, and/or possibly timed or staged road and trail management activities that avoid the species or reduce potential for take or harm.
- If a special-status plant species is detected during work activities, stop work immediately at that location and contact the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within two working days. Work will not resume at that location until authorization is obtained from the appropriate agency (unless prior approval has already been granted).
- Notify the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife within 24 hours of finding any damaged special-status plant species or any unanticipated damage to plant habitats associated with the proposed action. Notification must include the date, time, and precise location of the specimen/incident, and any other pertinent information. Dead plants should be sealed in a zip lock bag containing a piece of paper indicating the location, date, and time when it was found, and the name of the person who found it; the bag should be frozen in a freezer in a secure location. The MCOSD will contact the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service within two days and transmit the specimen in the appropriate manner.
- If work occurs during the dry season and is greater than 100 feet from special-status plant species habitat, erosion control and water quality protection measures generally will not be necessary.

Special-Status Plants-3: Ensure Proposed Actions are Consistent with Ongoing Special-Status Plant Management Programs

Some MCOSD preserves (e.g., Ring Mountain and Old Saint Hilary's) have ongoing special-status plant management and monitoring programs. In these locations the MCOSD will ensure that all new proposed road and trail management activities are consistent with the ongoing management of these sites:

- Review existing management plans and analyze proposed actions for consistency against adopted procedures.
- Ensure that new road and trail management projects do not interfere with ongoing management and maintenance activities.

Special-Status Plants-4: Earthwork near Special-Status Plant Populations

Many special-status plants are closely associated with specific soil types or geologic conditions (e.g., serpentine or ultramafic soils). To protect these species, the MCOSD will implement the following practices:

- Use native soil in all MCOSD road and trail management projects in natural habitat areas.

- Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Salvage, store, and reuse topsoil. Where activities disturb soil temporarily, the top 6 to 12 inches of topsoil will be salvaged to retain seeds, soil mycorrhizae, and fungi from the excavated or otherwise disturbed area. The salvaged topsoil will be reapplied as a topdressing or topcoat over backfill, unless it is known to contain invasive plant seeds or propagules.

Special-Status Plants-5: Erosion Potential near Special-Status Plants

The MCOSD will seek to prevent erosion near special-status plants. To protect these species, the MCOSD will:

- Unless no feasible alternative is available, avoid using heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction. Where staging of heavy equipment, vehicles, or stockpiles is unavoidable, the allowable disturbance footprint will be limited and marked with flagging or fencing. Following the end of work, surface soils will be scarified to retard runoff and promote rapid revegetation.
- Maintain a 15 MPH speed limit in sensitive habitat areas. This will reduce the potential for dust impacts on vegetation. For larger projects, roads will be watered for dust control near sensitive resources.
- Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices to protect special-status plant populations during ground- disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds, must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.), and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians. If work occurs during the dry season and is more than 100 feet from special- status plant populations, erosion-control and water quality protection measures will not be necessary.

Special-Status Plants-6: Introduction of Invasive and Nonnative Plants and Plant Material
The MCOSD will prevent the introduction of invasive and other nonnative plant material into special-status plant habitats by implementing the following practices:

- To the extent feasible, use plant seeds, cuttings, and other propagules that are collected from the same area as the project site (usually the same watershed or preserve). Allow collection of no more than 5% of any native plant population to prevent over collecting of wild plant material sources.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been stabilized. Measures include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Only weed-free materials will be used as erosion- and sediment control devices. Materials must be certified weed- free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and not of plastic monofilaments or other materials that could entrap snakes or amphibians.
- Do not allow the introduction of incompatible fill near special-status plant populations. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed-free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and interior and exterior of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

Special-Status Plants-7: Revegetation with Native, Geographically Appropriate Plant Species
The MCOSD will revegetate areas where construction and ground disturbance has occurred, to promote a species composition and vegetative structure that integrates with the surrounding natural community, to the maximum extent possible. This will be accomplished by implementing the following:

- Revegetate with annual grasses and forbs. Use of annual grasses and forbs can provide rapid vegetative cover and initial soil stabilization, and erosion control, promote habitat for native species, and provide a more desirable visual cover.
- Prepare a project-specific revegetation plan. The MCOSD natural resource staff will develop a revegetation plan for projects as needed.
- Wherever possible use locally collected native plant materials from the project footprint and surrounding areas. If possible, plant materials should be collected from within the same watershed or preserve. The MCOSD will allow collection of no more than 5% of any native plant population to prevent over collection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier.

Special-Status Plants-8: Worker Awareness Training
The MCOSD will conduct a worker awareness training for all field personnel involved with proposed road and trail management activities prior to initiating the project. The program will include the following:

- a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area
- a description of its ecology and habitat needs
- potentially confusing resources (e.g., similar species or habitats)
- an explanation of the measures being taken to avoid or reduce adverse impacts
- reporting and necessary actions if sensitive resources are encountered
- workers' responsibility under the applicable environmental regulation

Special-Status Plants-9: Relocation of Special- Status Plants
If special-status species are located in the project area and impacts to these species are unavoidable, plants and/or propagules will be relocated to suitable habitat off site prior to the commencement of construction or management activities. Alternatively, off-site mitigation for impacts could be considered. If special-status wildlife species are located on site, the appropriate resource agency will be contacted, and a qualified biologist possessing any necessary permits will relocate individuals to suitable habitat off site as applicable.

Special-Status Plants-10: Road and Trail Inspections
Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding special-status plant resources. Staff will record information pertaining to the spread of invasive, exotic plants that could affect special-status plant habitats and to the status and quality of any known special-status plant populations in the immediate vicinity that could be affected by road or trail use, maintenance, or management activities. Staff will report any findings and make recommended corrective actions if appropriate.

Special-Status Plants-11: Reuse and Replanting of Native Trees and Shrubs
Where feasible, replant excavated trees and shrubs, removed from unstable fill slopes and cut banks, on graded contours to restore the areas with native vegetation and promote native plant habitat. These plants will represent the most locally appropriate materials for restoration and conform to the vegetation types of the surroundings.

Special-Status Plants-12: Ripping and Recontouring Roads
Rip and de-compact road and trail surfaces where appropriate. Ripping surfaces provides a more suitable substrate for recolonization or revegetation by native plant materials. Decommissioned road and trail surfaces will be recontoured and sloped away from wetlands and water bodies to prevent the potential for erosion into these features. Any shoulders, ditches, or embankments will also be removed, and the area graded to a natural contour.

INVASIVE PLANTS BMPs

Invasive Plants-1: Compliance with Integrated Pest Management Ordinance

All herbicide use will be administered under Marin County's Integrated Pest Management (IPM) Ordinance, and work will only be conducted under the supervision of a certified pest control applicator. All herbicide use for vegetation management actions will be posted and reported consistent with the ordinance.

Invasive Plants-2: Herbicide Use near Sensitive Natural Resources

Limit herbicide use within 100 feet of sensitive natural resources. Hand control, mechanical control, and cultural control will be used wherever possible to minimize the use of herbicides near sensitive resources.

Invasive Plants-3: Survey and Control of Invasive Plants in Project Footprint

Before ground-disturbing activities begin, inventory, and prioritize invasive plant infestations for treatment within the project footprint and along access routes. Controlling priority invasive plant infestations at least a year prior to the planned disturbance, if feasible, will minimize invasive plant seeds in the soil.

- Where feasible, survey the road shoulders of access routes for invasive plant species and remove priority invasive plants that could be disturbed by passing vehicles.
- Avoid establishing staging areas in areas dominated by invasive plants. If populations of priority invasive plants occur within or near staging areas, their perimeters will be flagged so that vehicle and foot traffic can avoid them.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

Invasive Plants-4: Limited Soil Disturbance

Soil disturbance during road and trail projects will be minimized to reduce the potential for introduction or spread of invasive plant species, to protect topsoil resources and to reduce available habitat for new invasive plant species:

- Plan all road and trail management activities to disturb as little area as possible.

Invasive Plants-5: Cleaning of Heavy Equipment, Maintenance Tools, and Fire Management Vehicles

The MCOSD will implement the following procedures when working in or near infested areas:

- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and the insides and outsides of vehicles and equipment will be brushed off or hosed down.
- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.

Invasive Plants-6: Reducing Potential for Establishment of Invasive Plants on Disturbed Soil Surfaces

To minimize the establishment of invasive species in disturbed soil areas, the MCOSD will implement one or more of the following actions:

- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles, etc.) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.
- Do not allow the introduction of incompatible fill. Fill will consist of clean, native soils and aggregate materials from other projects within the preserve if available, or it will be purchased from a certified weed- free source before allowing the importation of other materials from outside the preserves. Fill materials will be approved by natural resource staff to ensure compatibility with future restoration/rehabilitation goals.
- Segregate and treat soils and vegetation contaminated with invasive plant seeds and propagules. To prevent the spread of invasive plants, treatment of contaminated soils may include disposal on site within already infested areas, chipping or pile burning and mulching to eliminate viable seeds, or disposal at an approved cogeneration plant or green-waste facility.

Invasive Plant Management-7: Monitor and Control of Invasive Plants in Road and Trail Management Work Areas

- Periodically monitor areas subject to road and trail management activities for a minimum of three years following project completion for the presence of invasive plant species. If invasive plants threaten to become established or spread as a result of project activities, they will be treated in conformance with the Vegetation and Biodiversity Management Plan.

Invasive Plant Management-8: Protection of Streambanks and Water Quality During Invasive Plant Removal

- Install approved erosion-control devices following the removal of invasive plants from streambanks to prevent sediment movement into watercourses and to protect bank stability. The MCOSD will obtain and comply with necessary wetland permits and integrated pest management procedures related to work in and near wetlands. Where appropriate, the MCOSD will also seek guidance from a fisheries biologist regarding the amount of material permissible to remove from stream corridors when controlling large patches of invasive plants, so as to prevent changes in water temperature and quality. If work occurs during the dry season near seasonally wet areas, erosion-control and water quality protection measures generally will not be necessary.

Invasive Plant Management-9: Road and Trail Inspections

Regularly inspect road and trail features and associated infrastructure to ensure they are well maintained and posing no threat to surrounding sensitive biological resources. Inspectors will record information pertaining to invasive exotic plant populations and new infestations that may be threatening sensitive species and habitats. Inspectors will report any findings and make recommended corrective actions if appropriate.

Invasive Plant Management-10: Monitoring Decommissioned Areas

Monitor areas of decommissioned roads and trails for the presence of invasive plant species for two years following decommissioning to ensure no infestations develop. If invasive species are detected at this time, corrective actions will be taken as appropriate.

CONSTRUCTION CONTRACTS BMP

Construction Contracts-1: Standard Procedures in Construction Contracts

When using contractors to perform road and trail management, the MCOSD will include some or all of the following standard procedures into construction contracts.

Time of work. The contractor will work with the MCOSD natural resource staff to determine the optimal timing of contracted work. Many timing restrictions relate to avoiding migration, gestation, or flowering periods for special-status species. Other types of timing restrictions relate to avoiding the spread of invasive plants or scheduling work in wetlands during the dry season.

Work in and near water bodies and wetlands. To protect water quality, the contractor will be required to prepare and implement a stormwater pollution prevention plan for road and trail management work in or near wetlands, ponds, seeps, creeks, tidal areas, or stream crossings. The following practices will be followed to protect these habitats:

- Avoid construction work within a buffer of 100 feet from the ordinary high-water mark of any water body, wetland, or tidally influenced area. If construction work cannot be fully avoided in water bodies, wetlands and riparian areas, the appropriate state and federal agencies will be consulted and permits obtained.
- Within the buffer, restrict activities to the least-harmful methods. For example, herbicides will be restricted to those that are EPA-approved for use near water. Activities that disturb soil or could cause soil erosion or changes in water quality will be prohibited.
- Within the buffer, limit work that may cause erosion to low-flow periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).

Work in and near invasive plant infestations. The contractor will work with the MCOSD natural resource staff to identify any priority invasive plants that occur near the project work area, including the project footprint, access roads, staging areas, and similar work areas. The contractor will agree to comply with requirements to reduce the spread or transport of priority invasive plants related to construction activities. Requirements may include some or all of the following:

- Conduct a training program for all field personnel involved with the proposed road and trail management project prior to initiating the project. The program will consist of a brief presentation by persons knowledgeable about the special-status species, sensitive resource, or invasive plants known from the project area. The program will include the following: a photograph and description of each special-status species, sensitive resource, or invasive plant known from the project area; a description of its ecology and habitat needs; an explanation of the measures being taken to avoid or reduce adverse impact; and the workers' responsibility under the applicable environmental regulation. The worker training may be conducted in an informal manner (e.g., as part of a routine tailgate safety meeting).
- Restrict work to periods when invasive plants are not in fruit or flower.
- Clean vehicles of contaminated soil, invasive plant seeds, or plant parts before entering the MCOSD preserves, whenever moving equipment between areas within the preserves, and before leaving the preserves. Vehicle-cleaning areas will be established for this purpose. Within the cleaning areas, tires and insides and outsides of vehicles and equipment will be brushed off or hosed down.

- Inspect construction equipment for soil or invasive seeds or plant parts. Contractors will be required to make equipment available for inspection before entering the MCOSD preserves, when moving between sites within the preserves, and before leaving the preserves.
- Dispose of green waste in a manner that does not spread invasive plants. Disposal practices may include on-site disposal in an already infested area or off-site disposal in a cogeneration plant or an approved green-waste composting facility.

Work in environmentally sensitive areas. The MCOSD natural resource staff will identify any environmentally sensitive areas in or near construction projects prior to the start of the project. The following practices will be followed to protect these resources: Environmentally sensitive areas may include special-status plant or wildlife species or their habitats; wetlands; creeks, streams, and related riparian areas; and sensitive vegetation types as described in this report.

- Avoid work in environmentally sensitive areas. If work cannot be fully avoided, any applicable regulatory agencies will be consulted and the necessary permits obtained.
- Use locally collected plant materials for revegetation projects. Whenever possible, locally collected native plant materials from the project footprint and surrounding area will be used for revegetation. Plant materials should be collected from within the same watershed or the MCOSD preserve if possible. The MCOSD will allow collection of no more than 5% of any native plant population to avoid over collection of wild plant material sources. If sufficient local plant materials are not available for collection prior to project activities, geographically appropriate native plant materials will be purchased from a local nursery or seed supplier. The contractor will allow the MCOSD to inspect and approve all plant materials and seed prior to use on site.
- Comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats. For road and trail management work in or near special-status species habitat, the contractor is required to comply with requirements of the MCOSD project permits to protect special-status species and their associated habitats before and during construction, and to cooperate with the MCOSD in implementing any state and federal permits and agreements for the project. The special-status species population plus a buffer will be designated as an environmentally sensitive area using lath and flagging, pin flags, or temporary fencing (depending on resource sensitivity to work). The contractor will be required to avoid all designated environmentally sensitive areas during construction. For any special-status species or their habitats that cannot be fully avoided, the contractor will work with the MCOSD to obtain and comply with federal and state Endangered Species Acts, the federal Migratory Bird Treaty Act, and the California Fish and Game Code permits and agreements.
- Restrict soil disturbance and import of nonnative soil or fill material. To reduce the potential for damage of native plants and/or introduction of invasive plants, the contractor will be required to minimize the footprint of soil disturbance to the minimum amount necessary to complete the contracted work. This includes the footprint of access roads, staging areas, and areas of temporary disturbance. The contractor and its staff and subcontractors will agree not to drive off road or drive or park on native vegetation unless approved in advance by the MCOSD natural resource staff. The contractor will agree that if soil excavation is required, every attempt will be made to have a balanced cut-and-fill project that reuses all native soils on site. Nonnative soil or fill material will not be used unless preapproved by the MCOSD natural resource staff.
- To minimize erosion and sedimentation, maintain erosion- and sediment-control devices during ground- disturbing activities and until all disturbed soils have been stabilized. Control devices include rice straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials will be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials will be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

Other procedures:

- Keep all entry gates to the project site locked during non-construction hours or locked at all times if not needed for construction access.
- Equip all vehicles with a suitable fire extinguisher.
- Immediately rehabilitate areas where project actions have disturbed soil. Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include de-compacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.

CULTURAL RESOURCES BMPs

Cultural Resources-1: Historical and Archaeological Resource Mapping

Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will determine whether or not the project area is located within an area that is mapped as "historically or archaeologically sensitive" according to map 4-1 (Historical Resources) in the Marin Countywide Plan and/or identified as culturally sensitive on other confidential maps on file with the county that list prehistoric or archeological sites. If the project area is identified as sensitive on any of these maps, the site will be field surveyed by a state-qualified archeologist or an archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

Cultural Resources-2: Consultation with Northwest Information Center

Prior to constructing any project that would involve ground disturbance outside road or trail beds or other areas previously disturbed when constructing the road and trail system, the MCOSD staff will contact the Northwest Information Center of the California Historical Resources Information System and request a records search of known historic and cultural resources within and adjacent to the proposed project area, and seek the determination of the information center coordinator regarding the potential for cultural resources on the site. Should the records request or the recommendation of the coordinator indicate the presence of sensitive resources, the site will be field surveyed by a state-qualified archeologist or archeological consultant recommended by the Federated Indians of Graton Rancheria, who will make recommendations and develop proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

Cultural Resources-3: Tribal Consultation

The following tribal consultations will be conducted prior to any new ground disturbance related to road or trail construction:

- Send the road and trail project description information to the Native American Heritage Commission and request contact information for tribes with traditional lands or places located within the geographic areas affected by the proposed changes.
- Contact each tribe identified by the commission in writing and provide them the opportunity to consult about the proposed project.
- Organize a consultation with tribes that respond to the written notice within 90 days.
- Refer proposals associated with proposed road and trail modifications to each tribe identified by the commission at least 45 days prior to the proposed action.
- Provide notice of a public hearing at least 10 days in advance to tribes and any other persons who have requested that such notice be provided.

Cultural Resources-4: Alteration of Historic Structures

Limit the modification of ranch structures or other historical features to maintain the aesthetic quality, historical setting, and rural character of the preserves.

Cultural Resources-5: Permanent Protection

Where road and trail activities cannot avoid sensitive cultural resources, require modifications to the actions to incorporate the resource and include a resource protection plan for its maintenance and future protection.

Cultural Resources-6: Construction Discovery Protocol

If cultural resources are discovered on a site during construction activities, halt all earthmoving activity in the area of impact until a qualified archeological consultant examines the findings, assesses their significance, and develops proposals for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those resources.

Cultural Resources-7: Human Remains

In the event that human skeletal remains are discovered, discontinue work in the area of the discovery and contact the County Coroner. If skeletal remains are found to be prehistoric Native American remains, the coroner will call the Native American Heritage Commission within 24 hours. The commission will identify the person(s) it believes to be the most likely descendant of the deceased Native American. The most likely descendant will be responsible for recommending the disposition and treatment of the remains. The most likely descendant may make recommendations to the landowner or the person responsible for the excavation/grading work for means of treating or disposing of the human remains and any associated grave goods as provided in section 5097.98 of the California Public Resources Code.

Cultural Resources-8: Community Awareness

Increase public awareness of local history and archeology, and the need to protect cultural resources. This may be accomplished by highlighting cultural resources along a road or trail with interpretive signs and information kiosks, and/or by placing a historical marker along the road or trail segment to inform trail users about the importance of the site and/or event.

WATER QUALITY BMPs

Water Quality-1: Modifications to Road and Trail Management Actions to Protect Water Bodies, Wetlands, and Tidally Influenced Areas

Road and trail management activities will be restricted near wetlands and other waters to reduce the potential for sediment or pollutants to enter water bodies or wetlands. If work occurs during the dry season and is greater than 100 feet from creeks and wetlands, erosion control and water quality protection measures will not be necessary.

- If possible, avoid work around water bodies, wetlands, and tidally influenced areas, including a buffer area of 100 feet around these areas (i.e., as measured from the top bank of creeks, streams, or ponds).
- If construction work in wetlands, riparian areas, or tidally influenced areas cannot be fully avoided, consult with the appropriate state and federal agencies. This consultation may result in wetland delineation, permit applications, and mitigation that meets Countywide Plan and other regulatory requirements.
- Within the 100-foot buffer, limit construction activities. Limit activities to least-harmful methods; restrict herbicides to those that are EPA-approved for use near water. Prohibit activities that disturb soil or could cause soil erosion or changes in water quality.
- Within the 100-foot buffer, limit work that might cause erosion to low-flow or low-tide periods. Low-flow months for local creeks are typically August to October. For tidal areas, work will not occur within two hours of high-tide events at construction sites when high tide is greater than 6.5 feet as measured at the Golden Gate Bridge, using corrections for areas near individual MCOSD preserves. Tide charts are available online from the National Oceanic and Atmospheric Agency/National Weather Service (http://www.wrh.noaa.gov/mtr/sunset.php).
- Within the 100-foot buffer, minimize erosion and sedimentation by maintaining erosion- and sediment- control devices during ground-disturbing activities and until all disturbed soils have been stabilized. Control devices include weed-free straw, hydromulch, geofabrics, wattles, sediment traps, check dams, drainage swales, and sand bag dikes. Materials must be certified weed-free to prevent the introduction of wheat, barley, and other nonnative plant seeds. Erosion-control materials must be constructed of natural fibers (e.g., coconut fiber mats, burlap and rice straw wattles) and may not be constructed with plastic monofilaments or other materials that could entrap snakes or amphibians.

Water Quality-2: Temporary Erosion and Sediment Control

Temporary sediment-control practices will be implemented when new trail construction or existing trail improvements will result in greater than 1 acre of disturbance. Temporary practices may also be required when disturbance is less than 1 acre but close to a sensitive resource or has the potential to discharge a significant amount of sediments or pollutants to surface water. Several of the listed temporary practices can also be used as post-construction stabilization measures: Information and standard details for temporary erosion-control BMPs can be found in the California Stormwater BMP Handbook – Construction (CASQA 2009).

- Install temporary fencing around staging areas and along limits of construction when work areas are immediately adjacent to sensitive resources. This will limit the disturbance footprint and help protect resources, including native vegetation, wetlands, and streams, during grading operations.
- Install linear sediment barriers to slow and filter stormwater runoff from disturbed areas. Fiber or straw roll barriers can also be spaced along the contours of a disturbed area after construction to prevent concentrated flow and stabilize the area until there is sufficient vegetation coverage.
- Apply one or more of the following to restore or protect areas disturbed by excavation or grading operations:
  - tilling (minimum 6-inch depth) and seeding

    - hydromulch and tackifier
    - planting
    - straw or wood mulch
    - coir (jute) netting
    - biodegradable erosion-control blankets
    - plastic sheeting (only as an interim protection during storm events when construction site is still active)
- Cover soil and loose material stockpiles with weighted plastic sheeting when inactive or prior to storm events.
- Active and inactive material stockpiles will be encircled at all times with a linear sediment barrier.
- Manage sediment when diverting streamflow. When constructing trail or road stream crossings, a temporary clear-water diversion may be required. The following options will be considered for isolating the work area and protecting resources when diverting streamflow via gravity-fed flexible pipe or active pumping around the work area: sand or gravel bag coffer dam enclosed in plastic sheeting, water-filled dam (e.g., Aquadam), sheet piling, and turbidity curtains.
- Manage sediment during dewatering operations. The following options will be considered for applying or containing and treating sediment-laden water produced during dewatering operations: sprinkler system to open area (as long as there is no visible surface runoff), temporary constructed sediment basin or trap, rented sedimentation tank (e.g., Baker Tank).

Water Quality-3: Erosion Control Measures

- Avoid the use of heavy equipment in areas with soils that are undisturbed, saturated, or subject to extensive compaction.
- If no feasible alternative is available and staging of heavy equipment, vehicles, or stockpiles is unavoidable, limit the disturbance footprint and flag or mark the allowable disturbance area in the field. Following the end of work, newly disturbed soils will be scarified to retard runoff and promote rapid revegetation.
- Immediately rehabilitate areas where project actions have disturbed soil. Require areas disturbed by equipment or vehicles to be rehabilitated as quickly as possible to prevent erosion, discourage the colonization of invasive plants, and address soil compaction. Techniques include decompacting and aerating soils, recontouring soils to natural topography, stabilizing soils via erosion-control materials, revegetating areas with native plants, and removing and monitoring invasive plants.
- Leave the roots of target invasive trees and shrubs in place in areas with highly erosive soils or steep slopes. Stumps may be cut or ground down to the ground level.

If work occurs during the dry season and is greater than 100 feet from water bodies and wetlands, erosion control and water quality protection measures will not be necessary.

Water Quality-4: Preventing or Reducing the Potential for Pollution

- Include spill prevention and clean-up in annual staff training sessions.
- Properly use, store, and dispose of chemicals, fuels, and other toxic materials according to manufacturer's specifications and agency regulations.
- Prohibit or restrict equipment refueling, fluid leakage, equipment maintenance, and road surfacing activities near wetlands. Fuel storage and refueling will occur in safe areas well away from wetlands; safe areas may include paved or cleared roadbeds and other contained areas, such as lined truck beds.
- Equipment and vehicles will be inspected regularly for hydraulic and oil leaks, and leaking vehicles will not be allowed on the MCOSD preserves. Drip pans will be placed underneath equipment

stored on site. Vehicles and construction equipment will be maintained in good working condition, and any necessary on-site servicing of equipment will be conducted away from the wetlands.

- Require all contractors to possess, and all vehicles to carry, emergency spill containment materials.
- Absorbent materials will be on hand at all times to absorb any minor leaks and spills.

Water Quality-5: Road and Trail Inspections

Inspect roads and trails for conditions that might adversely affect water quality or other resources. Road and trail maintenance staff will use road/trail inspection forms to facilitate complete and consistent data capture and reporting of the following conditions:

- concentrated flows on roads and trails that cause erosion, rilling, or gullying
- runoff and effects to water quality of nearby habitats
- the spread of invasive exotic plants near wetlands and waters
- the status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance

Staff will report any findings and make recommended corrective actions if appropriate.

Water Quality-6: Grading Windows

Restrict grading activity to the dry months (generally May 15 – October 15), when associated erosion will be reduced to the maximum extent possible.

Water Quality-7: Culvert Inspection

Inspect culverts on a regular basis. Inspections will ensure that culverts do not clog with sediment or debris. Blocked culverts may affect water quality, change the water course, increase erosion or sediment runoff, or affect wildlife. Any materials blocking culverts will be removed and disposed of outside of the watercourse in an area not subject to erosion. If a significant blockage or sedimentation exists, the MCOSD will plan and implement corrective actions as necessary. Excavation of sediments within streams may require a maintenance permit from the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and/or the San Francisco Water Quality Control Board.

Water Quality-8: Proper Disposal of Excess Materials

Avoid resource impacts when disposing of materials. Any excess material related to new construction, maintenance, or decommissioning (including soils, debris, trash, or other materials that need to be removed as part of management activities) will be disposed of at an appropriate site where materials could not impact sensitive resources. For example, grading-related excess soils or removed debris will not be placed in or around a water body or wetland, where the materials could be subject to erosion that would affect water quality.

Water Quality-9: Sidecasting Construction Material

Avoid sidecasting, or at a minimum contain and remove sidecast material when it has the potential to reach surface waters. The following “rules of thumb” based on Fishnet 4C Guidelines (2007) will be used as guidance:

Slope Gradient	Distance to Watercourse	Sidecast Rule
Any Slope	Will likely enter watercourse	Not Allowed
Less than or equal to 20 percent	Greater than 150 feet	Allowed
Less than or equal to 50 percent	Greater than 300 feet	Allowed
Greater than 50 percent	Long vegetated slope	Allowed
Greater than 50 percent	Shorter, sparsely vegetated slope	Not Allowed

GEOLOGIC HAZARDS BMPs

Geologic Hazards-1: Assessment and Requirements in Areas of Potential Geologic Hazard

Given the unique and potentially high risks associated with geologic hazards, general best management practices for these types of potential impacts are not appropriate. Instead, when new trails or trail improvements are proposed in preserve areas with a propensity for geologic instabilities, including slides or debris flows in the more elevated areas and subsidence or liquefaction in the low-lying areas, a site assessment will be conducted by a certified geologist or geotechnical engineer. If geologic hazards are confirmed in the area, the site assessment will propose adequate avoidance measures or engineering elements to ensure trail and infrastructure stability and maintained public safety.

Geologic Hazards-2: Construction in Areas of Slides and Debris Flows

In areas of identified slide and debris flow hazards, locate and design new trails, drainage improvements, or irrigation so as not to alter the shape or stability, or change the drainage or groundwater conditions, of an existing slide area. Such alterations would potentially result in reactivation or further destabilization of the slope.

Geologic Hazards-3: Construction in Areas of Erodible and Expansive Soils

Use avoidance tactics or engineered grading to mitigate adverse geologic conditions and potential hazards. Prior to final road or trail project design, consult with engineering geologists and/or geotechnical engineers to identify and implement mitigating road or trial designs for new facility locations or when improving existing facilities.

Geologic Hazards-4: Construction in Areas of Collapsible Soils

In any of the lower elevation preserves (i.e., those near sea level) assess soil type and the potential for subsidence to determine optimum trail location and structural foundations necessary to avoid collapsible soils. In consultation with a certified geologist or geotechnical engineer, design roads and trails to avoid or reduce this potential hazard through optimizing location or by implementing appropriate engineering designs.

AIR QUALITY BMPs

Air Quality-1: Implement BAAQMD Measures

As part of the review process required under the California Environmental Quality Act, the MCOSD will use the current Bay Area Air Quality Management District guidelines to evaluate the significance of air quality impacts from road and trail management plans and projects, and to establish appropriate mitigation requirements.

Air Quality-2: Minimize Dust Control Emissions during Construction

The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District control measures for emissions of dust during construction of all road and trail modifications and improvements. The following basic control measures cover routine operation and maintenance and day-to-day upkeep of roads and trails, minor road and trail reconstruction, and minor decommissioning activities, they also cover changes in use, the conversion of a road to a trail, or any proposed action that does not involve construction activities, but an increase or decrease in the level of activity:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard (vertical space between the top surface of the material and the top of the hauling container).
- Pave, apply water three times daily, or apply nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites.
- Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.

Air Quality-3: Enhanced Dust Control during Construction

The following enhanced control measures cover major road and trail reconstruction, rerouting, and decommissioning activities, such as repairing, replacing, or restoring heavily used and wide road and trail segments; they also cover resurfacing, replacing, and restoring trailhead areas and installing new water quality and drainage features:

- Hydroseed or apply nontoxic soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily, or apply nontoxic soil binders to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 miles per hour.
- Install sandbags or other erosion-control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

Air Quality-4: Dust Control during Construction in Sensitive Resource Areas

The MCOSD will require its staff or contractors to implement appropriate Bay Area Air Quality Management District optional control measures for emissions of dust during construction of all road and trail modifications and improvements that are large in area, located near sensitive resources, or which for any other reason may warrant additional emission reductions. The following measures cover rerouting road and trail alignments, significant decommissioning or restoration activities, and the construction of a new road and trail alignment on undisturbed land to connect previously unconnected points:

- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install wind breaks, or plant trees/vegetative wind breaks, at windward side(s) of construction areas.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
- Limit the area subject to excavation, grading, and other construction activity at any one time.

NOISE BMPs

Noise-1: County Noise Ordinance Requirements

For all maintenance and construction projects using powered or heavy equipment, implement the day and time restrictions for equipment operation and maintenance specified by Marin County Ordinance 3431, Construction Noise.

Noise-2: Noise Control during Construction within and adjacent to Sensitive Wildlife Populations

- Ensure that equipment and vehicles utilize the best available noise-control techniques (e.g., improved mufflers, equipment redesign, and use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) to prevent disturbance of nearby wildlife populations.

Except for emergency projects, prohibit nighttime operations or planned operations during breeding season in areas adjacent