Draft Initial Study/Mitigated Negative Declaration

for the proposed

Buck Gulch Falls Creek Restoration and Trail Improvement Project

at

Ignacio Valley Open Space Preserve

State Clearinghouse (SCH) Number: 2026######

Public Comment Period: June 23 – July 24, 2026

Prepared by the Marin County Open Space District
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This document has been prepared pursuant to the

California Environmental Quality Act of 1970, as amended

TABLE OF CONTENTS

PROJECT INFORMATION 1
- Project Title 1
- Lead Agency Name and Address 1
- Contact Person 1
- Project Location 1
- General Plan Designation and Zoning 1
- Coordinates 1
- United States Geological Survey 1

INTRODUCTION 2

PROJECT NEED, PURPOSE, AND OBJECTIVES 2
- Project Need 2
- Project Purpose 2
- Project Objectives 2

SUMMARY OF THE PROPOSED PROJECT 3
- New Trail Bridges 3
- Trail Improvements 3
- Trail Decommissioning and Restoration 3

EXISTING SETTING 3
- Project Location, Surrounding Land Uses, and Access 3
- Project Area 4

PROJECT DESCRIPTION 5
- New Trail Bridges 6
- Trail Improvements 7
- Trail Surface Treatments Along Buck Gulch Falls Trail to Waterfall Viewing Area 8
- Trail Decommissioning and Restoration 9
- Construction 10
- Operation and Maintenance 11
- Project Design Features 12
- Permits and Approvals 12

Project Development 13
- Project Proposal 13
- Public Outreach 13
- Project Development Studies and Report 15

Alternatives Consideration 19

MCOSD Authority, Mission, and Leadership 20

MCOSD Governing and Guidance Documents 20
Road and Trail Management Plan (RTMP) 21
Inclusive Access Plan (IAP) 21
Vegetation and Biodiversity Management Plan 22
CEQA FRAMEWORK 64
SUMMARY OF THE CEQA ANALYSIS 64
PROPOSED MITIGATION MEASURES 66
DETERMINATION 70
AESTHETICS 71
AGRICULTURE AND FORESTRY RESOURCES 75
AIR QUALITY 79
BIOLOGICAL RESOURCES 86
CULTURAL RESOURCES 106
ENERGY 113
GEOLOGY AND SOILS 115
GREENHOUSE GAS EMISSIONS 125
HAZARDS AND HAZARDOUS MATERIALS 129
HYDROLOGY AND WATER QUALITY 133
LAND USE AND PLANNING 142
MINERAL RESOURCES 145
NOISE 147
POPULATION AND HOUSING 153
PUBLIC SERVICES 155
RECREATION 157
TRANSPORTATION 161
TRIBAL CULTURAL RESOURCES 166
UTILITIES AND SERVICE SYSTEMS 173
WILDFIRE 176
MANDATORY FINDINGS OF SIGNIFICANCE 180
REFERENCES 183

APPENDIX A: RTMP POLICIES AND BMPs

FIGURES.....24
Figure 1: Road and Trail Map for Ignacio Valley Preserve
Figure 2: Road and Trail for Preserves Surrounding Ignacio Valley Preserve
Figure 3: Preferred Option Map – Minor Trail Alignment
Figure 4: Location of the Proposed Project Site
Figure 5: Location of the Proposed Project Elements in Aerial View
Figure 6: Proposed Bridge 1 Placement Site Plan – Preliminary Site Map and Section
Figure 7: Proposed Bridge 1 Placement Site Plan
Figure 8: Proposed Bridge 2 Placement Site Plan
Figure 9: Proposed Streambank Stabilization Grading Plan
Figure 10: Proposed Streambank Stabilization Revegetation Plan
Figure 11: Proposed Revegetation Map Along Trail Alignments
Figure 12: Proposed Construction Access Area – Streambank Stabilization
Figure 13: Typical Trail Profile Wall
Figure 14: 8 Percent Average Grade Trail
Figure 15: Typical Outsloped Trail
Figure 16: Typical Rolling Drainage Dips
Figure 17: Typical Retaining Wall Back Drain
Figure 18: Typical Low Puncheon (Boardwalk)
Figure 19: Typical Split Rail Fence
Figure 20: Typical Streambank Stabilization
Figure 21: Typical Trail with Slope to Meet Existing Grade
Figure 22: Typical Trail at Toe of Slope/Revegetation of Existing Trail
Figure 23: Geology of the Project Area
Figure 24: Aquatic Resources in the Biological Resources Evaluation
Figure 25: Plant Communities in the Biological Resources Evaluation
Figure 26: Proposed Project Alternatives
Figure 27: MCOSD Preserves by RTMP Region
Figure 28: Region 3 Trail Designations
Figure 29: Region 3 VBMP Classification
Figure AIR-1: 1000-foot Buffer for Sensitive Receptors
Figure BIO-1: Special-status Species Reported Occurrences
Figure HH-1: Fire Safe Marin Evacuation Route
Figure LUP-1: Land Use and Zoning Designations
Figure WF-1: Fire Hazard Severity Zones
Figure WF-2: Wildland Urban Interface Zone

PHOTOS.....56
Photo 1: Proposed Bridge 1 Location
Photo 2: View of the Rock Ford Crossing of Arroyo de San Jose Creek
Photo 3: Proposed Bridge 2 Location
Photo 4: View of Buck Falls Trail Crossing – Proposed Bridge 2 Location
Photo 5: View of Buck Gulch Falls Trail – Proposed Grade Reduction
Photo 6: View of Buck Gulch Falls Trail – Proposed Reduced Trail Alignment
Photo 7: View of Buck Gulch Falls Trail – Proposed Reduced Trail Alignment
Photo 8: Wet Crossing at Buck Gulch Falls Trail – Proposed Puncheon Location
Photo 9: View of Top of Bank – Proposed Trail Realignment and Boardwalk

Photo 10: View of Buck Gulch Falls Trail – Proposed Reduced Alignment
Photo 11: View of Buck Gulch Falls Trail – Proposed Elevated Trail Alignment with Wall
Photo 12: View of Buck Gulch Falls Trail to Waterfall – Proposed Wall to Waterfall Viewing Area
Photo 13: View of Buck Gulch Falls Trail at the Intersection with Spyglass Trail
Photo 14: View of Spyglass Trail from Trailhead – Approach to Decommissioned Section
Photo 15: View of Spyglass Trail from End of Paved Segment – Decommissioned North Trail

PROJECT INFORMATION

Project Title

Buck Gulch Falls Creek Restoration and Trail Improvement Project

Lead Agency Name and Address

Marin County Open Space District (MCOSD)
1600 Los Gamos Drive, Suite 275
San Rafael, California 94903

Contact Person

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Project Location

Ignacio Valley Open Space Preserve
Novato, Marin County, California

General Plan Designation and Zoning

Assessor Parcel Number (APN)	General Plan Designation	Zoning	Jurisdiction
APN 160-010-50	Open Space (OS)	Planned District (PD)	City of Novato
APN 160-852-06	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-07	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-08	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-14	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-15	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-16	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 160-852-17	Open Space (OS)	Planned District (PD)	City of Novato
APN 160-852-18	Low-Density Residential (R1)	Planned District (PD)	City of Novato
APN 164-300-07	Planned Residential (PR)	Residential Multiple Planned District (RMP-0.1)	County of Marin

Coordinates

Latitude: 38° 3’44’’ N *(38.0622 N)*
Longitude: 122° 35’14’’ W *(-122.5872 W)*
Coordinates in Degrees, Minutes, Seconds (Decimal Degrees)
Prime Meridian: Greenwich.
Datum: D_WGS_1984. Spheroid: WGS_1984.

United States Geological Survey

USGS Quad: Novato, CA 7.5 Minute Series
Township: 3N
Range: 7W
Section: 36
Mt. Diablo Baseline and Meridian

INTRODUCTION

The Marin County Open Space District (MCOSD) is proposing the Buck Gulch Falls Creek Restoration and Trail Improvement Project (proposed project) within Ignacio Valley 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 the implementation and operations of the proposed project, and mitigation measures that would reduce potentially significant environmental impacts to a less than significant level in compliance with the California Environmental Quality Act (CEQA).

PROJECT NEED, PURPOSE, AND OBJECTIVES

Project Need

Ignacio Valley Open Space Preserve is one of 34 open space preserves located in Marin County, encompassing 906 acres of open space. The Preserve serves as a recreational corridor connecting residential areas of Novato for hikers and equestrians. Buck Gulch Falls Trail and the Spyglass Trail, located within the Preserve, are public hiking and equestrian trails that provide public access to the Buck Gulch waterfall. The waterfall is located in the upper reaches of Arroyo de San Jose Creek, which is an intermittent (seasonal) stream that flows during the rainy season. The trails are most popular in the winter and spring for waterfall viewing.

In their 2009 Arroyo San Jose Creek Habitat Assessment Report, the California Department of Fish and Wildlife recommended that sources of streambank erosion be identified and prioritized for treatment in Arroyo de San Jose Creek to reduce sediment yield, which can negatively impact stream habitats.

The existing trail currently crosses Arroyo de San Jose Creek twice via unimproved rock fords along the route to the falls, and approximately 1,500 feet of trail is located streamside along its banks. In addition, three ephemeral streams are crossed via unimproved fills. Recreational access along the streambanks and through the crossings has led to these areas experiencing elevated rates of erosion through trampling, soil compaction, and bank failure from visitor use. Muddy trail conditions during wet weather have also led to trail braiding and a loss of understory riparian vegetation as visitors try to avoid mud and slippery areas. These trail conditions potentially diminish safety during high creek flows in the rainy season, winter through spring.

In addition to recreational impacts, the lower reaches of the project area were subject to subdivision grading and dam removal prior to Open Space District ownership. This work channelized segments of Arroyo de San Jose Creek and left perched fill along its streambanks, which is actively eroding into the stream.

Project Purpose

The purpose of the proposed project is to implement 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 the environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of roads and trails that meet design and management standards and would 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) to the greatest extent feasible, given the existing topography of the project area. The applicable RTMP and IAP Policies and Best Management Practices (BMPs) have been incorporated in the design of the proposed project, and additional applicable RTMP Policies and BMPs would be implemented to minimize or eliminate potential environmental effects that could result from project implementation. 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 Arroyo de San Jose Creek and associated ephemeral streams by eliminating the need to cross them using the existing unimproved rock ford crossings and implementing streambank stabilization;
- Improve in-stream, riparian, and upland habitats along Arroyo de San Jose Creek through the project area by reducing erosion and sedimentation, and by restoring a degraded and actively eroding reach of the creek;
- Enhance habitat protection and ecological conditions for listed species[1];
- Provide safe and sustainable year-round all-abilities access along Spyglass Trail and Buck Gulch Falls Trail, leading to Buck Gulch waterfall, consistent with the MCOSD's Inclusive Access Plan; and [2]
- Improve trail safety and visitor experience consistent with the MCOSD's Road and Trail Management Plan.[3]

SUMMARY OF THE PROPOSED PROJECT

The primary focus of the proposed project is the restoration of the Arroyo de San Jose Creek and trail improvements within the project area. The proposed project includes the following elements, which support the creek restoration focus, are summarized below and fully described in the Project Description section of this document:

New Trail Bridges

- Bridge 1 at downstream crossing over Arroyo de San Jose Creek along Spyglass Trail, near the existing access road
- Bridge 2 at upstream crossing over Arroyo de San Jose Creek along Buck Gulch Falls Trail

Trail Improvements

- Improve conditions along nearly 2,240 feet of existing trail
- Realign nearly 850 feet of trail segments away from eroding streambanks
- Install one puncheon and one boardwalk over unnamed ephemeral streams along the trail
- Change use of the Buck Gulch Falls Trail from hiker/equestrian only to hiker only use
- Install four fill slope walls to retain the trail alignment, near the waterfall viewing area
- Install new fencing and signage at the waterfall viewing area

Trail Decommissioning and Restoration

- Decommission and restore nearly 850 feet of trail
- Restore nearly 19,500 square feet of eroding streambank and riparian area along Arroyo de San Jose Creek

EXISTING SETTING

Project Location, Surrounding Land Uses, and Access

The Buck Gulch Falls Creek Restoration and Trail Improvement Project is located on MCOSD parcels and easements that comprise the 906-acre Ignacio Valley Open Space Preserve, which includes access to Loma Verde, Pacheco Valle, and Indian Valley Preserves, as well as other adjacent public lands. This contiguous band of undisturbed open space encompasses virtually the entire northern-facing slope of eastern Big Rock Ridge. Buck Gulch Falls Trail is located on the north-facing slopes of Big Rock Ridge, in

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[1] California giant salamander (*Dicamptodon ensatus*, SSC) upland, dispersal, and potential breeding habitat as well as foraging habitat and prey species for Cooper's hawk (*Accipiter cooperii*, WL), and Northern spotted owl (*Strix occidentalis caurina*, FT, ST).

[2] Marin County Parks (Parks). 2016. *Inclusive Access Plan (IAP)*. July 2016. See MCOSD Governing and Guidance Documents under subsection *Inclusive Access Plan (IAP)* for additional information.

[3] Marin County Open Space District (MCOSD). 2014. *Road and Trail Management Plan (RTMP)*. December 16, 2014. See MCOSD Governing and Guidance Documents under subsection *Road and Trail Management Plan (RTMP)* for additional information.

southern Novato, adjacent to the unincorporated community of Ignacio and approximately 3 miles west of U.S. Highway 101, within the Novato Creek watershed. Land uses surrounding the Preserve include further passive recreational opportunities on the Indian Valley Open Space Preserve and Indian Valley College to the north, Loma Verde and Pacheco Valle Open Space Preserves to the east, and the Lucas Valley and Marinwood Open Space lands to the south. Other land uses include private ranchlands immediately to the west, and the single-family residential development of the Fairway Neighborhood surrounding Marin Country Club (golf course) to the east. Most of the proposed project lies within the Ignacio Valley Open Space Preserve, with a portion of the project – Buck Gulch Falls – located on private property at the end of the trail. MCOSD also holds a public use easement with Hill Ranch and Marin County Club Estates, LLC, along the trail entrance for access to the Preserve, and on City of Novato property[4]. The Preserve was acquired by MCOSD in 1975, and Buck Gulch Falls Trail was formally approved in 2016 by the MCOSD Board, subject to improvements as part of the RTMP.

Ignacio Valley Open Space Preserve supports habitat for native wildlife and botanical species while also providing passive recreational opportunities to all trail users. The proposed project encompasses two existing trails: the lower segment of Spyglass Trail and the entire length of the Buck Gulch Falls Trail, which are both currently designated for hiking and equestrian use, and provide access to Buck Gulch Falls. Buck Gulch Falls Trail is open 24 hours, consistent with the MCOSD's general practice.

Access to the project area is from Fairway Drive via Ignacio Boulevard within the City of Novato. Buck Gulch Falls Trail follows the Arroyo de San Jose Creek up to the seasonal waterfall. There is roadside parking along Fairway Drive and Saint Andrews Drive, and local public streets. Ignacio Valley Open Space Preserve can be accessed from the Spyglass Trail, via Fairview Drive, as well as the adjoining open space preserves and other public lands.

Figure 1 shows the existing road and trail map for the Ignacio Valley Preserve, including the Buck Gulch Falls Trail

Figure 2 shows the preserves surrounding Ignacio Valley Preserve

Project Area

Spyglass Trail. The Spyglass Trail is an approximately 1,000-foot-long trail, within the project area, extending from the Fairway Drive street-end to its terminus along the north fork of Arroyo de San Jose. The trail varies in width from 8 feet to 25 feet, and the trail has both paved and unpaved segments, which are relatively firm and stable. The trail currently crosses Arroyo de San Jose Creek via an unimproved rock ford, which is used to cross the creek during low water conditions. From the ford crossing, the Spyglass Trail extends up the streambank to the northwest for approximately 55 feet to its intersection with the Buck Gulch Falls Trail. Spyglass Trail is designated as a hiker and equestrian trail within the MCOSD trail system and is used for year-round recreational trail use as well as for seasonal maintenance and patrol purposes by MCOSD staff[5]. The unimproved rock ford crossing is nearly impassable during periods of high storm runoff and is a public safety concern for visitors attempting to view the waterfall during such periods.

Buck Gulch Falls Trail. The Buck Gulch Falls Trail is an approximately 2,480-foot-long trail, extending from its intersection with the Spyglass Trail to its terminus at Buck Gulch Falls. The trail varies in width from 2 feet to 16 feet. The trail has both previously rocked and native surfaced segments. The trail is relatively firm and stable, though there are areas where ponding, seasonally muddy conditions, and soft tread conditions on the trail tread prevail during wet weather. From its trailhead at the intersection with the Spyglass Trail, the Buck Gulch Falls Trail extends west-southwest across a previously graded flat area to

[4] The proposed project lies along a public trail easement that coincides with unimproved road right-of-way labeled as Fairway Drive on the subdivision map entitled Marin County Club Estates Unit 3, dated March 30, 1990. The public trail easement was granted to the District as part of a conservation easement that protects the privately owned parcels alongside it, for open space and conservation purposes. The final 517 feet of the trail crosses private property known as Hill Ranch via a separate public trail easement and terminates at Buck Gulch Trails.

[5] The trail is also periodically used by Pacific Gas and Electric Company (PG&E) crews to access an electrical transmission tower on a nearby ridgetop.

a grade break, where it begins to steepen. Segments of the trail follow a remnant ramp of a historic low earthen dam that once impounded Arroyo de San Jose Creek. It then crosses three ephemeral tributary streams via unimproved earthen fill.

The trail continues its top-of-bank traverse to an unimproved rock ford crossing of Arroyo de San Jose Creek, where an eroded trail has been worn on the upper streambank by visitors attempting to avoid the seasonally muddy conditions. Logs have also been stacked by the visitors to avoid walking in the water when crossing the creek. As such, streambank trampling as well as erosion is more pronounced around this unimproved rock ford crossing. From the unimproved rock ford crossing, the trail passes through a floodplain terrace along the southern streambank. Vegetation trampling and bank erosion are evident. From the upper end of the floodplain terrace, the trail occupies an inner gorge streamside position along Arroyo de San Jose Creek and then terminates at the waterfall. There is little to no vegetative buffer separating the trail from the creek along this segment of trail, though a separate “high-line” social trail has been worn into the landscape by the trail users in an attempt to avoid highwater and muddy/slippery conditions along the bank. Buck Gulch Falls Trail is currently designated as a hiking and equestrian trail within the MCOSD trail system and is used for year-round recreational trail use as well as for seasonal maintenance and patrol purposes by MCOSD staff.

Streambank Stabilization. Approximately 150 linear feet along the southern bank of Arroyo de San Jose Creek has eroded to a near-vertical 8-foot bank condition. The site is located immediately south of the proposed puncheon location along Buck Gulch Falls Trail and approximately 0.3 miles up the trail from the trailhead at the end of Fairway Drive. The streambank stabilization work would restore approximately 6,200 square feet of eroding streambank, where activities would include laying back the eroding streambank to a 2.5:1 slope to conform to the surrounding landscape and allow for native revegetation planting to further stabilize the repair.

PROJECT DESCRIPTION

The proposed project would install two bridges, and three drainage crossings[6], and realign segments of the existing trails away from the eroding streambanks, improving the trail tread by removing impediments, improving trail drainage, hardening the trail surface, and decommissioning and restoring segments of trail. It would also upgrade the waterfall viewing area; implement a change in use on Buck Gulch Falls Trail, and restore sections of eroding streambank and riparian area along Arroyo de San Jose Creek. These actions would meet the project purpose and objectives by reducing the environmental impacts of current visitor access, improving the user experience, safety, and accessibility for all trail users, and enhancing the sustainability of the trail, consistent with the RTMP policies, applicable BMPs, and trail design standards, as well as meeting most IAP standards. Implementation of the proposed project would substantially reduce the potential for accelerated erosion and sedimentation into the Arroyo de San Jose Creek that could adversely impact water quality and listed aquatic species and their habitats. The proposed project would incorporate erosion control techniques, including placement of straw wattles at the base of realigned trail segments, surfacing the approaches to the proposed bridges with aggregate base rock, and placing of seed and mulch on disturbed ground.

The proposed project has been designed and would be implemented in compliance with the MCOSD’s RTMP including applicable policies, BMPs, and trail design standards, as well as meeting most IAP standards. **Appendix A** of this document consists of the RTMP policies and BMPs. As the project area is constrained by excessively steep slopes, geologic and hydrologic impediments, and sensitive habitats, these constraints limit the ability to construct all the planned trail improvements at gradients that are fully compliant with MCOSD’s IAP. However, the project would meet most of the IAP standards, as the project proposes to upgrade trails to meet the clear width, tread compaction *(i.e., firm and stable)*, and cross-slope

[6] The three drainage crossings would entail one puncheon, one boardwalk, and aggregate base to prevent muddy conditions and erosion at the unnamed ephemeral streams along Buck Gulch Falls Trail.

parameters as described in the IAP and would incorporate additional elements from the Improved Trail guidelines, including resting intervals and passing spaces, seating, and accommodating slopes.

Figure 3 shows the preferred minor trail alignment option of the proposed project

Figure 4 shows the location of the proposed project site

Figure 5 shows the location of the proposed project elements

New Trail Bridges

Both of the proposed bridges would be 6 feet wide prefabricated weathered steel connector-style truss pedestrian bridges with wood decks and wood handrails. The soffit[7] on each bridge would be located above the 100-year flood elevation. The proposed bridges would be constructed off-site in sections and would then be assembled on-site. The proposed bridges would incorporate concrete spread footings, buried a minimum of 4 feet below the ground surface, that would be offset from the edge of the Arroyo de San Jose Creek channel bank, as recommended in the *Geologic Hazard Assessment and Feasibility Study*.[8] Bridge 2 would be constructed following bridge manufacturer requirements and structural drawings and bridge calculations developed by *DFL Engineering*[9].

The approaches to both sides of the proposed bridges would be built up on compacted fill wedges leading up to the bridge structure. The approaches would guide visitors at a grade of less than 8 percent to the bridge deck and away from the existing rock ford crossings. The existing rock ford crossing near Bridge 1 would be left in place for MCOSD seasonal vehicle access at the road crossing for patrol, fire, and maintenance purposes, while the rock ford crossing near Bridge 2 would be decommissioned and revegetated, as well as obstructed with 4-foot-high split rail fencing, as part of the project.

Temporary fill placement may be required at the existing rock ford for Bridge 2 to reduce the approach angle for construction equipment access. If needed to accommodate construction equipment access, 6-inch drain rock on top of geotextile fabric would be temporarily placed in the channel of the Arroyo de San Jose Creek for a length of 15 feet on each side of the channel at a width of 6 feet with a maximum depth of 18 inches. The anticipated of quantity of fill placed in the Arroyo de San Jose Creek would be a maximum of 5 cubic yards of temporary fill that would cover a maximum 90 square foot area at the existing rock ford crossing at the Bridge 2 site. No temporary fill placement will be needed at Bridge 1. The material needed for the temporary fill would be sourced onsite or from an approved borrow site outside of the Arroyo de San Jose Creek channel. The temporary fill would be placed on top of approved erosion control fabric to avoid mixing with the native channel bed material. At the conclusion of project construction, an excavator would remove the fill material and off-haul it offsite to Redwood Landfill in Novato – an approved location. Erosion control measures, such as straw wattles, would be applied.

Bridge 1 – Downstream Crossing on Spyglass Trail

Bridge 1 would be located just past the trailhead at the end of Fairway Drive, at the bottom of Spyglass Trail, before it intersects with Buck Gulch Falls Trail, and nearby to the first existing rock ford crossing over Arroyo de San Jose Creek. The proposed bridge would be a 55-foot-long by 6-feet-wide pedestrian bridge, consisting of one to two prefabricated sections. The south bank abutment would be located just upstream of an existing three-trunk oak tree. This south abutment would require placement of approximately 2 feet of imported fill to level the bridge. The north bank abutment would be located on the downstream side of a 36-DBH[10] oak tree and offset a minimum of 5 feet back from the creek's top of bank. Grading and fill

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[7] A bridge soffit is the bottom surface of the bridge decking.

[8] Best, Timothy C., CEG. Engineering Geology and Hydrology. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August 30, 2021.

[9] DLF Engineers Inc. 2025. *Pedestrian Trail Bridges Drawings and Engineering Calculation Sheets.* December 9, 2025.

[10] DBH (Diameter at Breast Height) is the standard forestry and arboriculture measurement of a tree's trunk diameter, taken at 4.5 feet (approx. 1.37 meters or 1.3 meters in some regions) above the ground.

placement covering a maximum of 400 square-foot area would be required on the north bridge approach beyond the top of the streambank, where there is a through cut to an old, abandoned road.

Photo 1 shows the proposed Bridge 1 site

Spyglass Trail follows an old ranch road where it then dips more than 4 feet through Arroyo de San Jose Creek's stream channel – the existing rock ford crossing. The rock ford crossing would be left in place for MCOSD seasonal vehicle access at the road crossing for patrol, fire, and maintenance purposes.

An existing flat open area on the north side of the Arroyo de San Jose Creek and the bridge abutment would be used for a staging area. Large equipment, such as an excavator, trucks, and a compactor, may need to ford Arroyo de San Jose Creek at the new crossing during the dry season to access the proposed bridge site. Vegetation removal would be limited to some small brush – no tree removal proposed. Excavators would be used only as strictly necessary to ensure the bridge's structural integrity. to avoid any unnecessary impacts to tree roots. Limbs from two oak trees may be pruned to avoid damage during bridge installation.

Photo 2 shows the existing rock ford crossing near the proposed Bridge 1 site

Figures 6 and **7** are the proposed Bridge 1 preliminary site map and placement site plan

Bridge 2 – Upstream Crossing on Buck Gulch Falls Trail

Bridge 2 would be located approximately 2,000 feet upstream of Bridge 1 along Buck Gulch Falls Trail, just downstream of an existing rock ford crossing. The proposed bridge would be approximately 36 feet long by 6 feet wide and would consist of two prefabricated sections. The existing rock ford crossing, located slightly upstream of the Bridge 2 site, would be decommissioned and revegetated as part of the project. An existing open area on both sides of the crossing would be used as a staging area during construction. Vegetation removal would be limited to some small brush. No tree removal is proposed at the Bridge 2 site. Several tree limbs may be pruned to avoid damage when the bridge sections are delivered and installed.

Photo 3 shows the proposed Bridge 2 site

Photo 4 shows the existing rock ford crossing near the proposed Bridge 2 site

Figure 8 is the proposed Bridge 2 placement site plan

Trail Improvements

Trail improvements include adding trail surface treatments[11] to nearly 2,240 feet of trail, decommissioning and realigning nearly 850 feet of trail, constructing a puncheon and boardwalk where the trail intersects small ephemeral streams (tributaries) along Buck Gulch Falls Trail, the proposed change in use designation for the Buck Gulch Falls Trail, restoring the riparian area and improving the waterfall viewing area, and proposed fencing and signage.

Trail Surface Treatments on Spyglass Trail

Trail surfacing treatments would start on Spyglass Trail approximately 260 feet north of the trailhead at Fairway Drive, where the trail transitions from the concrete curb cut to a previously rocked access road. The trail would be graded to provide a 5-foot-wide outboard road edge[12], with a minimum excavation depth of 6 inches. The trail would then be leveled and subgrade compacted before Mayacama Red[13] is backfilled, following MCOSD guidelines. Implementation would ensure that a 5-foot width and 2 percent cross slope

[11] Trail surface treatments along the trail alignments throughout the project area entail installing Mayacama Red following MCOSD guidelines and ensuring a 5-foot width and 2 percent cross slope.

[12] An outboard road edge is the outer edge of a road or trail prism on the downhill side, away from the cut slope or hillside. It's where drainage leaves the road or trail.

[13] An aggregate material used for pathways and landscaping projects for its durability.

are achieved. Trail surfacing treatment would continue down Spyglass Trail towards Bridge 1, where the trail gradient transitions from 8 percent to 1 percent slopes. From the southern abutment of Bridge 1, the trail on this side of the crossing would ramp down to join the existing road at a 5 percent to 8 percent slope. The existing road may be widened into the hillside slightly to accommodate Bridge 1, where the trail would then ramp down to the bridge. A 5-foot excavation of a new trail cut would then continue from the Bridge 1 abutment to the existing abandoned road cut and then continue along towards its intersection with Buck Gulch Falls Trail, with the same trail surfacing treatments applied, following MCOSD guidelines.

Trail Surface Treatments and Ephemeral Stream Crossing on Buck Gulch Falls Trail

Buck Gulch Falls Trail travels along an existing road bench and across a previously graded pad from the intersection with Spyglass Trail. Trail surfacing treatment would start at the intersection of these two trails and continue upslope of the existing trail alignment on the north edge to create a 2 percent outslope to allow trail drainage to flow to the south. Trail surfacing treatment would continue to the base of a ramp leading to the top of the historic dam remnants, where the trail would traverse the ramp from north to south at an average 10 percent slope. At the top of the ramp, there is a break in slope where the existing cut transitions go from 10 percent slope to 4 percent slope. The trail surfacing treatments would continue through this break in slope, ensuring a 5-foot width and a 2 percent cross slope.

Photo 5 shows the proposed grade reduction

Photo 6 and **7** shows the proposed reduction for existing trail alignments

The trail eventually intersects a small ephemeral channel that is approximately 1-foot wide by 1-foot deep. The crossing would be excavated from the top of bank so that the channel bottom has a width of 3 feet and the slopes are laid back to a 2:1 slope. A 16-foot-long by 6-foot-wide puncheon[14] would then be installed to cross the drainage, ensuring the trail continues its 5-foot width and 2 percent cross slope. Continuing along approximately 500 linear feet, where it crosses an alluvial fan below an ephemeral drainage. The existing trail alignment would be decommissioned for approximately 85 linear feet in this location, and a drainage dip would be constructed to properly control runoff. The trail alignment would be rerouted lower on the slope to lessen the trail gradient, and an 18-foot boardwalk would be installed to cross the ephemeral stream alluvial fan. Trail surfacing treatments would continue throughout the rerouted alignment towards Bridge 2. The existing trail from the proposed bridge crossing to the existing rock ford crossing, approximately 30 linear feet, as well as the rock ford crossing itself, would be decommissioned and revegetated as part of the proposed project.

Photo 8 shows the small ephemeral stream crossing where a puncheon is proposed

Photos 9 and **10** show the site of the ephemeral stream alluvial fan where the reduced trail realignment and boardwalk are proposed

Trail Surface Treatments Along Buck Gulch Falls Trail to Waterfall Viewing Area

Starting on the south bank of Arroyo de San Jose Creek, after crossing Bridge 2, the trail alignment would be rerouted to the base of the hillslope, and trail surfacing treatments along the rerouted segment for approximately 400 linear feet would continue. The rerouted trail would connect to the existing trail towards the waterfall. Vegetation removal along this trail alignment would include one 6-inch buckeye, a small understory brush, and some limited pruning of lower tree limbs. A fill slope wall (Wall #1)[15] would be constructed for approximately 60 linear feet to stabilize the new alignment above the channel. Trail surfacing treatments would continue along the new trail alignment and where the existing alignment connects to Wall #1, ensuring a 5-foot width and a 2 percent cross slope. At the end of Wall #1, the trail would then be rerouted upslope at a maximum of 12 percent slope. The existing lower streambank trail

[14] A puncheon is a log or timber structure built close to the ground, three feet or less, used to cross small drainages and/or wet areas. It usually consists of mud sills, stringers, and wood decking. Handrails may or may not be included.

[15] A trail fill slope wall, or retaining wall, is constructed to hold compacted fill material, allowing a stable, elevated tread/trail surface across steep slopes.

alignment would be decommissioned and revegetated. Another fill slope wall (Wall #2), approximately 75 linear feet, would be constructed to retain the new trail alignment, tying into an existing bay tree at one end and a downstream side of a boulder at the other end.

Photo 11 shows the location of the proposed elevated trail alignment, with walls to be incorporated

A landing platform and viewing area would be constructed at the end of the trail at the waterfall. To stabilize the hillslope, a landing wall [16] (Wall #3), approximately 27 linear feet, would start on the upstream side of an existing point boulder at the confluence and end at the mainstem. Another landing wall (Wall #4) would then start on the upstream waterfall, where it would tie into an existing tree with exposed roots and rock. The landing wall would continue for approximately 10 linear feet before tying into the side of the hillslope. Behind Wall #4, the area would be backfilled to create a solid compacted foundation serving as the upgraded landing platform and viewing area for trail users. Vegetation removal along the trail alignment between proposed fill slope Wall #1 and Wall #3 would include one 8-inch leaning maple tree, and two less than 6-inch buckeye trees. Field fitting while constructing the new trail alignment may result in the need to remove one 6-inch bay tree and two less than 6-inch bay trees as well.

Photo 12 shows the location of the proposed elevated trail alignment to the waterfall viewing area

Buck Gulch Falls Trail Change in Use

The project proposes to change the use designation of Buck Gulch Falls Trail from hiker/equestrian only to hiker only use, which would reduce future erosion on the trail. Spyglass Trail would remain hiker/equestrian only, and equestrians would continue to use the existing rock ford crossing. Bridge 1 and the trail would be hiker-only use.

Photo 13 show the Buck Gulch Falls Trail at the intersection with Spyglass Trail

Fencing and Signage

The project proposes to install approximately 20 linear feet of 4-foot-high split-rail fencing at the end of Spyglass Trail, where the trail transitions from a concrete surface to a rocked access road. The fencing would safely redirect visitors along the western trail alignment towards the newly constructed approach to Bridge 1 and to discourage use of the existing eastern rock ford crossing within Arroyo de San Jose Creek. Additional split-rail fencing is also proposed at the waterfall viewing area, along the northern slope of Arroyo de San Jose Creek for approximately 40 linear feet, to discourage visitors from climbing the slope – located on private property – and protect the planned riparian revegetation area. Appropriate colors and textures would be utilized to blend in with the surroundings.

New signage would be installed along the Buck Gulch Falls Trail to indicate the change in use from hiker/equestrian only to hiker-only use status, and direct equestrians to use the existing rock ford crossing. Additional interpretive signage would be installed at the waterfall viewing area to denote the location of riparian revegetation areas along the northern slope, further discouraging visitors from climbing the slope.

Trail Decommissioning and Restoration

The proposed project would restore approximately 19,500 square feet of an eroding streambank and trampled riparian areas previously used as informal social trails along the Arroyo de San Jose Creek. A section of the Spyglass Trail would also be decommissioned at the eastern rock ford crossing of Arroyo de San Jose Creek.

Streambank Stabilization at Arroyo de San Jose Creek

The proposed project would restore approximately 6,200 square feet of eroding streambank along the southern bank of the Arroyo de San Jose Creek immediately south of the proposed puncheon location along Buck Gulch Falls Trail. The proposed streambank restoration activities would include layback of the eroding streambank to a 2.5:1 slope to conform to the surrounding landscape and allow for native

[16] A landing wall on a trail is a type of retaining structure – typically built from rock or logs – designed to hold trail tread (the surface hikers walk on) in place on steep slopes, prevent erosion, and support filled areas.

revegetation planting. To prevent further erosion, a 4-inch layer of rock would be placed in the channel to create a level bench at 2 feet below the channel bottom. Half-ton rock, 3 to 6-inch cobble, and alluvial gravel mix would then be placed within the crevasses to stabilize the bed and toe of the slope. Live willow brush layers would be embedded within the base rock layer along the slope of the streambank, and 2 inches of topsoil and a minimum 6 inches of FREF[17] would be placed on top to create areas to plant native plants to revegetate the restored area and to further stabilize the streambank repair. Plug plantings would include California rose, creeping wildrye, grey rush, and thimbleberry. Plantings within the upland zone would include maple, ash, and coast live oak trees, as well as coyote brush, coffeeberry, elderberry, and toyon. Native grass seeding would be spread throughout the temporary staging and access roads to the project area. Native grass seed along with the placement of straw wattles would be used in the graded upland areas to further stabilize the repair.

Figure 9 is the proposed streambank stabilization grading plan

Figure 10 is the proposed streambank stabilization revegetation plan

Riparian Area Revegetation Along Decommissioned Trail Alignments

The proposed project would also decommission and revegetate existing trampled and compacted ground located within riparian areas, where segments of the existing trail alignment would be relocated away from the eroding streambanks. The proposed riparian revegetation efforts would continue along the decommissioned trail alignment until it reaches the waterfall viewing area. Additional revegetation work is also proposed along the northern slope of Arroyo de San Jose Creek, at the waterfall viewing area. These riparian revegetated areas are all located within mature bay forests, with the occasional maple, oak, and buckeye trees, totaling approximately 13,500 square feet of area to be revegetated.

Figure 11 is the proposed revegetation map along trail alignments

Native vegetation plantings reflect the understory and forest floor plant community, focusing on resilient shrubs, forbs, and graminoids that would help establish restoration areas. During trail construction, all *Iris douglasiana*, *Dryopteris arguta* and *Aristolochia californica* that are within the new trail alignment would be salvaged for replanting within the revegetation areas[18]. Plantings would occur within the first weeks following the first significant rain event of the season, ideally with additional rain in the forecast.

Trail Decommissioning

One section of Spyglass Trail, near the eastern rock ford crossing of Arroyo de San Jose Creek, would be decommissioned as part of the proposed project. The approximately 320 linear feet of existing trail would be recompacted and seeded with native grasses and forbs[19]. Approximately 20 linear feet of 4-foot-high split-rail fencing would be installed, where the trail transitions from a concrete surface to a rocked access road to safely redirect visitors along the western trail alignment towards the newly constructed approach to Bridge 1, discouraging use of the existing eastern rock ford crossing.

Photos 14 and **15** shows the approach to the proposed decommissioned section of Spyglass Trail

Construction

Construction of the proposed project would include implementation of the Road and Trail Standards and applicable Road and Trail Management Plan (RTMP) BMPs. The RTMP is described in the Project Development section of this Initial Study, and the RTMP Policies and BMPs are included in **Appendix A** of this Initial Study.

Construction may be phased as a result of timing requirements for sensitive species and for wet weather considerations. Construction would begin on August 1 or based on the results of the biological species as

[17] Fabric reinforced earth fill (FREF) which entails an erosion control blanket, over 1-inch compost, over select fill.

[18] Marin County Open Space District (MCOSD). 2025. *Buck Gulch Falls Revegetation Plan.* December 2025.

[19] ibid.

required by the RTMP survey requirements. Construction may begin before August 1 if biological surveys confirm no special-status species are present in or surrounding the project area. Construction related to water crossings and earthwork requiring heavy equipment would be limited to the dry season, generally May 15th to October 15th, or as permitted under regulatory permits. Construction equipment would utilize the existing rock ford crossings and existing trails to access portions of the project area. Minor grading and temporary fill placement at the existing rock ford crossings may be required to accommodate the large vehicles. Temporary fill used at this location would likely come from an approved borrow site. Placement of fill would occur in the late summer when Arroyo de San Jose Creek is dry. Equipment use during the nesting bird season may be limited depending on the results of the pre-construction nesting bird surveys conducted prior to construction.

Construction would occur Monday through Friday, between 7:00 a.m. and 6:00 p.m., and would require approximately six months and two construction seasons to implement. Construction work would start from Buck Gulch waterfall and work towards the trailhead at the end of Fairway Drive. Season 1 would entail all work proposed at the waterfall leading to Bridge 2, as well as the streambank stabilization work at Arroyo de San Jose Creek. Season 2 would include all work proposed at Bridge 2 leading to the trailhead, including installation of Bridge 1. The construction work period for the portions of Phase 2 that would occur within 1,000 feet of the nearest residences would last for less than two months. Equipment would include an excavator, loader, compactor, cement truck, cement mixers, roller compactor, rubber track carrier, generators, dump truck, ATVs, jackhammers, power saws, and other hand tools, as applicable. 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. Construction staging areas locations analyzed in this Initial Study would be shown on the construction plans and construction activities would be limited to the areas identified on the plans. It's anticipated that up to five MCOSD staff members or their contractors would drive to and from the project site each day during construction to monitor activity and ensure that all RTMP BMPs and Mitigation measures are implemented. Access to the project site for construction vehicles and equipment would be from Fairway Drive. Traffic may be slowed and isolated areas along Fairway Drive may be posted to prohibit street parking on days that construction equipment and the bridge sections would be delivered to the project area, and for equipment to exit the project area.

During construction, trails within the project area would be closed for recreation for safety purposes. Emergency access would be maintained during construction. The MCOSD would notify residents on Fairway Drive and Saint Andrews Drive when the construction dates are known and will include this information on its webpage.

Figure 12 shows the construction access area to the proposed streambank stabilization overview

Operation and Maintenance

After project construction, recreational use of the trail would continue similar to existing conditions for hiking, dog walking, and other allowable recreational purposes. The new trail configuration would be designated into the Region 3 trail system and republished on trail maps. Visitation would remain limited by available on-street parking on public roadways. The proposed project does not include any parking or other amenities to improve vehicle access to the trail system. While there may be increased interest in accessing the trail after project implementation, use would remain constrained by existing available parking on local, public streets. and any increase in trail use is anticipated to be minor and largely proportional with regional population growth. The new trail configuration would improve access for rangers and emergency responders on foot or using small all-terrain vehicles. Emergency vehicle and park ranger access would remain over the existing rock ford crossing near Bridge 1, within Arroyo de San Jose Creek.

The new trail configuration would continue to be maintained by MCOSD staff. As the trails are designed to improve existing trail sustainability, this level of maintenance is expected to be low and similar to existing trail maintenance. Regular maintenance of the trail surface and drainage includes brushing the trail corridor and clearing trail obstructions, such as fallen trees and tree branches, as needed. As part of the project,

the decommissioned trail segments would be monitored to ensure revegetation is successful and to prevent continued use of the decommissioned trails. Minor maintenance work may occur as needed to prevent access to the decommissioned trails.

A visitor use camera would be installed on Buck Gulch Falls Trail at its intersection with the Spyglass Trail just past the proposed location for Bridge 1 for a four-week period in years 1, 2, and 5 after project implementation to capture visitor use trends. This, combined with regular trail inspections as part of the existing MCOSD trail maintenance program, would provide early detection of, and rapid response to, any trail issues, including trail widening due to visitors utilizing areas adjacent to formal system trails, impacts to vegetation adjacent to trails from visitor use, and visitors accessing decommissioned trails. If monitoring indicates an issue, MCOSD would identify and implement remediation actions. Remediation actions could include signage about staying on the defined trail, not accessing decommissioned trails, and respecting neighbors. Physical obstacles, including logs, brush, and additional revegetation, could be placed in problem areas as a deterrent to going off-trail or accessing decommissioned trails. Increased ranger presence could also be utilized, though neither an increase in population nor employment would be anticipated within the region as of result of project implementation.

Project Design Features

The MCOSD has designed the project and would construct the proposed project in compliance with the RTMP. **Appendix A** of this document contains a list of all BMPs incorporated into the project, and each impact evaluation section in this Initial Study identifies the applicable BMPs for this proposed project.

The following trail design features have been incorporated into the project design.

Figure 13 shows a typical trail profile wall

Figure 14 shows an 8 percent average grade trail

Figure 15 shows a typical outsloped trail

Figure 16 shows typical rolling drainage dips for trail drainage

Figure 17 shows a typical retaining wall back drain

Figure 18 shows a typical low puncheon (boardwalk)

Figure 19 shows a typical split rail fence

Figure 20 shows a typical streambank stabilization

Figure 21 shows a typical trail with slope to meet existing grade

Figure 22 shows a typical trail at toe of slope/revegetation of existing trail

Permits and Approvals

The proposed project requires the following permits and approvals, which would be obtained 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
- City of Novato Encroachment Permit

PROJECT DEVELOPMENT

Project Proposal

The Buck Gulch Falls Trail in Ignacio Valley Preserve has long been a popular destination for hikers. A relatively short hike along this trail leads to one of Marin's most scenic waterfalls. Over time, as outdoor recreation continues to grow in popularity, and with the help of social media, this trail has become a very popular destination. This intense use has resulted in trail and soil erosion around the waterfall, and concerns about visitor safety and environmental damage where the trail crosses Arroyo de San Jose Creek at two locations without proper trail bridges.

To address these issues, MCOSD proposed the project, advancing the goals of the board-approved planning documents, including the Road & Trail Management Plan and the Inclusive Action Plan – guiding management of Marin County Parks facilities.

Public Outreach

The design of the proposed project was also informed by members of the community. MCOSD engaged the community, beginning in 2022, through a series of stakeholder meetings, outreach to neighbors via email, and on-site visits to further facilitate the opportunity for feedback about the proposed project.

CSA #20 Advisory Board

The Marin County Service Area 20 (CSA 20) Advisory Board discusses park projects in the Indian Valley area of Marin County, including the Ignacio Valley Preserve. The advisory board meets periodically to advise the Parks department on funding and activities, such as trail maintenance. The advisory board held a meeting on September 8, 2025, during which they received an update on project plans for the Buck's Gulch streambank stabilization and the required permits for trail work.

Commission on Aging

The Marin County Commission on Aging (Commission) is federally mandated by the Older Americans Act to advise the Area Agency on Aging and the Marin County Board of Supervisors. The Commission is an advisory council that advocates for, educates, and celebrates older adults throughout Marin County. The Commission strives to promote understanding and positive change in the community through the values of diversity, equity, inclusion, respect, and collaboration. MCOSD held a public meeting at the Margaret Todd Senior Center on May 4, 2023, to discuss the Inclusive Access Plan and trail projects in Marin.

Marin County Parks and Open Space Commission

The Parks and Open Space Commission advises the Marin County Board of Supervisors on parks and open space policy and conducts public hearings on parks and open space matters, recommending them to the Board when appropriate. There are seven members appointed by the Board, 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. MCOSD staff have presented the proposed project at multiple Commission meetings, including a presentation at a meeting on July 17, 2025. The objective of this meeting was to provide information on the location of the Buck Gulch Falls Trails, to present information on existing site conditions, to discuss potential conceptual environmental and trail improvements at the site, and to address wildlife risk concerns. Public comments were also accepted at the meeting. The commissioners asked questions, and 28 members of the public commented. The Commission has expressed general support for the proposed project. Another meeting was held on January 15, 2026, to discuss progress on the Buck Gulch Fall planning and to provide an update that MCOSD has begun developing the CEQA document.

Marin Conservation League Parks and Open Space Committee

The Marin Conservation League (MCL) is an organization with a mission to preserve, protect and enhance the natural assets of Marin in a changing environment. MCL serves as both a watchdog and environmental advocacy organization. They have committees that monitor a broad range of planning and land use decisions county-wide to ensure Marin's ecological values are maintained and restored. MCOSD presented the project concepts at a meeting on June 12, 2025. MCL expressed support for the proposed project.

Environmental Roundtable

The MCOSD Environmental Roundtable is a forum facilitated by 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, and Marin Audubon Society. The purpose of the Environmental Roundtable is to facilitate a natural resource-focused discussion and exchange of ideas between MCOSD and the environmental community regarding natural resource management and project development. The proposed project was presented at the Environmental Roundtable on numerous occasions beginning in 2022. The Environmental Roundtable has expressed general support for the proposed project, as the improvements would advance their objectives.

Neighborhood Outreach

Since 2022, MCOSD staff have participated in outreach to the surrounding neighborhood to discuss the proposed project via email and on-site visits. On May 4, 2023, MCOSD presented the project to the Commission on Aging to discuss park projects with improved accessibility, including the proposed Buck Gulch project. On August 29, 2023, staff met with neighbors near the project site to discuss concerns regarding traffic, parking, trail surfacing, and the length of the bridge. From conversations and public feedback, MCOSD staff developed conceptual plans and presented them on May 8th, 2025, at a Fairway Drive neighborhood meeting at the Marin County Club, where over 100 neighbors attended. Those concepts, with neighborhood feedback on trail serenity, parking, traffic, fire risk, and emergency evacuation, were again presented at the Parks and Open Space Commission meeting on July 17th, 2025, for additional feedback.

MCOSD staff reached out to the accessibility community via emails and presentations to understand potential trail needs beginning in 2023. This outreach included the Commission on Aging, Marin Center for Independent Living (CIL), Marin Aging & Disability Institute, Boost School, HHS Age-Friendly, Vision Impaired Marin, and the Marin Youth Commission's Disability Justice Subcommittee. Feedback included information about sensory experiences, ranger-led hikes, and trail widths and characteristics.

Federated Indians of Graton Rancheria

MCOSD invited the Federated Indians of Graton Rancheria (FIGR) and Guidiville Rancheria of California to provide tribal consultation under Assembly Bill 52 on July 16, 2025. The invitation included a project description, project related studies, the proposed CEQA process, and a summary of findings from the *Cultural Resources Study*.[20] FIGR responded August 15, 2025, with a formal request for tribal consultation under CEQA for the mitigation of potential project impacts to tribal cultural resources within FIGR ancestral lands. In their response, FIGR requested to consult on project alternatives, recommended avoidance and mitigation measures, significant effects of the project, type of environmental review necessary, significance of tribal cultural resources, and significance of project impacts to tribal cultural resources. The letter expressed the preferred manner of mitigation impacts to archaeological sites is preservation in place. MCOSD responded on August 18, 2025, with an invitation to propose preferred meeting times and followed up on October 13, 2026, and February 4, 2026.

MCOSD and FIGR met on April 16, 2026. During the tribal consultation meeting, FIGR requested that MCOSD provide a plant list for the proposed restoration element of the project, which was provided on April 20, 2026. FIGR also requested that MCOSD update the previously completed *Cultural Resources Study* prepared by Tom Origer & Associates to reflect the change in project scope, such as the addition of the streambank stabilization work proposed along the southside of Arroyo de San Jose Creek, and address compliance with Section 106 of the NHPA, as the proposed project would likely require a Section 404 Permit from the USACE.

[20] Tom Origer & Associates. 2021. *Cultural Resources Study for the Buck Gulch Falls Trails Project Ignacio Valley Open Space Preserve near Novato, Marin County, California.* April 22, 2021.

MCOSD commissioned an updated cultural resources study[21]. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). Far Western completed the *Supplemental Cultural Resources Report* in June 2026.[22] No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered. FIGR was notified of the scheduled testing for the proposed project on May 26, 2026, and a follow up email was sent to FIGR informing them of the completed fieldwork on June 2, 2026. A copy of this report has been shared with FIGR for review and input. MCOSD continues ongoing consultation with FIGR. MCOSD will include FIGR in the public notice for public review of this Initial Study.

Project Development Studies and Report

Geological Hazard Assessment and Geotechnical Review

Timothy C. Best and Associates conducted a *Geological Hazard Assessment and Feasibility Study* with a report published on August 30, 2021.[23] The report presents a preliminary review of the feasibility and constraints of the proposed pedestrian bridge, Bridge 1. Subsurface soil conditions were evaluated from field observations and exposed channel banks, revealing older fluvial terrace deposits and recent alluvium overlying Franciscan sandstone bedrock. The analysis identified several geological hazards associated with the site including seismic shaking, flooding, and stream bank erosion proposed recommendations for design of a recreational trail.

Miller Pacific Engineering Group (MPEG) provided a *Geotechnical Investigation* report to MCOSD on January 3, 2025, to evaluate geological and geotechnical conditions and prepare geotechnical recommendations for use in planning, design, and analysis of construction feasibility of the pedestrian bridge, Bridge 1.[24] The report included research on regional geological conditions, on-site subsurface exploration, and soil laboratory testing. Subsurface geotechnical borings were conducted in the vicinity of the proposed Bridge 1 to characterize the site. The report includes recommendations for site preparation and grading, excavation, fill compaction, fill slope construction, seismic design, foundation design, retaining structures, and trench backfill to address potential geological hazards. The geotechnical investigation concluded that a pedestrian bridge crossing of Arroyo de San Jose Creek is feasible at the site with implementation of recommendations and design criteria to address geotechnical considerations.

Figure 23 is from the Geotechnical Report and shows Project Area Geology

Hydrologic and Hydraulic Analysis

A *Hydrologic and Hydraulic Analysis Report* (H&H Report) was prepared by PCI Ecological in March 2025[25] to evaluate the minimum soffit elevations of the two proposed pedestrian bridges. The analysis used the USGS Streamstats Tool to calculate the 100-year peak flow levels and determined peak flow rates to be 365 feet per second at Bridge 1 and 146 feet per second at Bridge 2. Hydraulics were assessed using Hydraulics Toolbox[26]. The minimum soffit elevation for Bridge 1 was determined to be 202.5 feet and 319.7 feet for Bridge 2. These minimum elevations adhere to Marin County Municipal Code section 24.04.520 (d),

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[21] Far Western. 2026. Completion of Archaeological Testing for the Buck Gulch Falls Creek Restoration and Trail Improvement Project, Ignacio Valley Open Space Preserve, Novato, Marin County, California. June.

[22] ibid

[23] Best, Timothy C., CEG. 2021. Op Cit.

[24] Miller Pacific Engineering Group (MPEG). 2025. *Geotechnical Investigation Buck Gulch Pedestrian Bridge Abutment.* January 3, 2025.

[25] `PCI Ecological. 2025. *Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report.* March 2025.

[26] `FHWA. 2014. Hydraulics Toolbox.

requiring two feet of clearance between the bridge soffit and 100-year storm elevation. The H&H report concluded that minor grading would be required to achieve the minimum elevation requirement for Bridge 1 and that Bridge 2 would be installed above the minimum elevation to better connect trail improvements, allowing more clearance than is required.

Accessible Trail Feasibility Study

PCI Ecological conducted an *Accessible Trail Feasibility Study* in December 2024[27] and a *Supplemental Feasibility Study* in March 2025[28] to evaluate the feasibility of converting the existing Buck Gulch Falls Trail into a fully accessible route from the trail entrance to Buck Gulch Falls in accordance with the Marin County Open Space District's IAP. The study reviewed environmental constraints, technical challenges, constructability, and construction costs and found that full accessibility could be achieved along the entire trail. The project area is constrained by excessively steep slopes, geologic and hydrologic impediments, and sensitive habitats. These constraints limit the ability to construct trail improvements at gradients that are fully compliant with MCOSD's IAP. Under existing conditions though, those in wheelchairs or other assistance equipment may not be able to cross the creek at all. Some trail segments were also noted to have high construction costs due to site topography and access. The proposed project would meet most of the IAP standards, as the project would upgrade trails to meet the clear width, tread compaction *(i.e., firm and stable)*, and cross-slope parameters as described in the IAP and would incorporate additional elements from the Improved Trail guidelines, including resting intervals and passing spaces, seating, and accommodating slopes. Implementation of the proposed project would remove this existing access barrier, and the proposed creek crossings would also increase accessibility. The primary constraints were evaluated to determine feasibility included achievable trail widths, trail gradients, proximity to Arroyo San Jose Creek, and access for construction equipment, as well as visitors.

Biological Resource Evaluation

The *Buck Gulch Falls Creek Restoration and Trail Improvement Project Biological Resources Evaluation* was prepared by PCI Ecological (PCI Report)[29] in 2026 to assess biological resources within the project area, evaluate potential impacts to these resources from the implementation of the proposed project, and recommend mitigation measures to reduce the effect of potential impacts to a less than significant level. Protocol-level surveys for botanical and wildlife resources were conducted by PCI Ecological in 2021 and 2025.

The study area evaluated in the PCI Report included approximately 1.6 acres, including the project area and a surrounding 5 to 25-foot area buffer. While the PCI Report describes the biological resources occurring or potentially occurring within the study area, only some portions of the project area would be disturbed by project-related improvements and activities. The Biological Resources section of the CEQA Checklist includes a broader summary of the PCI Report and biological resources within the project area.

Figure 24 is from the Biological Resources Evaluation and shows the mapped waters

Figure 25 is from the Biological Resources Evaluation and shows the mapped plant communities

Plant Communities

The PCI Report mapped and evaluated eight vegetation communities[30] within the project area. For analysis purposes, the PCI Report combined the plant communities into the following five major plant community

[27] `PCI Ecological. 2024. *Buck Gulch Falls Accessible Trail Feasibility Study.* December 2024.

[28] `PCI Ecological. 2025. *Buck Gulch Falls Accessible Trail Feasibility Study: Supplemental Study.* March 5, 2025.

[29]`PCI Ecological. 2026. *Buck Gulch Falls Creek Restoration and Trail Improvement Project Biological Resource Assessment.* February 2026.

[30] Plant communities are groups of plants that share a common environment and interact with each other, animal populations, and the physical environment. Plant communities are generally defined by the dominant plant species, which is a method to organize biological information, creating mappable units for land management and conservation planning.

types based on the dominant overstory species, the names conforming to commonly accepted nomenclature of the Manual of California Vegetation[31] classification:

Annual and Perennial Grasslands – approximately 14 percent

Shrubland (Coyote Brush Scrub and Poison Oak Scrub) – approximately 23 percent

Coast Live Oak Forest – approximately 19 percent

California Bay Forest – approximately 18 percent

Bigleaf Maple Forest and Arroyo Willow Thickets (riparian) – approximately 25 percent

Sensitive plant communities are those that are of limited distribution statewide or within a county or region. The California Department of Fish and Wildlife's List of California Terrestrial Natural Communities and the Manual of California Vegetation[32] indicate which plant communities are sensitive within the state of California. Within the study area, several vegetation associations are considered sensitive plant communities. Coast live oak forest associations (G3S3), California bay forest associations (G3S3), bigleaf maple forest associations (G3S3), poison oak scrub associations (G3S3), and arroyo willow thickets (G4S4) are ranked as sensitive by the California Department of Fish and Wildlife, indicating they are rare or threatened at the state or global level.

The study area includes riparian tree species along the edge of Arroyo de San Jose Creek and three of its ephemeral drainages. The proposed project will result in temporary disturbance to sensitive plant communities from staging, access, and stream restoration work. Permanent impacts will occur from trail realignment, two pedestrian bridges, one puncheon, one boardwalk, and upgraded waterfall viewing area. The project will also result in removal of seven small native trees (five California bay and two bigleaf maple trees, all with diameter at breast height of 10 inches or less). However, approximately 850 feet of existing trail will be decommissioned and revegetated with native species, and stream restoration work will revegetate approximately 6,200 square feet with native woody and perennial species. MCOSD would implement applicable RTMP BMPs to protect biological resources. The PCI Report recommended additional mitigation measures to minimize impacts to native plants and communities and requires pre-construction botanical surveys for special-status plants, and restoration of any sensitive habitats disturbed by project implementation. These recommended mitigation measures are included in the Biological Resources section of the CEQA Checklist portion of this document. In combination with implementation of applicable RTMP BMPs, implementation of these mitigation measures would reduce potential impacts to a less than significant level.

Arroyo de San Jose Creek

The study area is located within the Ignacio Valley Preserve in northern Marin County. The Arroyo de San Jose Creek runs through the project area and drains a watershed of approximately 7.4 square miles, flowing into a lagoon at Bel Marin Keys and then eventually into San Pablo Bay. The Arroyo de San Jose Creek is intermittent, meaning that water flows seasonally during wet weather periods. Within the project area, the creek has surface water during the rainy season and, depending on the year, may retain isolated pools during the dry season. The creek and its tributaries may include jurisdictional waters of the state and waters of the United States. The project area also includes three ephemeral tributary drainages that feed into Arroyo de San Jose Creek.

Special-Status Plants

Special-status plants include those species that are state or federally listed as Rare, Threatened, or Endangered; federal candidates for listing; proposed for state or federal listing; or identified by the CNPS Inventory of Rare and Endangered Plants of California as Rank 1, 2, 3, or 4 species. Botanical surveys

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[31] Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009. *A Manual of California Vegetation, Second Edition. California Native Plant Society Press.*

[32] ibid

were conducted in the project area on April 5 and July 5, 2021, and October 22, 2025. A total of 109 plant taxa[33] were identified within the project area during these surveys. No special-status plant species were observed during the surveys. However, two special-status plant species have moderate potential to occur within the project area based on suitable habitat and proximity to documented occurrences: California bottlebrush grass (*Elymus californicus*) and dwarf woolly-heads (*Micropus amphibolus*). MCOSD would incorporate applicable RTMP Special Status Plants BMPs, which were designed to minimize or avoid potential environmental impacts to biological resources. **Appendix A** of this document consists of the RTMP policies and BMPs. The PCI Report recommended pre-construction surveys for special-status plants during the appropriate blooming period (April and June). If any special-status plant species are found, avoidance and protection measures should be implemented. With implementation of these BMPs and recommended mitigation measures, the proposed project would not have a substantial adverse effect, either directly or through habitat modifications, on any special-status plant species.

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. The PCI Report evaluated data collected and maintained by the MCOSD, a review of the California Natural Diversity Database (CNDDB), and other sources. The PCI Report identified three special-status wildlife species that have moderate potential to occur within the project area and several additional species that were evaluated but determined to have low or no potential to occur.

Special-status wildlife species determined to have moderate potential to occur in the project area include:

California giant salamander (*Dicamptodon ensatus*)

Cooper's hawk – nesting (*Accipiter cooperii*)

Northern spotted owl (*Strix occidentalis caurina*)

Pallid bat (*Antrozous pallidus*)

Point Blue Conservation Science works with Marin County Parks to monitor the nesting of northern spotted owl within their parks. A northern spotted owl activity center was documented approximately 0.12 mile south of the project area, with confirmed activity in 2023, 2024, and 2025. The project area does not contain suitable nesting or roosting habitat for northern spotted owl due to the lack of large diameter trees and absence of a dense, multi-layered canopy. While portions of the project area provide limited foraging habitat, higher-quality nesting, roosting, and foraging habitat is only present in areas adjacent to, but outside of, the project area.

The proposed project will not result in net loss of northern spotted owl nesting, roosting, or foraging habitat. However, project activities including the use of heavy equipment and other construction noise could disturb northern spotted owls if individuals are present in adjacent suitable habitat during the breeding season. MCOSD would implement applicable RTMP Special-Status Wildlife BMPs and recommended mitigation measures, including seasonal restrictions, preconstruction surveys, worker awareness training, and construction monitoring. With implementation of these measures, the proposed project would not have a substantial adverse effect on northern spotted owl or other special-status wildlife species.

Cultural and Historical Resources Studies

A *Cultural Resources Study* for the Buck Gulch Falls Trails Project was completed April 2021 by Tom Origer and Associates.[34] The report was prepared to identify potential historical resources in accordance with requirements of Marin County Parks and the California Environmental Quality Act. No cultural resources

[33] In biology, a taxon is a group of one or more populations of an organism or organisms seen by taxonomists to form a unit. Taxa is the plural form of the word taxon.

[34] Tom Origer & Associates. 2021. Op Cit.

were found in the study area, and therefore, no archaeological or built environment recommendations were included in the report. The report provides recommendations about how to proceed if previously undiscovered resources are located during construction activities.

As part of continued tribal consultation efforts, MCOSD met with FIGR on April 16, 2026. FIGR requested that MCOSD update the previously completed *Cultural Resources Study* prepared by Tom Origer & Associates, which Far Western did in May 2026. Far Western provided FIGR with the *Supplemental Cultural Resources Study*[35] for the proposed project on May 15, 2026. Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey as part of the supplemental study. MCOSD is currently consulting with FIGR, and FIGR received a copy of the supplemental study. Far Western also completed an on-site archaeological testing for the proposed project in May 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

Traffic Study

W-Trans prepared a *Transportation Checklist Memo* in 2025[36] to evaluate considerations related to traffic and transportation. The memo provides an evaluation of the proposed project's potential to conflict with policies associated with the circulation system, substantially increase roadway hazards, or result in inadequate emergency access. W-Trans reviewed pertinent MCOSD, City of Novato, and Marin County plans, policies, and ordinances in their evaluation as well as the existing circulation system and vehicle trip generation data. Results are discussed in the Transportation Section of this document.

ALTERNATIVES CONSIDERATION

Under the proposed project, three alternative trail alignments were developed during the preliminary planning phase in an attempt to design the project so that it's accessible for all potential trail users – adhering to IAP standards, maintaining a minimum width of 48 inches, and complying with AGODA[37] slope standards.

Alternative A would provide a rerouted trail alignment that differs from the proposed project alignment by avoiding select areas of steep terrain entirely, though not all environmentally sensitive resources. This alternative entails rerouting the trail alignment with the incorporation of walls leading to Bridge 2, and from Bridge 2 to the waterfall viewing area, incorporating numerous walls, as well as a series of switchbacks, a cantilever boardwalk to the flat area near the waterfall, and stairs up to the waterfall viewing area. Generally, this alternative would follow the proposed project's alignment but would require additional grading, fill soil, and vegetation removal in other areas due to the longer and less direct alignment, to meet grade and access requirements.

Alternative B would provide a rerouted trail alignment that differs slightly from the proposed project alignment and Alternative A. This alternative entails rerouting the trail alignment leading to Bridge 2 without the incorporation of walls and from Bridge 2 to the waterfall viewing area. The rerouted trail alignment would be slightly benched into the adjacent hillside for approximately 410 linear feet, until it ties into the proposed trail alignment under Alternative A. Though this alternative would also generally follow the proposed project's alignment, it would require additional grading and vegetation removal to meet access and grade

[35] Far Western. 2026. Op. Cit.
[36] W-Trans. 2025. *Buck Gulch Falls Trail Improvement Project: Transportation Checklist Memo.*
[37] AGODA is used as an abbreviation for Accessibility Guidelines for Outdoor Development Areas.

requirements without the use of walls (expanding the grading footprint) and to situate the trail alignment into the adjacent hillside.

Alternative C would provide a rerouted trail alignment starting on the south side of Arroyo de San Jose Creek, at the southern approach to Bridge 2, where a short series of switchbacks would guide the user away from the creek and onto the hillside to meet access and grade requirements. This alternative would involve rerouting the trail alignment to be situated on the hillside, mid-slope, and continuing the trail along a mid-slope location to the waterfall viewing area. This alternative would require a significant amount of grading and vegetation removal due to its alignment features and siting along the hillside, in order to meet access and grade requirements, as well as additional slope stability evaluations to ensure adequate bedrock is present within the proposed trail alignment.

> **Figure 26** is from the Accessible Trail Feasibility Study and shows the Proposed Project Alternatives

No Project Alternative would not result in the proposed trail improvements project being implemented. Existing conditions within the project area would remain unchanged, including the eroding streambanks and unsafe trail user conditions in order to view Buck Gulch Falls, and as such, would not meet the project objectives.

While Alternatives A, B, and C achieve the purpose of rerouting the trail alignment away from the eroding streambank and minimizing impacts to the creek, the **Proposed Project** is not only environmentally superior, as it utilizes the majority of the existing trail alignments, where feasible, limiting the amount of grading and vegetation removal required, but it was also designed utilizing a significant amount of community input and forethought to meet the project objectives effectively. Visitors enjoy the beautiful seasonal cascade of Buck Gulch Falls, and as such, foot traffic has not only trampled vegetation and increased erosion along the Arroyo de San Jose Creek over the years but has also heightened public safety concerns at the stream crossings. Without the implementation of the proposed trail improvements project – the No Project Alternative is chosen – the landscape near the falls, as well as the trail alignments leading to it, could be irreparably damaged for future users.

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 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 oversee 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, Revised 2023
- Marin County Department of Parks and Open Space Strategic Plan, 2008
- Marin County Unit Strategic Fire Plan & Community Wildfire Protection Plan, 2023
- Strategic Fire Plan for Marin County, 2014
- Marin County Integrated Pest Management Ordinance, 2013
- 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)[38] (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. Consistency with the RTMP assumes consistency 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 (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 3, which includes the project site, covers the open space preserves listed below:

- Indian Valley
- Lucas Valley
- Loma Verde
- Pacheco Valle
- Ignacio Valley

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. The road and trail designation for Region 3 occurred in late 2016. The Region 3 Designation Workshop was held on August 21, 2016. Following the workshop, the public had an opportunity to view and comment on the proposed road and trail system for Region 3.

Figure 27 shows the MCOSD Preserves by RTMP Region

Figure 28 shows the Region 3 trail designations

Inclusive Access Plan (IAP)

The Inclusive Access Plan (IAP) was finalized in July 2016 (IAP, 2016). The IAP is a guidance document focused on improving MCOSD's 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:

[38] State Clearinghouse (SCH) Number: 2011012080

- 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, 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 portions of the proposed trail would meet the highest accessibility standards (Access and Discovery Trail guidelines), while segments of the trail after Bridge 2 to the waterfall would meet the Improved Trail guidelines. As the project area is constrained by excessively steep slopes, geologic and hydrologic impediments, and sensitive animal and vegetation communities, these constraints limit the ability to construct all the planned trail improvements at gradients that are fully compliant with MCOSD's IAP. However, the project would meet most of the IAP standards, as the project proposes to upgrade trails to meet the clear width, tread compaction *(i.e., firm and stable)*, and cross-slope parameters as described in the IAP and would incorporate additional elements from the Improved Trail guidelines, including resting intervals and passing spaces, seating, and accommodating slopes.

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 for 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.

Indian Valley Open Space Preserve is classified as consisting of four management zones; Legacy Zone, Sustainable Natural Systems Zone, Natural Landscape Zone, and Highly Disturbed Zone. The proposed project, located along the existing Buck Gulch Falls Trail, would occur within the Sustainable Natural Systems Zone.

Figure 29 shows the Region 3 VBMP classifications

FIGURES

Figure 1: Road and Trail Map for Ignacio Valley Preserve

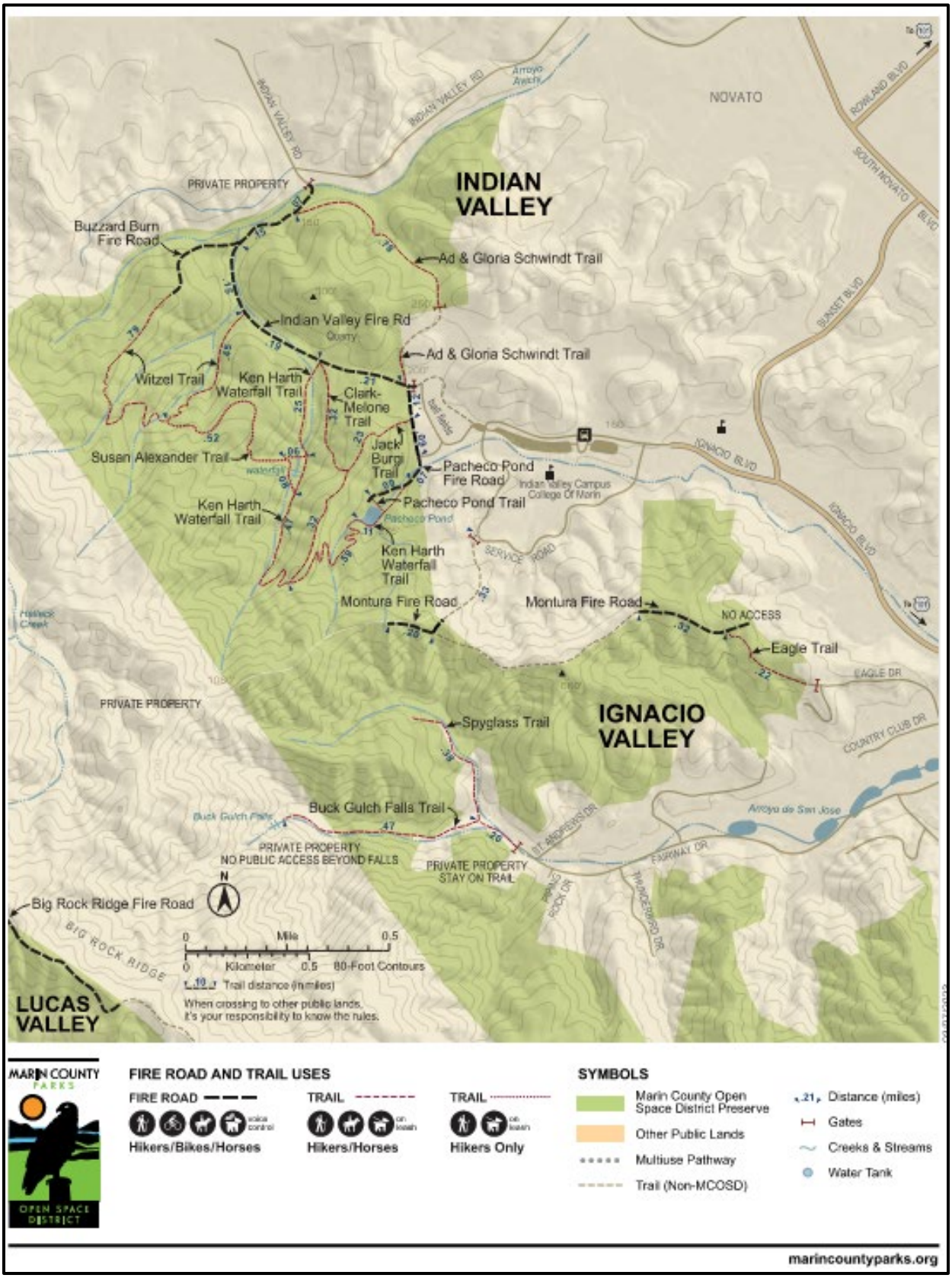


Figure 2: Road and Trail Map for Preserves Surrounding Ignacio Valley Preserve

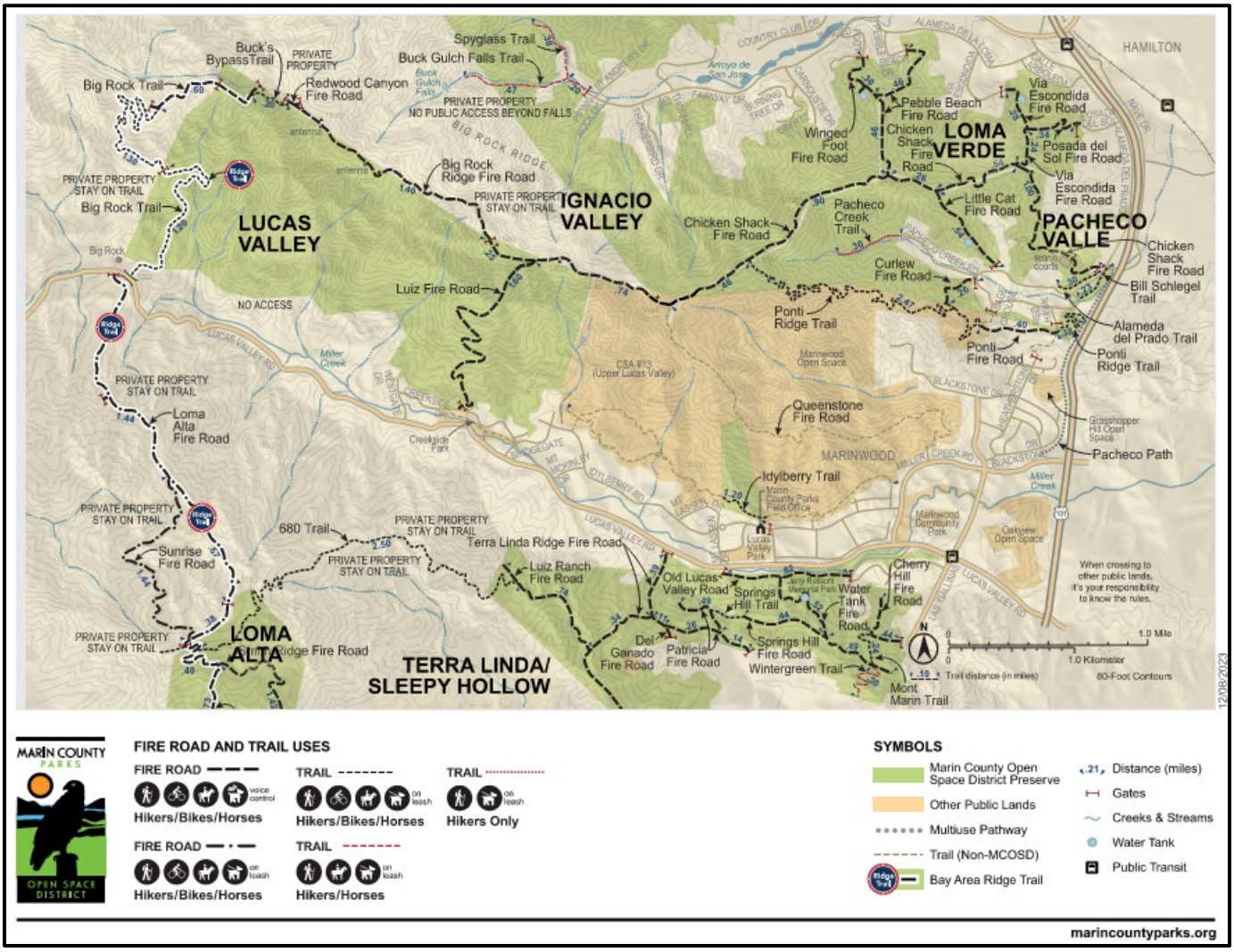


Figure 3: Preferred Option Map – Minor Trail Alignment

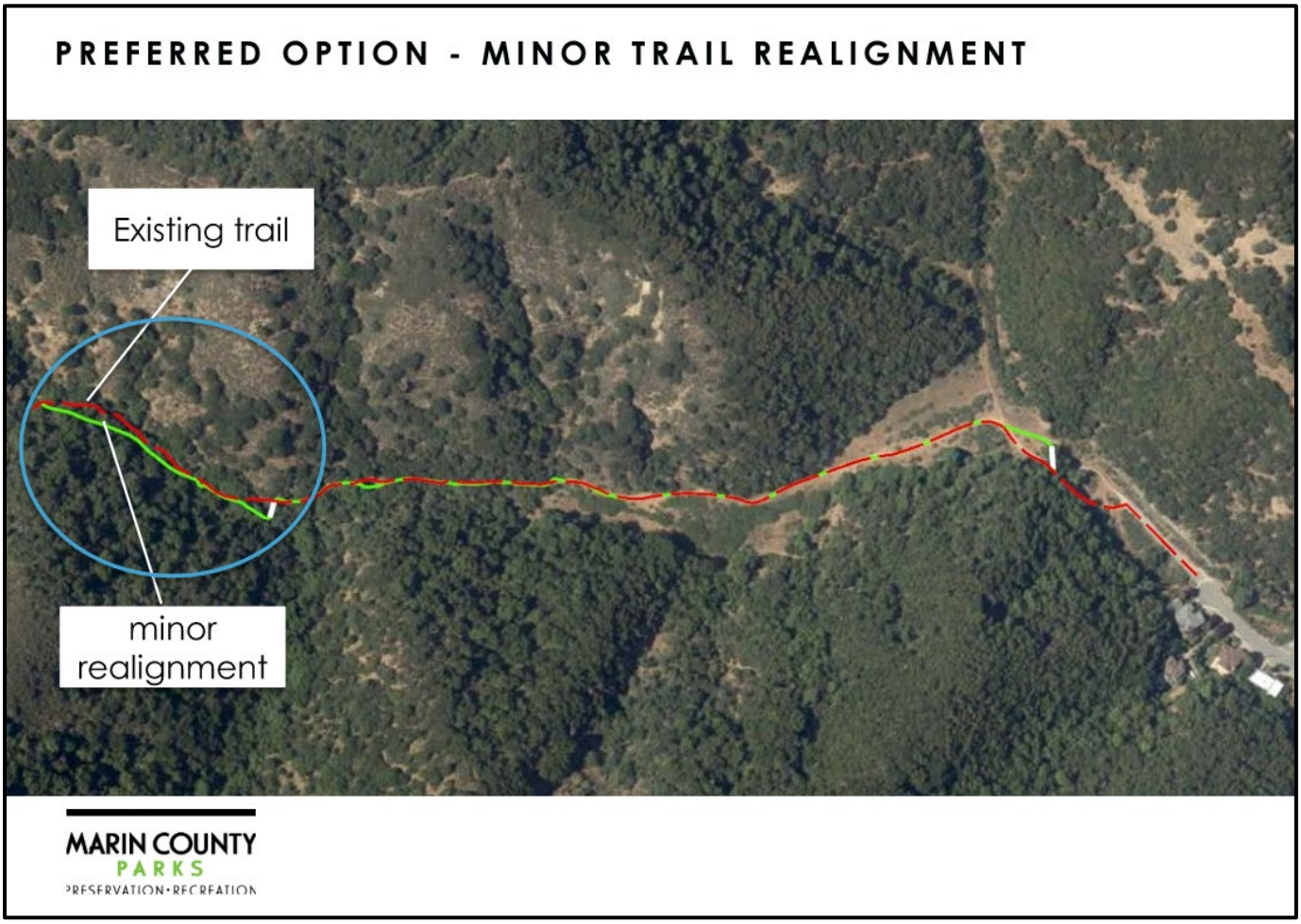


Figure 4: Location of the Proposed Project Site

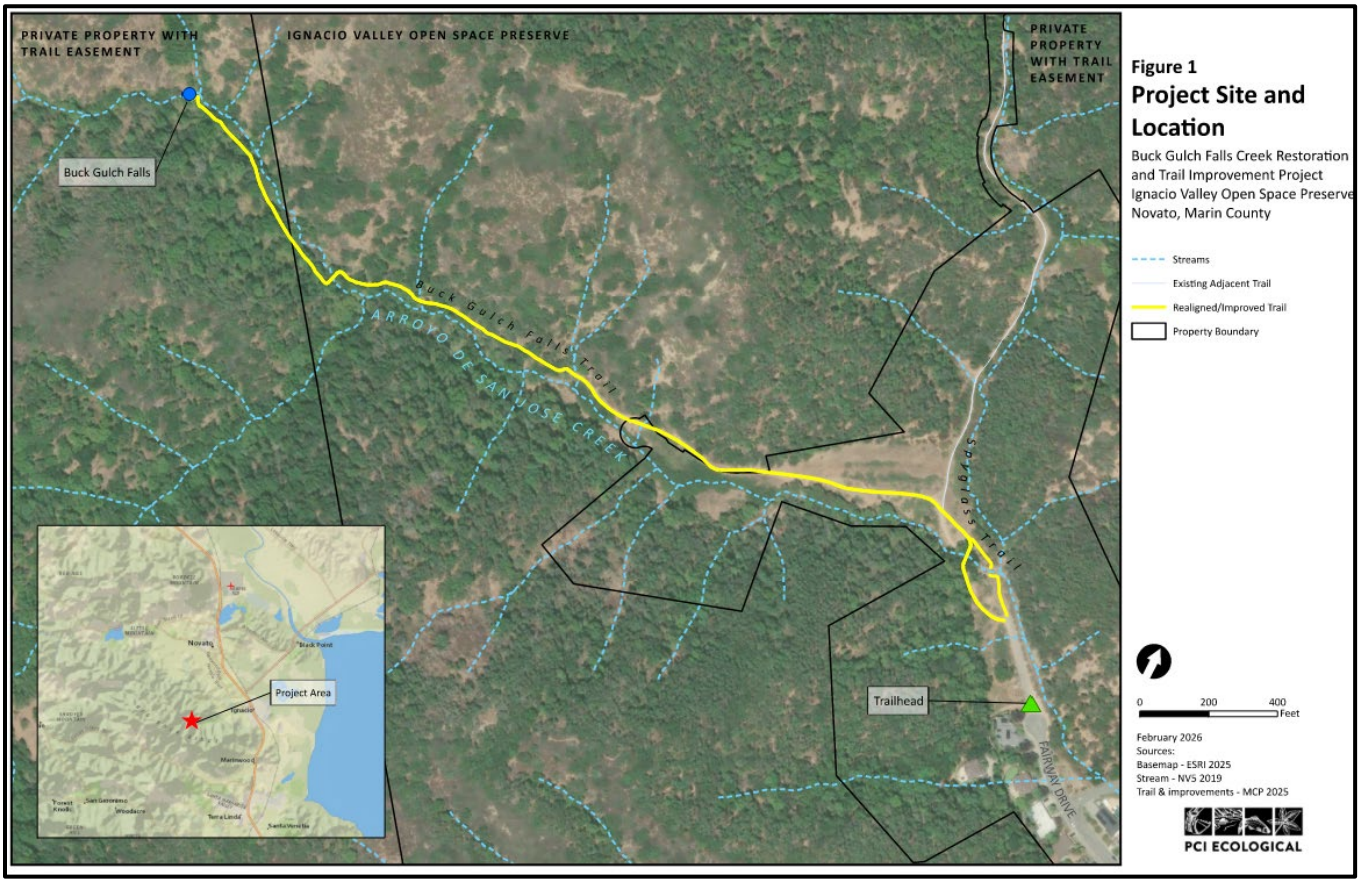


Figure 5: Location of the Proposed Project Elements in Aerial View

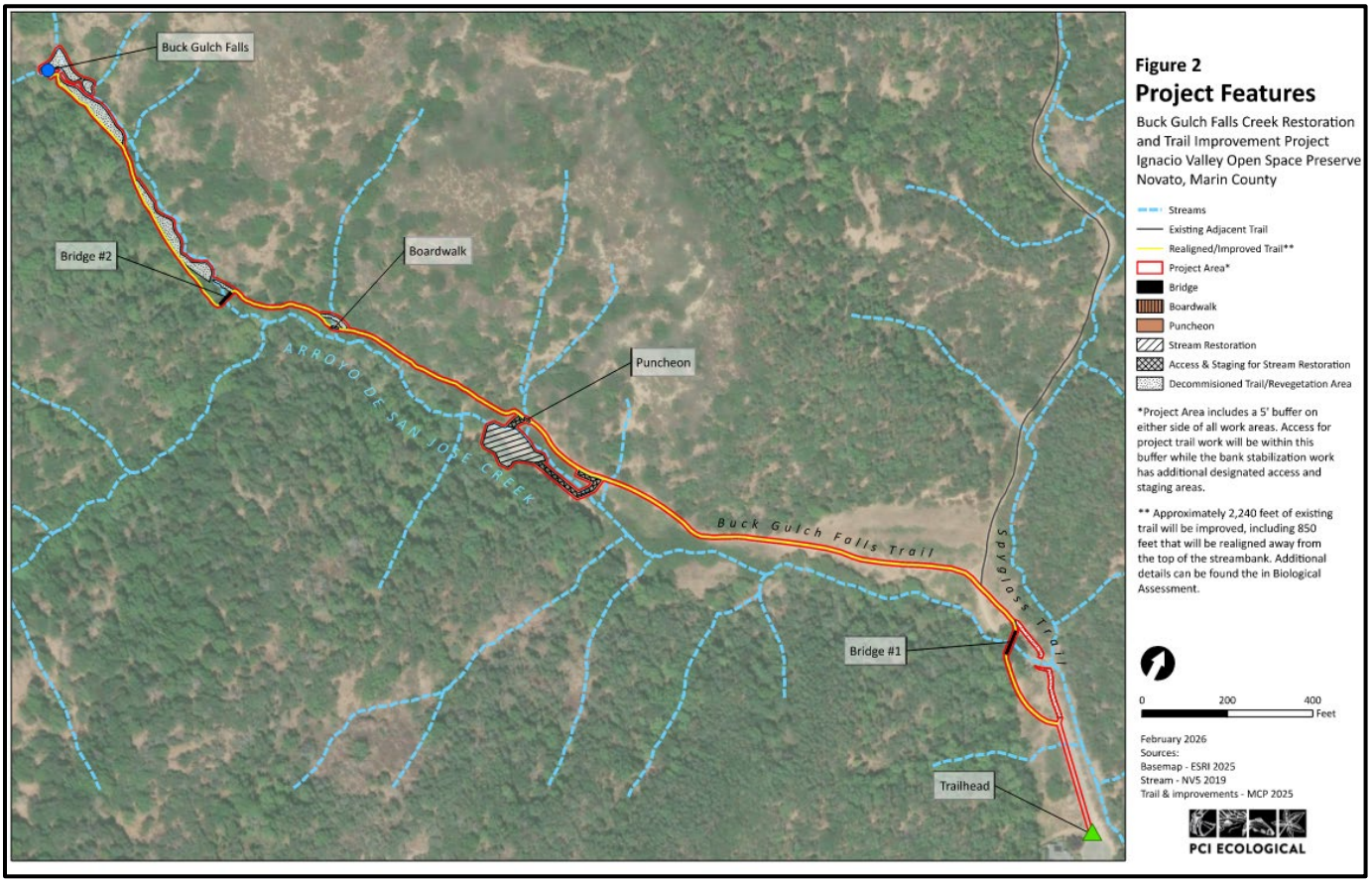


Figure 6: Proposed Bridge 1 Site Plan – Preliminary Site Map and Section

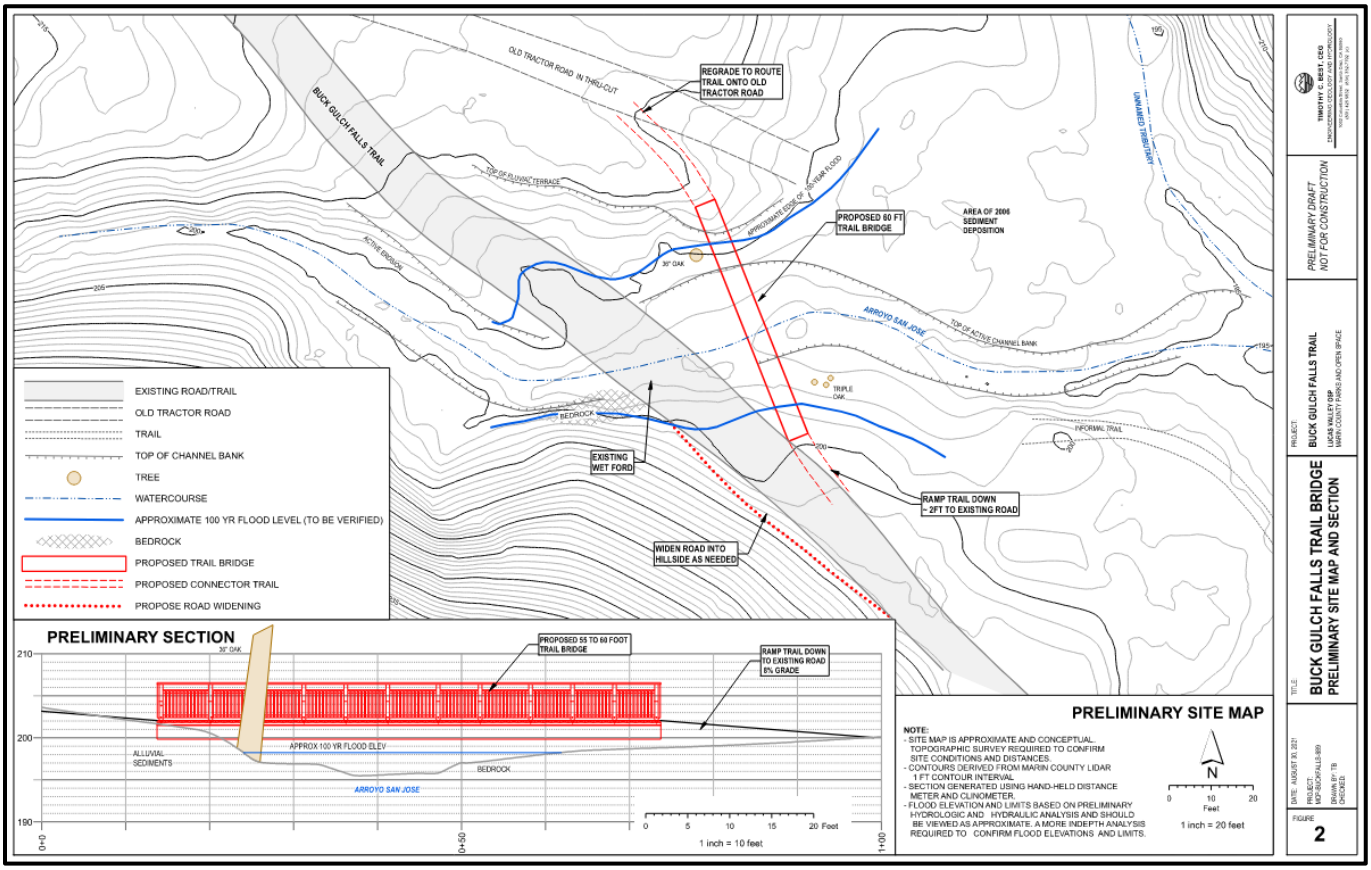
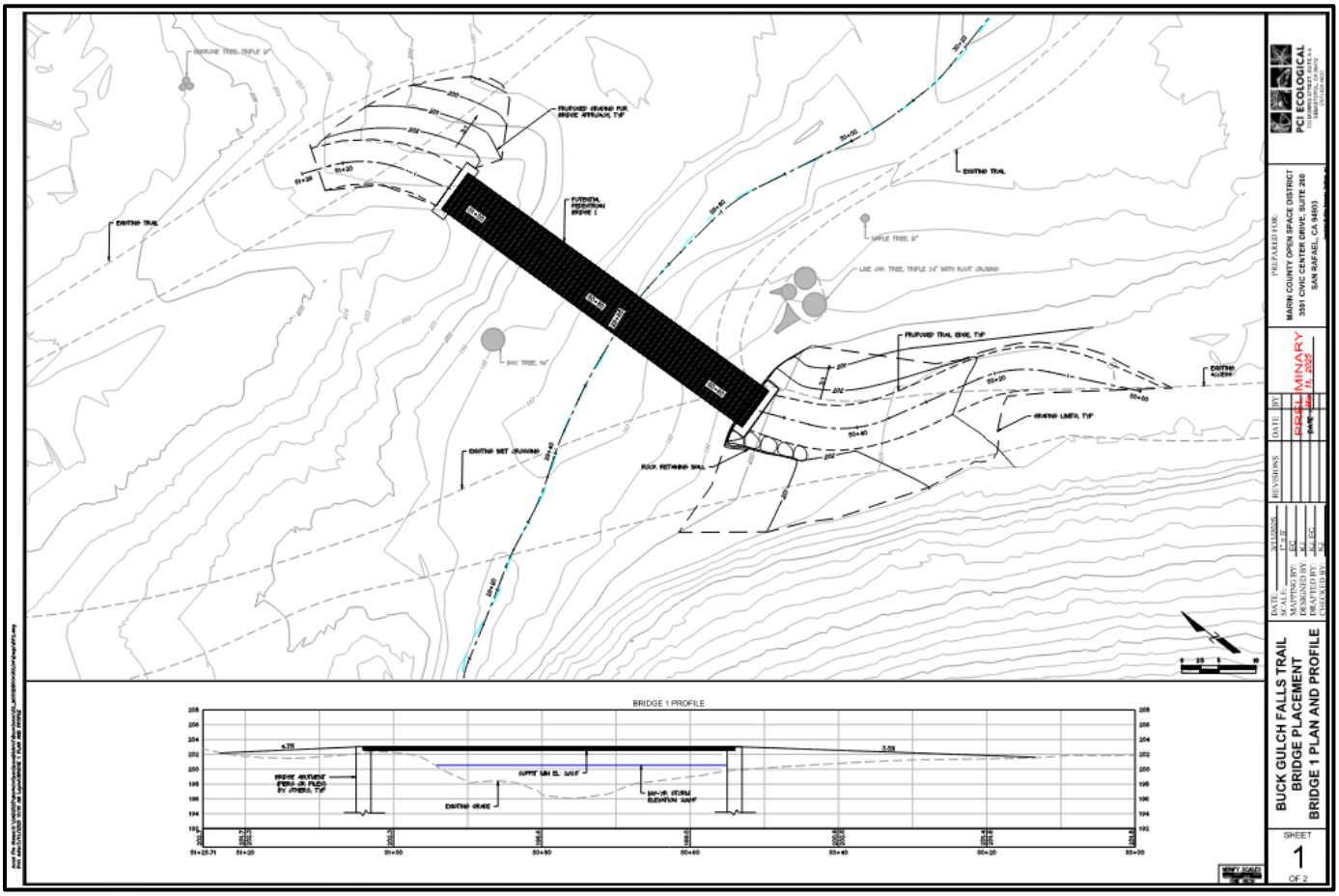
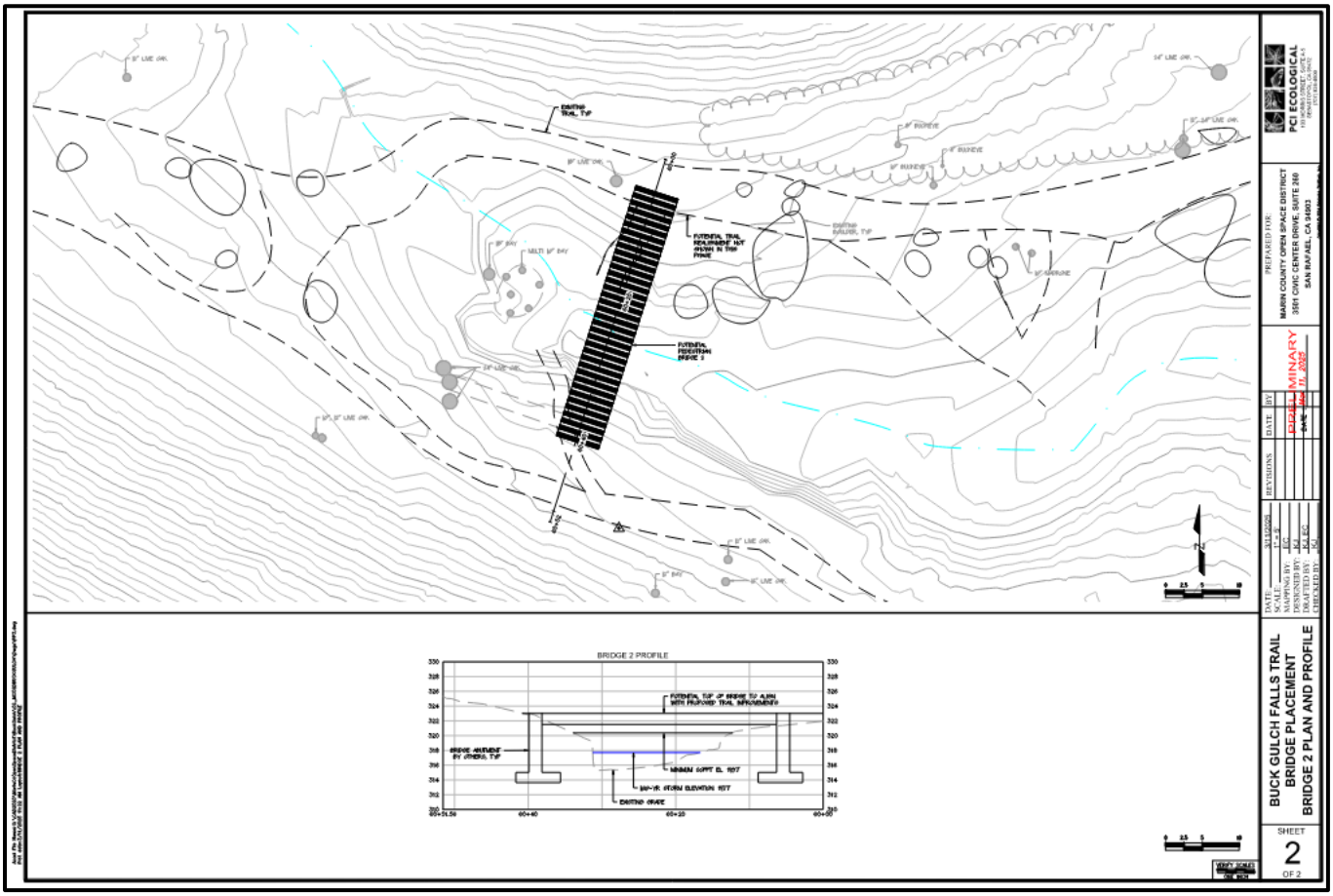


Figure 7: Proposed Bridge 1 Placement Site Plan[39]



[39] PCI Ecological. 2025. *Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report.* March 2025.

Figure 8: Proposed Bridge 2 Placement Site Plan[40]



[40] PCI Ecological. 2025. *Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report.* March 2025.

Figure 9: Proposed Streambank Stabilization Grading Plan

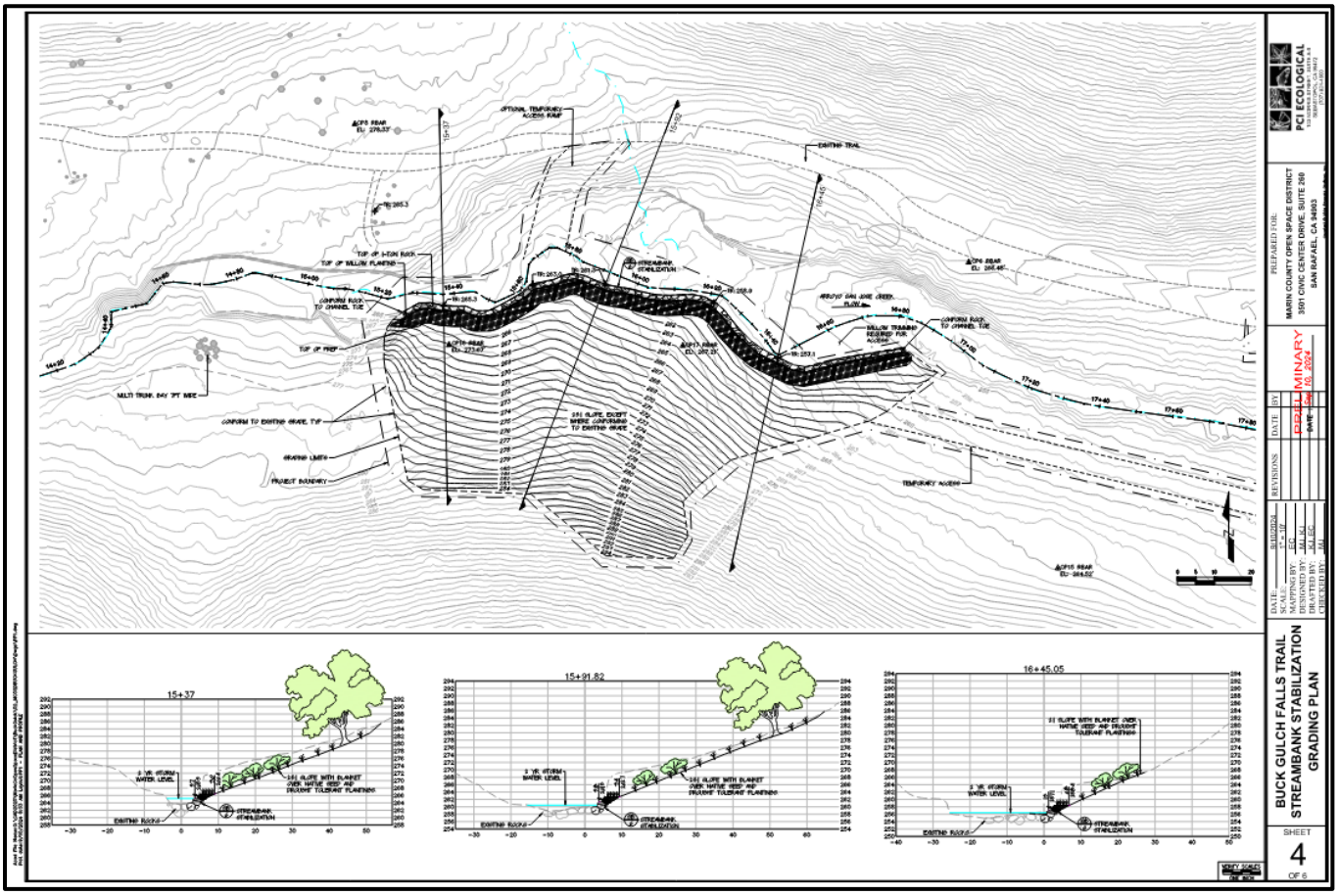


Figure 10: Proposed Streambank Stabilization Revegetation Plan

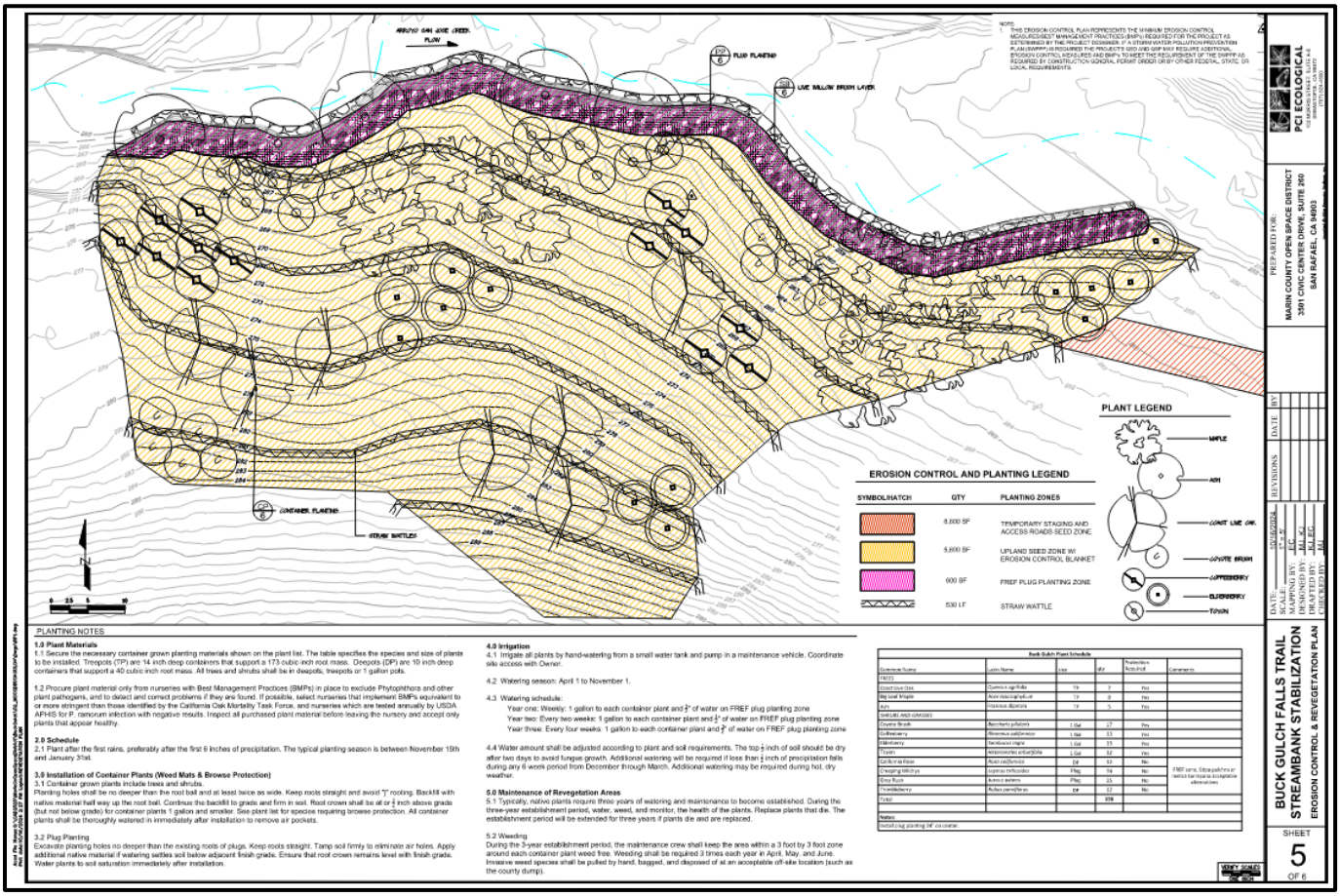


Figure 11: Proposed Revegetation Map Along Trail Alignments

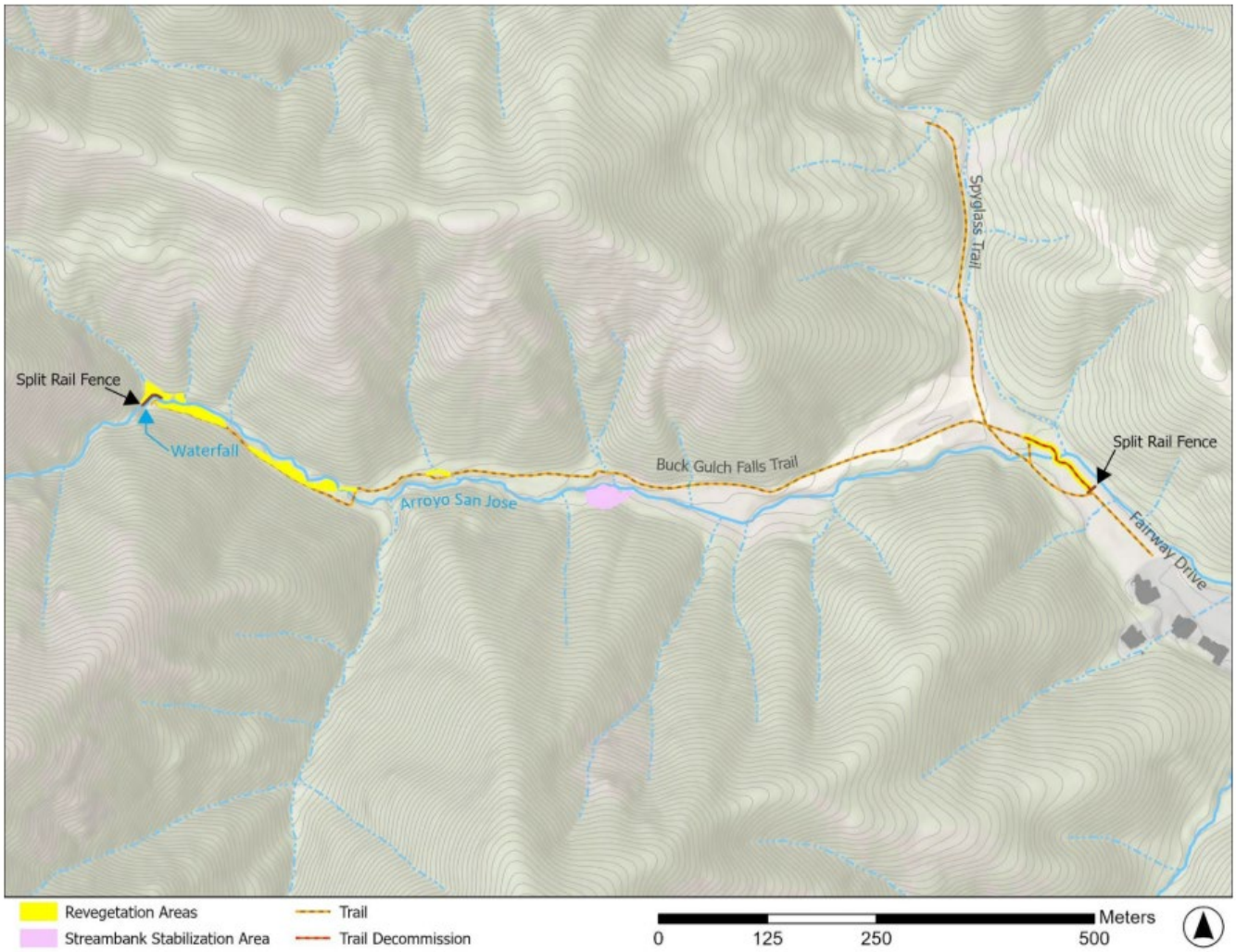
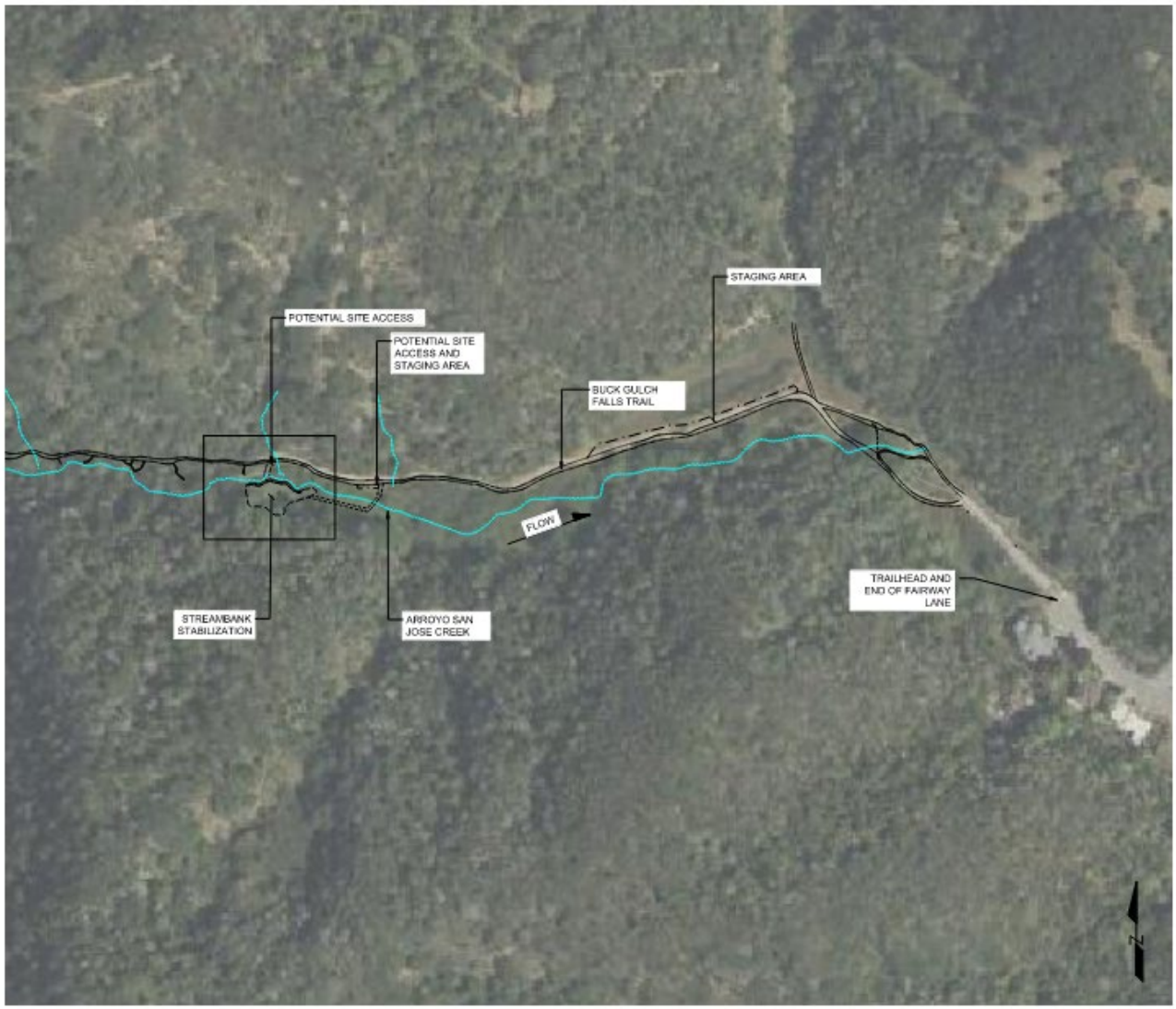


Figure 1. Revegetation Map

Figure 12: Proposed Construction Access Area – Streambank Stabilization



SITE LAYOUT

SCALE: 1" = 150'

Figure 13: Typical Trail Profile Wall

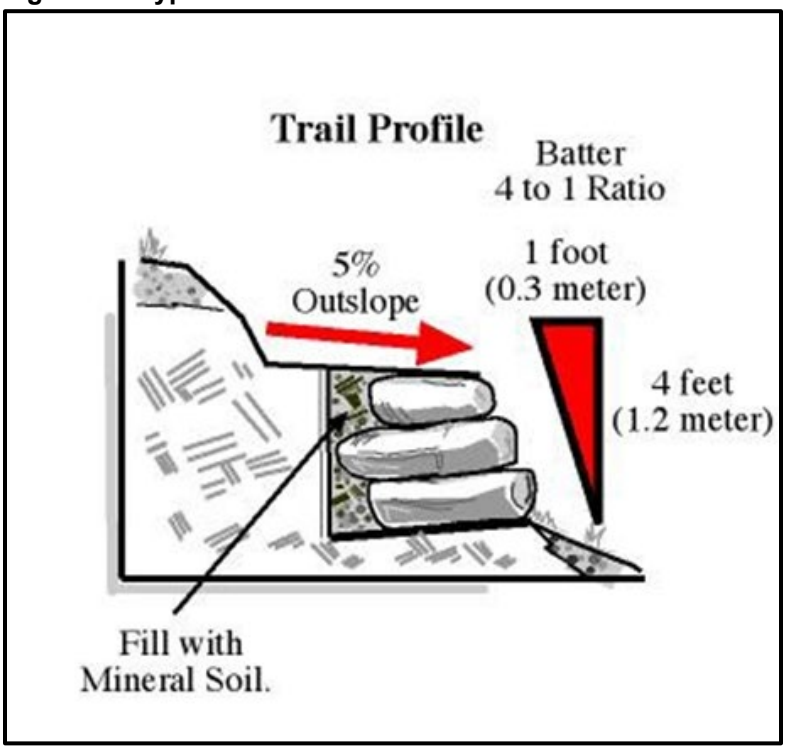


Figure 14: 8 Percent Average Grade Trail

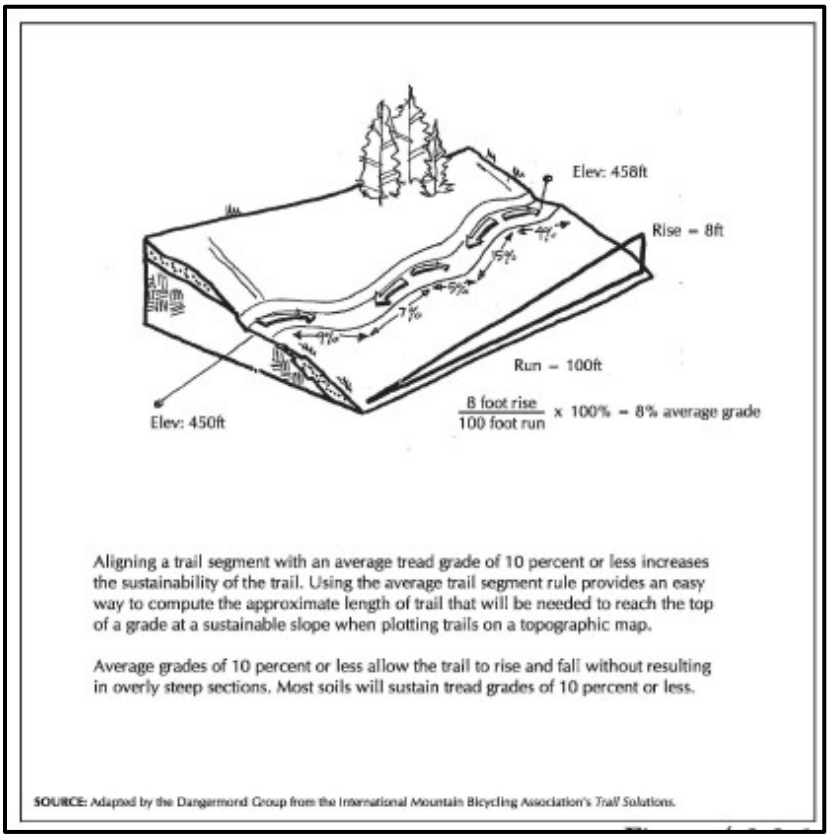


Figure 15: Typical Outsloped Trail

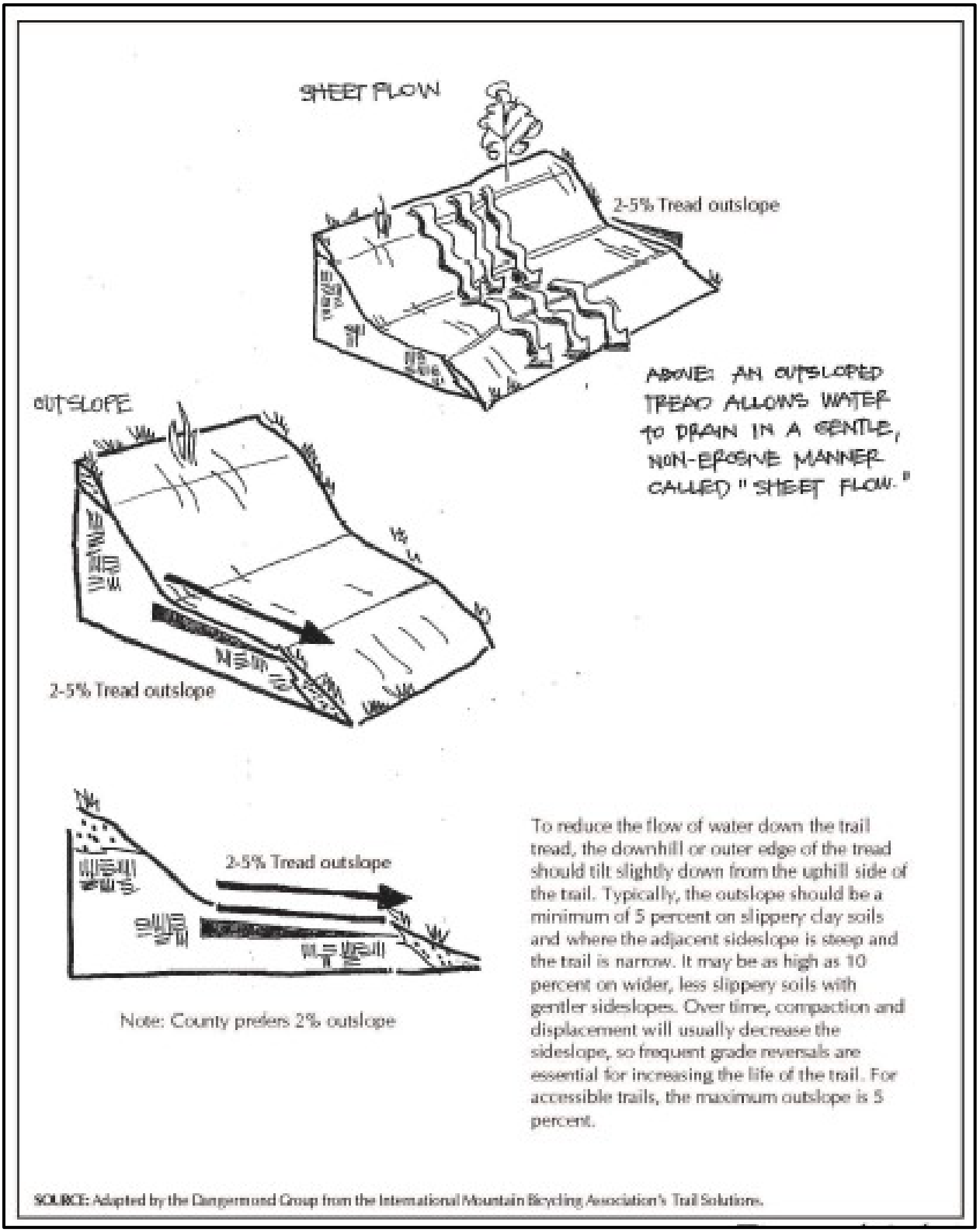
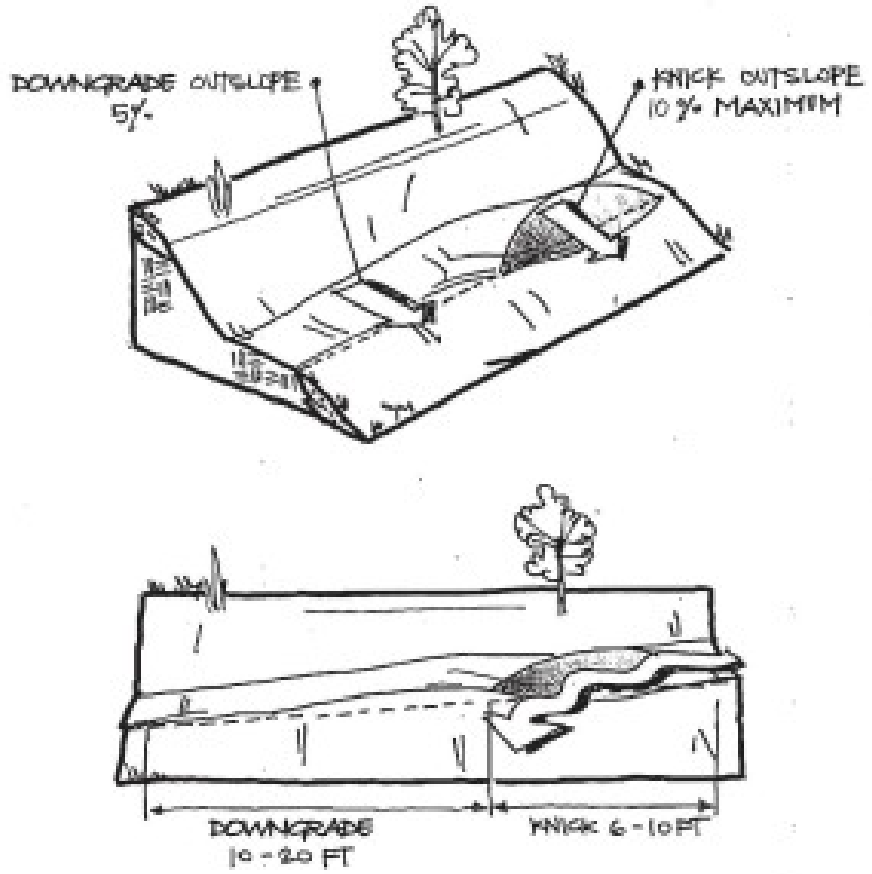


Figure 16: Typical Rolling Drainage Dips for Trail Drainage



A rolling grade dip is a knick combined with a 10- to 20-foot downgrade downhill of the knick. The dip should be longer than the average length of a bicycle (9 feet). The downgrade is constructed from the excavated dirt and should be outsloped at 5 percent. On unstable soils, the downgrade should be reinforced with subsurface rocks, and clay should be added to the soil for additional binding capacity. Alternatively, the entire rolling grade dip should be carved out of the trail tread.

SOURCE: Adapted by the Dangermond Group from the International Mountain Bicycling Association's *Trail Solutions*.

Figure 17: Typical Retaining Wall Back Drain

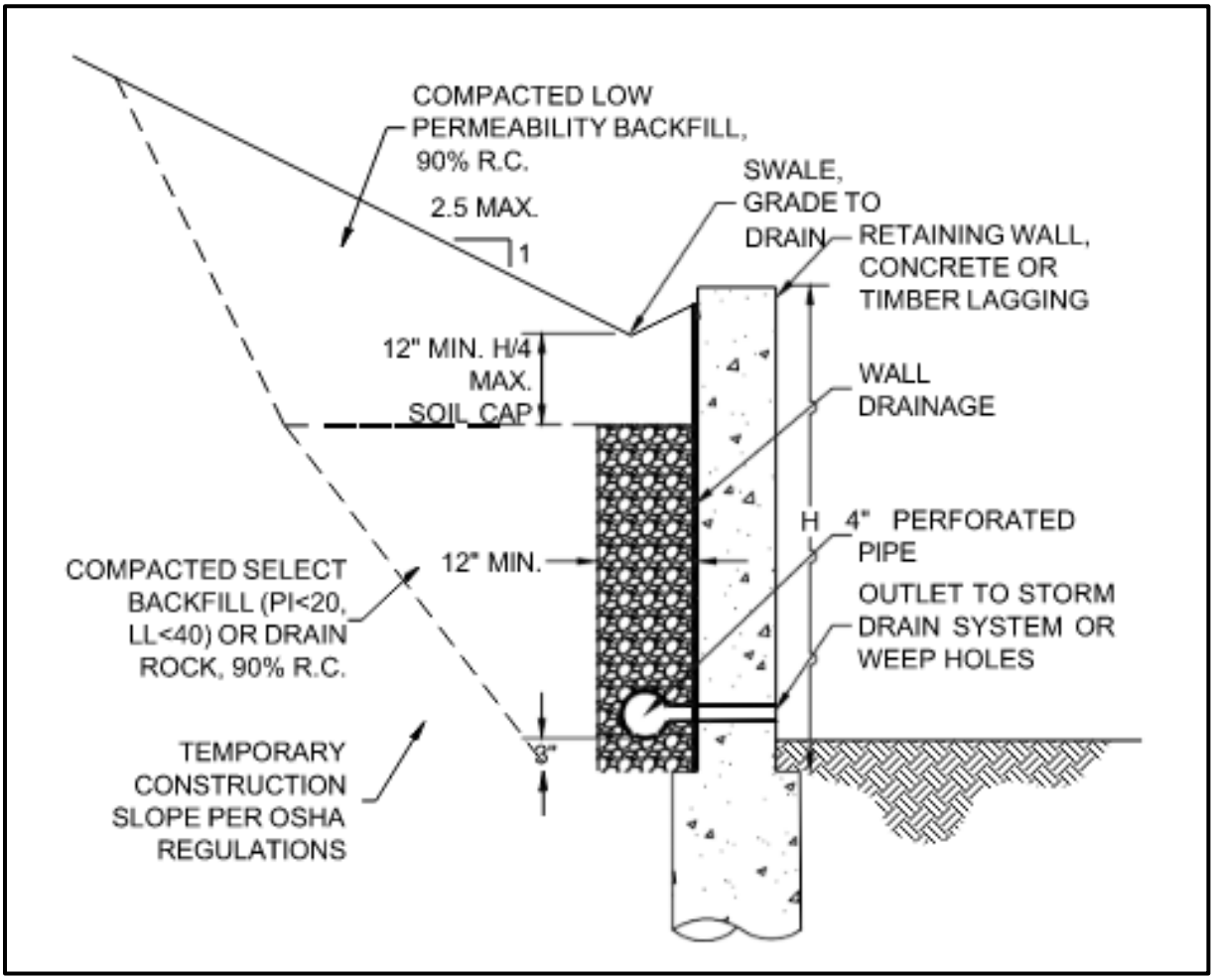
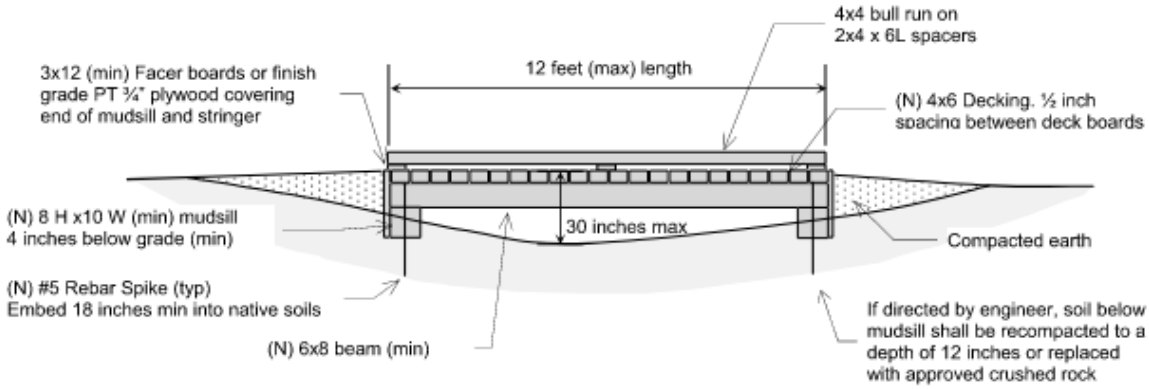


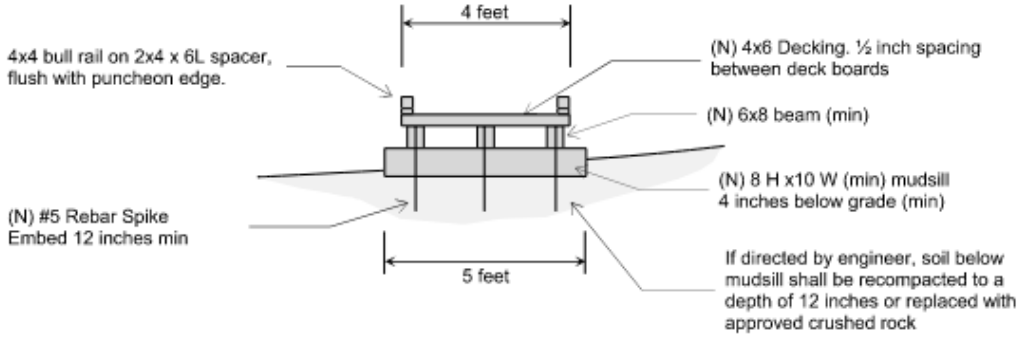
Figure 18: Typical Low Puncheon (Boardwalk)

8
C14

LOW PUNCHEON (BOARDWALK)

NTS





NOTES

- Standard puncheon width shall be 4 feet; refer to site plan if narrower puncheon is proposed
- Beams and mudsill shall be Con Heart redwood, approved plastic, or approved pressure treated Douglas-Fir #2 or better rated for ground contact.
- Decking and wood not in contact with earth shall be Con Heart redwood or approved plastic
- If directed by engineer, soil below mudsill shall be recompacted to a depth of 12 inches or replaced with approved crushed rock
- All hardware shall be galvanized
- Anchor decking with (2) 3/8 inch x 8 inch galvanized wire spikes (typ); predrill holes for spikes
- Anchor bull rail with (2) 3/8 inch x 10 inch galvanized wire spikes (typ); predrill holes for spikes
- Maintain 2% maximum slope on puncheon

Figure 19: Typical Split Rail Fence

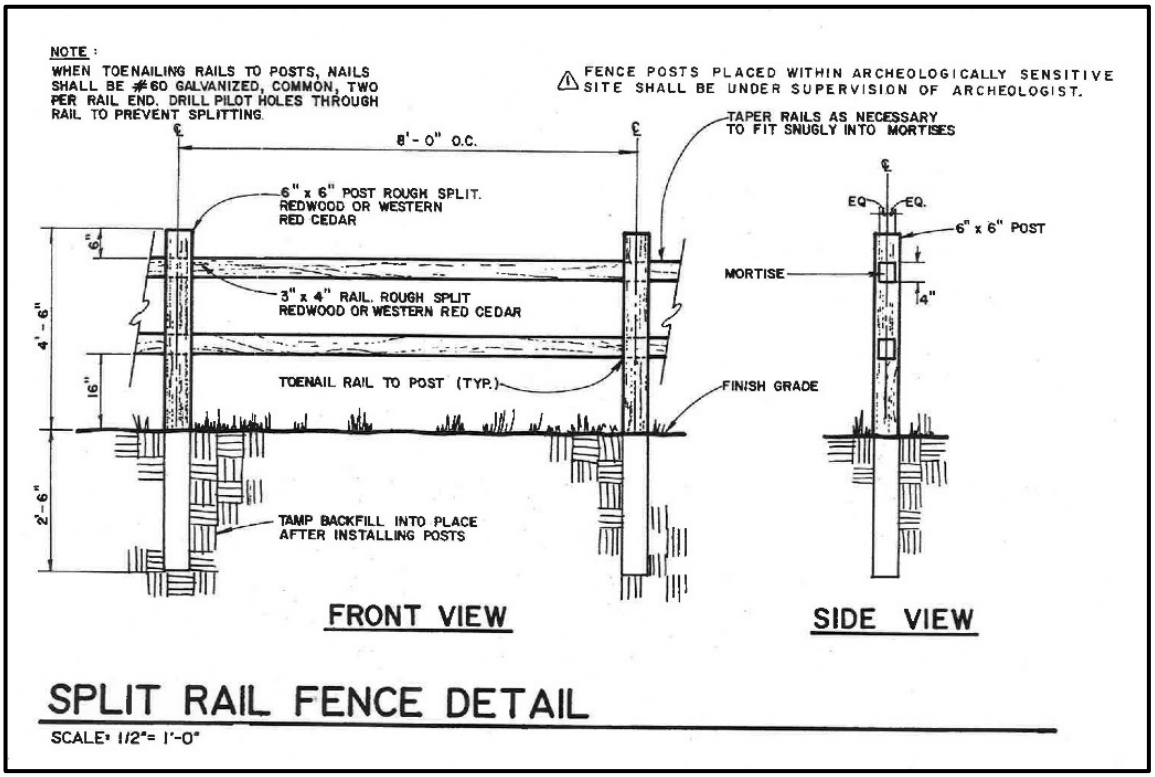


Figure 20: Typical Streambank Stabilization

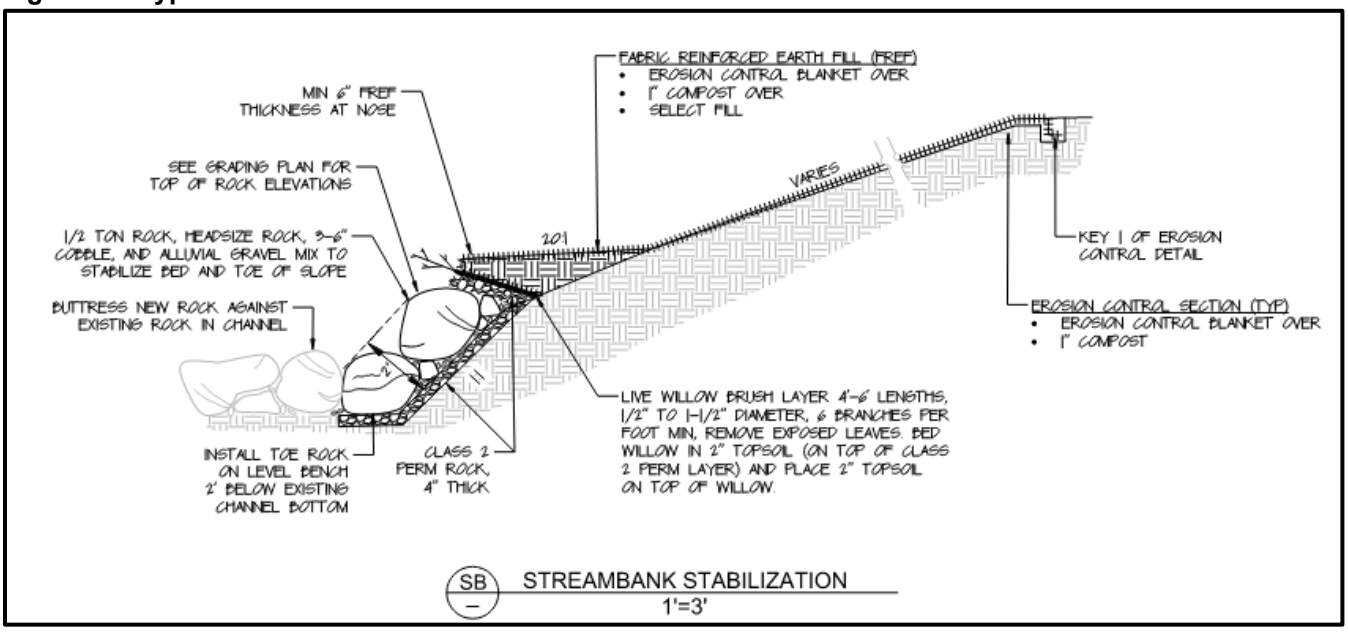


Figure 21: Typical Trail with Slope to Meet Existing Grade

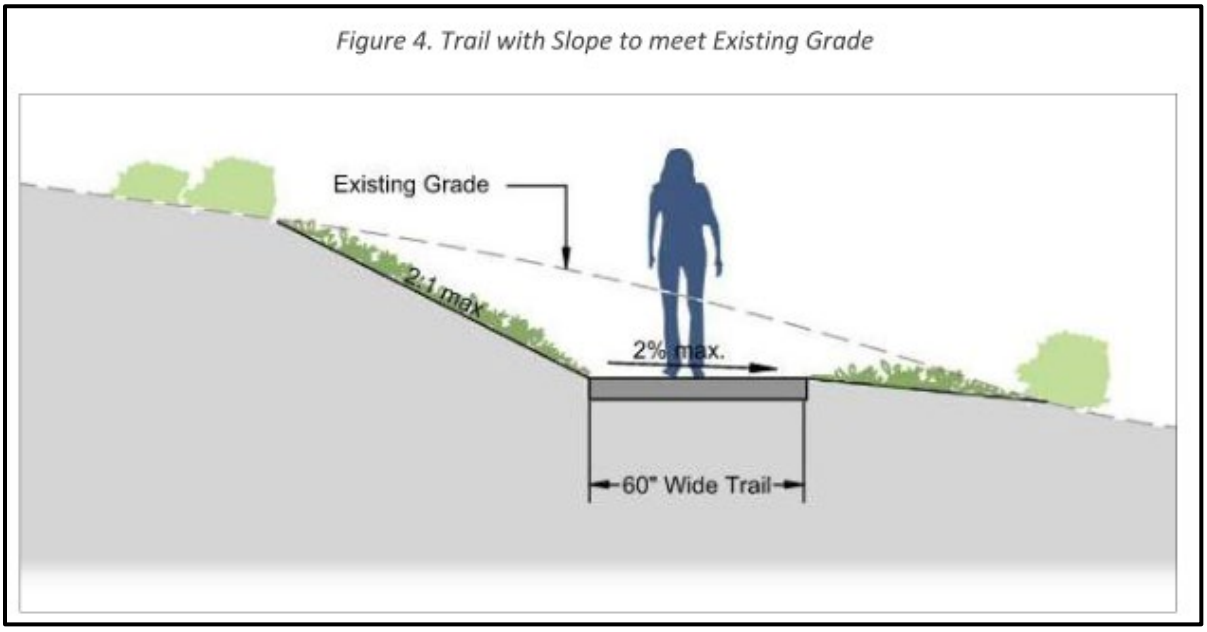


Figure 22: Typical Trail at Toe of Slope/Revegetation of Existing Trail

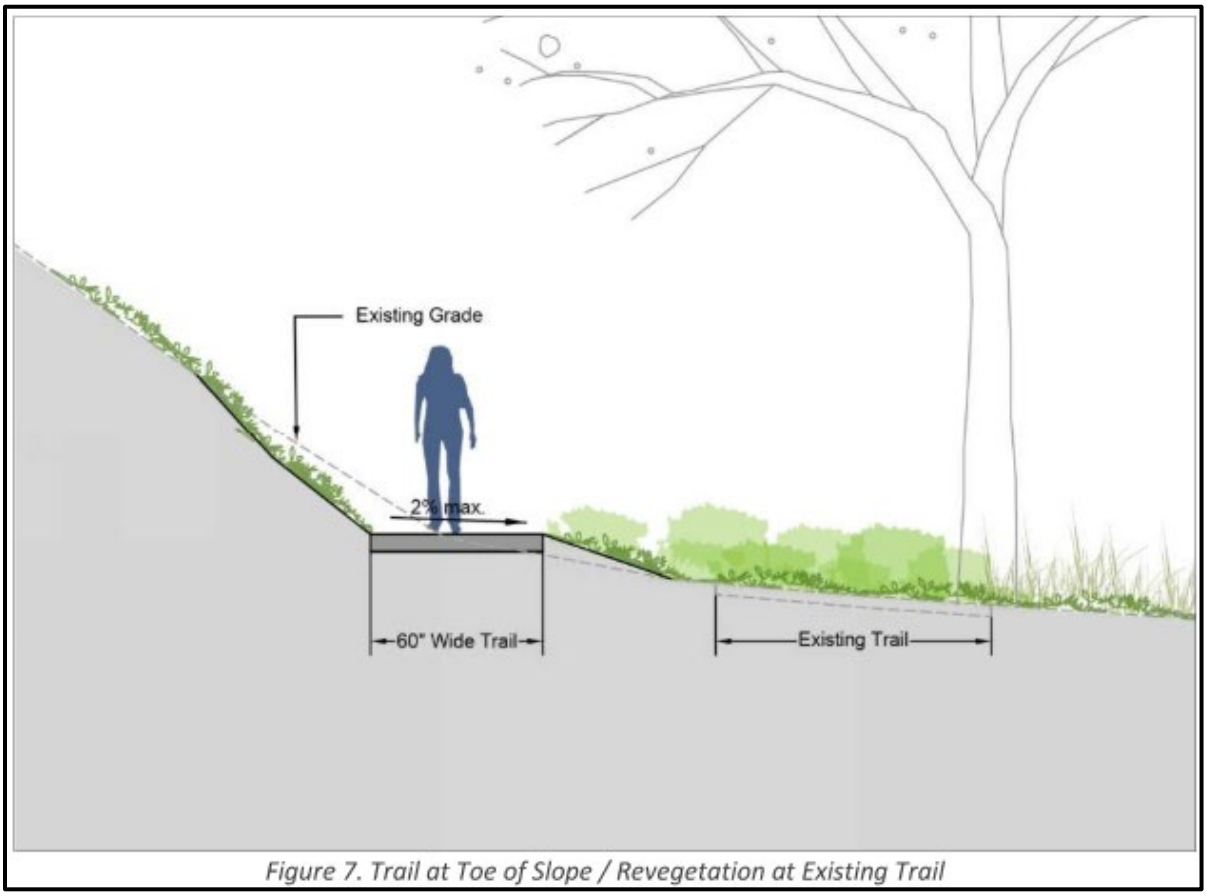
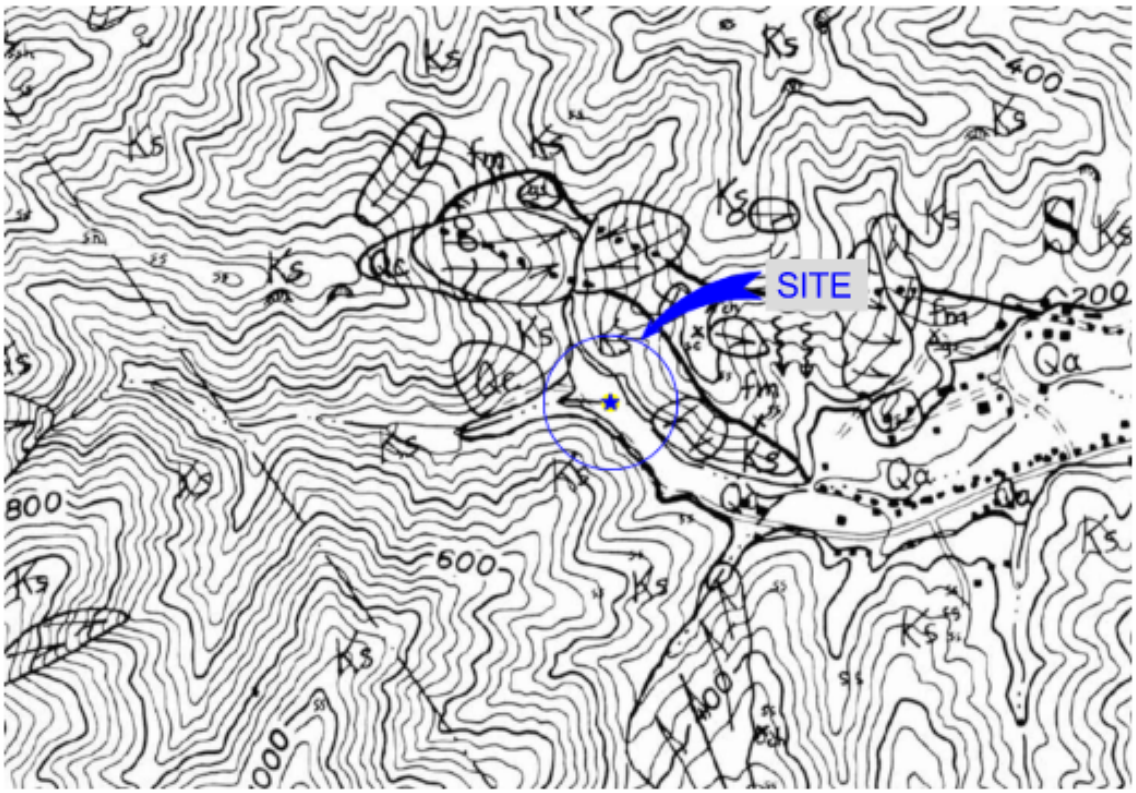


Figure 23: Geology of the Project Area



REGIONAL GEOLOGIC MAP

N

LEGEND

Debris Flow Landslides: Deposits of unconsolidated and unsorted soil and rock debris that have moved down slope en masse or in increments by flow or creep processes.

Qa Alluvium: Unconsolidated deposits of clay, silt, sand, and gravel underlying valley bottoms, consisting of materials transported and deposited by streams.

Qc Colluvium: Unconsolidated and unsorted soil material and weathered rock fragments accumulated at or on the bases of slopes by natural gravitational or slope wash processes. Derived by weathering and decomposition of bedrock materials underlying slopes.

Ks Sandstone and shale: with minor amounts of conglomerate. Occurrences of principal rock types in this unit are indicated by the following lithologic symbols:
- ss Sandstone: mainly thick bedded to massive, medium to coarse grained, fairly well sorted, angular to sub-rounded grains. Light gray where fresh, buff where weathered.
- sh Shale: well bedded siltstone,dark gray where fresh, light gray and stained by iron oxide were weathered along joints.

fm Franciscan Melange: A tectonic mixture consisting of small to large masses of resistant rock types, principally sandstone, greenstone, chert, and serpentine, but including various exotic metamorphic rock types, embedded in a matrix of pervasively sheared or pulverized rock material. Exposures of rock masses within the melange matrix are indicated by the following lithologic symbols:
- ss Sandstone and Shale: Mainly graywacke type sandstone, with or without alternating beds of dark gray shale.
- ch Chert: and allied silicious rocks. Mainly isolated prominent outcrops of reddish brown, greenish, or light gray, thinly bedded chert, but includes prominent exposures of red and yellow jasper.
- sp Serpentinite: Pale green to dark green, fine grained, metamorphic rocks composed almost entirely of the magnesium silicate minerals lizardite and chysotile.

REFERENCE: Rice, Salem J., 1974, "Geology of the Western Part of the Novato Area, Marin County, California", California Division of Mines and Geology, Scale 1:12,000.

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www.millerpac.com

REGIONAL GEOLOGIC MAP

MCOSD
Buck Gulch Pedestrian Bridge
Novato, California

Project No. 378.169 Date: 1/3/2025

Drawn RJA
Checked

3
FIGURE

Figure 24: Aquatic Resources in the Biological Resources Evaluation

Figure 25: Plant Communities in the Biological Resources Evaluation

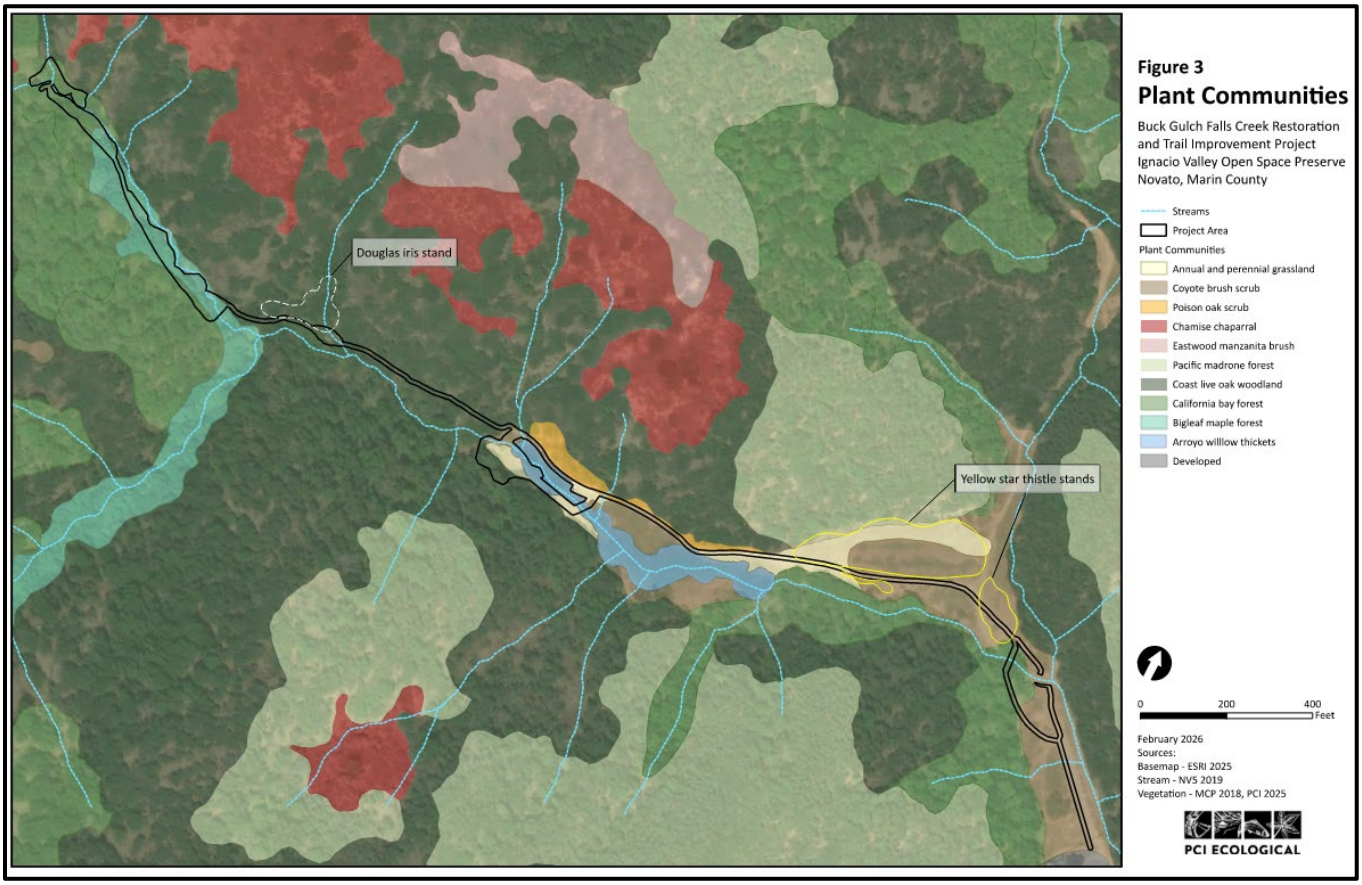


Figure 26: Proposed Project Alternatives

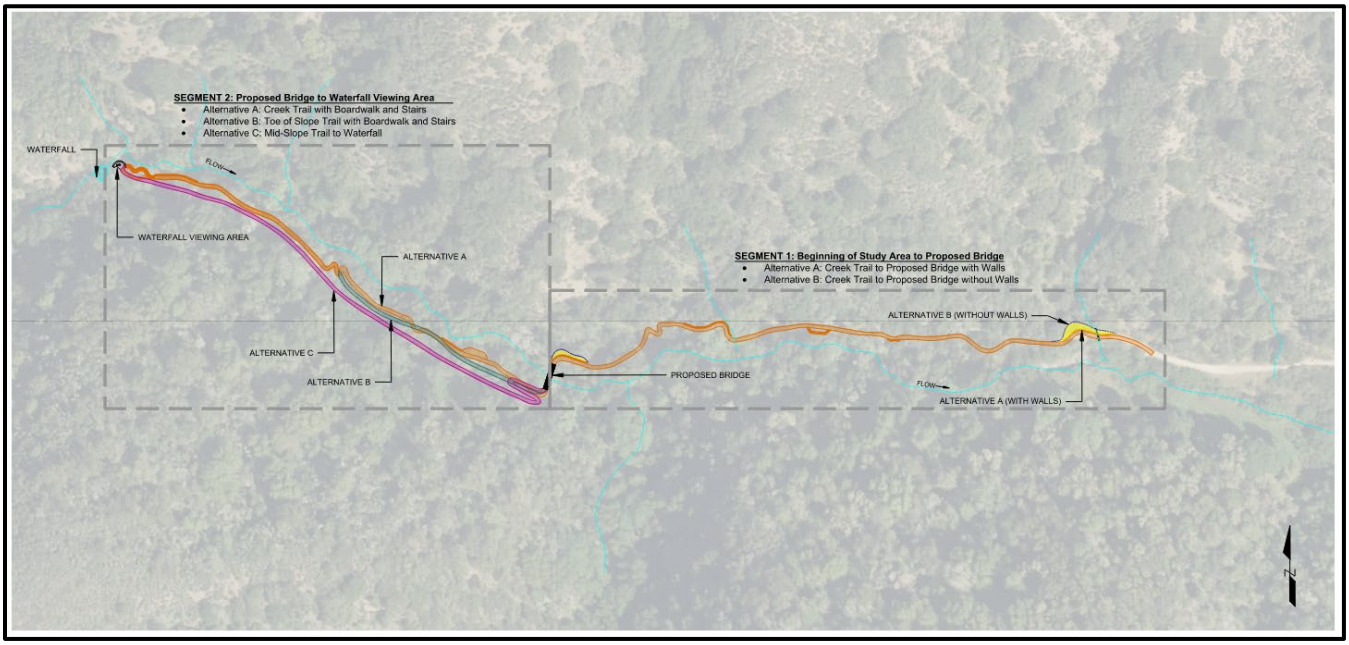


Figure 27: MCOSD Preserves by RTMP Region

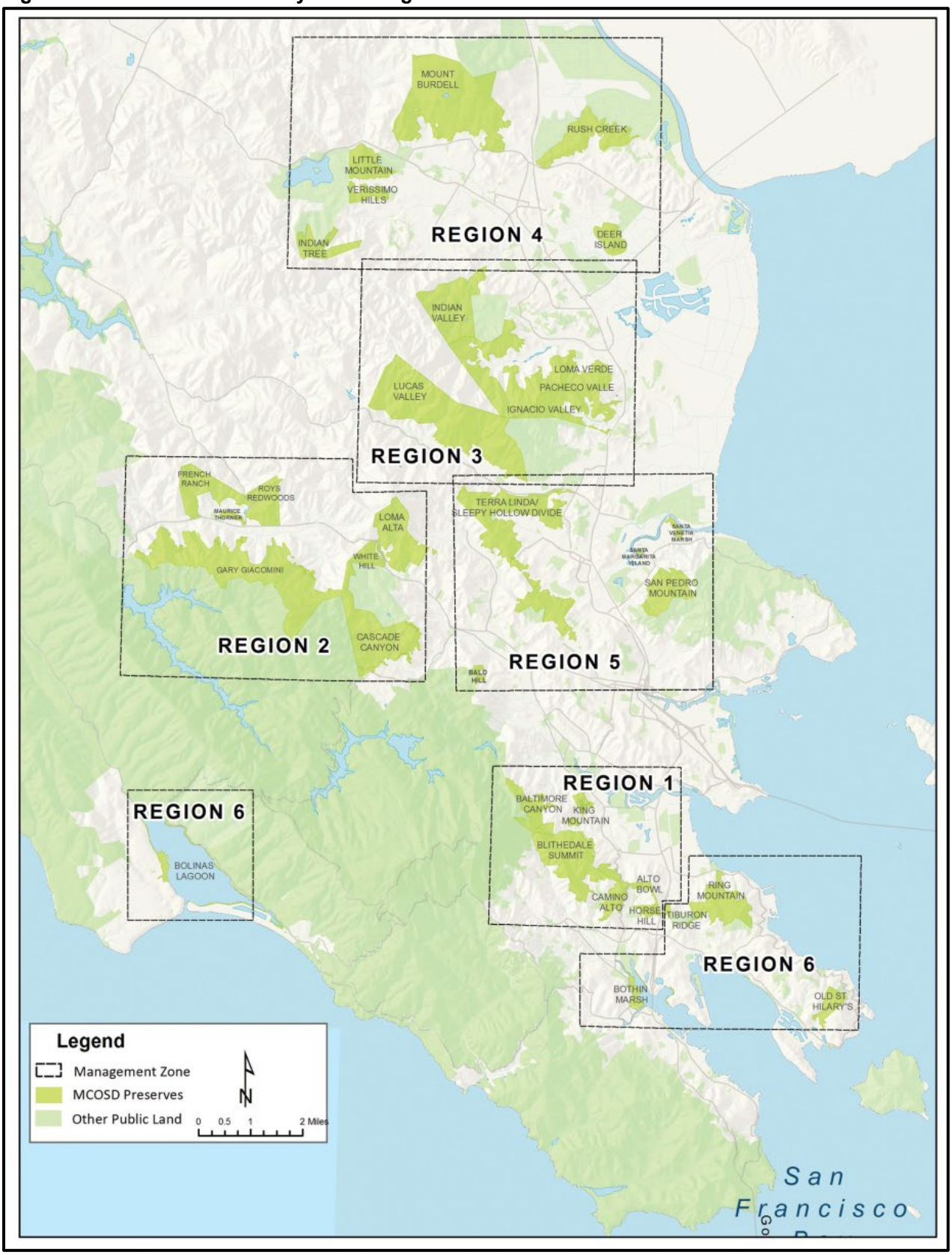


Figure 28: Region 3 Trail Designations

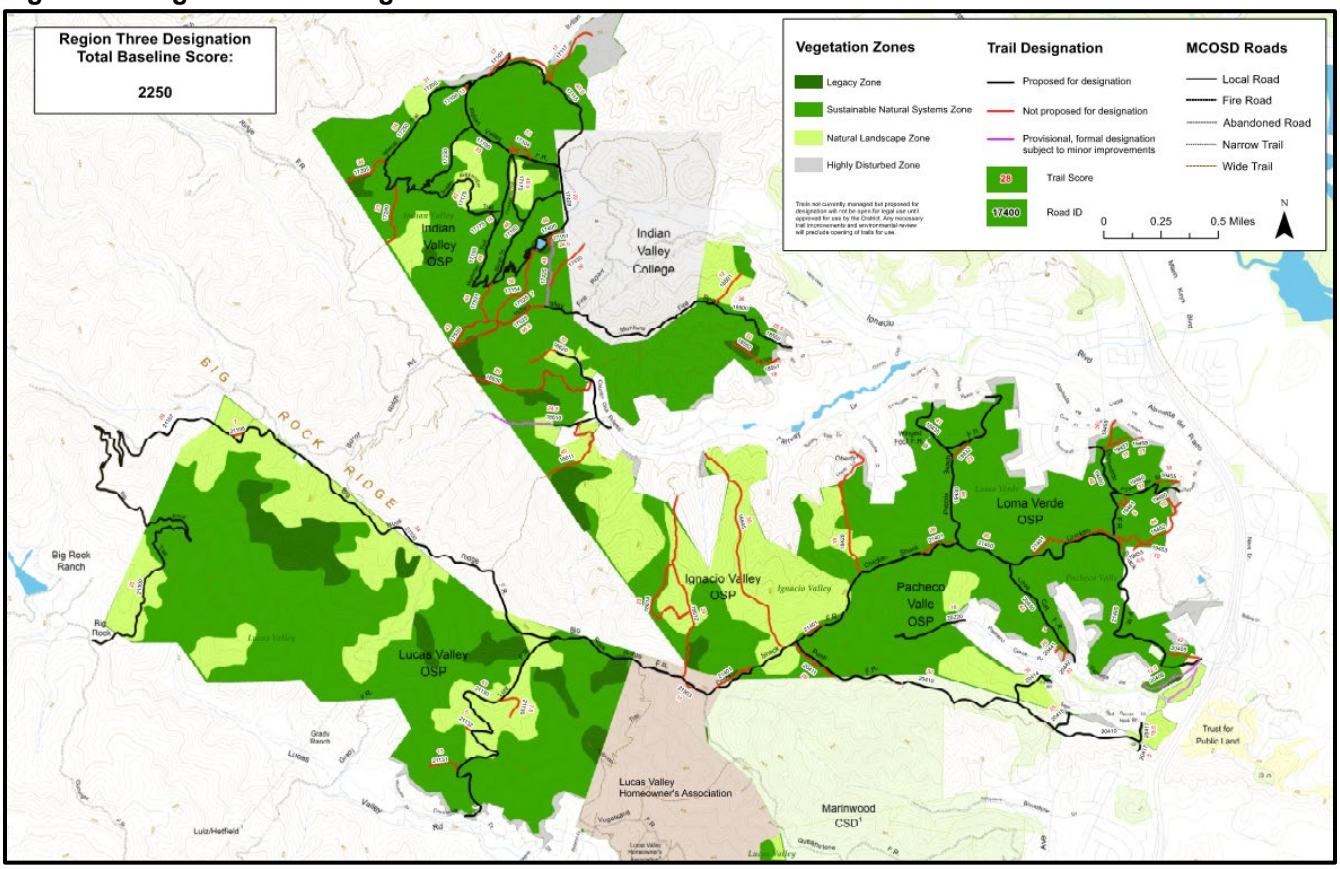


Figure 29: Region 3 VBMP Classifications

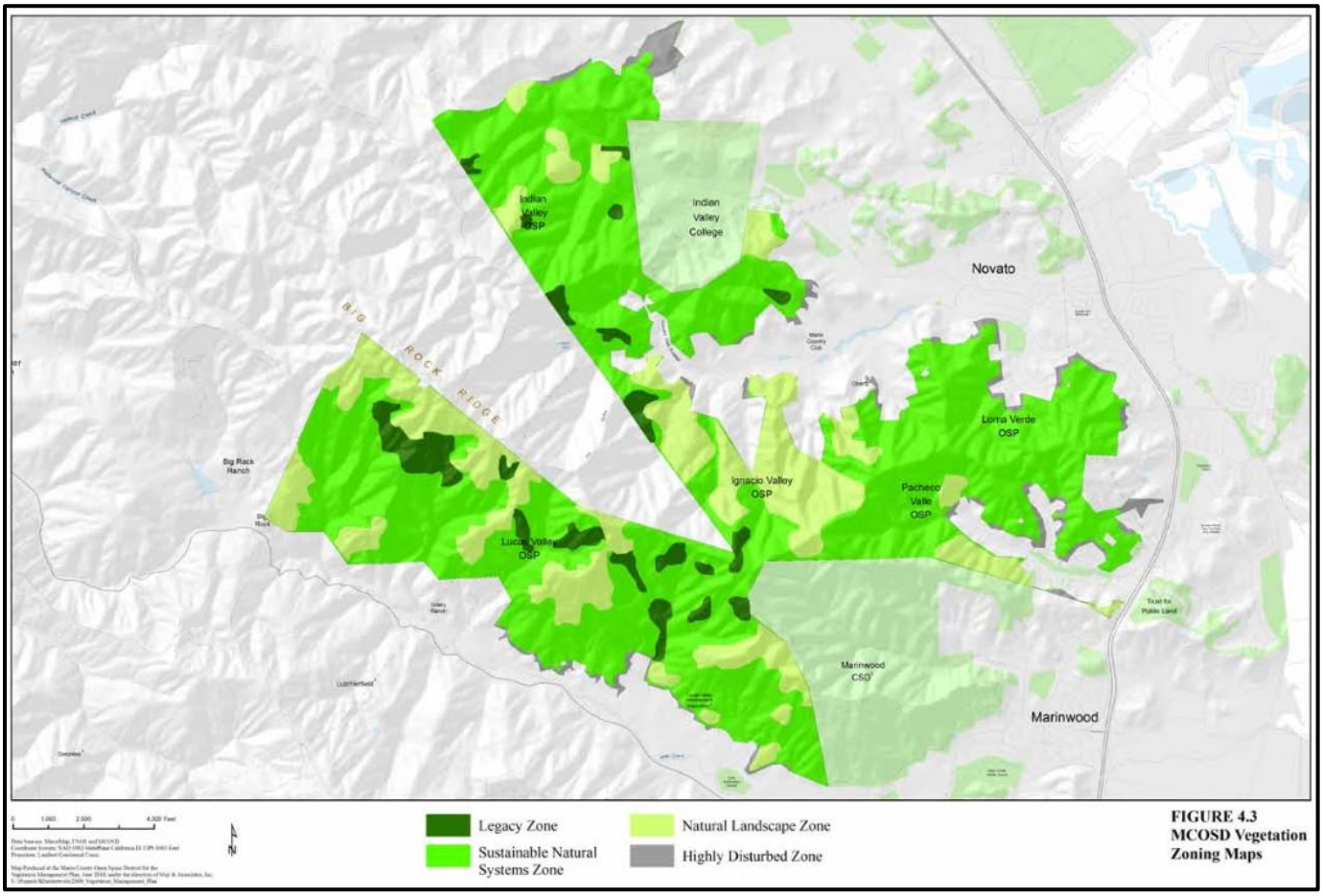


Figure AIR-1: 1000-foot Buffer for Sensitive Receptors

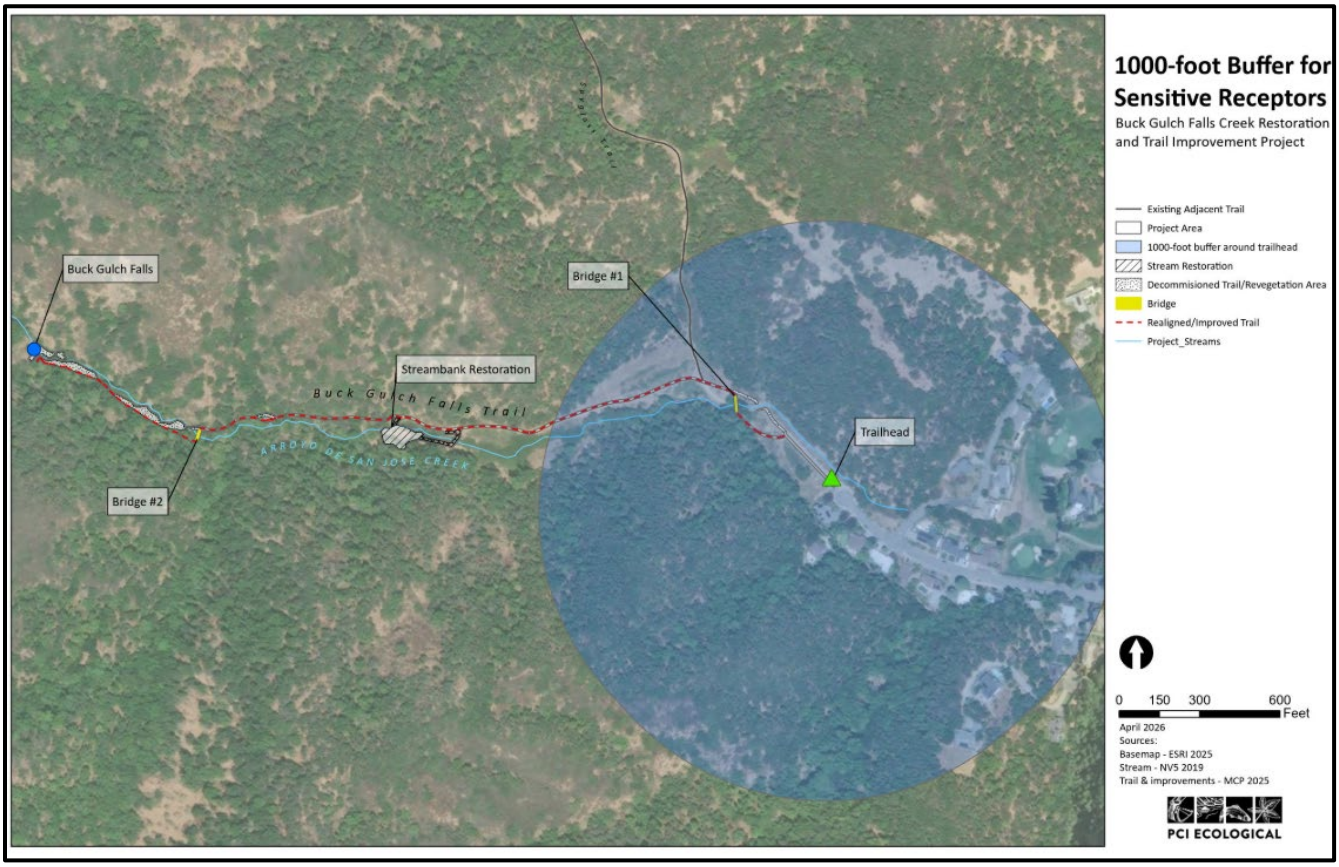


Figure BIO-1: Special-status Species Reported Occurrences

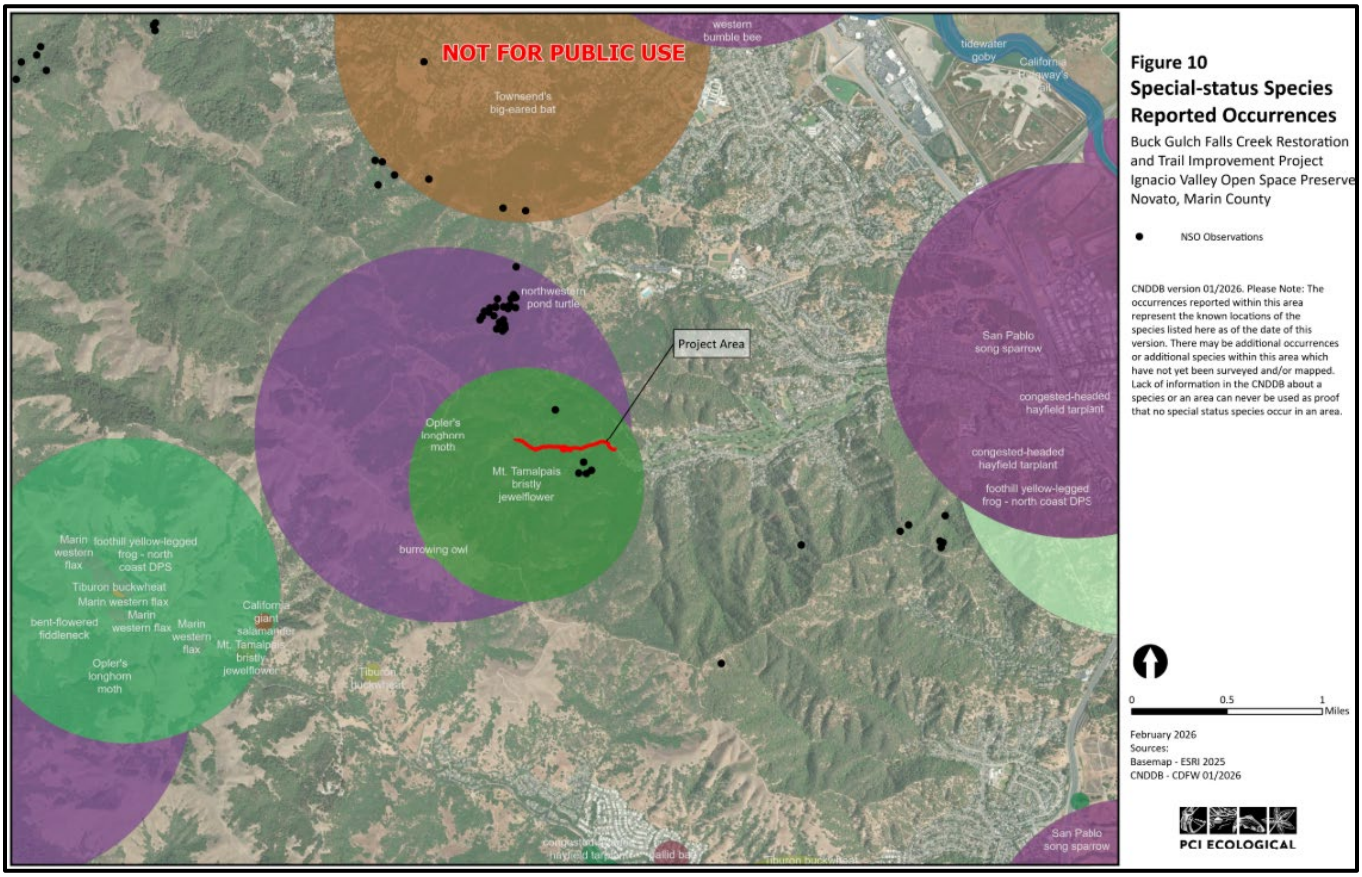


Figure HH-1: Fire Safe Evacuation Route

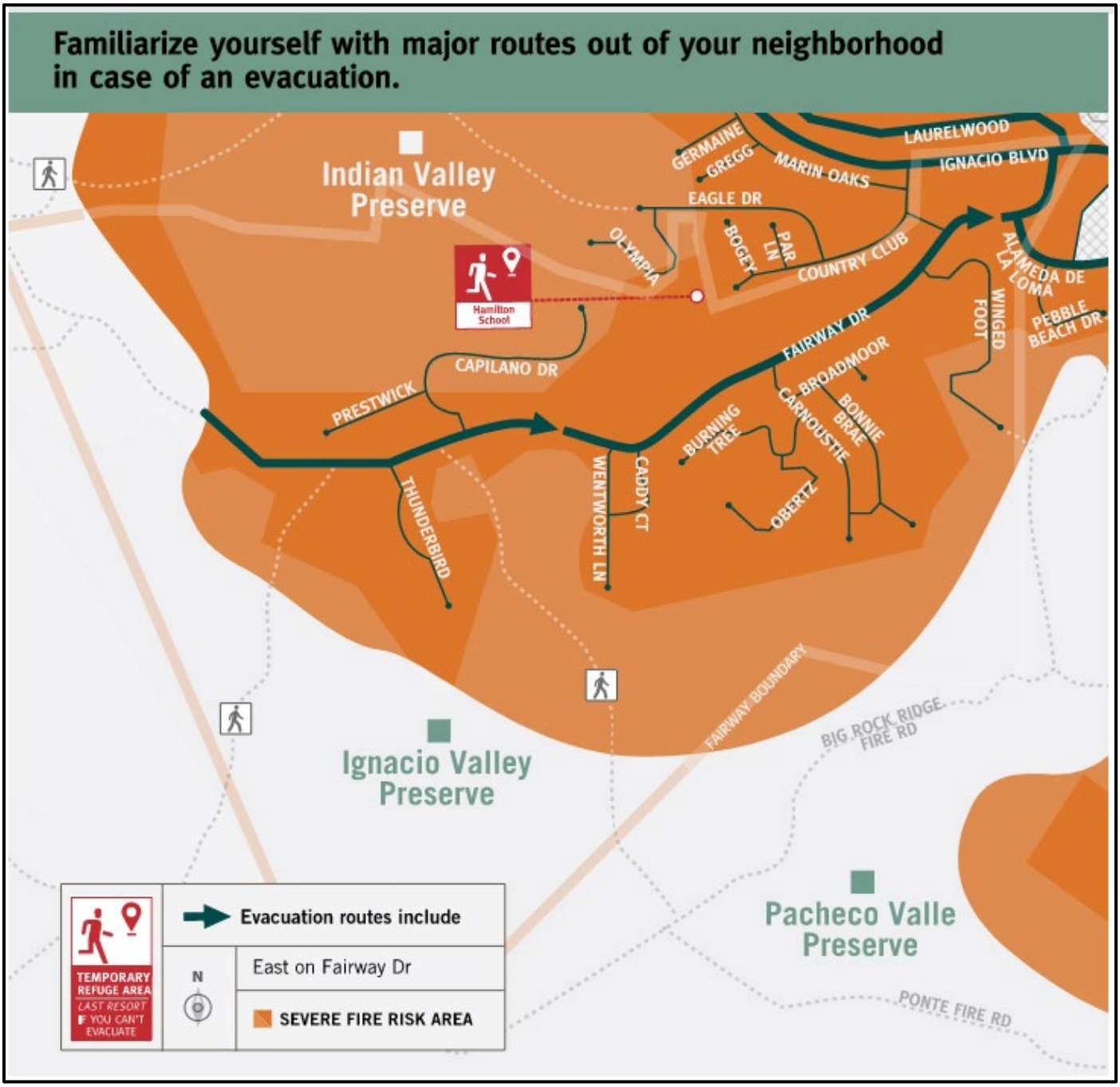
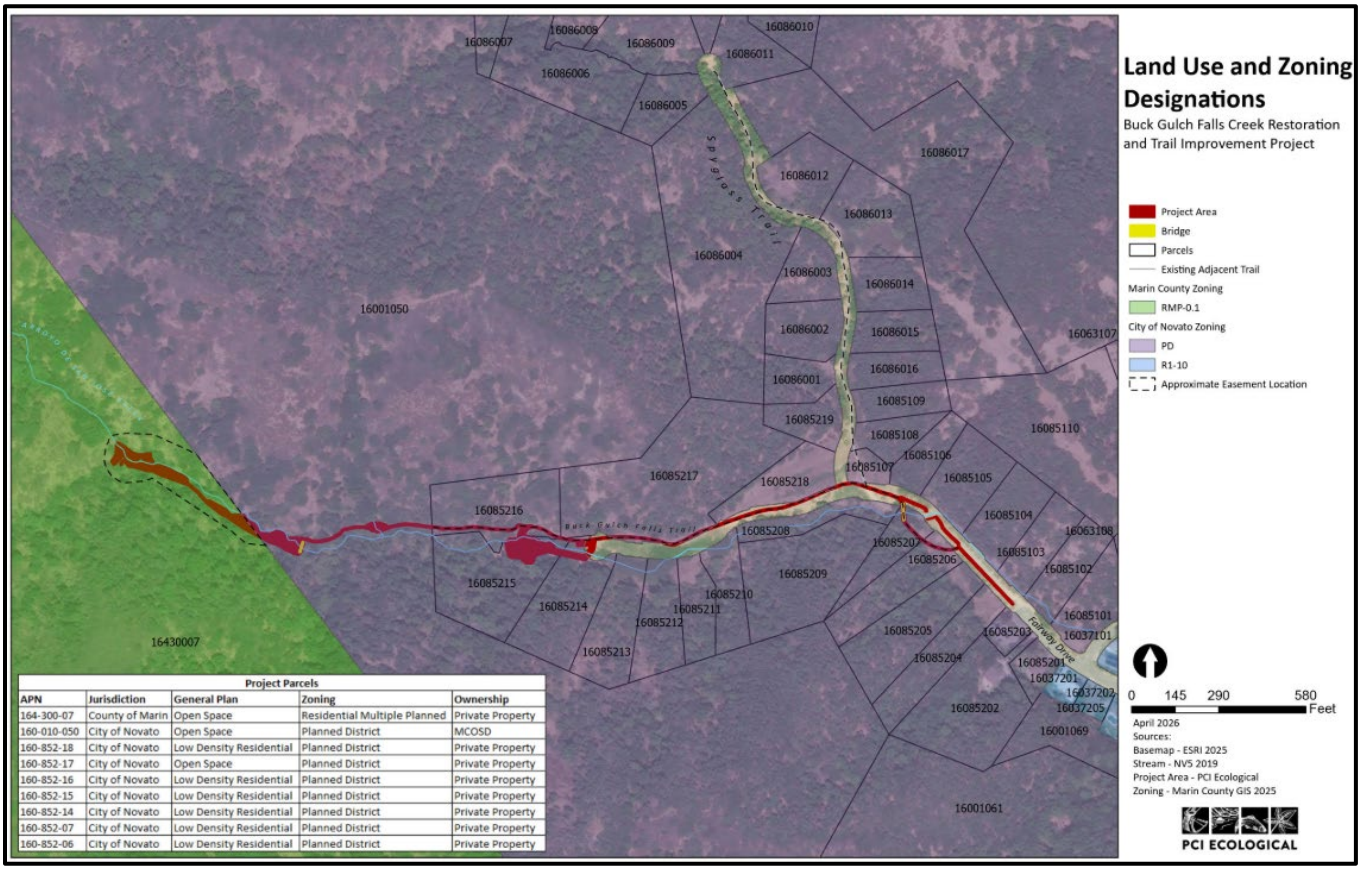


Figure LUP 1: Land Use and Zoning Designations



Project Parcels				
APN	Jurisdiction	General Plan	Zoning	Ownership
164-300-07	County of Marin	Open Space	Residential Multiple Planned	Private Property
160-010-050	City of Novato	Open Space	Planned District	MCOSD
160-852-18	City of Novato	Low Density Residential	Planned District	Private Property
160-852-17	City of Novato	Open Space	Planned District	Private Property
160-852-16	City of Novato	Low Density Residential	Planned District	Private Property
160-852-15	City of Novato	Low Density Residential	Planned District	Private Property
160-852-14	City of Novato	Low Density Residential	Planned District	Private Property
160-852-07	City of Novato	Low Density Residential	Planned District	Private Property
160-852-06	City of Novato	Low Density Residential	Planned District	Private Property

Figure WF-1: Fire Hazard Severity Zones

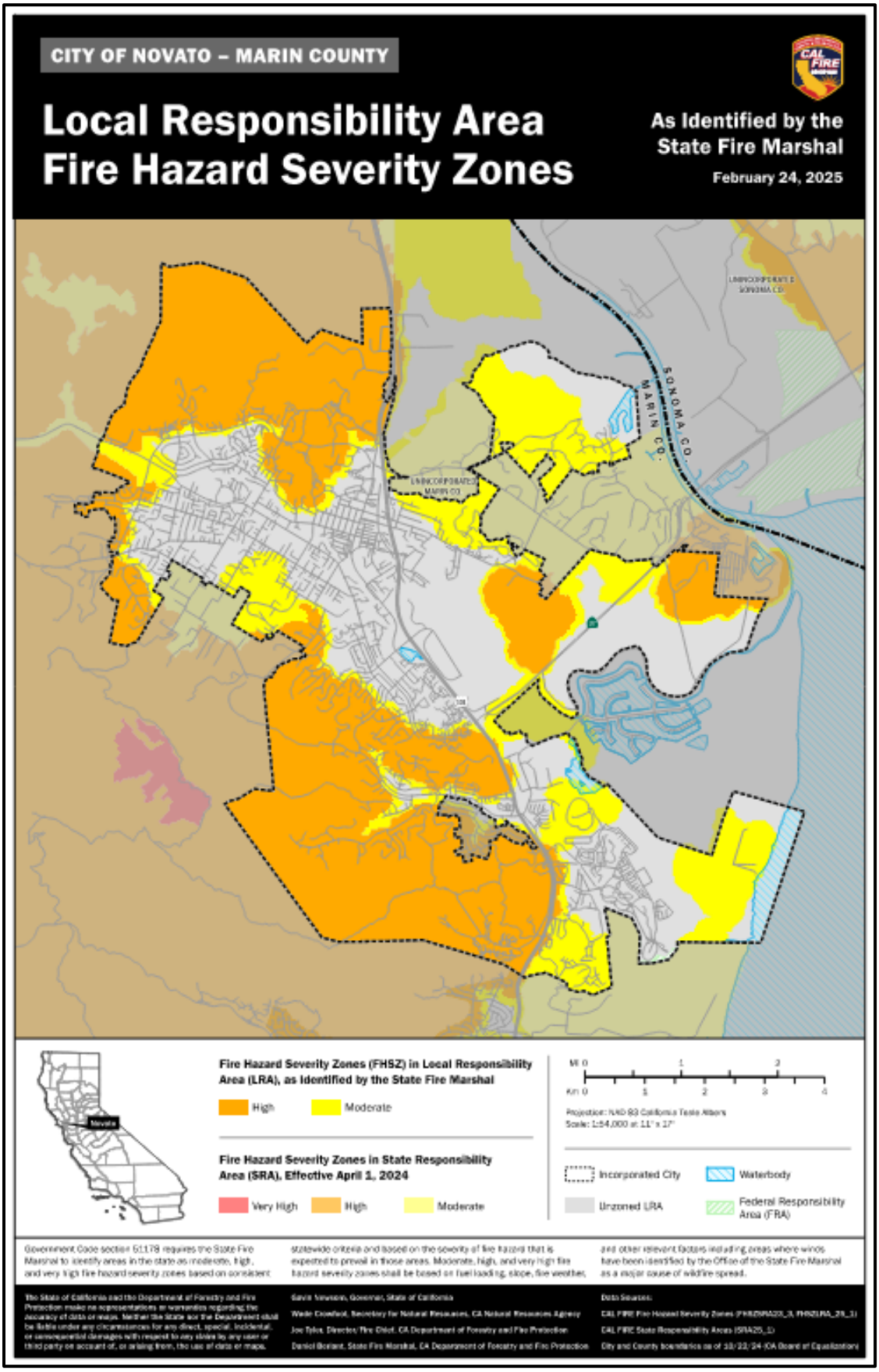
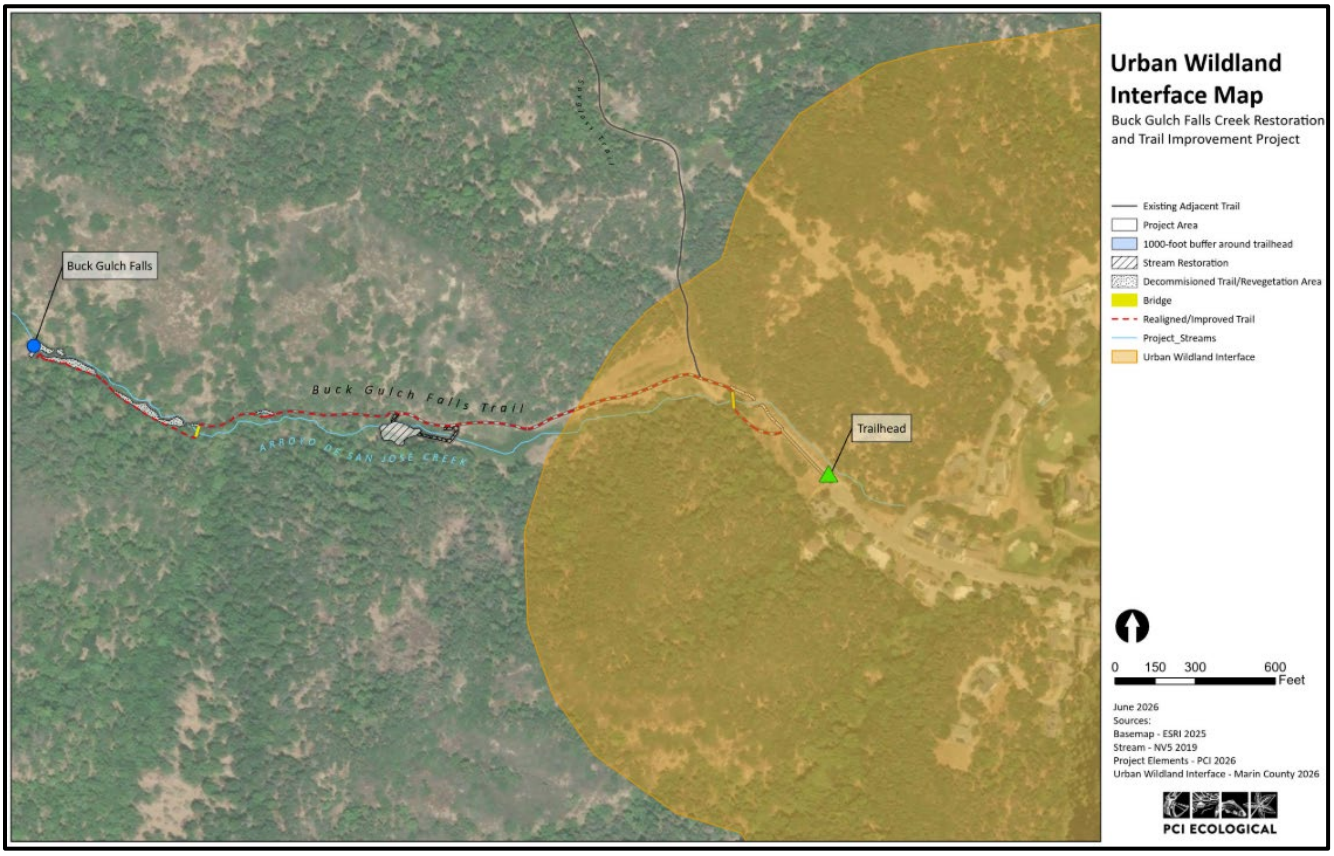


Figure WF-2: Wildland Urban Interface Zone



PHOTOS

Photo 1: View Proposed Bridge 1 Location

Photo 2: View of the Rock Ford Crossing of Arroyo de San Jose Creek

Photo 3: Proposed Bridge 2 Location

Photo 4: View of Buck Gulch Falls Trail Crossing – Proposed Bridge 2 Location

Photo 5: View of Buck Gulch Falls Trail – Proposed Grade Reduction

Photo 6: View of Buck Gulch Falls Trail – Proposed Reduced Trail Alignment

Photo 7: View of Buck Gulch Falls Trail – Proposed Reduced Trail Alignment

Photo 8: Wet Crossing at Buck Gulch Falls Trail – Proposed Puncheon Location

Photo 9: View of Top of Bank – Proposed Trail Realignment and Boardwalk

Photo 10: View of Buck Gulch Falls Trail – Proposed Reduced Alignment

Photo 11: View of Buck Gulch Falls Trail – Proposed Elevated Trail Alignment

Photo 12: View of Buck Gulch Falls Trail to Waterfall – Proposed Wall to Waterfall Viewing Area

Photo 13: View of Buck Gulch Falls Trail at the Intersection with Spyglass Trail

Photo 14: View of Spyglass Trail from Trailhead – Approach to Decommissioned Section

Photo 15: View of the Spyglass Trail from End of Paved Segment – Decommission North Trail

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; and
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.

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.

SUMMARY OF THE CEQA ANALYSIS

The Initial Study utilized the Checklist included as Appendix G of the State CEQA Guidelines. The Checklist topic areas are presented in alphabetical order

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Resources
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources

- Noise
- Population and Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire
- Mandatory Findings of Significance

For each topic area, the Checklist includes specific questions. Each question is answered by evaluating all phases of the proposed project, including construction and post-construction use, in consideration of the potentially significant environmental impacts that could occur for any phase of the proposed project. For each question, one of the four following conclusions is provided with supporting information:

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 still be included.

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. In order to adopt a Mitigated Negative Declaration, the Lead Agency must agree to incorporate all mitigation measures into the project as approved and a Mitigation Monitoring and Reporting Program must be adopted by the Lead Agency at the time of project approval.

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 even with the incorporation of proposed mitigation measures, requiring preparation of an Environmental Impact Report.

The Initial Study concluded that implementation of the proposed project would not result in any potentially significant Impacts that could 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 topic area, which are provided beginning on the next page and within the applicable Checklist topic area. 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

Special-Status Plants

The following mitigation measure addresses the specific special-status plants that may be present in the proposed project area.

> **Mitigation Measure BIO-1: Preconstruction Special-Status Plant Survey**. A Qualified MCOSD staff or consultant shall conduct a preconstruction botanical survey in April and June before construction for *Elymus californicus* and *Micropus amphibolus* within the proposed project footprint. If special-status plants are found, MCOSD shall implement protection measures to avoid impacts on any special-status plants, which could include placement of rocks or logs to protect the plant while allowing trail use.

Special-Status Birds and Nesting Birds

The following mitigation measure clarifies language in the RTMP for the protection of special-status and nesting birds.

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

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 will not be necessary for special-status and nesting birds. The broadest nesting bird window based on Table 3 would be January 1 – October 31. The project area does not include habitat for double-crested cormorant, herons, egrets, bitterns, or California black or Ridgway's rail 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 BIO-2: Guideline Buffers 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 common knowledge of avian biology. 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 BIO-2, a qualified biologist shall determine whether construction activities may impact the active nest or disrupt reproductive behavior. If it is determined that 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 BIO-2: 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, 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, MCOSD would establish the buffer area guidelines included in Table BIO-2: Guideline Buffers by Species or Guild, until the nest has been vacated, meaning that the chicks have fledged.

Table BIO-MM2 Guideline Buffers 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
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 (Ducks/Geese/Swans)	30 meters (100 feet)	March 01 – July 31
California Black Rail	213 meters (700 feet)	February 01 – August 31
Ridgway's 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

The RTMP includes practices to protect special-status and common bats. The mitigation measure clarifies language in the best management practice in the RTMP as follows:

Mitigation Measure BIO-3: Bat Protection

MCOSD shall implement a two-step tree removal process for tree cutting and survey the area for maternity roosts. This measure clarifies the best management practice already in the RTMP:

- Removal of any tree that supports potential bat roost habitat *(e.g., crevices, large cavities, peeling bark)* shall follow the two-step tree removal process. The two-step tree removal shall be conducted over two consecutive days as follows: 1) the first day (in the afternoon), under the direct supervision of a qualified biologist with experience conducting two-step tree removal, limbs and branches shall be removed using chainsaws. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed. This will allow bats to evacuate the tree before removal.
- Any tree, including those with potential bat habitat, can be removed without the two-step removal process between March 1 – April 15 or August 15 – October 15; these time windows avoid the sensitive hibernation and breeding season for most bat species.

- If a maternity roost is detected within the construction area, MCOSD would consult CDFW and USFWS prior to initiation of work that could result in take. If construction activities must continue and would not incur take, MCOSD would work with the regulatory agencies to establish buffer guidelines until the pups can fly.

Tree Protection and Replacement and Tree Health Monitoring

The RTMP does not include BMPs to address tree pruning and/or removal. 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 the following tree protection and replacement measures:

Measure BIO-4: Tree Protection and Replacement

MCOSD shall minimize tree removal and 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 diseases. Heavy pruning on deciduous trees shall be done in the winter.

- Minimize impacts within the Root Protection Zone (RPZ)[41].
- Temporary protective fencing or other means to prevent damage shall be installed around RPZs or, at a minimum, the dripline perimeter of trees near work areas to note environmentally sensitive areas.
- Changes in drainage within protected RPZ or dripline shall be avoided to the extent feasible.
- Soil compaction within native tree PRZ or dripline shall be avoided to the extent feasible. Use the smallest equipment possible for work that must occur in the RPZ, and travel within the RPZ when conditions are dry. If soils are wet, then use construction mats or other means to limit soil compaction in the RPZ.
- Heavy equipment, vehicles, and/or construction materials shall not be parked or stored beneath trees or operated within the delineated protected perimeter.
- Protect native trees from incidental equipment damage to the trunk and limbs. Install tree wrap or other protection means if equipment must work within 10 feet of a native tree.
- Develop a tree replacement plan for any tree removed based on the ratios shown on Table BIO-4 and expand the Conceptual Restoration Plan to ensure the tree replacement ratios are met:

TABLE BIO-MM4: TREE REPLACEMENT RATIOS

Tree Type	Diameter	Replacement Ratio
Oaks	5-10 inches DBH	4:1
Oaks	10-15 inches DBH	5:1
Oaks	15 inches DBH and above	15:1
Native Trees	3-6 inches DBH	3:1
Native Trees	6 inches DBH and above	6:1
Non-Native Trees	Any DBH	1:1

[41] Native trees are particularly susceptible to disturbance, especially within the root crown and root zone, commonly referred to as the Root Protection Zone (RPZ), which is defined as 1.5 times the dripline radius measured from the tree trunk. The RPZ also extends approximately three feet below the soil surface.

Mitigation Measure BIO-5: Monitor Tree Health

MCOSD shall monitor the health of tree roots require cutting or removal in order to implement the proposed project or should tree roots inadvertently be damaged during project implementation, the following measures shall be implemented to ensure the health of the tree and safety of visitors:

- Cut roots consistent with International Society of Arboriculture guidelines.
- Apply a 2- to 4-inch layer of organic mulch such as wood chips, shredded bark, or pine needles over a tree's root system for a simple and effective means of enhancing root growth. The mulch helps condition the soil, moderates soil temperatures, maintains moisture, and reduces competition from weeds and grass. The mulch should extend as far out from the tree as practical for the site. Backfilling and mulch may still be the best mitigation strategy as it creates an optimal environment for root growth along with fostering beneficial and antagonistic fungi to help reduce infection.
- Monitor affected trees for decline and risk on an annual basis as part of other trail monitoring activities. Symptoms of decline include smaller and fewer leaves, dieback in the crown of the tree, and premature fall color. Stressed trees are more prone to attack by certain diseases and pests, which further a tree's downward spiral. Severe damage and decline may also lead to defects and decay, which would require removal of the tree.
- Consult with a certified arborist for a professional assessment of tree health or structural integrity becomes a concern.

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.

CEQA Checklist Topic Areas

☐ 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.

Tammy Taylor for

Rachel Reid, Environmental Coordinator — June 22, 2026
Marin County Community Development Agency

AESTHETICS

TABLE 1: AESTHETICS CHECKLIST QUESTIONS

	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 aesthetics of the project area is characterized by Arroyo de San Jose Creek, riparian and woodland plant communities, and the topography within Ignacio Valley Open Space Preserve. The preserve contains a variety of native plant communities, including coast live oak woodland, California bay forest, bigleaf maple forest, arroyo willow thickets, coyote brush scrub, and annual and perennial grasslands. The tree canopies shade the trails through the forested areas, provide a naturalistic visual character, and the various plant communities support wildlife habitat and visual diversity throughout the seasons.

Ignacio Valley Open Space Preserve features a variety of roads and trails with designations ranging from hiker/equestrian to multi-use, which provide access for hikers, equestrians, and cyclists. Buck Gulch Falls *(also known as Fairway Falls)*, which drops approximately 30 feet when it is flowing during the rainy season, provides a visually prominent natural feature that draws visitors to the preserve. Ignacio Valley Open Space Preserve connects to Loma Verde, Pacheco Valley, and Indian Valley Open Space Preserves, which are owned and managed by MCOSD, including public easements on Hill Ranch LLC property and City of Novato property, forming a connected band of open space that contributes to the aesthetics of the project area and the broader Marin County open space network.

Views along the canyon bottom are of natural landscapes characterized by riparian forest, grassland, and oak/bay woodland. The Buck Gulch Falls Trail is located within and adjacent to these communities, and Buck Gulch Falls and Arroyo de San Jose Creek are prominent aesthetic features in these viewsheds. The lower trail follows the canyon floor under a closed forest canopy, while the upper slopes are primarily open grassland and oak woodland with scattered shrubs. Arroyo de San Jose Creek is approximately 10 to 42 feet wide and incised into the surrounding canyon floor, with steep, wooded walls providing an intimate,

naturalistic setting. The existing informal creek crossings are visible from the trail and contribute modestly to the visual character of the canyon.

The Buck Gulch Falls project area is located in the southeast portion of the Ignacio Valley Open Space Preserve. Visitors access the existing Buck Gulch Falls trail via Fairway Drive in the City of Novato. Dual jurisdiction between the City of Novato and unincorporated Marin County shapes the aesthetic and scenic resource regulatory context: the Novato General Plan 2035 *(Policy CD-1: protect visual character of open space/hillside areas)* and the Marin Countywide Plan *(Policy DES-1.1: protect scenic resources and viewsheds)* both emphasize preservation of the natural visual character of open space lands.

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. Neither the Novato General Plan 2035 nor the Marin Countywide Plan designates formal scenic vistas within the Buck Gulch Falls project area, though both plans recognize the preserve's natural landscape as a visual resource to be protected. The Ignacio Valley Preserve includes non-designated informal scenic viewpoints including ridgeline overlooks and the creek overlook at the waterfall that would not be altered by the proposed project.

The proposed project has been designed to minimize tree removal; however, implementation would require removal of seven small native trees (five California bay less than 6 inches diameter at breast height (DBH) and two bigleaf maple approximately 6 to 8 inches DBH) and a small area of understory brush removal, confined to approximately 0.10 acre. Additional trees would be pruned to provide safe clearance for bridge installation. Vegetation removal and tree pruning would not result in a substantial adverse effect on scenic vistas because the entire project area is heavily vegetated and the minor removal and pruning represent a negligible fraction of the forest canopy; substantial vegetation would remain in all viewsheds. Please see the Biological Resources section of this CEQA Checklist for additional discussion regarding the potential impacts associated with vegetation removal.

The proposed bridges and trail improvements would alter the visual quality of creek area viewsheds; however, the bridges have been designed with a rustic aesthetic consisting of natural wood, weathering steel materials, and earth tones to conform to the semi-natural setting. The nearest residential receptor on Fairway Drive is a house located 275 feet from where trail improvement work would begin. The trail moves away from the residence to the northwest. Neither proposed bridge nor boardwalk would be visible from private residences or public roads, as the project area is screened by topography and forest canopy from surrounding neighborhoods. For these reasons, the bridges and trail improvements would not have an effect on scenic vistas.

Construction activities, including staging, grading, and tree trimming, could temporarily alter views within the project area. These disruptions would be temporary in nature, limited to the area of construction only, and would not result in a substantial adverse effect on scenic vistas. Additionally, revegetation of disturbed areas is included as part of the proposed project, including tree and shrub planting. As the vegetation grows,

it would add to the forest canopy and existing understory vegetation and adding to the visual quality of the area. For these reasons, implementation of the proposed project would result in no impact to 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 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 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 project contains no structures, historic or otherwise.[42][43] There are no state highways within or within viewing distance of the project area. For these reasons, implementation of the proposed project would have no impact on 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

Visual character can be defined as the perceived contrast between the existing visual elements of an area and how the area will look after the project is implemented. The proposed project is located within an open space preserve accessed by the public for outdoor recreation; publicly accessible vantage points would be from existing trails within the preserve.

Implementation of the proposed project would result in small-scale visual impacts during and after construction. The most prominent visual change would be the installation of two pedestrian bridges and boardwalk sections, which would be visible from the Buck Gulch Falls Trail and introduce new structural elements into views currently characterized by the naturalistic creek channel and riparian forest. Split-rail fencing and interpretive signage would also be visible from the trail. These features have been designed with a rustic aesthetic consisting of natural wood, weathering steel, and earth tones to blend with the surrounding semi-natural setting, which is generally considered visually compatible with trails in open space preserves. Minor vegetation removal is not expected to substantially degrade the existing visual character or quality of public views, particularly because substantial vegetation would remain and restoration plantings would reestablish native shrubs and forbs in decommissioned trail areas.

Stream restoration along approximately 175 feet of Arroyo de San Jose Creek, including rock toe protection and willow/riparian plantings, would introduce modest visual changes at the creek margin that would weather and naturalize over time, consistent with the surrounding riparian character. The plants would replace bare ground that either exists through the degraded area or is created during construction. The rocks placed to stabilize the channel bed would be visible to visitors until vegetation reestablished through the area.

Changes to the visual environment during construction would include equipment staged at the site, disturbed land surfaces, and temporary erosion control measures including straw wattles and silt fencing.

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[42] California Department of Transportation (Caltrans). 2019. California Scenic Highway Mapping System. https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways.

[43] California Department of Transportation (Caltrans). 2015. Officially Designated Scenic Highways. https://dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf.

MCOSD would store construction equipment in a designated staging area away from the creek and primary viewsheds. After construction, new and modified trail segments and decommissioned areas would be visible, but as native vegetation grows and restoration plantings mature, visual impacts would diminish and blend with the surrounding landscape.

Given the rustic design of project elements, their limited scale relative to the entire preserve (approximately 2 acres disturbed within approximately 906 acres), and their location within existing trail viewsheds, 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 created by the reflection of sunlight or artificial light from highly polished surfaces. The Ignacio Valley Preserve does not contain any sources of light or glare; the preserve is managed as natural open space. Local area roads leading to the preserve's entrance via Fairway Drive within City of Novato may have some street lighting, and minor amounts of offsite lighting from neighboring residences may affect the preserve margins at night, but these are existing conditions not attributable to the proposed project.

The proposed project would not include any new sources of light or glare – no lighting, electrical infrastructure, reflective surfaces, or glazed materials are proposed. Bridges and fencing would be constructed of natural wood and weathering steel, which have low reflectivity and would not create glare. For these reasons, the proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area under either jurisdiction, and there would be no impact.

AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997), prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

TABLE 2: AGRICULTURE AND FORESTRY RESOURCES CHECKLIST QUESTIONS

	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:

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.

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.

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.

Ignacio Valley Open Space Preserve does not contain any prime, unique, or important farmland. The California Department of Conservation maps this area as "Other"[44]. Lands located adjacent to the project area are designated Grazing Land and Urban and Built-Up Land.

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

As discussed above, the project area does not contain agricultural use and the use of the project area would remain as open space preservation and recreation[45]. For these reasons, implementation of the proposed project would result in no impact on farmland because it would not convert any farmland to a non-agricultural use.

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

All of the parcels comprising the site are designated for either low-density/planned residential or open space uses. There are no designated agricultural lands or Williamson Act contracted parcels on the site[46]. For these reasons, implementation of the proposed project would result in no impact to existing zoning for agricultural use or a Williamson Act contract.

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[44] California Department of Conservation (DOC). 2026. Marin County: Important Farmland Data Availability. https://www.conservation.ca.gov/dlrp/fmmp/Pages/Marin.aspx.

[45] ibid.

[46] 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.

The proposed project is located primarily within the Ignacio Valley Open Space Preserve, with a portion of the project – Buck Gulch Falls – located on private property at the end of the trail. MCOSD holds a public use easement along the trail entrance for access to the Preserve. The parcels located within the City of Novato's jurisdiction are designated as either Open Space or Low Density Residential and zoned as Planned District. The parcel located within the County of Marin's jurisdiction is designated Planned Residential and zoned Residential Multiple Planned District. The Open Space land use designation applies to a majority of the project area located within the City of Novato, and is intended to support preservation of natural resources, agriculture, and outdoor recreation[47]. The Low-Density Residential land use designation applies to the parcels providing access to the Preserve, located adjacent to an existing residential neighborhood. This area was previously intended for the development of single-family homes and related accessory residential uses, prior to MCOSD ownership. The Planned District zoning designation, located within the City of Novato and County of Marin, is intended to allow for more flexible development at a particular site, encouraging developments that are sensitive to natural resources and the surrounding community[48], subject to Council adoption of a Master Plan[49]. Please see the Land Use and Planning section of this CEQA Checklist for additional discussion regarding existing zoning designations for parcels located within the project area.

As such, the project area does not include lands with forest land, timberland, or timberland production. For this reason, 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 project area does not contain forest land and therefore does not convert forest land to non-forest uses. The Ignacio Valley 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. Project implementation will require removal of seven (7) small native trees (five (5) California bay and two (2) big leaf maple trees, all with diameter at breast height of 10 inches or less). Additionally, approximately 850 feet of existing trail over the project site will be decommissioned and revegetated with native species, and stream restoration work will revegetate approximately 6,200 square feet with native woody and perennial species. Several tree limbs will be pruned to prevent damage during installation of the bridges. Vegetation removal and tree pruning would not result in the loss of forest land or conversion of forest land to non-forest

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[47] City of Novato Municipal Code, §19.14.030: Special Purpose District Land Uses and Permit Requirements. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART2ZODIALLAUSZOECST_DIV19.14SPPUZODI_19.14.030SPPUDILAUSPERE.

[48] Marin County Municipal Code, §22.10. G: RMP (Residential, Multiple Planned) District. https://library.municode.com/ca/marin_county/codes/municipal_code?nodeId=TIT22DECO_ARTIIZODIALLAUS_CH22.10REDI.

[49] City of Novato. 1981. City Council of The City of Novato Resolution No. 59-81, A Resolution Approving Marin Country Club Estates Precise Development Plan.

use. For these reasons, implementation of the proposed project would result in no impact to forestland. Please see the Biological Resources section of this CEQA Checklist for additional discussion regarding the potential impacts associated with vegetation removal.

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

Ignacio Valley Open Space Preserve does not include farmland or forest land. Implementation of the proposed project would not convert farmland to a non-agricultural use of convert forest land to a non-forest use. For these reasons, implementation of the proposed project would result in no impact association with farmland or forest land conversion.

AIR QUALITY

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

TABLE 3: AIR QUALITY CHECKLIST QUESTIONS

	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

Air quality plans and standards set regarding criteria pollutants under applicable federal and state ambient air quality standards are related topics pertaining to ambient air quality and influenced by local, state, and federal regulations. 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.

Ambient Air Quality and Climate

Ambient air quality conditions in an area are affected by the rate, quantity, and source location of air pollutant emissions and by natural factors that affect the transport, dilution, and dispersal of air pollutant emissions including topography, air temperature, wind speed and direction, atmospheric stability, and sunlight. Ambient concentrations of air pollutant emissions are determined by the amount of air pollutant emissions and the atmosphere's ability to transport and dilute these emissions. Air quality is described by the concentration of various pollutants in the atmosphere, or the emissions of a pollutant or contaminant. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Emissions are typically expressed as grams per mile, pounds per day, or tons per year.

Marin County is located within the nine-county San Francisco Bay Area Air Basin (Bay Area Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The Bay Area Air Basin is affected by proximity to San Francisco Bay and the Pacific Ocean, the coastal mountain ranges, inland valleys, and other topographical features that contribute to wind flow patterns and affect air quality. The Bay Area Air Basin is characterized by its Mediterranean climate with warm dry summers and cool wet winters.

Marin County is bounded on the west by the Pacific Ocean, on the east by San Pablo Bay, on the south by the Golden Gate, the one-mile-wide strait connecting San Francisco Bay and the Pacific Ocean, and on the north by the Petaluma Gap, which is a wind gap named after a coastal mountain opening that stretches east from the Pacific Ocean through the City of Petaluma and then roars south to San Pablo Bay. Although

there are a few mountains above 1,500 feet, most of the terrain is between 800 and 1,000 feet high. These features affect weather and air quality.

The west coast and southern portions are often subject to cool marine air and substantial fog due to closer proximity to the Pacific Ocean than the eastern side of Marin County, which is warmer and has less fog, due in part to further distance from the Pacific Ocean. The distance from the Pacific Ocean to eastern Marin County allows the marine air to be heated along the way, contributing to warmer average temperatures. In southern Marin, the distance from the ocean is short and elevations are lower, resulting in higher incidence of maritime air in that area. In the winter, proximity to the ocean keeps the coastal regions relatively warm, with temperatures varying little throughout the year. The western side of Marin County has cooler weather than the eastern side because of its proximity to the ocean. The hills that separate eastern Marin from western Marin occasionally block the flow of the marine air, which also contribute to warmer temperatures. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter.

In Marin County, prevailing winds are generally from the northwest, with wind speeds highest along the west coast and average between 8 and 10 miles per hour. In the summer months, areas along the coast are usually subject to onshore movement of cool marine air. The complex terrain in central Marin creates sufficient friction to slow the air flow. Annual rainfall in the mountains is generally higher than in most parts of the Bay Area, averaging 37 to 49 inches. Most of the rainfall across the county occurs in November through March.

Air pollution potential is highest in eastern Marin County, where most of Marin County's population lives in small, sheltered valleys that act like a series of miniature air basins. The project area is located in southern Novato, in northeastern Marin County. Air pollution potential is less along the Marin County coast and in southern Marin County, because the influence of marine air from the Pacific Ocean helps to keep air pollution at a minimum. Towards north Marin County, there is greater potential for air pollution to build up because the valleys are more sheltered from the sea breeze. While Marin County does not have many polluting industries, the air quality on its eastern side, especially along the U.S. 101 corridor, may be affected by emissions from increasing motor vehicle use within and through the county.

Applicable Air Quality Regulations

The federal Clean Air Act of 1970 directed U.S. Environmental Protection Agency (EPA) to establish national ambient air quality standards (NAAQS) at a level to provide an adequate margin of safety to protect public health for six air pollutants: ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), lead (Pb) and suspended particulate matter (PM). Particulate matter is further classified as PM10, which are respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less and PM2.5, which are fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less. These pollutants are commonly referred to as “criteria pollutants.” The state of California also establishes air quality standards, referred to as “state standards.” State standards are determined by the California Air Resources Board (ARB), based on technical input from the Office of Environmental Health Hazard Assessment (OEHHA). In many cases, state standards are more stringent than national standards.

The Bay Area Air Quality Management District (BAAQMD) maintains a network of air quality and meteorological monitoring stations within the Bay Area Air Basin that monitor air quality, compliance with applicable ambient standards, and atmospheric phenomena, especially weather and weather conditions. The BAAQMD measures levels of O3, CO, NO2, SO2, PM10, and PM2.5. The San Rafael monitoring station is approximately seven miles south of the project area, at which all criteria pollutants are measured except for SO2. Ambient concentrations of all six of the criteria pollutants have been greatly reduced in the Bay Area over the past four decades. The Bay Area Air Basin attains national and state standards for most criteria pollutants. While the Bay Area Air Basin has achieved reductions in ozone and particulate matter, all state and national standards have not yet been attained for these criteria pollutants. The Bay Area Air Basin is currently classified as a federal and state non-attainment area for ozone and national particulate matter ambient air quality standards. Ozone is primarily a problem in the summer, and PM2.5 pollution 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, resulting in air quality that exceeds health s[50].

Ground level ozone, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions. Fortunately, ozone is not a pollutant that adversely affects Marin County; however, emissions from motor vehicle use in Marin County contribute to high ozone levels in other parts of the Bay Area. Motor vehicles are the largest source of ozone precursor emissions, such as nitrogen oxides [NOx] and reactive organic gases [ROG], in the Bay Area.

Particulate matter is a complex mixture of microscopic particles of solid or liquid matter suspended in the air that originate from natural sources such as wildfire or human-caused sources such as burning fuel. They can impact climate and precipitation that result in adverse health implications. Exposure to particulate matter can result in short-term and long-term health impacts including irritation of the eyes, ears, and throat resulting in sneezing, coughing, and shortness of breath. Prolonged exposure can result in permanent respiratory problems including asthma, chronic bronchitis, and heart disease. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Particles ten microns or less in diameter are defined as respirable particulate matter or PM10. There are many sources of PM10 emissions, including combustion, industrial processes, grading and construction, and motor vehicles. The greatest quantity of PM10 emissions associated with motor vehicle uses is generated by re-suspended road dust. Reductions in motor vehicle miles traveled can reduce PM10 emissions. PM2.5 refers to particles that have a diameter of less than 2.5 micrometers, which is more than 100 times thinner than a human hair. Due to its smaller size, PM2.5 can penetrate deeper into the lungs. These particulates can contribute significantly to regional haze and reduction of visibility and are the primary reason for the occurrence of smog. Most PM2.5 is comprised of combustion products such as smoke or formed in the atmosphere from regional emissions of NOx. Wood burning in fireplaces and stoves is another significant source of particulate matter, primarily PM2.5.

Applicable RTMP Policies and BMPs

MCOSD would incorporate 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 below 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 above thresholds allowed in local, state, and/or federal air quality plans and/or standards. The proposed project has been evaluated to determine if changes to existing air quality would result from construction, public use, operations, and/or maintenance.

[50] Bay Area Air Quality Management District (BAAQMD). 2017. In Your Community – Marin County. Last Updated April 21, 2017. http://www.baaqmd.gov/about-the-air-district/in-your-community/marin-county.

a) Would the Project conflict with or obstruct implementation of the applicable air quality plan?
Less than Significant

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. A new Clear Air Plan is under development; however, the new plan has not been published[51]. 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 CEQA Air Quality Guidelines were published in May 2017 and updated in April 2022 (2022 BAAQMD Guidelines) to assist in evaluating air quality impacts of projects and plans proposed in the Bay Area Air Basin and provide BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. The following air quality analysis for the proposed project is consistent with the methods included in 2022 BAAQMD Guidelines. The methodology is described below:

1. Does the project meet all screening criteria? If the project does, then it would result in a less than significant impact. If the project does not, then an air quality analysis should be prepared using acceptable methods and compared to thresholds of significance.
2. If an air quality analysis is prepared, are the project's impacts less than the thresholds of significance? If they are, then the project would result in a less than significant impact. If the project's impact would exceed the thresholds of significance, then mitigation measures should be applied, and impact reductions calculated.
3. If the project's impacts are less than the thresholds of significance with the incorporation of mitigation measures, then the project's impact would be less than significant with mitigation. If the project's impact would still exceed the thresholds of significance after incorporation of mitigation measures, then the project's impact would be significant and unavoidable.

Operation and maintenance activities would be the same after implementation of the proposed project as they are now, and therefore only construction-related activities are analyzed regarding potential air quality impacts.

Construction would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m. for approximately six months over two construction seasons. As stated in the Project Description, equipment would include an excavator, loader, compactor, cement truck, cement mixers, roller compactor, rubber track carrier, generators, dump truck, ATVs, generators, jackhammers, power saws, and other hand tools, as applicable. The California Emissions Estimator Model (CalEEMod) Version 2022.1.1.43 was used to estimate construction of the proposed project. The proposed project would require approximately 100 total haul trips during the year 1 construction period and zero total trips during the year 2 construction period for hauling construction materials; the import of soil, rock, aggregate; and delivery of the two bridges[52]. 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. Construction staging areas would be shown on the construction plans, and construction activities would be limited to those areas identified on the plans. Access to the project site for construction vehicles and equipment would be from Fairway Drive.

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[51] Bay Area Air Quality Management District (BAAQMD). 2026. *New Clean Air Plan.* Last updated March 10, 2026. https://www.baaqmd.gov/en/plans-and-climate/air-quality-plans/new-clean-air-plan.

[52] California Emissions Estimator Model (CalEEMod). Version 2022.1.1.43.

Construction-related emissions were modeled using the California Emissions Estimator Model (CalEEMod) Version 2022.1.1.43 [53]. Table AQ-1: Air Quality Thresholds of Significance Analysis provides the estimated short-term construction emissions that would be expected with the proposed project and compares those emissions to the BAAQMD's thresholds of significance for construction exhaust emissions. The analysis indicated that construction-related emissions would be well below the BAAQMD thresholds of significance; therefore, the proposed project would have a less than significant impact on air quality as it pertains to compliance with an applicable air quality plan. Furthermore, the proposed project does not require preparation of an air quality analysis or implementation of mitigation measures.

TABLE AQ-1: AIR QUALITY THRESHOLDS OF SIGNIFICANCE ANALYSIS

POLLUTANT	ROG	NO_x	PM10	PM2.5	CO
Estimated Daily Construction Emissions from Proposed Project: (pounds per day)	0.19	1.46	0.06	0.06	1.58
BAAQMD Thresholds of Significance: (pounds per day)	54	54	82	54	--
Threshold Exceeded?	No	No	No	No	--

Source: California Emissions Estimator Model, BAAQMD[54]
Note: PM10/PM2.5 thresholds represent the levels above which a project's individual construction activity exhaust emissions would result in a considerable impact.

Construction activities would also temporarily generate fugitive dust, including PM10, from earthmoving and equipment use. The 2022 BAAQMD Guidelines consider these impacts to be less than significant if BMPs are employed to reduce these emissions. The proposed project would incorporate RTMP policy SW.29 and the Air Quality BMPs listed in the setting section, which are consistent with BMPs included in the 2022 BAAQMD Guidelines. The proposed project would incorporate RTMP BMPs, which are consistent with 2022 BAAQMD CEQA Guidelines BMPs. For these reasons, implementation of the proposed project would result in a less than significant impact associated with air quality as it pertains to fugitive dust.

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 Bay Area Air Basin is currently designated as a non-attainment area for federal and state ozone standards and national particulate matter ambient air quality standards. This is primarily to the region's development history. Past, present and future development projects contribute to the Bay Area Air Basin's adverse air quality impacts on a cumulative basis and no individual project is sufficient in size to, by itself, result in nonattainment of ambient air quality standards. Instead, an individual project's emissions contribute to existing cumulatively significant adverse air quality impacts. 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 emissions inventories used to develop the region's air quality attainment plans are based primarily on projected population growth and vehicle miles traveled (VMT) for the region, which are based, in part, on the planned growth identified in regional and community plans. As such, projects that would result in increases in population or employment growth beyond that projected in regional or community plans could result in increases in VMT above that planned in the attainment plan, resulting in mobile-source emissions that could conflict with a region's air quality planning efforts and could result in cumulatively considerable net increases of criterial pollutants. Increases in VMT beyond those projected in area plans generally would

[53] California Emissions Estimator Model (CalEEMod). Version 2022.1.1.43.

[54] BAAQMD. CEQA Thresholds and Guidelines Update, Chapter 3. April 20, 2023. https://www.baaqmd.gov/en/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines.

be considered to have a significant adverse incremental effect on the region's ability to attain or maintain state and federal ambient air quality standards.

Implementation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard. The proposed project does not include any new stationary sources of emissions or new development that could result in increased vehicle emissions. The proposed project would neither increase population nor employment, and therefore, would not increase VMT for the region. Construction equipment used during project implementation would result in criteria air pollutant emissions far below the BAAQMD thresholds of significance as shown in Table AQ-1 in answer to checklist question "a". For these reasons, construction activities associated with implementation of the proposed project would result in a less than significant increase of ozone or 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.

After project implementation, on-going operations would remain similar to existing and therefore would not result in a potentially significant impact regarding air quality. Use of the project area for public recreation would continue as it does now, which is primarily local use for allowable recreational purposes. The proposed project does not include parking or other amenities that could contribute to an increase in visitors. Future increases in trail use are anticipated to be proportional with regional population growth. For these reasons, operational impacts associated with the proposed project would result in a 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?
No Impact

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. Examples of facilities include schools, hospitals, and residential areas.

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. The significance of impacts to sensitive receptors is 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. A project is considered to be significant 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. Sensitive receptors within 1,000 feet consist of residential receptors on Fairway Drive with no other sensitive receptors present.

The Office of Environmental Health Hazard Assessment (OEHHA) does not recommend assessing cancer risk for projects lasting two months or less[55]. The proposed project would improve trail conditions along 2,240 feet of existing trail, including installation of two bridges. Construction-related activities using heavy equipment would occur starting within approximately 275 feet from the closest residence at Fairway Drive as illustrated on Figure 2, Project Features in the Project Description. Trail improvements and installation of one of the two bridges would occur within 1,000 feet of the closest residence and move progressively further from the residence as construction proceeds. Work within 1,000 feet of the closest residence would require less than two months to complete; therefore, no human risk assessment would be required. Nonetheless, the proposed project incorporates RTMP Air Quality BMPs 1 through 4 and RTMP Policy SW.29, which implements BAAQMD's 2010 CAP. These BMPs and the RTMP policy require equipment

[55] Office of Environmental Health Hazard Assessment (OEHHA). Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments. February 2015. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

used during project construction include diesel particulate filters, or have electric, Tier III, or Tier IV off-road engines, as applicable. As a result, implementation of the proposed project would not result in any long-term or chronic exposure to substantial pollution concentrations. For these reasons, implementation of the proposed project would result in a less than significant impact associated with exposure of sensitive receptors to substantial pollution.

Figure AIR-1 shows a 1,000-foot buffer around the nearest sensitive receptor near the trailhead at Fairway Drive

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, they can cause headaches and on-going odors can result in a negative impact quality of life. In general, the types of land uses that pose potential odor emissions include refineries, chemical plants, wastewater treatment plants, landfills, composting facilities, and transfer stations.

BAAQMD's Regulation 7 – Odorous Substances[56] 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 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 increasing distance from the source, thus minimizing potential exposure to persons utilizing open space near the project area. For these reasons, implementation of the proposed project would not result in odor emissions that would adversely affect a substantial number of people.

[56] Bay Area Air Quality Management District (BAAQMD). 1982. *Regulation 7, Odorous Substances.* March 7, 1982. https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-7-odorous-substances/documents/rg0700.pdf?la=en.

BIOLOGICAL RESOURCES

TABLE 4: BIOLOGICAL RESOURCES CHECKLIST QUESTIONS

	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?	☐	☐	☐	☒
f)	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 is located within Ignacio Valley Open Space Preserve, a 906-acre preserve encompassing woodland, chaparral, and riparian habitat on the northern slope of eastern Big Rock Ridge, south of the City of Novato in Marin County. The preserve is bordered by single-family residential development in the City of Novato to the east and northeast, and by Loma Verde, Pacheco Valle, and Indian Valley Open Space Preserves to the north and west. Together, these lands form a continuous band of natural vegetation and interconnected drainages that provide habitat and movement corridors for wildlife at the local and

regional scale. MCOSD manages the preserve for natural resource conservation and low-intensity public recreation, with facilities limited to unpaved trails, informal viewing areas, gates, and informational signage; there are no restrooms, utilities, or developed recreation facilities within the project area.

The existing Buck Gulch Falls Trail follows Arroyo de San Jose Creek for approximately 0.7 mile from the Fairway Drive trailhead to Buck Gulch Falls, a 30-foot seasonal cascade that is a key natural feature of the preserve.

Biological Resource Study

To assist with understanding how implementation of the proposed project could affect biological resources, MCOSD retained PCI Ecological (PCI) to prepare the *Buck Gulch Falls Creek Restoration and Trail Improvement Project Biological Resources Evaluation* [57] (BRE) in 2026. The study area evaluated in the BRE encompasses the Buck Gulch Falls Trail, associated decommissioning and realignment areas, stream restoration reaches, work areas, and an up to 25-foot area around these features, totaling approximately 1.6 acres. While the BRE describes biological resources occurring or potentially occurring within the study area, the entire study area would not be disturbed by project-related activities. The BRE presents information on the existing plant communities, wildlife resources, and special status- species and habitats within the project area, evaluates potential impacts from trail improvements and streambank restoration, and identifies avoidance and minimization measures, including applicable Road and Trail Management Plan (RTMP) policies and best management practices (BMPs) to reduce potential impacts on biological resources.

Botanical surveys were conducted on April 5 and July 5, 2021, and October 22, 2025, covering the full bloom periods of target special-status plant species. Plant species were identified using Jepson eFlora (Jepson Flora Project 2026) and Marin Flora[58] to the taxonomic level necessary to determine whether they were rare. The BRE includes a full list of plants observed. Vegetation alliances and associations were identified based on visual assessment in the field and comparison with Manual of California Vegetation (CNPS 2026) definitions, listed associations of species, and referenced regional project-level reports as available; no detailed quantitative data was collected. Wildlife surveys were completed on April 5, 2021, and October 22, 2025, using visual observations, calls, tracks, scat, burrows, and other signs to document species presence and habitat use. Desktop review incorporated the CDFW California Natural Diversity Database (CNDDB), CNPS Inventory of Rare and Endangered Plants, MCOSD internal wildlife records, and other regional datasets. **Figure 5** is from the Buck Gulch BRE Report and shows the study area and specific project

Figure 25 is from the Buck Gulch BRE Report and shows the mapped plant communities

Plant Communities

The BRE mapped and evaluated eight vegetation communities within the project area using the Marin County Parks vegetation map and the *Manual of California Vegetation*[59] classification system. For analysis purposes, the BRE combined the plant communities into the following five major plant community types based on dominant overstory species, the names conforming to commonly accepted nomenclature of the Manual of California Vegetation classification:

- Annual and Perennial Grasslands, approximately 14 percent
- Shrubland (Coyote Brush Scrub and Poison Oak Scrub), approximately 23 percent
- Coast Live Oak Forest, approximately 19 percent
- California Bay Forest, approximately 18 percent

[57] PCI Ecological. 2026. *Buck Gulch Falls Creek Restoration and Trail Improvement Project Biological Resource Assessment*. February 2026.

[58] Howell J.T., F. Almeda, W. Follette, and C. Best. 2007. Marin Flora. California Academy of Sciences, San Francisco, CA. 510 pp.

[59] Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society Press.

- Bigleaf Maple Forest and Arroyo Willow Thickets (riparian), approximately 25 percent

Sensitive plant communities are those of limited distribution statewide or within a county or region. The CDFW List of California Terrestrial Natural Communities and the Manual of California Vegetation[60] indicate which plant communities are sensitive within California. Within the Buck Gulch Falls study area, coast live oak forest (G5S4, association G3S3), California bay forest (G4S3, association G3S3), bigleaf maple forest (G4S3, association G3S3), poison oak scrub (association G3S3), and arroyo willow thickets (G4S4) are considered sensitive natural communities based on CDFW ranks and their riparian function within the Arroyo de San Jose Creek corridor.

The study area includes riparian tree species, coast live oak, California bay, bigleaf maple, arroyo willow, and buckeye, along the edge of Arroyo de San Jose Creek and its three ephemeral tributary drainages, interspersed with coyote brush scrub and grassland communities on adjacent slopes. Wetland-associated plant species occur within and along the margins of Arroyo de San Jose Creek, but do not form significant wetland habitat; no wetlands (hydric soils and hydrophytic vegetation) were mapped within the project footprint.

Arroyo de San Jose Creek and Tributary Drainages

Ignacio Valley Open Space Preserve is located within the Novato Creek watershed, which includes the upper reaches of Arroyo de San Jose Creek and its tributaries draining the northern slopes of eastern Big Rock Ridge. Arroyo de San Jose Creek runs through the project area and drains a watershed of approximately 7.4 square miles, flowing into a lagoon at Bel Marin Keys and ultimately into San Pablo Bay via the historic Novato Creek channel and a network of canals within the former Hamilton Army Airfield. Arroyo de San Jose Creek is an intermittent stream, meaning that surface water flows during the rainy season with little to no surface flow during the dry season. Within the project area, the creek includes a defined bed and bank with an ordinary high-water mark generally 10 to 42 feet wide, seasonal pools, and associated riparian vegetation. Three ephemeral tributary channels cross or approach the Buck Gulch Falls Trail; these features convey runoff during storm events and are dry during much of the year.

PCI delineated waters within the project area in 2025, identifying Arroyo de San Jose Creek and portions of the ephemeral tributaries as potential jurisdictional waters, and riparian vegetation along the creek as potential CDFW streambed and riparian habitat. The California Department of Fish and Wildlife documented chronic streambank erosion and sediment delivery from trail use in a 2009 Arroyo San Jose Creek Habitat Assessment Report, recommending that sources of streambank erosion be identified and prioritized for treatment to reduce sediment yield and protect stream habitats[61]. Approximately 1,500 feet of the Buck Gulch Falls Trail are located along or near the top of the stream bank, including two unimproved rock ford crossings that require visitors to pass directly through the active channel, contributing to bank erosion, trampling of riparian vegetation, trail braiding, and localized sediment delivery to the creek.

Special-Status Plants

Special-status plants include species that are state or federally listed as Rare, Threatened, or Endangered; federal candidates or proposed for listing; proposed state of federal listing, or identified by CNPS as List 1, 2, 3, or 4 species. PCI conducted botanical surveys on April 5 and July 5, 2021, and October 22, 2025, covering the full bloom periods of special-status species with potential to occur, using Jepson eFlora and *Marin Flora* for identification. A total of 109 plant taxa identified within the study area, none of which are designated as special-status or otherwise considered to be rare.

The field surveys concluded that most of the habitats within the project area are in relatively good condition, mostly undisturbed and supporting a diversity of healthy, predominantly native plant species. These

[60] Sawyer, John O., Todd Keeler-Wolf, and Julie M. Evans. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society Press.

[61] CDFW. 2009. East Marin County San Pablo Bay Watershed Stream Habitat Assessment Reports Arroyo San Jose Creek. Surveyed 2009, report completed 2013.

conditions support moderately suitable habitats for special-status species. There are no unique substrates such as serpentine, limestone, or strongly alkaline soils, and there are no particularly rare habitat types such as dunes, maritime chaparral, or specialized wetland types present in the project area. Among the plants documented are several regionally uncommon but non-listed species, including checker lily (*Fritillaria affinis*), canyon larkspur (*Delphinium* sp.), giant wake robin (*Trillium chloropetalum*), California pipevine (*Aristolochia californica*), and Douglas iris (*Iris douglasiana*). No special-status plant species were identified during botanical surveys within the study area.

Based on habitat evaluation and database review, two species with limited distribution in California were identified as having moderate potential to occur in suitable microhabitats within or adjacent to the project area: *Elymus californicus* (California bottlebrush grass, CRPR 4.3), which favors moist shaded riparian forest understories, and *Micropus amphibolus* (Mount Diablo cottonweed, CRPR 3.2), which favors rocky chaparral and open slopes. Neither species was detected during protocol-level botanical surveys within the project footprint. Based on the combination of protocol-level surveys, regional database review, and habitat conditions, no special-status plant species are expected to occur within the disturbance footprint

Special-Status Wildlife

The presence of special-status wildlife species on MCOSD lands is well documented through focused surveys and incidental observations by staff and the public. The BRE evaluated data collected and maintained by MCOSD, a review of the CNDDB, and other sources. The BRE identified special-status wildlife species that have moderate potential to occur within the project area, as well as additional species that were evaluated but determined to have low or no potential to occur; these species are not discussed here.

The special-status wildlife species determined to have a moderate potential to occur within the project area include:

- California giant salamander (*Dicamptodon ensatus*, SSC)
- Northern spotted owl (*Strix occidentalis caurina*, FT/ST, BCC)
- Cooper's hawk, nesting (*Accipiter cooperii*, WL)
- Pallid bat (*Antrozous pallidus*, SSC)
- Nesting birds

PCI evaluated the potential presence of other species with the potential to occur at the project site. Although surrounding areas may support habitat for these species; none of the species nor their habitat is present at the project site.

- California red-legged frog (*Rana draytonii,* FT, SSC)
- Foothill yellow-legged frog (*Rana boylii,* SSC)
- Townsend's big-eared bat (*Corynorhinus townsendii*, SSC) Western Bat Working Group, high priority species.
- Western pond turtle (*Actinemys marmorata*, SSC)
- Western bumble bee (*Bombus occidentalis,* SE)
- White-tailed kite (*Elanus leucurus*, FP)

Figure BIO-1 is from the Buck Gulch BRE and shows special-status species reported occurrences.

California giant salamander (*Dicamptodon ensatus*), SSC
Listing Status: California Species of Concern. Potential in cool, shaded stream and riparian habitats along Arroyo de San Jose Creek.

The larvae of this amphibian are found in cold, clear streams, occasionally in lakes and ponds. Adult California giant salamanders can be found in wet forests under rocks and logs near streams and lakes. Potentially suitable riparian habitat is present within the project area, including Arroyo de San Jose Creek and associated riparian vegetation, and therefore there is potential for the species to exist within

the project area. No individuals were observed during field surveys conducted in association with the proposed project.

The nearest reported sighting in CNDDB is 1.6 miles away from the project area. There are no reported occurrences of California giant salamander within the Arroyo de San Jose Creek watershed in the CNDDB. Suitable upland habitat for California giant salamanders is present within the project area (forest understory and burrows within 50 m of cool, heavily forested drainages); however, suitable aquatic habitat (breeding) habitat (perennial streams or pools) is very limited.

Northern spotted owl (*Strix occidentalis caurina), FT/ST, BCC*
Listing Status: Federal Threatened/State Threatened, Federal Bird of Conservation Concern, California Species of Special Concern.

The northern spotted owl is most commonly found in old-growth forest or mixed stands of old-growth and mature conifers, usually 150 to 200 years old. This species prefers older forest because a multi-layered, closed canopy provides a variety of roosting opportunities which helps the owls to regulate their body temperature within certain boundaries, even when the surrounding temperature is very different. However, the habitat associations of northern spotted owl differ in Marin County, which is located at the southern limit of the species' range. In Marin County, northern spotted owl may be found in younger forest stands that contain structural characteristics of older forests. Acceptable habitat is provided by mature pine and fir forests, and, in some years, bay forests. Bishop pine (*Pinus muricata*), Douglas fir (*Pseudotsuga menziesii*), and the mixed broadleaf evergreen forests of Inverness and Bolinas ridges and Mt. Tamalpais support Marin's higher northern spotted owl densities. Closed canopy live-oak woodlands may also be used as roost sites and occasionally selected for nest sites. Most of the local owl territories are in canyon bottoms or mid-slope locations and often include small perennial watercourses.

Point Blue supports Marin County Parks to monitor the nesting of northern spotted owl within their parks, providing detailed, high-quality, up-to-date data for this species. An activity center (AC) for northern spotted owl was documented approximately 0.12 miles south of the study area, with confirmed activity in both 2023 and 2024 and additional recent positive observations in the vicinity[62]. The project area does not contain suitable nesting or roosting habitat for northern spotted owl due to the lack of large-diameter trees, absence of a dense, multi-layered canopy. While portions of the project area provide limited foraging habitat within forested areas, the higher-quality nesting, roosting, and foraging (NRF) habitat (characterized by dense forest, large trees, and a multi-layered canopy) is only present in areas adjacent to, but outside of, the project area. Given the lack of habitat suitability within the project area and the location of documented activity centers and observations, the presence of northern spotted owl within the project area during daytime construction work is unlikely. However, there is a moderate potential for individuals to occur in the suitable habitat that exists within the forests adjacent to the project area (within a 0.25-mile radius).

While dusky-footed woodrat (a prey species of NSO) has been documented in the surrounding lands[63], the project area does not contain suitable woodrat habitat and therefore, no specific mitigation measures are warranted.

Cooper's hawk *(Accipiter cooperi), WL*
Listing Status: California Department of Fish and Wildlife Watch List.
Potential nesting in oak and bay forest.

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62 J. Hoorn, pers. comm., Jan. 26, 2026, and California Department of Fish and Wildlife (CDFW). 2026a. California Natural Diversity Database, RareFind Version 5.0, Spotted Owl Viewer, and BIOS. California Department of Fish and Game. Sacramento, CA. http://www.dfg.ca.gov/biogeodata/cnddb.

63 iNaturalist. 2026. iNaturalist [Online database for species observations by the public]. https://www.inaturalist.org/.

The preferred habitat of Cooper's hawk includes mature forests, open woodland, and riparian forest. This bird nests in coast live oak and other forest habitats. Suitable nesting habitat is present within the project area and therefore there is potential for the species to be present within the project area. However, field surveys conducted in 2021 and 2025 did not observe the presence of this species in the project area.

Pallid bat *(Antrozous pallidus), SSC*
Listing Status: California Species of Concern; Western Bat Working Group, High Priority.

The pallid bat prefers open dry lands with rocky areas for roosting but can utilize a variety of habitats. Pallid bats are reported within 2.5 miles of the proposed project area, and the nearest maternity colony is documented four miles northwest of the project area. Biological surveys conducted in February 2026 by qualified biologists identified the presence of suitable day roosting habitat (tree hollows and crevices) within the proposed project area. Site surveys indicate the project area does not provide maternity roost habitat for pallid bats. Any of the seven small native trees to be removed during construction could provide suitable cavities for potential day roosting habitat and therefore there is potential for the species to exist within the project area. However, pallid bats were not observed by wildlife biologists during the 2026 field survey of the project area. Trees potentially removed or trimmed during implementation of the proposed project were also surveyed to determine they might provide pallid bat habitat.

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 provided, in their entirety, in **Appendix A**.

- Policy SW.24: Minimize Intrusions into 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-7: Include Standard Procedures in Construction Contracts
- General-8: Control Noise
- 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 Plants-1: Literature Reviews
- Special-Status Plants-2: Avoidance and Protection of Special-Status Plant Species near Road and Trail Management Projects
- Special-Status Plants-3: Ensure Proposed Actions are Consistent with Ongoing Special-Status Plant Management Programs
- 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-4: Avoidance and Protection of the Northern Spotted Owl
- Special-Status Wildlife-8: Worker Awareness Training
- Special-Status Wildlife-9: Construction Monitoring
- Special-Status Wildlife-10: Relocation of Special-Status Species

- Special-Status Wildlife-11: Noise Control
- Special-Status Wildlife-12: Trash Control
- Special-Status Wildlife-13: Road and Trail Inspection

Additionally, the relevant RTMP BMPs to prevent the spread of weeds, listed below, would be implemented:

- 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 Area

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

The primary focus of the proposed road and trail improvements is the conservation and protection of sensitive habitats and vegetation, rare plant species, wildlife habitat, and other ecological resources. Extensive biological assessments were conducted to fully investigate and document the ecology of the site. The proposed road and trail alignments have been designed to specifically avoid sensitive resources however, project implementation could result in potentially significant impacts to special-status plants, non-breeding habitat for California giant salamander, nesting and special status birds, day roosting habitat for pallid bats.

Implementation of the proposed project would include ground-disturbing activities associated with trail decommissioning methods and implementation of trail improvements. Construction of the proposed project would adhere to the Road and Trail Standards and BMPs listed under the Applicable RTMP Policies and BMPs subheading and included in Appendix A to prevent potential impact to special-status species that have the potential to occur within the project area. Implementation of the proposed project would span two construction seasons, generally April through October. Construction would begin as soon as soil moisture conditions allow and after pre-construction surveys determine that sensitive species are not present in the project area. Construction related to water crossings and earthwork requiring use of equipment would be limited to the dry season as directed by the regulatory agencies, generally between May – October 15 or as authorized through regulatory permits, to avoid impacts on species that could be present in Arroyo de San Jose Creek. Work within Arroyo de San Jose Creek would occur when the creek is dry. Construction staging areas would be restricted to roads and trails or other areas that would avoid any significant impacts on sensitive natural resources as described in the Project Description. All areas temporarily disturbed during project implementation would be restored to their pre-construction condition or better to facilitate site

recovery, reduce potential erosion, and prevent visitors from accessing restored areas. Revegetation efforts would be completed in the fall and early winter to correspond with the ideal planting time period. Mitigation measures have been proposed in addition to applicable RTMP policies and BMPs to reduce these significant environmental impacts to less than significant levels.

Implementation of the proposed project would remove and temporarily disturb a limited amount of vegetation within the existing trail corridor and activities would occur in areas that support habitat for special-status species. The majority of proposed project work will occur within the footprint of existing trails, limiting impacts on plant communities; however, disturbance would occur in a small area of perennial rye grass and wild oats and annual grassland, coyote brush and poison oak shrubland, coast live oak, California bay forest, bigleaf maple forest, and arroyo willow thickets. Although most of the proposed access and construction would occur along existing trail segments, approximately 0.22 acres of grassland would be temporarily disturbed for access, staging, and stream restoration work, including grading during implementation of restoration activities. The streambank restoration area would be revegetated with native woody and perennial species planted. Approximately 0.12 acres of coyote bush scrub would be disturbed for access, staging, and stream restoration work, including trimming and removal of coyote brush plants and grading for stream restoration work, while 0.2 acres of coyote bush scrub would be restored as part of the proposed project. No tree removal would be required to construct Bridge 1; although limbs from two existing oak trees may be pruned to avoid damage during bridge installation. Approximately 0.02 acres of poison oak scrub would be temporarily disturbed for access and restored as part of the proposed project.

Implementation of the proposed project would occur within coast live oak and California bay forest. Implementation would temporarily disturb 0.22 acres of native understory within the coast live oak forest to accommodate construction access and during implementation of the streambank restoration work. Installation of the boardwalk would occur within the coast live oak forest. No tree removal would be required, but some tree limb trimming may be necessary. A segment of decommissioned trail through coast live oak would restore approximately 640 square feet of coast live oak forest including revegetation with native woody and perennial species, including coast live oak. Approximately 781 square feet (0.02 acres) of temporary disturbance would occur from access to work areas, including herbaceous understory damage from vehicle access through California bay forest. The realigned trail and installation of Bridge 2 would result in the conversion of 935 square feet (0.02 acres) of bay forest understory to access trail. Five small native trees, less than 6 inches DBH would be removed to accommodate construction including two buckeyes and three bay trees. A decommissioned segment of trail through the bay forest would result in 0.13 acres of restored forest understory.

Special-Status Plants

Botanical surveys were conducted in 2021 and 2025 documented a diverse flora within the Buck Gulch Falls study area, including several regionally uncommon but non-listed species. Recommendations from the botanical surveys have been incorporated into the project design and are included in the RTMP BMP's including Sensitive Natural Resources-1: Modify Management Practices Near Sensitive Natural Resources and Special-Status Plants-2: Avoidance and Protection of Special-Status Plant Species near Road and Trail Management Projects.

No special-status plant species were detected within the project footprint during the site surveys. Two special-status plant species, *Elymus californicus* (CRPR 4.3) and *Micropus amphibolu* (CRPR 3.2), were identified as having moderate potential to occur in riparian forest and rocky chaparral habitats within or adjacent to the project area.[64] PCI identified the need to conduct preconstruction surveys for these two species. If either species is identified in an area potentially disturbed by project activities, then implementation of RTMP measure Special-Status Plants-2: Avoidance and Protection of Special Status

[64] PCI Ecological. 2026. *Buck Gulch Falls Creek Restoration and Trail Improvement Project Biological Resource Assessment*. February 2026.

Plant Species near Road and Trail Project would be required. Mitigation Measure BIO-1 specifies the plant species and time of year for preconstruction surveys needed for the proposed project.

> **Mitigation Measure BIO-1: Preconstruction Special-Status Plant Survey**. A Qualified MCOSD staff or consultant shall conduct a preconstruction botanical survey in April and June before construction for *Elymus californicus* and *Micropus amphibolus* within the proposed project footprint. If special-status plants are found, MCOSD shall implement protection measures to avoid impacts on any special-status plants, which could include placement of rocks or logs to protect the plant while allowing trail use.

Special-Status Wildlife

Temporary construction activities could result in short-term impacts on habitat used by special status wildlife species and their habitat. Construction grading, construction access, trail construction, and bridge installation all require ground disturbance in areas that support habitat for California giant salamander, pallid bat, northern spotted owl, cooper's hawk, and nesting birds. Tree trimming and the removal of seven small native trees could temporarily impact habitat for pallid bats and nesting birds if they are present in the trees being trimmed or removed or if construction noise occurs within distances that could affect nesting behavior.

California Giant Salamander

The PCI Biological Resources Report notes there are no reported occurrences of California giant salamander (CDFW Species of Special Concern) in the Arroyo de San Jose Creek watershed. However, site assessments complete by biologists in 2021, 2025, and 2026 indicate the presence of suitable upland habitat for California giant salamanders within the project area in the forest understory within 50 meters of the creek. Site surveys indicate Arroyo de San Jose Creek is an intermittent stream[65] that dries completely during the summer months, as such, suitable aquatic habitat (breeding) habitat (perennial streams or pools) for salamander is very limited and absent during the dry season. Construction activities such as bridge installation, trail construction, and trail decommission would temporarily affect California giant salamander upland and aquatic habitat, although all instream work would occur when the creek is dry. Construction may also directly affect individual salamander if present in the project area during construction. As required in the RTMP, preconstruction surveys for California giant salamander would occur as required in RTMP BMP Special-Status Wildlife-2, and MCSOD would implement the project to avoid the salamanders, allow the individual to voluntarily vacate the project area or work with resource agencies to secure the necessary authorization to move individuals to a safe location away from construction. Following construction, disturbed areas would then be stabilized with erosion-control measures and restored to pre-construction conditions or better. These temporary activities would be short-term and localized and would not result in a substantial adverse effect on California giant salamander or their habitat.

Implementation of the proposed project would improve habitat for the California giant salamander as the new bridges would eliminate use of the existing rock ford crossings within Arroyo de San Jose Creek for trail access. Implementation of the proposed project would also improve habitat conditions for some California giant salamander by reducing chronic erosion, eliminating the need for repeated ford crossings, and lowering fine sediment delivery to Arroyo de San Jose Creek. The new bridges would remove direct trail use from the creek channel and reduce disturbance to the streambed and banks. Likewise, realignment and decommissioning of unstable trail segments would reduce runoff concentration, erosion, and sediment transport, which would benefit aquatic and riparian habitat over time. The streambank restoration portion of the proposed project would lay back and stabilized the oversteepened and unstable streambanks and aggressively revegetate the area to improve habitat conditions through the area.

[65] Seasonal streams (intermittent) flow during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow. Runoff from rainfall or other precipitation supplements the flow of seasonal stream.

Northern Spotted Owl

The PCI Biological Resources Report notes that a northern spotted owl activity center was documented approximately 0.12 miles south of the proposed project area, with confirmed activity in both 2023 and 2024 and additional recent positive observations in the vicinity.[66] The study also noted that the proposed project area does not support suitable nesting or roosting habitat due to the lack of large-diameter trees and the absence of a multi-layered forest canopy. However, the study noted there is suitable nesting, roosting, and foraging habitat within the forests within 0.25 miles of the project area. The portion of the project within 0.4 miles of the trailhead at Fairway Drive is within the activity center while the westernmost 0.3 miles of the proposed project area is located outside the known spotted owl activity center buffer. Noise created during construction from the use of construction equipment could impact northern spotted owls within the habitat near the proposed project site near the trailhead at Fairway Drive. The RTMP identifies BPM Special-status Wildlife-4: Avoidance and Protection of Northern Spotted Owl. This measure applies to projects with road and trail management that occur within or adjacent to potential northern spotted owl habitat. If monitoring indicates a northern spotted owl has nested in the activity center near the project site, construction would be delayed until biologists determine the young have fledged or when the biologists determine construction can proceed.

Nesting Birds

The plant communities within the project area provide potential habitat for nesting birds, though none were observed during the surveys completed as part of the PCI Biological Resources Evaluation report. Northern spotted owls may forage within the adjacent forests with a known activity center present 0.12 miles south of the project area with confirmed activity in both 2023 and 2024 and additional recent positive observations.[67] The project area, however, does not contain suitable nesting or roosting habitat for northern spotted owl due to the lack of large-diameter trees, absence of a dense, multi-layered canopy; nonetheless, project construction noise could affect nesting within the lower 0.4 miles of trail improvement and Bridge 1 installation work towards Fairway Drive. Northern spotted owls are addressed in the special status animals section above.

The proposed project has been designed to minimize vegetation removal to the greatest extent possible. Seven native trees would be removed to accommodate trail improvements including two buckeye and three bay trees all less than 6-inches DBH from within California bay forest and one 8-inch DBH maple and one 6-inch DBH buckeye from the big leaf maple forest. Additional trees would be pruned to avoid damage when the bridge sections are delivered to the project area and then installed. Implementation of the proposed project would result in ground disturbance and construction-related noise which could result in impacts on nesting birds if present in and near the work area. Potential impacts on nesting birds could result from destruction of eggs or occupied nests, mortality of young, and abandonment of nests with eggs or young birds prior to fledging. Such potential impacts on protected nesting birds could be significant.

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to biological resources, including special-status and nesting birds. 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. Implementation of Mitigation Measure BIO-2, along with implementation of applicable RTMP BMPs, would reduce potential impacts on special-status and nesting birds to a less than significant level.

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

MCOSD shall implement the following seasonal restrictions to protect nesting birds. If work occurs outside the nesting bird window of January 01 – July 31, surveys and avoidance measures will not be necessary for special-status and nesting birds. The broadest nesting bird window based on Table 3

[66] J. Hoorn, pers. comm., Jan. 26, 2026, and California Department of Fish and Wildlife (CDFW). 2026a. California Natural Diversity Database, RareFind Version 5.0, Spotted Owl Viewer, and BIOS. California Department of Fish and Game. Sacramento, CA. http://www.dfg.ca.gov/biogeodata/cnddb.

[67] ibid.

would be January 01 – October 31. The project area does not include habitat for double-crested cormorant, herons, egrets, bitterns, or California black or Ridgway's rail 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 within seven days of the start of active ground-disturbing activities within the general buffers identified in Table BIO-2: Guideline Buffers 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 common knowledge of avian biology. 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 BIO-2, a qualified biologist shall determine whether construction activities may impact the active nest or disrupt reproductive behavior. If it is determined that 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 BIO-2: 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, 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, MCOSD would establish the buffer area guidelines included in Table BIO-2: Guideline Buffers by Species or Guild, until the nest has been vacated, meaning that the chicks have fledged.

Table BIO-MM 2 Guideline Buffers 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
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 (Ducks/Geese/Swans)	30 meters (100 feet)	March 01 – July 31
California Black Rail	213 meters (700 feet)	February 01 – August 31
Ridgway's 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

Foraging habitats for bats range from woodlands, forests, and grasslands to open water. Most Marin County bat species are insectivorous and feed by echolocation. Bats use caves, mines, buildings, bridges, tree hollows, curled leaves or tree bark, and other natural and man-made crevices for roosting. A number of bat species are likely to use the project area and adjacent lands. Two special-status bat species – pallid bat and Townsend's big-eared bat – are reported within the region[68]. PCI determined the pallid bat has a moderate potential for occurrence within the project area as the area provide some day roost habitat. The 2026 site evaluation indicates the vegetation in the project area does not provide maternity roost habitat. Roosting bats present in trees during construction in or near the proposed project could be disturbed by construction noise. Construction would occur during daylight hours, which would eliminate temporary construction impacts on bats that forage within the project area. However, if a roosting bat is present in tree hollows or crevices of a tree that requires removal, they could be injured or crushed. The trees removed likely do not have tree hollows or crevices. Use of a two-step tree removal process that allows a bat to leave the tree before complete removal would reduce the potential impacts on bats to a less than significant level

[68] California Natural Diversity Database (CNDDB). April 2026. Special Animals List. California Department of Fish and Wildlife. Sacramento, CA.

if a bat is in the tree to be removed. The mitigation measure clarifies language in the best management practice in the RTMP as follows:

Mitigation Measure BIO-3: Bat Protection
MCOSD shall implement a two-step tree removal process for tree cutting and survey the area for maternity roosts. This measure clarifies the best management practice already in the RTMP:

- Removal of any tree that supports potential bat roost habitat *(e.g., crevices, large cavities, peeling bark)* shall follow the two-step tree removal process. The two-step tree removal shall be conducted over two consecutive days as follows: 1) the first day (in the afternoon), under the direct supervision of a qualified biologist with experience conducting two-step tree removal, limbs and branches shall be removed using chainsaws. Limbs with cavities, crevices, or deep bark fissures shall be avoided, and 2) the second day the entire tree shall be removed.
- Any tree, including those with potential bat habitat, can be removed without the two-step removal process between March 01 – April 15 or August 15 – October 15; these time windows avoid the sensitive hibernation and breeding season for most bat species.
- If a maternity roost is detected within the construction area, MCOSD would consult CDFW and USFWS prior to initiation of work that could result in take. If construction activities must continue and would not incur take, MCOSD would work with the regulatory agencies to establish buffer guidelines until the pups can fly.

For the reasons presented above, implementation of the proposed project would not result in a substantial adverse effect to special-status species that are known to be present or have the potential to be present within the project area, including California giant salamander, northern spotted owl, nesting birds, Cooper's hawk, and pallid bat. The potential presence of other special-status species was evaluated and results indicate the following species and their habitat are not present in the project area, and therefore there would be no impact on the following species: California red-legged frog, foothill yellow-legged frog, Townsend's bid-eared bat, western pond turtle, western bumble bee, and white-tailed kite.

The proposed change in use on Buck Gulch Falls trail would eliminate bicycle and equestrian use and limit use to pedestrians only. The change in use coupled with the newly located trail segments with new trail surfacing would be beneficial for special-status and common wildlife using habitat in the area. Implementation of the proposed project is not expected to result in a substantial increase in the visitor use of the trail system because Buck Gulch Falls Trail and Ignacio Valley Preserve have limited parking on Fairway Drive and Saint Andrews Drive, which are local, public streets. Available parking is a limiting factor for visitation. The proposed project does not include provision of additional parking and therefore, lack of parking would continue to be limited. Consistent with the IAP, MCOSD primarily relies on public right-of-way to provide the parking to serve open space visitors arriving by motorized vehicle. In cases for which adequate on-street accessible parking cannot be provided within the public right-of-way, MCOSD evaluates the appropriateness of parking improvements within open space preserve properties.

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 Impact 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* indicate which plant communities are sensitive within

the state of California classification.[69] Within the Buck Gulch Falls study area, the poison oak scrub (association G3S3), coast live oak forest (G5S4, association G3S3), California bay forest (G4S3, association G3S3), bigleaf maple forest (G4S3, association G3S3), and arroyo willow thickets (G4S4) are considered sensitive plant communities due to their rarity, riparian function, and regulatory recognition. Poison oak scrub and all forest and scrub communities are considered sensitive due to their association ranking and proximity to the Arroyo de San Jose Creek.

The term "riparian woodland" refers to woodland associated with a stream or its floodplain, which is typically distinct from surrounding upland vegetation types and considered to provide exceptionally valuable habitat for plant and animal species. Riparian woodland is considered a sensitive habitat by regulatory agencies and local plans (Novato General Plan 2035, Marin Countywide Plan). In the Buck Gulch Falls project area, riparian woodland is present as a mosaic of coast live oak forest, California bay forest, bigleaf maple forest, and arroyo willow thickets along Arroyo de San Jose Creek and its tributaries, interspersed with shrubland and grassland upslope.

The proposed project has been designed to avoid impacts on riparian habitat and sensitive natural communities to the extent feasible, and where these impacts cannot be completely avoided, the proposed project has been designed to minimize the impacts and improve conditions where riparian habitat is currently degraded. Trail realignment would relocate approximately 850 feet of trail away from the stream bank and two pedestrian bridges and boardwalks would replace existing in-stream fords, eliminating direct crossings and associated trampling. Stream restoration along approximately 175 feet of creek would repair eroding banks using a combination of rock stabilization and revegetation efforts. Vegetation removal would be limited to approximately 25,450 square feet of understory (primarily shrubs and grasses) within the new trail, bridge, and restoration footprints, plus seven small trees (≤8 inches DBH) in California bay and bigleaf maple forests; no large oaks or heritage trees would be removed, and canopy cover would be retained. Some tree trimming may be necessary to avoid limb breakage and damage during delivery of the bridges. Temporarily disturbed riparian areas (approximately 18,800 square feet) would be restored with native shrubs, forbs, grasses, and riparian species matching surrounding communities.

This minimal vegetation removal and targeted restoration is not expected to result in substantial adverse effects on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations. The project would improve riparian conditions by reducing erosion, consolidating human use onto sustainable alignments, and restoring compacted/denuded areas, yielding a net habitat gain of approximately 7,146 square feet. MCOSD would implement applicable RTMP BMPs to minimize potential impacts on riparian habitat and sensitive natural communities, including General-1 (limit work area footprints), General-2 (modify vegetation management near wetlands/riparian), General-3 (minimize erosion), and Sensitive Natural Resources-1 (modify practices near sensitive resources). The resulting conditions would improve site conditions and would not result in substantial adverse effects 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.

Tree Protection and Replacement

The RTMP does not include BMPs to address tree pruning and/or removal. 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 abutments for both Bridge 1 and Bridge 2 would occur within the root zone of some native trees, and the compaction around the root zones could impact the health and vigor of the trees and trees may show signs of decline. MCOSD would implement the following measures protect trees and replace those trees removed during implementation of the proposed project or to replace trees showing impacts from root damage resulting in tree health issues based on monitoring required in Mitigation Measure BIO-5: Monitor Tree Health.

[69] 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.

Mitigation Measure BIO-4: Tree Protection and Replacement

MCOSD shall minimize tree removal and 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 diseases. Heavy pruning on deciduous trees shall be done in the winter.

- Minimize impacts within the Root Protection Zone (RPZ)[70].
- Temporary protective fencing or other means to prevent damage shall be installed around RPZs or, at a minimum, the dripline of trees near work areas to note environmentally sensitive areas.
- Changes in drainage within RPZ shall be avoided to the extent feasible.
- Soil compaction within native tree perimeters shall be avoided to the extent feasible. Use the smallest equipment possible for work that must occur in the RPZ, and travel within the RPZ when conditions are dry. If soils are wet, then use construction mats or other means to limit soil compaction in the RPZ.
- Heavy equipment, vehicles, and/or construction materials shall not be parked or stored beneath trees or operated within the delineated protected perimeter.
- Protect native trees from incidental equipment damage to the trunk and limbs. Install tree wrap or other protection means if equipment must work within 10 feet of a native tree.
- Develop a tree replacement plan for any tree removed based on the ratios shown on Table BIO-4 and expand the Conceptual Restoration Plan to ensure the tree replacement ratios are met:

TABLE BIO-MM 4: TREE REPLACEMENT RATIOS

Tree Type	Diameter	Replacement Ratio
Oaks	5-10 inches DBH	4:1
Oaks	10-15 inches DBH	5:1
Oaks	15 inches DBH and above	15:1
Native Trees	3-6 inches DBH	3:1
Native Trees	6 inches DBH and above	6:1
Non-Native Trees	Any DBH	1:1

[70] Native trees are particularly susceptible to disturbance, especially within the root crown and root zone, commonly referred to as the Root Protection Zone (RPZ), which is defined as 1.5 times the dripline radius measured from the tree trunk. The RPZ also extends approximately three feet below the soil surface.

Tree Health

Installation of bridge footings and trail realignment could impact tree roots of nearby native trees including a 36-inch live oak near Bridge 1 and smaller native trees near both bridges. Minimal excavation would be employed to avoid any unnecessary impacts to tree roots during implementation. While excavation work is not expected to result in potentially significant environmental impacts, MCOSD would implement the following measures to monitor trees of which roots are cut, damaged, or removed during implementation of the proposed project:

Mitigation Measure BIO-5: Monitor Tree Health

MCOSD shall monitor the health of trees tree roots require cutting or removal in order to implement the proposed project or should tree roots inadvertently be damaged during project implementation, the following measures shall be implemented to ensure the health of the tree and safety of visitors:

- Cut roots consistent with International Society of Arboriculture guidelines.
- Apply a 2- to 4-inch layer of organic mulch such as wood chips, shredded bark, or pine needles over a tree's root system for a simple and effective means of enhancing root growth. The mulch helps condition the soil, moderates soil temperatures, maintains moisture, and reduces competition from weeds and grass. The mulch should extend as far out from the tree as practical for the site. Backfilling and mulch may still be the best mitigation strategy as it creates an optimal environment for root growth along with fostering beneficial and antagonistic fungi to help reduce infection.
- Monitor affected trees for decline and risk on an annual basis as part of other trail monitoring activities. Symptoms of decline include smaller and fewer leaves, dieback in the crown of the tree, and premature fall color. Stressed trees are more prone to attack by certain diseases and pests, which further a tree's downward spiral. Severe damage and decline may also lead to defects and decay, which would require removal of the tree.
- Consult with a certified arborist for a professional assessment of tree health or structural integrity becomes a concern.

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

Less than Significant Impact

Wetlands, creeks, streams, and permanent and intermittent drainages are subject to jurisdiction by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), CDFW under Sections 1602–1603 of the California Fish and Game Code (to the outer edge of riparian vegetation), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) under the federal CWA §401 and Porter-Cologne Water Quality Control Act. These agencies regulate direct removal, filling, hydrological interruption, and other substantial alterations to wetland and stream habitat.

PCI completed a wetland delineation of the project area illustrating the Arroyo de San Jose Creek is subject to the jurisdiction of the USACE, the RWQCB, and CDFW. The Arroyo de San Jose Creek and three ephemeral tributary drainages were delineated as waters of the U.S and waters of the State per USACE protocols, including defined bed/bank and ordinary high-water mark with seasonal pools and riparian vegetation. No wetlands were mapped within the project area. Riparian vegetation along the creek (e.g., arroyo willow thickets, bay/maple/oak forest) likely provides CDFW streambed/riparian jurisdiction.

The proposed project has been designed to avoid direct removal, filling, or hydrological interruption of wetlands or jurisdictional waters to the extent feasible. The two bridges would fully span the creek and would eliminate visitors crossing directly through the channel. The bridge abutments would be located outside the channel at both bridge locations. Minor grading would be necessary around the bridge sites to accommodate construction and to ensure the trail meets the newly installed bridges to allow public access.

Large equipment, including an excavator, trucks, and compactor would use the existing rock fords within Arroyo de San Jose Creek to access the bridge sites. Existing fords would be decommissioned, and stream restoration consisting of a 175-foot section of bank repair, would use bioengineered techniques to stabilize eroding banks without altering channel morphology, flow conveyance, or hydrology. The existing fords would be used for construction access during construction of the two bridges. Temporary construction access at the three small ephemeral crossings would use geotextile fabric and mats to prevent soil erosion into channels, with all mats and any minor temporary aggregate removed post-construction and disturbed substrates restored. Erosion and sediment controls including straw wattles, silt fences, and stabilized construction entrances would be installed prior to ground disturbance to prevent runoff from entering jurisdictional features, per RTMP General-3: Minimize Potential for Erosion and General-6: Prevent or Reduce Potential for Pollution. No permanent fills, structures, or diversions are proposed in the creek bed at either bridge site or at the sites of the three ephemeral channels.

A 6,200 square foot area along the south side of the Arroyo de San Jose would be stabilized and restored to improve conditions within and along the channel reach. Large equipment, including an excavator, trucks, and compactor work above the banks of Arroyo de San Jose Creek to complete the grading and rock placement needed to implement the restoration efforts. Access to the restoration site would occur primarily through Arroyo willow thicket and perennial grassland The restoration work would entail laying back the eroding stream bank to conform with the surrounding landscape to support revegetation site recovery efforts. A 4-inch-thick layer of rock would be placed in the channel to create a level bench and half-ton rock, 3- to 6-inch cobble, and alluvial gravel mix would then be placed within the crevasses to stabilize the bed and the streambank. Live willow brush layers placed within 2 inches of the base rock layer along the slope of the streambank, with 2 inches of topsoil and a minimum 6 inches of FREF[71] placed on top to provide more planting spaces to allow vegetation to provide additional bank stability. Vegetation plantings would include native grasses, forbs, shrubs, and trees. The restoration effort at this location would result in the placement of 70 cubic yards of rock and soil fill placed within the channel across an approximate area of 1,130 square feet to accomplish the restoration goals. Native plantings would be placed in the graded area per the restoration plans, and native grass seeding would occur throughout the temporary staging and access roads to the project area, as well as within the upland zone in addition to straw wattles situated every five feet along the slope to further stabilize the repair. Erosion and sediment controls including straw wattles, silt fences, and stabilized construction entrances would be installed prior to ground disturbance to prevent runoff from entering jurisdictional features, per RTMP General 3: Minimize Potential for Pollution (minimize erosion) and General 6: Prevent or Reduce Potential for Pollution. Implementation of stream restoration would result in the permanent placement of rock and soil within the jurisdictional boundary of the agencies listed above. The fill is necessary to restore and stabilize the degrading site conditions along Arroyo de San Jose Creek, and the project includes an aggressive revegetation effort to facilitate site recovery.

Implementation of the proposed project would substantially reduce the potential for accelerated erosion and sedimentation into the Arroyo de San Jose Creek. This would reduce existing water quality impacts and improve habitat conditions for aquatic species. Although the project includes placement of fill material within Arroyo de San Jose Creek, the placement is necessary to achieve the stated stabilization and restoration goals of the proposed project. Overall, the project would result in a beneficial effect on jurisdictional waters.

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

Wildlife corridors are 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 human-

[71] Fabric reinforced earth fill (FREF) which entails an erosion control blanket, over 1-inch compost, over select fill.

made 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 local population extinctions or habitat recovery from ecological disturbances. 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 may consist of 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.

The Buck Gulch Falls project area is located within a contiguous band of protected open space that includes the Ignacio Valley, Loma Verde, Pacheco Valley, and Indian Valley Preserves. This landscape functions as a habitat linkage along the northern slope of Big Rock Ridge, allowing wildlife to move between upland woodland/chaparral and riparian habitats along Arroyo de San Jose Creek. The existing Buck Gulch Falls Trail runs within and adjacent to this movement corridor, and wildlife likely move through the project area. The proposed project would not introduce new barriers such as fences or walls that would inhibit wildlife movement. Instead, the project is designed to improve habitat conditions along the creek by relocating trail segments away from the stream bank, installing bridges in place of creek fords, and restoring disturbed riparian areas.

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. Under existing conditions, resident wildlife have likely habituated to human activity along the trail system. Visitation to the project area is not expected to increase after the proposed project is implemented because the existing limitation on parking would continue and the proposed project does not include additional parking capacity.

Wildlife may leave the immediate area surrounding the trail during construction activities; however, the impacts would be short-term and only occur during construction. Wildlife uses would remain in the project area and any displaced wildlife would likely return following completion of construction. All temporarily disturbed areas and decommissioned trail segments would be restored following construction, restoring habitat to the natural state. This would result in a benefit for wildlife use. For these reasons, 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. For these reasons, mitigation measures would not be required.

e) Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
No Impact

The majority of Ignacio Valley Preserve is within unincorporated Marin County and governed by the Marin Countywide Plan. A portion of the project area is located within the City of Novato city limits and is governed by the City of Novato's General Plan 2035[72] adopted by the Novato City Council on October 27, 2020. These respective plans include goals and policies to protect natural resources. The RTMP includes policies and BMPs to protect biological resources, which are previously listed in this document. Implementation of the proposed project would conform with the goals and policies of these documents.

Implementation of the proposed project would conform with the goals and policies of the Marin Countywide Plan and the City of Novato General Plan 2035 and related to public open space and natural resource

[72] City of Novato. City of Novato General Plan 2035. May 2024.

protection. Both plans encourage protection of publicly owned open spaces in their natural state and support public access where compatible with preservation and enhancement of the natural environment. The proposed project would meet these goals by improving trail sustainability, reducing erosion and habitat fragmentation along Arroyo de San Jose Creek, and improving visitor experience while concentrating use on sustainable trail alignments and restoring degraded riparian and upland habitats.

Marin County Board of Supervisors adopted Ordinance 3342 – Native Tree Protection and Preservation on May 16, 2002, to establish regulations for the protection and preservation of native trees in non-agricultural unincorporated areas of Marin County by limiting tree removal. The ordinance defines protected trees and prohibits their removal unless one or more of the exceptions applies. Removal of protected trees requires a permit and applies to big leaf maple and California bay over 10 inches dbh. None of the trees proposed for removal meet the requirement of a protected tree for Marin County. Furthermore, MCOSD is exempt from this ordinance pursuant to Title 22:.06.050 – Exemptions from Land Use Permit Requirements because the RTMP is the MCOSD document that governs as an extension of the Marin Countywide Plan. Nonetheless, Mitigation Measure BIO-2: Tree Protection and Replacement requires replacement of native trees at ratios depending on tree size. The City of Novato regulates the removal or alteration of trees to preserve scenic beauty, maintain property values, minimize erosion problems, and maintain the attractiveness of the Novato area under the city municipal code and Ordinance Number 1576, Section 2 adopted October 23, 2012. MCOSD is exempt from the City of Novato local ordinances with the exception of encroachment permits; however, MCOSD intends to meet the city requirements for tree protection and tree replacement.

Native Tree Protection. The Novato General Plan, Marin Countywide Plan, and Novato Municipal Code require protection of native trees and woodlands that provide ecological, aesthetic, and cultural benefits, and call for maintaining age and species diversity and the health of native woodlands wherever feasible. The Buck Gulch Falls proposed project has been designed to minimize tree removal by realigning trail segments within existing disturbed corridors where possible and limiting the number and size of trees removed for bridge and trail installation. A total of seven small native trees (five California bay less than 6 inches DBH and two bigleaf maple approximately 6–8 inches DBH) would be removed to accommodate bridge and trail installation, and some additional limb trimming would be required to provide safe clearance along the trail. No large, heritage-sized, or landmark trees are proposed for removal, and substantial native woodland canopy will be retained in the project area.

Native Trees. Because the RTMP does not include detailed BMPs specific to tree pruning and removal, Mitigation Measure BIO-3: Protect Native Trees would be implemented to avoid conflicts with local tree protection policies under both Novato and Marin County jurisdiction. Mitigation Measure BIO-3 requires minimizing pruning to that necessary for safety and access, conducting heavy pruning only during the dormant season for deciduous trees, and protecting tree root zones by avoiding soil compaction and drainage changes within the Root Protection Zone (RPZ), defined as 1.5 times the dripline radius and extending approximately three feet below the soil surface. Heavy equipment, vehicles, and construction materials would not be parked or stored within RPZs, and access routes near trees would use protective measures including temporary mats, fencing, and, where needed, trunk wrapping to prevent root and bark damage. With implementation of BIO-3, the project would be consistent with Novato's and Marin County's native tree and woodland protection objectives, and impacts related to tree protection would be less than significant.

Invasive Species Management. Invasive plant species, including yellow starthistle (*Centaurea solstitialis*) and Harding grass (*Phalaris aquatica*), are present in disturbed areas along existing trails and clearings in the project area. Construction activities, soil disturbance, and movement of equipment and materials could promote the introduction or spread of invasive species into adjacent native habitats if not properly managed. The RTMP includes a comprehensive suite of Invasive Plants BMPs (Invasive Plants-1 through -7, -9, and -10) that have been incorporated into the project is consistent with Novato General Plan Policy OS-3.4 (invasive species control) and Marin Countywide Plan Policy BIOL-1 (protect native biodiversity). These

BMPs require compliance with the Integrated Pest Management Ordinance; limit herbicide use near sensitive resources; require pre-construction survey and control of invasive plants within the project footprint; limit soil disturbance to the minimum necessary; require cleaning of all heavy equipment, tools, and vehicles prior to entering and leaving the site; require measures to reduce the potential for invasive establishment on disturbed soil (e.g., timely revegetation with native species); and require post-construction monitoring and control of invasive plants along trail segments and in decommissioned areas. With implementation of these measures, the project will not conflict with local or regional policies on invasive species, and no additional mitigation is required for invasive plant management.

Ecological Benefits. The proposed project is intended to reduce environmental impacts, improve the user experience, improve accessibility for all trail users, and improve the sustainability of the trail consistent with the RTMP policies, applicable BMPs, and trail design standards, as well as meeting most IAP standards. Implementation of the proposed project would reduce the potential for accelerated erosion and sedimentation into the Arroyo de San Jose Creek that could adversely impact water quality by eliminating visitor use of the existing rock fords within the creek and decommissioning trails that contribute to erosion and the mobilization of sediment. This would result in a beneficial effect on biological resources.

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

There are no adopted plans that cover the Ignacio Valley Preserve or the Buck Gulch Falls project area in Marin County. No other approved local, regional, or state habitat conservation plans apply to the project site or the proposed activities. Therefore, implementation of the proposed project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

CULTURAL RESOURCES

TABLE 7: CULTURAL RESOURCES CHECKLIST QUESTIONS

	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

Tom Origer & Associates prepared a *Cultural Resources Study* (CRS) for the proposed project, dated April 22, 2021.[73] It included a cultural resources literature search completed at the Northwest Information Center of the California Historical Resources Information System (CHRIS), an initial Native American Consultation with the Native American Heritage Commission, and an archaeological survey of the project area. The CRS satisfies the following RTMP BMPs Cultural Resources-1: Historical and Archaeological Resource Mapping and Cultural Resources-2: Consultation with Northwest Information Center. Much of the setting information and impact analysis included in this section is based on information contained in the CRS.

The study area consists of 4,235 linear feet along an east-to-west alignment, situated on landforms with a slope of approximately 1 percent. The alignment is located adjacent to the Arroyo de San Jose Creek, with a few areas where the study area crosses over the creek. The vertical component would be four feet below the surface for the bridge abutments *(i.e., concrete spread footings)*, while the remaining project elements *(i.e., trail decommissioning and trail construction)* would be completed within one foot below the surface.

CHRIS records search identified no cultural resources within or adjacent to the study area. The study area was included in a previous cultural resources study, and one study was conducted within a quarter mile of the study area. Tom Origer & Associates conducted an intensive field survey on April 13, 2021. No cultural resources or archaeological site indicators were identified within the study area, and application of a buried sites model indicates low to high potential for buried resources throughout the study area. The areas of high sensitivity are concentrated to the Holocene soils around the creek. The exposed soil within the creek bank was thoroughly inspected for archaeological site indicators and anthropogenic soils, but none were noted. No historic resources/or properties are listed on federal, state, or local inventories within or abutting the project area. The Native American Heritage Commission responded that there are sacred sites within the vicinity of the study area, and NAHC recommended contacting the Federated Indians of Graton Rancheria (FIGR) to gather additional information about the area. Tom Origer & Associates sent a letter to the FIGR and the Guidiville Indian Rancheria on April 9, 2021, to request additional information; however, Mr. Origer received no responses to the outreach letters.

Tom Origer & Associates did not recommend any additional work. No cultural resources were found within the study area; therefore, no resource-specific recommendations are warranted. The CRS includes a

[73] Tom Origer & Associates. 2021. *Cultural Resources Study for the Buck Gulch Falls Trails Project, Ignacio Valley Open Space Preserve, near Novato, Marin County, California*. April 22, 2021.

description of the process to follow should buried or previously unrecognized archaeological deposits or materials be inadvertently exposed during any construction activity. It recommends work in the immediate area of the find be halted until a qualified archeologist can evaluate the finds and provide 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.

As part of continued tribal consultation efforts, MCOSD met with FIGR on April 16, 2026. FIGR requested that MCOSD update the previously completed *Cultural Resources Study* prepared by Tom Origer & Associates in 2021, which Far Western did in May 2026. Far Western provided FIGR with the *Supplemental Cultural Resources Study*[74] for the proposed project. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. MCOSD is currently consulting with FIGR and FIGR received a copy of the supplemental study. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered. This recommendation has been incorporated into the proposed project through RTMP BMPs Cultural Resources-5: Permanent Protection, Cultural Resources-6: Construction Recovery Protocol, and 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 later on, and even later, 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 central Marin County, Native American archaeological sites are recorded on terraces adjacent to creeks and springs, along ridgelines, and within rock outcroppings.

Between A.D. 1579 and 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. In 1835, Rancho Nicasio was one of three land grants granted to local Marin County Native Americans who had been a part of the mission system. Nicasio land grant consisted of 20,0000 square leagues and was granted to Teodosio Quilajuequi but never confirmed.

[74] Far Western. 2026. *Completion of Archaeological Testing for the Buck Gulch Falls Creek Restoration and Trail Improvement Project, Ignacio Valley Open Space Preserve, Novato, Marin County*, California. June.

Applicable Regulations

National Historic Preservation Act Context

The proposed project would likely require a Section 404 Permit from the USACE, and therefore, would be subject to compliance with Section 106 of the National Historic Preservation Act (NHPA)[75] 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

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 under guidelines established by 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[76] 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[77] 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

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[75] 54 U.S. Code § 306108: Effect of Undertaking on Historic Property. https://www.law.cornell.edu/uscode/text/54/306108.

[76] 36 Code of Federal Regulations (CFR) Part 800: Protection of Historic Properties. https://www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf.

[77] 36 CFR 60.4: National Register of Historic Places. https://www.ecfr.gov/cgi-bin/text-idx?SID=b36f494ab8c19284178b4c593eda2a8f&tpl=/ecfrbrowse/Title36/36cfr60_main_02.tpl.

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 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

MCOSD invited the Federated Indians of Graton Rancheria (FIGR) and Guidiville Rancheria of California to provide tribal consultation under Assembly Bill 52 (AB52) on July 16, 2025, consistent with RTMP BMP Cultural Resources-3: Tribal Consultation. The invitation included a project description, project related studies, the proposed CEQA process, and a summary of findings from the *Cultural Resources Study*.[78] FIGR responded August 15, 2025, with a formal request for tribal consultation under CEQA for the mitigation of potential project impacts to tribal cultural resources within FIGR ancestral lands. MCOSD did not receive a response from the Guidiville Indian Rancheria. In their response, FIGR requested to consult on project alternatives, recommended avoidance and mitigation measures, significant effects of the project, type of environmental review necessary, significance of tribal cultural resources, and significance of project impacts to tribal cultural resources. The letter expressed the preferred manner of mitigation impacts to

[78] Tom Origer & Associates. 2021. *Cultural Resources Study for the Buck Gulch Falls Trails Project Ignacio Valley Open Space Preserve near Novato, Marin County, California.* April 22, 2021.

archaeological sites is preservation in place. MCOSD responded August 18, 2025, with an invitation to propose preferred meeting times. No response from FIGR was received.

On October 13, 2025, and February 4, 2026, MCOSD sent additional invitations to meet and no response was received. MCOSD met with FIGR on April 16, 2026, to discuss the addition of the restoration component of the proposed project and to and to discuss future permitting steps. During the tribal consultation meeting, the FIGR requested that MCOSD provide a plant list for the proposed restoration element of the project, which was provided on April 20, 2026. FIGR also requested that MCOSD update the previously completed *Cultural Resources Study* prepared by Tom Origer & Associates to reflect the change in project scope, such as the addition of the streambank stabilization work proposed along the southside of Arroyo de San Jose Creek, and address compliance with Section 106 of the NHPA, as the proposed project would likely require a Section 404 Permit from the USACE.

MCOSD commissioned an updated cultural resources study. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

Far Western provided FIGR with the *Supplemental Cultural Resources Study* for the proposed project on May 15, 2026. The *Supplemental Cultural Resources Study* recommended the Presence/Absence Testing, completed by Far Western and described in a June 2026 memo that detailed the results of the additional archaeological testing[79]. FIGR was notified of the scheduled testing for the proposed project on May 26, 2026, and a follow up email was sent to FIGR informing them of the completed fieldwork on June 2, 2026. A copy of this report will be shared with FIGR for review and input. MCOSD continues ongoing consultation, and MCOSD will include FIGR 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 cultural resources. The applicable RTMP Policies and BMPs are listed below 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-5: Permanent Protection
- Cultural Resources-6: Construction Discovery Protocol
- Cultural Resources-7: Human Remains

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.

[79] Far Western. 2026. Completion of Archaeological Testing for the Buck Gulch Falls Creek Restoration and Trail Improvement Project, Ignacio Valley Open Space Preserve, Novato, Marin County, California. June.

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 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."

Tom Origer & Associates and Far Western conducted a records search at the Northwest Information Center of the California Historical Resources Information System and evaluated the project area as part of the two cultural resources studies. No midden soils or other archaeological deposits were observed during the presence/absence testing of the Area of Potential Effects, and no historic resources or properties were identified, or are listed on federal, state, or local inventories within or abutting the project area.

Although no historic resources were identified in the project area, ground disturbing activities associated with the bridge abutments, trail decommissioning, and trail construction could reveal previously unknown resources. The Far Western report identified three construction-period requirements including the need for cultural resources sensitivity and awareness training for all project personnel and processes to follow if archaeological or tribal cultural resources or human remains are discovered during construction. 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. BMP Cultural Resources-6: Construction Discovery Protocol provides a process to follow should cultural resources be uncovered during construction. For these reasons, implementation of the proposed project would not result in a substantial adverse change in the significance of historic resources pursuant to 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 Impact

An archaeological resource is defined by CEQA 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. Based on the geology and soil type mapped within the project area, site evaluations, and Tom Origer & Associates application of a buried sites model, the project area has low to high potential for buried archaeological resources. The areas of high sensitivity are concentrated to the Holocene soils around the creek. The exposed soil within the creek bank was thoroughly inspected for archaeological site indicators and anthropogenic soils, but none were noted. However, ground disturbing activities associated with the bridge abutments and other minor earth-moving associated with project implementation could reveal unknown archaeological or Native American resources. To address this issue, the proposed project would impact the applicable RTMP BMPs, which would ensure that the implementation of the proposed project would not result in significant impacts to archaeological or Native American 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. Additionally, MCOSD would directly contact the Federated Indians of Graton Rancheria in the event that cultural resources are inadvertently discovered per the request by FIGR on previous projects. 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 an archaeological resource pursuant to CEQA Guidelines Section 15064.5.

c) Would the Project disturb any human remains, including those interred outside of dedicated cemeteries?

Less than Significant Impact

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 encountered during project implementation, 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. Additionally, MCOSD would directly contact the Federated Indians of Graton Rancheria in the event that human remains are inadvertently discovered per the request by FIGR on previous projects.

Ground disturbance associated with the bridge abutments and other earth-moving associated with project implementation could reveal unknown human remains. Far Western identified the process to follow in the event human remains are discovered during construction and would be implemented as RTMP BMP Cultural Resources-7: Human Remains. Should this occur MCOSD would contact the County Coroner and the NAHC within 24 hours. MCOSD would also contact the Federated Indians of Graton Rancheria as the most likely descendant (MLD). Agreements would be made to develop agreement for the treatment, or any human remains.

For these reasons, implementation of the proposed project would result in a less than significant impact associated with human remains being encountered during project implementation, including those interred outside of formal cemeteries.

ENERGY

TABLE 8: ENERGY CHECKLIST QUESTIONS

	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 gasoline to drive to and from the project area. 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. There is no electrical use at the project area.

Applicable RTMP Policies and BMPs

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

CEQA Context

In order to assure that energy implications are considered in project decisions, CEQA Section 21100(b)(3) requires that the potential energy impacts of proposed project be considered, with emphasis on avoiding 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?
No Impact

The proposed project would not result in measurable incremental increases in the use of fuel. Use of diesel-powered heavy equipment and gas-powered vehicles to access the site and bring materials and equipment to the area would be necessary. Equipment would include an excavator, loader, compactor, cement truck, cement mixers, roller compactor, rubber track carrier, generators, dump truck, ATVs, generators, jackhammers, power saws, and other hand tools to install bridges and boardwalks, relocate and improve existing trails, and install streambank restoration elements of the proposed project. As described in the Project Description, heavy equipment would be limited to the dry season, generally May 15th to October 15th, or as permitted under regulatory permits. Construction would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m., and would require approximately six months and two construction seasons. Up to five MCOSD staff members or their contractors would drive to and from the project site each day during construction to monitor activity and ensure that all RTMP BMPs and Mitigation measures are implemented. For these reasons, the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction.

Operation of the project would occur as described in the project description and would result in energy use from trail users driving to and from the project area and from MSOSD staff to perform regular maintenance.

The proposed project is not expected to significantly increase vehicle trips for recreational use of these trails because the proposed project does not include additional parking and under existing conditions, parking is very limited to a few spaces along Fairway Drive and Saint Andrews Drive, which are local, public streets. Available parking is a limiting factor in regards to visitation. The affected trails already exist to support passive recreation; the proposed project would improve existing trails, relocate trails, and decommission trails. The proposed new bridges and trial relocation/improvements are not likely to attract significantly more people to the area as no additional parking is provided at the trailheads. Operation and maintenance activities would be similar to existing conditions and energy use would not increase compared to baseline conditions. Therefore, implementation of the proposed project would result in no impact associated with wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

b) Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact

As discussed above, the proposed project would use small amounts of energy during construction of the proposed project. Operation and maintenance activities would be similar to existing conditions and energy use would not increase compared to baseline conditions. Implementation of Policy SW-29: Retrofit or Upgrade Construction Equipment would ensure that MCOSD uses the most efficient equipment available and conducts the project in an energy efficient manner. Therefore, the proposed project would not conflict with renewable energy or energy efficiency plans, including goals set forth in AB 32, including Recommended Actions identified by the California Air Resources Board (CARB) in its Climate Change Scoping Plan.[80] The proposed project would also not conflict with goals and policies contained in the Marin County Climate Action Plan or the City of Novato Climate Action Plan[81]. For these reasons, implementation of the proposed project would result in no impact associated with conflict or obstruct with a state or local plan for renewable energy or energy efficiency.

[80] California Air Resources Board. 2022. *California 2017 Climate Change Scoping Plan.* December 2022. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan.

[81] City of Novato. Climate Action Plan 2030. September 2025.

GEOLOGY AND SOILS

TABLE 9: GEOLOGY AND SOILS CHECKLIST QUESTIONS

	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

The proposed project area is within the central portion of the Coast Range Physiographic Province of California, a series of northwest/southeast trending coastal mountain chains that parallel the San Andreas

Fault system.[82] Marin County has several delineated faults, with the San Andreas Fault being the only fault in the county zoned under the Alquist-Priolo Earthquake Fault Zoning Act; the Hayward-Rodgers Creek Fault Zone lies to the east across the San Pablo Bay region. [83] Additionally, an active portion of the Hayward fault lies near the county. There is a 70 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[84].It is also possible, but with a low probability, that earthquakes may occur on inactive or previously unidentified faults.

Based on the site reconnaissance, subsurface exploration, literature review, Miller Pacific Engineering found the main geologic hazards for the project area are strong ground shaking, liquefaction and related hazards *(e.g. lateral spreading and ground cracking)*, slope/bank instability, debris flow landslides, flooding, settlement, and erosion/scour.[85] Each of these is discussed in more detail below in the summary of the geotechnical and engineering reports. Debris flow landslides involve downhill movement of rock, soil, and fill. The steep canyon walls and narrow valley floor is shaped by episodic slope failures and debris-flow processes over geologic time.[86] 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 area is expected to experience strong to very strong ground shaking during large earthquakes on the San Andreas or Hayward-Rodgers Creek faults.[87] 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 and how easily they are compacted and eroded, and how stable they are on slopes.

Geologic Engineering and Geotechnical Review

MCOSD consulted two geotechnical engineering firms to evaluate the feasibility of the proposed bridge crossing and develop design recommendations**.** Timothy C. Best, CEG (Engineering Geology and Hydrology) prepared the *Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study* in August 2021[88]. The purpose of this study was to assess geologic hazards at the existing wet ford crossing on Arroyo San Jose and evaluate the feasibility of installing a recreational trail bridge. The report included review of available geologic literature, LiDAR bare-earth imagery analysis, geologic and geomorphic field mapping, a preliminary hydrologic and hydraulic analysis using USGS StreamStats and FlowMaster software, and conceptual design recommendations for bridge siting, abutment placement, and flood clearance. Recommendations from this report, including the 55-to-60-foot minimum bridge span for Bridge 1, and the study identified the need for additional geotechnical evaluation of Bridge 1 site.

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[82] California Geologic Survey. 2002. Geologic Map of the Novato 7.5' Quadrangle Marin and Sonoma Counties, California.

[83] Marin County Open Space District (MCOSD). 2014. *Road and Trail Management Plan (RTMP)*. December 16, 2014. https://parks.marincounty.gov/projectsplans/memorial-trail-terra-linda/road-and-trail-management-plan-12-16-14.

[84] County of Marin. 2025. *Marin Countywide Plan.* April 2025. https://assets.marincounty.gov/marincounty-prod/public/2026-02/cwplan_2023_updated_2026.pdf.

[85] Miller Pacific Engineering Group (MPEG). 2025. Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment. January 2025.

[86] ABAG. 2026d Landslide Maps.

[87] ABAG. 2026b. Ground Shaking Map. Earthquake Shaking Hazard Maps. https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8.

[88] Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

Miller Pacific Engineering Group (MPEG) prepared a *Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment* in January 2025. This geotechnical investigation included review of available geotechnical and geologic reference materials, subsurface exploration with two soil borings drilled to depths of approximately 19 to 28.5 feet, laboratory testing of recovered samples (moisture content, dry density, unconfined compressive strength, gradation), and engineering analysis and recommendations for foundation design and construction. The geotechnical investigation evaluated commonly considered geologic hazards including seismic ground shaking, liquefaction and related hazards, slope and bank instability, flooding, settlement, and erosion/scour. Recommendations from this report, including the recommended pile/pier type, wing wall installation, riprap erosion protection, seismic design criteria per the 2022 California Building Code, and post-construction revegetation have been incorporated into the project design and are reflected in the Project Description.

Hydrology and Hydraulics Review

PCI Ecological completed A *Hydrologic and Hydraulic Analysis Report* (H&H Report) in March 2025[89] to evaluate the minimum soffit elevations of the two proposed pedestrian bridges. The analysis used the USGS Streamstats Tool to calculate the 100-year peak flow levels and determined peak flow rates to be 365 feet per second at Bridge 1 and 146 feet per second at Bridge 2. Hydraulics were assessed using Hydraulics Toolbox[90]. The minimum soffit elevation for Bridge 1 was determined to be 202.5 feet and 319.7 feet for Bridge 2. These minimum elevations would adhere to Marin County Municipal Code section 24.04.520 (d), requiring two feet of clearance between the bridge soffit and 100-year storm elevation and the recommendations were incorporated into the project design. The H&H report concluded that minor grading would be required to achieve the minimum elevation requirement for Bridge 1, and that Bridge 2 would be installed above the minimum elevation to better connect trail improvements, allowing more clearance than is required.

Project Area Geology

The project area is located within the central portion of the Coast Ranges Physiographic Province of California. Regional geologic mapping indicates the site is underlain by unconsolidated alluvial deposits of clay, silt, sand, and gravel underlying the valley bottom, consisting of materials transported and deposited by Arroyo San Jose Creek. The hills surrounding the site are underlain by Cretaceous-age sandstone, and a section of the hill located just north of the site is mapped as underlain by Franciscan Mélange bedrock, a tectonic mixture of locally pervasively sheared mudstone and lithic sandstone within which are mixed numerous blocks and slabs of greenstone, chert, metamorphic rocks, serpentinite, and other rock types. Within the project area, Franciscan sandstone bedrock is exposed at shallow depth along the south channel bank at the Bridge 1 site, where it has been undercut by the Arroyo de San Jose Creek.

Project Area Soils

The soil type present within the project area is Tocoloma-McMullin complex 50 to 75 percent slopes[91] . These soils are often found in steep uplands with depth to bedrock between 39 and 40 inches. Tocaloma soils are primarily located on convex side slopes, while McMullin soils are primarily located near the upper part of the slopes. Both soils are Franciscan derived loamy soils derived from weathered sedimentary and metamorphic rocks in the Franciscan mélange[92]. The Tocaloma soils are moderately deep and well drained, with moderate permeability and very high runoff and erosion potential. The McMullin soils are shallow and well drained, with rapid runoff and very high erosion potential. Erosion and runoff occur particularly where slope gradients are steep and where vegetation is removed or trail surfaces are compacted and unnaturally

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[89] PCI Ecological. *Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis* Report. March 2025.

[90] FHWA. 2014. FHWA Hydraulic Toolbox. https://www.fhwa.dot.gov/engineering/hydraulics/software/toolbox404.cfm. Accessed April 2026

[91] USDA NRCS. 2026 Custom Soils Report. April.

[92] USDA NRCS. 2002. Official Soil Series Description: FRANCISCAN Series.; California Soil Resource Lab. 2025. Franciscan Series – Soil Data Explorer.

concentrated by runoff. The project area is situated within a gently alluvial/colluvial filled valley bounded by steep side slopes.

Miller Pacific performed subsurface exploration at the Bridge 1 site, installing two soil borings to over 28 feet deep. Boring 1 encountered unconsolidated loose fill of sand, gravel, and silt to a depth of 7 feet. The boring then encountered medium dense to dense sandy and clayey gravel at 11 feet and bedrock at 18 feet. Boring 1 maximum depth was 28 feet 8 inches. Boring 2 encountered stiff and dense sandy gravelly silt fill over 15 feet of medium dense alluvial deposits. Boring ended at just beyond 19 feet. Groundwater was encountered at Boring 1 at 28 feet 8 inches and no groundwater was encountered at the Bore 2 site. Drilling occurred during the dry season, and Miller Pacific anticipated the groundwater level likely corresponds to water levels in Arroyo de San Jose Creek. Geotechnical borings were deemed unnecessary at the Bridge 2 site because the bridge would be installed following the manufacturer requirements using structural drawings and bridge calculations developed by DFL Engineering.

Project Area Faulting and Seismicity

The San Andreas Fault Zone is located approximately 16 miles west of the project site at its closest estimated distance. The fault forms the boundary between the North American and Pacific tectonic plates. The Hayward-Rodgers Creek Fault Zone is located approximately 17 miles from the project site. Strong ground shaking from an earthquake on these faults is expected at the proposed project site. Seismic ground shaking can induce settlement of unsaturated (above groundwater level), loose, clean, granular soils. Settlement occurs as the loose soil particles rearrange into a denser configuration when subjected to seismic ground shaking. Regional liquefaction maps indicate the project area is mapped within a zone of moderate susceptibility to liquefaction.[93]

The project area is not located within a mapped Earthquake Fault Zone as defined by the Alquist-Priolo Act of 1972, and there are no known earthquake faults that could result in surface rupture within the project area. The potential for is high and strong ground shaking can trigger liquefaction in loose granular soils in saturated conditions.

Landslide Hazard

LiDAR bare-earth imagery review and field reconnaissance did not identify recent or historic landslides directly underlying the proposed bridge sites.[94] However, literature review and ABAG geologic hazard mapping indicates the upper portion of the project area has few rainfall-induced landslides while the lower portions of the project area towards Fairway Drive has more rainfall induced landslide hazard.[95] The City of Novato identifies a portion of the proposed project area as having high landslide potential.[96] The steep terrain characterizing upland areas of the watershed is inherently prone to debris flow landslide processes.[97] A debris flow landslide originating within an unnamed tributary is believed to have been the source of sediment that buried the confluence of Arroyo San Jose and the unnamed tributary near the proposed Bridge 1 site in approximately 2006.[98]

The existing trail and informal user trails on the steeper slopes show evidence of localized erosion and rill development, particularly where runoff is concentrated along the trail tread and where vegetation has been trampled. These conditions can increase the likelihood of shallow, debris-flow-type failures during heavy storms. The proposed trail upgrades and decommissioning of unsustainable social trails would reduce

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[93] Association of Bay Area Governments (ABAG). 2026c. Liquefaction Maps. https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8.

[94] Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

[95] Association of Bay Area Governments (ABAG). 2026d. Landslide Maps. https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8.

[96] City of Novato. 2020. Landslide Hazard Map. https://www.novato.gov/home/showpublisheddocument/17901/636057440479570000.

[97] Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

[98] ibid

concentrated runoff and shallow-slope instability, thereby decreasing the potential for future landslides along the trail corridor.

Applicable RTMP Policies and BMPs

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 below and are provided, in their entirety, in **Appendix A**.

- General-1: Limit Work Area Footprints in Sensitive Resource Areas
- 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
- General-7: Include Standard Procedures in Construction Contracts
- Construction Contracts-1: Standard Procedures in Construction Contracts
- Water Quality-1: Modifications to Road and Trail Management 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-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
- Geologic Hazards-3: Construction in Areas of Erodible and Expansive Soils
- Geologic Hazards-4: Construction in Areas of Collapsible Soils

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 cause a permanent loss of natural geologic resources through substantial changes in topography, land subsidence, or damage to unique geologic or paleontological features.

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

The project area is located in an area that could experience earthquakes and very strong ground shaking as a result of a large magnitude earthquake on these nearby faults; however, proposed project area is not located within a mapped Alquist-Priolo Earthquake Fault Zone as defined by the Alquist-Priolo Act of 1972 and there are no known earthquake faults that could result in surface rupture within the project area. The proposed project does not include construction of any structures that could pose a safety hazard to trail users in the event of an earthquake. The proposed bridges would both be prefabricated steel truss structures designed to resist anticipated seismic shaking, with abutment foundations following the MPEG geotechnical recommendations. Final structural design would conform to the 2026 California Building Code seismic provisions, and the City of Novato General Plan Safety Element.[99] The primary goal of seismic

[99] Novato. 2025. General Plan New Safety Element final

design is to protect life, and not necessarily to avoid structural damage. The density of people who visit Cascade Canyon Open Space Preserve is relatively low in comparison to urban and suburban areas of Marin County, and implementation of the project would not alter or introduce new risk of earthquake.

Implementation of the proposed project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist or based on other substantial evidence of a known fault. For these reasons, 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 expected to experience strong to very strong ground shaking during large earthquakes on the nearby San Andreas and Hayward-Rodgers Creek faults. Soils within the proposed project area are predominantly loamy and are not susceptible to strong seismic ground shaking as other soil types. In addition, the proposed project does not include construction of inhabitable structures, and the bridges and boardwalks are designed consistent with the geotechnical recommendations as required the RTMP best management practices and the geotechnical studies related to geological hazards. For these reasons, 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?
Less than Significant Impact

Liquefaction refers to the sudden, temporary loss of soil strength during strong ground shaking. The loss of soil strength occurs as a result of the build-up of excess soil pore water. Liquefaction most commonly occurs in saturated, loose granular soils. Regional liquefaction hazard maps indicate the project area falls within a zone of moderate susceptibility to liquefaction[100] based on the soil types present in the project area. Results of the geotechnical evaluation indicate that the soils present at the Bridge 1 site are loose and granular over soils that are denser in composition, and groundwater levels were lower than the loose soils. Testing results indicated the potential for liquefaction is low when soil conditions are dry, but the potential increases when the soils are wet. Bridge 1 design includes construction of bridge footings that account for some potential settlement due to liquefaction of localized sand and gravel layers and seismically induced ground settlement. The design also implements the recommendation to design and construct foundations to the bedrock below to have the footings beneath any potential liquefiable soils layers. Bridge 2 design includes construction of board spread footings embedded a minimum of four feet below the ground surface to account for the uncertainty of the liquefaction susceptibility at the site. Both bridges would be constructed to account for potential differential settlement that could occur given the soil characteristics of the site. These recommendations are included in the project design and discussed in the Project Description to reduce the potential impact from liquefaction to less than significant levels. With implementation of the recommended deep foundation system, implementation of the proposed project would result in a less than significant impact associated with directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure including liquefaction.

[100] Association of Bay Area Governments (ABAG). 2026d. Landslide Maps. https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=4a6f3f1259df42eab29b35dfcd086fc8.

iv) Landslides

Less than Significant Impact

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. Weak soils and bedrock on moderate to steep slopes can move downslope due to gravity. Slope instability is often initiated by the application of new loads or loss of toe support. The primary adverse effect of slope instability is damage to structures and improvements. A debris flow landslide along the unnamed tributary that flows into Arroyo de San Jose Creek at the Bridge 1 site resulted in a thick fill layer. Other debris flow landslides in the steep gradient tributaries have created alluvial fans at or near where the tributaries enter Arroyo de San Jose Creek. While the steep slopes within the project area are susceptible to landslides and debris flows, particularly during intense rainfall events that quickly saturate the soil, the geomorphology of these areas is consistent with infrequent debris flow and debris slide landslide processes.

The project area shows is mapped as having a mix of areas that of few landslides and moderate landslides. Recent LiDAR imagery review and field reconnaissance did not identify recent or historic landslides, particularly at the bridge locations. However, the steep terrain characterizing upland areas of the Arroyo de San Jose Creek is inherently prone to debris flow landslide processes. A documented debris flow originating in an unnamed tributary is believed to have buried the confluence of Arroyo San Jose Creek and an unnamed tributary near the location of the proposed Bridge 1 site around 2006, depositing sediment in the valley bottom downstream of the ford[101]. Best (2021) recommended that greater bridge elevation would reduce debris flow risk exposure and the recommendation was incorporated into the Bridge 1 design to reduce the risk of impact from landslides. The H&H report identified the elevation of the bridges to adequately convey the anticipated 100-year flows to meet the Marin County Municipal Code section 24.04.520 (d), and these recommendations were incorporated into the design and describe in the Project Description.

While the project area may be vulnerable to landslides, mudslides, and slope instability due to the relatively steep hillsides, implementation of the proposed project would not result in a risk to property or public safety because of lack of habitable structures and the low density of public use. Many of the slopes in the project area are subject to debris flows, and some are mapped as “mostly landslides.” Bridge 1 design accounts for the location of the existing rock ford and the new bridge location being located in an area that experienced the effects of an older landslide. Bridge 2 would be located in relatively flat area of the canyon floor in an area mapped few landslides. The proposed trail connections and re-routes would be constructed to ensure that water flows over the improved trails without causing rills, gullies, or erosion that could lead to instability, debris flows, or landslides. The proposed project would not expose recreational users to new landslide potential. For these reasons, 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 Impact

Erosion is a natural process in which soil and highly weathered rock materials are worn away and then transported by wind and/or water. Soil erosion can become problematic when human intervention causes rapid soil loss and the development of erosional features, such as incised channels, rills, and gullies, that undermine roads, buildings, or utilities. Vegetation clearing and earth-moving activities reduces soil structure and cohesion, resulting in abnormally high rates of erosion, referred to as accelerated erosion. Natural rates of erosion can vary depending on slope, soil type, and vegetative cover. Regional erosion rates are also dependent on tectonics and changes in relative sea level. Soils containing high amounts of

[101] Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

silt are typically more easily eroded, while coarse-grained sand and gravel soils are generally less susceptible to erosion.

Soils in the proposed project area are predominantly loamy soils derived from Franciscan mélange, with some thin alluvial deposits along the creek and valleys. Erosion and runoff occur particularly where slope gradients are steep and where vegetation is removed or trail surfaces are compacted and unnaturally concentrated by runoff. The project area is situated within a gently alluvial/colluvial filled valley bounded by steep side slopes. Field observations indicate that the existing trail shows moderate erosion (rilling, gullies), delivering sediment to Arroyo de San Jose Creek.

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 the environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of roads and trails that meet design and management standards and would provide safe year-round access along the trail alignment. Implementation of the proposed project would substantially reduce the potential for accelerated erosion and sedimentation into the Arroyo de San Jose Creek by improving installing bridges to replace visitors crossing through the creek, relocating trails from the banks of the creek to more stable locations, decommissioning unstable and eroding existing trails, and stabilizing an eroding reach of Arroyo de San Jose Creek. In addition, the proposed improved trail segments would be constructed with erosion control features as described in the Project Description, the proposed decommissioning and restoration of closed trails would also reduce existing soil erosion, and implementation of the applicable Policies and Best Management Practices included in the RTMP, all of which would minimize potential for substantial soil erosion and the loss of topsoil.

The banks of Arroyo de San Jose Creek are subject to natural stream bank erosion. To minimize the risk of stream bank erosion undermining the proposed bridge abutments at Bridge 1, the geotechnical investigations and engineering analyses recommend design measures to reduce the risk of accelerated erosion including installing a scour-resistant abutment foundations, installing deep foundations to provide vertical support, installing wing walls on the upstream and downstream sides of the bridge abutments to protect bridge approaches from scour and to keep erosion from undermining the abutment foundations, placing rock or erosion control mats upstream and downstream of the bridge crossing to reduce the potential for scour and erosion to undermine the bridge abutments and implement revegetation and erosion control measures around the bridge. Bridge 2 would be constructed following bridge manufacturer requirements and structural drawings and bridge calculations developed by DFL Engineering. These recommendations were incorporated into the project design and addressed in the Project Description to ensure the bridge abutments would not be undermined in future large flow events.

Streambank restoration activities as described in the Project Description reflect design elements necessary to ensure the result is a stable and well vegetated streambank repair. Rock sizing is based on anticipated flows determined by stream flow modeling. It includes extensive revegetation and erosion control measures to stabilize the site and to prevent soil erosion.

With implementation of the recommendations included in the geotechnical reports the H&H Report, and the structural designs and bridge calculations by DFL Engineering, implementation of the project elements as described in the Project Description along with implementation of the RTMP best management practices, the potential for stream bank erosion would be low. MCOSD would monitor the proposed project, including the proposed bridge abutments and streambank stabilization efforts for erosion as part of routine trail maintenance protocol. Should creek bank erosion occur, MCOSD would develop and implement corrective actions as part of normal routine maintenance. For these reasons, 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?
Less than Significant Impact

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. 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. Landslides are the downward movement of materials such as rock, soil, or fill and lateral spreading refers to landslides that form on gentle slopes that have a rapid fluid-like flow movement. Subsidence is defined as the sinking of the ground caused by the movement of material beneath the ground's surface. It is most often caused by the removal of water, oil, natural gas, or mineral resources and can also result from natural events such as earthquake, soil compaction, erosion, sinkhole formation, and adding water to fine soils deposited by wind. Liquefaction can result when strong ground shaking, such as during an earthquake, occurs in loose granular soils in saturated conditions.

The project area is located in an area that could experience earthquakes and very strong ground shaking as a result of a large magnitude earthquake on these nearby faults; however, the proposed project does not include construction of any structures that could pose a safety hazard to trail users in the event of an earthquake.

The geotechnical engineers found no evidence of recent shallow or deep-seated landsliding was observed during either the 2021 feasibility study or the 2024 geotechnical investigation; however, there is evidence of a debris flow landslide at the confluence of Arroyo de San Jose Creek and an unnamed tributary around 2006. Damage to the proposed bridges could occur in the event of extreme seismic shaking and or runoff events and subsequent repairs would then be necessary. Incorporation of the MPEG (2025) recommendations and the structural designs and bridge calculations by DFL Engineering, into the design and the Project Description to reduce potential impacts from landslides to less than significant levels. Implementation of the proposed project would result in a less than significant impact associated with on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

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?
No Impact

Expansive soils shrink and swell in response to changes in moisture content, driven by clay mineral content that absorbs water and increases volume when wet, then contracts when dry. Generally, the expansiveness relates to the clay content in the soil which enable the soil to absorb water and swell, increasing in volume, when they get wet and then shrink when they dry. These soils often expand in the winter and shrink in the dry summer months. Expansive soils are one of the more problematic soils because the shrinking and swelling in clayey soils can create enough force to cause major damage to building foundations, slabs, patios, and sidewalks.

Regional geology in the project area watershed includes Franciscan Mélange, which in areas underlain mudstone and argillite can support clay-rich expansive soils on hillslopes. Soils within the project area are mapped as Franciscan derived loamy soils derived from weathered sedimentary and metamorphic rocks in the Franciscan mélange[102] . These soils are generally moderately deep, well-drained, and loamy, with high or very high runoff potential and moderate permeability where undisturbed. The geotechnical report indicates loam soil surface layer with deeper soil layers have higher amounts of clay, which can expand,

[102] NRCS. 2026. Custom Soils Report. Accessed April 2026.

though the depth to the potentially expansive soils exceed 10 feet. As such, the structures would not be affected by expansive soils and the geotechnical engineer did not recommend design features to account for expansive soils. For these reasons, implementation of the proposed project would result in no impact associated with substantial 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 operation of septic tanks or alternative wastewater disposal systems. For these reasons, 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

Paleontological resources include fossils of life that existing prior to the start of the Holocene Epoch, approximately 11,700 years ago. The geology of the project area is of the Franciscan Complex that dates to the Jurassic Period, approximately 199.6 to 145.5 million years ago. Generally, vertebrate and marine fossils in the Franciscan Complex are extremely rare though micro-fossils, including single-celled organisms are sometimes found, particularly in cherts.

The Records Search completed as part of the Archaeological Survey Report for the proposed project 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 Epoch. The Franciscan complex, widespread in coastal California, has produced only small collections of significant fossils, none of which occurred in Marin County. For these reasons, implementation of the proposed project would not directly or indirectly destroy unique paleontological resources or site, or unique geologic features and therefore would result in no impact. No unique paleontological resources or sites have been identified within Ignacio Valley Preserve.[103] For these reasons, implementation of the proposed project would not directly or indirectly destroy unique paleontological resources or site, or unique geologic features and therefore would result in no impact.

[103] Marin County Open Space District (MCOSD). 2014. *Road and Trail Management Plan (RTMP)*. December 16, 2014. https://parks.marincounty.gov/projectsplans/memorial-trail-terra-linda/road-and-trail-management-plan-12-16-14.

GREENHOUSE GAS EMISSIONS

TABLE 10: GREENHOUSE GAS EMISSIONS CHECKLIST QUESTIONS

	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

There is a general scientific consensus that global climate change is occurring and is caused by increased emissions of greenhouse gasses (GHGs). 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, GHGs, 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. Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. There is international scientific consensus that human-caused increases in GHGs have, and will continue to, contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snowpack, increase in sea level rise, more extreme heat days per year, more high ozone days, larger forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity[104]

The six gasses that are the principal contributors to GHG emissions are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (NFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_3). While the presence of the primary GHGs in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs including hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the GHGs could have on global warming is a combination of the mass of their emissions and their global warming potential. Global warming potential indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHG than CO_2, with global warming potential of 25 and 310 times that of CO_2, respectively. Total GHG emissions are typically measures in metric tons of CO2 equivalent ($MTCO_2e$).

In 2018, estimated GHG emissions generated by community activities in Marin County's unincorporated areas were approximately 380,318 $MTCO_2e$ (Metric tons of carbon dioxide equivalent), or per capita

[104] California Environmental Protection Agency (CalEPA), March 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature.

emissions of approximately 5.5 $MTCO_2e$ for the 68,659 residents in the unincorporated areas[105]. This is a 23 percent decrease from estimated 2005 emissions, which were 493,985 metric tons of CO_2e. Of these total emissions, on-road transportation is the largest sources of emissions at 31 percent.

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.

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 third update to the Scoping Plan in 2022[106]. The Scoping Plan identifies natural and working *(i.e., 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 Ignacio Valley 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 2022 CEQA Guidelines provide standards for analyzing a project's potential impacts on GHG emissions and thresholds of significance for operational emissions.[107] The BAAQMD 2017 Clean Air Plan also addresses climate change and GHG emissions. For natural and working lands, the Clean Air Plan focuses primarily on increasing carbon sequestration on lands such as the Ignacio Valley Open Space Preserve.[108]

Locally, the Marin County Climate Action Plan 2030 and City of Novato Climate Action Plan 2030 provide GHG reduction goals and measures, with the overall target of reducing emissions to 40 percent below 1990 levels by 2030.[109][110]

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to greenhouse gas emissions. The applicable RTMP Policies and BMPs are listed below and are provided, in their entirety, in **Appendix A**.

- Policy SW.29: Retrofit or Upgrade Construction Equipment

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[105] Marin County. Climate Action Plan 2030, December 2020. https://assets.marincounty.gov/marincounty-prod/public/2024-01/cap-2030_12082020final.pdf.

[106] California Air Resources Board. 2022. California 2017 Climate Change Scoping Plan. December 2022. https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan.

[107] Bay Area Air Quality Management District (BAAQMD). CEQA Air Quality Guidelines, April 2022. https://www.baaqmd.gov/?sc_itemid=CDA5FAE5-BBDC-4337-A10C-5648BCD2D71F

[108] Bay Area Air Quality Management District (BAAQMD). Final 2017 Clean Air Plan, Spare the Air, Cool the Climate, April 19, 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

[109] City of Novato. Climate Action Plan 2030. September 2025.

[110] Marin County. Unincorporated Area Climate Action Plan 2030. December 2020.

- Air Quality-1: Implement BAAQMD Measures

CEQA Context

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

The proposed project would result in minor GHG emissions during both construction and operation of the project. Construction of the project would use heavy equipment which would release criteria pollutant emissions. Emissions would also result during construction from contractors and MCOSD employees driving to and from the site each day. GHG emissions associated with construction would be limited as a result of the project's limited duration and the small scale of the proposed improvements.

Marin County uses the screening criteria and process provided in the 2022 BAAQMD CEQA Guidelines[111] to evaluate the proposed project's potential GHG emissions impacts. The first step in this process is to evaluate whether the proposed project meets the screening criteria defined in the 2022 BAAQMD CEQA Guidelines. If the proposed 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. The BAAQMD CEQA Guidelines do not have specific screening criteria for a project identical to the proposed project. However, Table 4-1 of those guidelines entitled "Single Land Use Construction and Operational Criteria Air Pollutant and Precursor Screening Levels" shows that, for a "city park," the criteria for pollutant screening size would be 175 acres for operations and 10 acres for construction.

The project would disturb a maximum of 1.6 acres, which is below the screening criteria identified for work within a city park. Implementation of the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

As no threshold has been established for construction-related GHG emissions, construction emissions for a proposed project are compared to the BAAQMD 2022 CEQA Guidelines bright line threshold for operations, which is 1,100 metric tons of CO_2e per year. Implementation of the proposed project would generate approximately 82 metric tons of CO_2e during the two construction seasons in 2027 and 2028, which is below the significance threshold of 1,100 metric tons of CO_2e per year. 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. For these reasons, construction activities associated with implementation of the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Operation of the proposed project would occur as described in the project description and would result in GHG emissions from regular maintenance. GHG emissions associated with operation and maintenance would include truck trips to and from the site from MCOSD staff to patrol the trails and for regular maintenance. The trail would be patrolled and maintained by existing staffing and the frequency of patrols would not increase as a result of the project. Overall maintenance is expected to decrease as the trail improvements would improve the sustainability of the trail and GHG emissions would not increase compared to baseline conditions. For these reasons, on-going operation and maintenance

[111] Bay Area Air Quality Management District (BAAQMD). CEQA Air Quality Guidelines, April 2022. https://www.baaqmd.gov/?sc_itemid=CDA5FAE5-BBDC-4337-A10C-5648BCD2D71F

activities associated with implementation of the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Implementation of the proposed project is not likely to significantly increase vehicle trips for recreational use of these trails. The proposed project does not include any new parking at the trailhead, so visitation would remain limited by available on-street parking on public roadways. Visitor use of the project area for public recreation would continue similar to existing conditions, as the project does not include any parking or other amenities and any increase in trail use is anticipated to be minor and largely proportional with regional population growth. Compared to a city park, an open space preserve has a lower intensity of public use and the screening level size for an open space preserve is likely to be lower than the city park. Additionally, these guidelines would apply to a new park or an addition of acreage to an existing park and therefore do not apply to the proposed project. Therefore, while a potential minor increase in use of the project area trails is anticipated, it is not expected to be substantial due to limited available parking and would not generate greenhouse gas emissions that could result in a significant impact on the environment. For these reasons, visitor use associated with implementation of the proposed project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Additionally, the proposed project would incorporate applicable RTMP BMPs, which would further reduce the GHG emissions associated with construction and operation of the project. RTMP Policy SW.29 will be implemented, requiring construction equipment to be retrofitted with diesel particulate filters or use of electric, Tier III or Tier IV off-road engines. As a result, the proposed project would meet all of the screening criteria identified in the 2022 BAAQMD CEQA Guidelines and the proposed 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 greenhouse gas emissions, 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

In 2006, the California State Legislature enacted the California Global Warming Solutions Act of 2006 (Assembly Bill; AB 32). AB 32 focuses on reducing GHG emissions in California and requires the reduction to 1990 levels by the year 2020.

The proposed project would not conflict with GHG reduction goals set forth in AB 32, including the 39 Recommended Actions identified by the California Air Resources Board (CARB) in its Climate Change Scoping Plan. The project would also not conflict with goals and policies contained in the Marin Countywide Plan and Climate Action Plan. For these reasons, implementation of the proposed project would result in no impact associated with conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

HAZARDS AND HAZARDOUS MATERIALS

TABLE 11: HAZARDS AND HAZARDOUS MATERIALS CHECKLIST QUESTIONS

	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)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

Setting

Hazardous substances are materials designated in government codes and regulations or that exhibit certain characteristics such as being toxic, corrosive, flammable, reactive, or explosive. A non-hazardous substance can become a hazardous waste if during its normal use it comes to meet the definition of a hazardous material or hazardous substance.

The MCOSD uses a limited amount of hazardous materials at the project site during routine maintenance from the use of motorized equipment for weed and vegetation control, trail maintenance, and routine patrols.

The vehicles that MCOSD use at the project site contain hazardous materials, including gasoline, lubricants, and other solutions. The MCOSD does not store any hazardous materials at the project site.

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to hazards and hazardous materials. The applicable RTMP Policies and BMPs are listed below 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-3: Erosion Control Measures
- Water Quality-4: Preventing or Reducing 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 Impact

During construction, the MCOSD would use small quantities of fuel, lubricants, and other similar construction materials that can be hazardous. There may be potential for releases to occur during construction that could affect construction workers, recreational users, and the environment. During operation of the project, maintenance activities involving heavy equipment may have the potential to result in releases of hazardous materials. The MCOSD contractors and field staff would adhere to existing laws and regulations that govern the transport, use, storage, handling, and disposal of hazardous materials to reduce the potential hazards associated with these activities. California Occupational Safety and Health Administration (CalOSHA) is responsible for developing and enforcing workplace safety standards, including the handling and use of hazardous materials. The federal Department of Transportation (DOT) and the California DOT (Caltrans) regulate the transportation of hazardous materials. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release. The applicable policies and Best Management Practices included in the MCOSD's Road and Trail Management Plan would be implemented to reduce potential risks of hazards and hazardous materials. Applicable policies and measures include limiting access during red flag warnings to reduce ignition risks, restricting equipment refueling, equipment leakage, and equipment maintenance, maintaining emergency spill containment materials on all vehicles, and limiting disturbance in areas with soils that are undisturbed, saturated, or subject to extensive compaction and rehabilitating soils disturbed from project activities.

Therefore, the transport, use, storage, handling, and disposal of hazardous materials for the project would be adequately controlled through existing regulatory requirements and the potential impact during construction and operation of the proposed project. For these reasons, 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?
No Impact

As discussed above, the proposed project would involve construction and operation activities that use limited quantities of hazardous materials, such as gasoline, diesel fuel, oils, and lubricants, and other similar

chemicals. 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 Best Management Practices included in the MCOSD's Road and Trail Management Plan would be implemented. For these reasons, 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?
No Impact

The closest school to the proposed trail improvements is College of Marin, which is approximately one half mile from the project area. Other schools in the area are along Ignacio Boulevard ranging one to two miles from the project area. Although 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. 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 a school, there is a very low potential for a spill to affect the 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 Best Management Practices included in the MCOSD's Road and Trail Management Plan would be implemented. For these reasons, 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 one-quarter 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 Substances Sites (Cortese) List is a planning document used by the state, local agencies, and developers to provide information about the location of hazardous materials release sites. Government Code Section 65962.5 requires the California Environmental Protection Agency to update Cortese List annually. A search of the current Cortese Lists identifies the nearest site at 446 Ignacio Boulevard, approximately miles two miles from the project site.[112] For these reasons, 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 airports nearest to the project area are the public Gnoss Field Airport in Novato, which is over 5 miles northeast and the private San Rafael Airport, located over 15 miles to the southeast. No aviation hazards would result from modifications to trails in Ignacio Valley Open Space Preserve. There are no aviation hazards associated with the proposed project and no airfields in the project area. For these reasons, 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.

[112] California Department of Toxic Substances Control (DTSC), 2019. Envirostor environmental database. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=Novato .

f) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
No Impact

The project area is located within an adopted emergency response plan or emergency evacuation plan area and the project area currently has an emergency access plan through Fire Safe Marin. Ignacio Valley Open Space is located within Zone 14 on the Fire Safe Marin evacuation map.[113] Neighborhoods adjacent to the project area in Ignacio Valley Open Space Preserve are directed to evacuate utilizing Fairway Drive towards Ignacio Boulevard. Implementation of the proposed project would improve pedestrian and bicycle egress in case of a fire or other emergency should one occur within Ignacio Valley Open Space Preserve. For these reasons, implementation of the proposed project would result in no impact associated implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

HH-1 shows the Fire Safe Marin Evacuation Route for the neighborhoods adjacent to Ignacio Valley Open Space Preserve.

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 Impact

The California Department of Forestry and Fire Protection (CalFire) has mapped areas of high wildfire hazards throughout California, including Marin County. The project area is mapped as a High Fire Hazard Zone.[114]

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 Best Management Practices included in the used MCOSD's Road and Trail Management Plan to minimize risk of wildfire that could be initiated from equipment 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 Road and Trail Management Policy 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. For these reasons, 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.

[113] Fire Safe Marin. Fairway Know your way out. https://www.novatofire.org/home/showpublisheddocument/9410/637327499871900000.

[114] CA State Geoportal Fire Hazard Severity Zone Viewer. https://gis.data.cnra.ca.gov/apps/CALFIRE-Forestry::fire-hazard-severity-zone-viewer/explore.

HYDROLOGY AND WATER QUALITY

TABLE 12: HYDROLOGY AND WATER QUALITY CHECKLIST QUESTIONS

	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?	☐	☐	☐	☒
	iv) impede or redirect flood flows?	☐	☐	☐	☒
d)	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

Setting

The proposed project area is located in a small, forested canyon at the western edge of Novato within Ignacio Valley Open Space Preserve, part of the larger Novato Creek watershed in eastern Marin County. Novato Creek drains a 48-square-mile basin that flows through the City of Novato and adjacent

unincorporated areas before entering tidal wetlands and ultimately San Pablo Bay.[115] Arroyo de San Jose Creek is a steep tributary drainage that originates on the north side of Big Rock Ridge and flows east through the preserve and across private H Ranch lands and on to Novato Creek. Novato Creek flows into San Pablo Bay. Arroyo San Jose is a second order stream and has approximately 6.1 miles of blue line stream according to the USGS National Hydrology Dataset (NHD).[116] Arroyo San Jose Creek drains a watershed of approximately 7.4 square miles. Elevations range from about 0 feet at the mouth of the creek to 1,886 feet in the headwater areas (average elevation of headwaters, not highest point). Evergreen forest dominates the watershed.

Arroyo de San Jose Creek supports intermittent flow. Buck Gulch Falls is a small waterfall, also known as Fairway Falls, which flows most during the rainy season and tapers to low or no flow in summer, reflecting the flashy, rainfall-driven hydrology characteristic of small Coast Range catchments. Buck Gulch Falls trail to the falls follows the canyon floor, crossing the creek at two locations via ford under forest canopy, with adjacent riparian vegetation and moist soils that are sensitive to trampling and sediment input. Flooding is limited to localized overbank flow within the narrow canyon during large storms.

The broader project area lies within the Novato Valley Groundwater Subbasin (2-30),[117] a structural depression in the Coast Ranges west of San Pablo Bay where groundwater occurs primarily in semi-confined alluvial deposits. Regional descriptions note that groundwater in this basin is recharged by infiltration from streambeds exiting upland areas and percolation of precipitation on the basin floor, but municipal water supply in Novato is largely derived from imported surface water and not from local groundwater pumping. Poor groundwater quality and low well yields represent the primary physical constrains to groundwater production within the subbasin. The proposed project would not construct wells or otherwise directly use groundwater, and the trail corridor is underlain primarily by shallow colluvium and bedrock above the main alluvial basin.

Studies

MCOSD consulted with Timothy C. Best, CEG (Engineering Geology and Hydrology) to evaluate the geologic, geotechnical, and hydrologic feasibility of the proposed Buck Gulch Falls Creek Restoration and Trail Improvement Project. The study included a Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study[118] and supporting StreamStats peak-flow discharge analyses for the Buck Gulch drainage and the proposed Bridge 1 site on Arroyo San Jose Creek. MCOSD subsequently retained Miller Pacific Engineering Group (MPEG) to conduct a Phase 1 Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment[119,] which included subsurface exploration, laboratory testing, and engineering analysis to support abutment foundation design for Bridge 1. The purpose of engineering studies was to evaluate site drainage conditions, channel stability, flood elevations, and the feasibility of the proposed bridge installation. The analyses were used to inform bridge siting, abutment placement, foundation design, drainage improvements, and erosion control measures, with the goal of protecting public safety, maintaining channel capacity, and minimizing environmental impacts to Arroyo de San Jose Creek. PCI Ecological prepared a *Hydrologic and Hydraulic Analysis Report* (H&H Report) in March 2025 to evaluate the minimum soffit elevations of the two proposed pedestrian bridges to sufficiently convey the flows of a 100-year flow event and to meet required design standards. The StreamStats peak-flow discharge analyses presented in the Best study was used to expand the analysis to include both Bridge 1 and Bridge 2.

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115 Marin County Watershed Program, 2020a. Novato Creek Watershed.

116 CDFW. 2009. East Marin County San Pablo Bay Watershed Stream Habitat Assessment Reports, Arroyo San Jose Creek. Surveyed 2009 and report completed 2013

117 California Depart of Water Resources. 2004. Novato Valley Basin Bulletin 118

118 Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

119 Miller Pacific Engineering Group (MPEG). 2025. Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment. January 2025.

The Best hydrologic feasibility study included review of available geologic literature and regional geologic mapping; LiDAR bare-earth imagery analysis; geologic and geomorphic field mapping; a preliminary hydrologic analysis using USGS StreamStats Version 3 to determine peak-flow discharges for the 398-acre Arroyo San Jose watershed above the crossing; and a 100-year flood elevation analysis using FlowMaster software based on Manning's equation. Results confirmed the flashy, rainfall-driven nature of the watershed leading to design recommendations to develop structurally sound bridges that can pass anticipated flows without overtopping the bridge and scour the abutments. Consistent with the analysis findings, the proposed bridges were designed to maintain flow conveyance during storm events, limit encroachment into the active channel, and reduce the risk of bank scour or structural damage during high flows. The bridge heights would be elevated to a minimum of 1-foot above the calculated 100-year flood elevation. The MPEG geotechnical evaluation provided design elements for the bridges including deep foundations to provide adequate vertical support to accommodate the anticipated seismic and flood events.

PCI Ecological completed a *Hydrologic and Hydraulic Analysis Report* (H&H Report) in March 2025[120] to evaluate the minimum soffit elevations of the two proposed pedestrian bridges. The analysis used the USGS StreamStats Tool to calculate the 100-year peak flow levels and determined peak flow rates to be 365 feet per second at Bridge 1 and 146 feet per second at Bridge 2. Hydraulics were assessed using Hydraulics Toolbox[121]. The minimum soffit elevation for Bridge 1 was determined to be 202.5 feet and 319.7 feet for Bridge 2. These minimum elevations adhere to Marin County Municipal Code section 24.04.520 (d), requiring two feet of clearance between the bridge soffit and 100-year storm elevation and the recommendations were incorporated into the project design. The H&H report concluded that minor grading would be required to achieve the minimum elevation requirement for Bridge 1, and that Bridge 2 would be installed above the minimum elevation to better connect trail improvements, allowing more clearance than is required.

Much of the descriptive and analytic information contained in the Hydrology section of this CEQA checklist is drawn from these three reports. The recommendations made in the reports have been incorporated into the project design and are reflected in the Project Description.

Applicable RTMP Policies and BMPs

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 below and are provided, in their entirety, in **Appendix A**.

- 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) **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. Would the Project violate any water quality standards or**

[120] PCI Ecological. Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report. March 2025.
[121] FHWA. 2014. FHWA Hydraulic Toolbox. https://www.fhwa.dot.gov/engineering/hydraulics/software/toolbox404.cfm.

waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact

Water quality standards and waste discharge requirements are established by the State Water Resources Control Board, created by the State Legislature in 1967 as a result of the Porter-Cologne Act. There are nine regional water quality control boards that regulate activities that could affect water quality by defined basin boundaries. The project area is in the San Francisco Bay Regional Water Quality Control Board. Activities, including discharges, that could affect surface, coastal, or ground waters generally require a permit from the regional water quality control board. The proposed project would be subject to Clean Water Act Section 401 Water Quality Certification and/or Report of Waste Discharge permit from the San Francisco Bay Regional Water Quality Control Board.

The purpose of the proposed project is to implement the MCOSD's Road and Trail Management Plan (RTMP) to provide the public with safe trail experiences, reduce environmental impacts on sensitive biological and hydrologic resources, and establish a sustainable trail alignment that meets RTMP design and management standards for year-round pedestrian access at Buck Gulch Falls. The existing ford crossings on Arroyo San Jose Creek directs trail users through the active channel often creating unsafe conditions for visitors and contributes to chronic bank disturbance and sediment mobilization Arroyo de San Jose Creek. By replacing the fords with channel spanning pedestrian bridges, rerouting the trail onto stable upland alignments, stabilizing eroding creek banks, and restoring disturbed riparian areas, the proposed project would reduce direct disturbance to Arroyo San Jose Creek, decrease sediment inputs to the creek corridor, and improve long-term water quality and habitat conditions within the drainage. These improvements would benefit sensitive aquatic and riparian resources, including special-status and common wildlife that depends on high-quality creek habitat, while consolidating public access onto a durable trail alignment that can be safely maintained over time.

Trail construction and maintenance activities along the Buck Gulch Falls trail could temporarily increase erosion and sediment delivery to Arroyo de San Jose Creek if soil disturbance is not properly managed. Short trail segments in the canyon currently show localized rilling, muddy areas, and bank trampling at informal crossing points, particularly where visitors shortcut or widen the tread near the creek, increasing the risk of fine sediment entering the channel during storms. The proposed project would stabilize the main trail alignment, repair eroding sections, and discourage informal “social” paths to reduce direct disturbance along sensitive banks.

Potential construction-related pollutants would be limited to sediment and minor amounts of fuels, lubricants, or other materials associated with small equipment and hand tools. Implementation of RTMP Water Quality BMPs, including seasonal work windows, temporary erosion and sediment control including silt fencing, wattles, and erosion-control blankets, prompt mulching and revegetation of disturbed soils, and spill prevention and response procedures, would minimize and contain potential discharges during construction. No fertilizers, herbicides, or other chemicals would be routinely applied as part of the project, and all excavated material would be sidecast or removed in accordance with RTMP disposal standards.

Implementation of the RTMP BMPs, policies, and design standards as well as the recommendations included in the geotechnical reports would minimize potential water quality impacts from construction of the trail improvements and restoration activities as well as the operation of the proposed trails. Per the design recommendations included in the geotechnical reports, the abutments for the proposed bridges would require design and construction to account for the conditions at each site to minimize scour around the abutments and to create stable site conditions. These recommendations have been integrated into the proposed project. Instream construction activities would occur when the creek channel is dry, and therefore these activities are not expected to generate substantial erosion. Earthwork would occur during the dry season, between May 15 – October 15, consistent with RTMP BMP Water Quality-6 Grading Windows to reduce erosion potential to the maximum extent possible. The proposed project would incorporate erosion control techniques recommended in the geotechnical reports and in the streambank restoration design,

including use of erosion control methods, trail surfacing, revegetation efforts and stabilization of temporarily disturbed ground. For these reasons, 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.

b) Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

No Impact

The proposed project area lies within the Novato Valley Groundwater Subbasin (Basin 2-30). Regional groundwater use in the subbasin is limited due to low yields and quality constraints, and local public water supply in Novato relies primarily on imported surface water rather than groundwater extraction. Groundwater conditions at the project site were evaluated as part of the geotechnical investigations. During subsurface exploration in October 2024, groundwater was encountered over 28 feet below ground surface, and no groundwater was encountered at other bore location. Seasonal groundwater levels are expected to rise and generally correspond to water levels in the Arroyo San Jose channel during the wet season.[122] The geotechnical report concluded that the elevation of groundwater in the project area is variable, rising and falling with seasonal precipitation and creek stage.[123]

The proposed project would not involve installation of wells, groundwater extraction, or any facilities requiring significant water consumption beyond minor dust control or revegetation watering during construction. The proposed bridge structure would span the active channel without placing fill in the channel bed, and all trail tread improvements would retain native soil surfacing with improved drainage features. Implementation would not use groundwater during construction or operation, and no new impervious surfaces other than the bridge deck and boardwalk structures are proposed. No new paved parking areas or buildings would be constructed. These features would result in no change to infiltration rates or groundwater recharge patterns at the site or subbasin scale. All proposed trail improvements would retain natural tread surfacing, resulting in no change to groundwater recharge. For these reasons, implementation of the proposed project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge, such that the project may impede sustainable groundwater management of the Novato Valley Groundwater Subbasin. Implementation of the proposed project would result in no impact associated with groundwater supply or recharge.

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 Impact

The proposed project would not alter the course of Arroyo San Jose Creek and does not include any impervious surfaces except for the bridge deck and abutment footings associated with the proposed pedestrian bridge. The potential for erosion resulting from construction activities, and the long-term benefits of the proposed project associated with reduced erosion and siltation, are discussed in detail under Geology and Soils Checklist Item b).

Arroyo de San Jose Creek flows through a steep, confined canyon. Portions of the existing trail exhibit local erosion, muddy conditions, and poor drainage control, particularly near the existing wet ford crossing and steeper trail sections approaching the falls. Repeated use of the wet ford

[122] Miller Pacific Engineering Group (MPEG). 2025. Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment. January 2025.

[123] ibid

crossing disrupts the active channel bed, contributes fine sediment to Arroyo San Jose Creek during storm flows, and concentrates runoff along compacted trail segments in ways that promote rill formation and sediment transport to the creek. The proposed project would directly address runoff and conditions by replacing the fords with spanning bridges to eliminate in-stream visitor access, re-grading and decompacting eroded trail sections, installing rolling dips and cross-drains to intercept and disperse concentrated runoff, and restoring all temporarily disturbed areas with mulch and native vegetation.

Trail alignment improvements would be designed to follow natural contours and minimize direct conveyance of runoff into the trail corridor, consistent with RTMP design standards and applicable BMPs. Any temporary increases in erosion during construction would be controlled with standard erosion and sediment control BMPs required under the RTMP, including Water Quality-2: Temporary Erosion and Sediment Control and Water Quality-3: Erosion Control Measures. The proposed project would reduce existing erosion and siltation relative to current conditions by consolidating access onto a sustainable alignment and eliminating chronic in-stream disturbance at the ford crossings. The streambank restoration element of the project would stabilize an actively eroding reach of Arroyo de San Jose Creek by grading the banks to match the surrounding landscape, installation of rock and aggressive native planting within the bed and banks of the channel. Post construction erosion control would stabilize the site after the restoration work to prevent erosion and siltation. For these reasons, implementation of the proposed project would not alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site. Implementation of the proposed project would result in less than significant impacts associated with erosion or siltation from altered drainage patterns.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

No Impact

The proposed project would not include any impervious surfaces except for the bridge deck and abutment footings associated with the proposed pedestrian bridge. All trail tread improvements would retain native soil surfacing with improved drainage features, including rolling dips, outsloped tread, and cross-drains designed to intercept concentrated runoff and disperse it to the adjacent landscape rather than routing flows along the trail corridor. These improvements would decrease peak flow velocities on the trail and reduce the potential for localized flooding compared to existing conditions.

The proposed bridges would span Arroyo de San Jose Creek without placing fill in the active channel, maintaining natural flood conveyance capacity through the crossing. The bridge bottom chord is designed to be elevated a minimum of 2 feet above the calculated 100-year flood elevation for Arroyo de San Jose Creek, consistent with the hydrologic feasibility study and the H&H report recommendations[124], ensuring that the structure would not constrict or redirect flood flows during high-discharge events. The proposed low-profile trail improvements and spanning bridges would not alter flood conveyance in the main Arroyo de San Jose channel or the downstream drainage system. For these reasons, implementation of the proposed project would not 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 substantially increase the rate or amount of surface runoff resulting in flooding on- or off-site. Implementation of the proposed project would result in no impact associated with increased surface runoff or flooding.

[124] PCI Ecological. Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report. March 2025 and Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

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

There are no stormwater drainage pipes or engineered storm drain systems within the proposed project area; runoff flows overland through forested slopes and into Arroyo de San Jose Creek. The project would not change this basic drainage pattern and would not connect new impervious areas to any storm drain network. As noted above, trail drainage improvements would reduce concentration of runoff and direct water to stable vegetated areas, decreasing the likelihood of erosive flow paths.

iv) Impede or redirect flood flows?
No Impact

The proposed bridge crossing for Bridge 1 was located and designed to avoid impedance or redirection of flood flows in Arroyo San Jose Creek. Based on the Best hydrology feasibility study, the 100-year flood at the proposed bridge crossings is moderately constrained within the incised channel, with a calculated maximum flow depth of approximately 2.75 feet and a flow width of approximately 40 feet. The bridge bottom soffit is designed to be elevated a minimum of 2 feet above the calculated 100-year flood elevation or at approximately 3.75 feet above the channel bed at the crossing, to allow unobstructed passage of flood flows and waterborne debris. The H&H Report used the USGS Streamstats Tool to calculate the 100-year peak flow levels and determined peak flow rates to be 365 feet per second at Bridge 1 and 146 feet per second at Bridge 2. Hydraulics were assessed using Hydraulics Toolbox. The H&H Report recommended the minimum soffit elevation for Bridge 1 at 202.5 feet and 319.7 feet for Bridge 2. These minimum elevations adhere to Marin County Municipal Code section 24.04.520 (d), requiring two feet of clearance between the bridge soffit and 100-year storm elevation.[125] The recommendations were incorporated into the design and are included in the Project Description. The bridges would span the active channel and abutments would be offset from the active channel banks and founded on competent soils or bedrock consistent with the MPEG geotechnical recommendations.[126]

The Best feasibility study also addressed the potential for log jams to contribute to increased flooding or debris flow hazards at the Bridge 1 site.[127] Log jams are a natural phenomenon in narrow, steep mountain streams and have the potential to increase flood stage or divert stream flow. Future log jams could develop anywhere along Arroyo San Jose Creek during large storm events and could potentially affect the bridges directly or indirectly by concentrating flow against the structures. Based on field observations reported by Best noted that the risk of a log jam developing at the Bridge 1 site is low. The 2-foot freeboard clearance above the 100-year flood elevation recommended in the H&H Report and incorporated into the project design would provide a sufficient buffer to minimize potential impacts from debris transported during high-flow events, and the proposed project would not cause future log jams or render them more likely.

Redirection of flood flows resulting from the proposed bridge abutments would be further minimized by the MPEG recommended erosion and scour protection measures, including abutment foundations deepened to bear on metasandstone bedrock, wing walls on the upstream and downstream sides of the bridge abutments, and riprap or erosion control mat placement at the abutment toes to prevent scour-induced undermining during high-flow events. These recommendations were incorporated into the project design. The typical structural design used for

[125] PCI Ecological. Buck Gulch Trail Pedestrian Bridges Hydrologic and Hydraulic Analysis Report. March 2025
[126] Miller Pacific Engineering Group (MPEG). 2025. Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment. January 2025.
[127] Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

the creek spanning 34-foot bridge would have abutments placed outside the channel installed to at least a 4-foot depth would also provide necessary erosion and scour protection.

For these reasons, implementation of the proposed project would not 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 impede or redirect flood flows. Implementation of the proposed project would result in no impact associated with impedance or redirection of flood flows.

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

The residences on Fairway Drive fall within a FEMA Special Flood Hazard Area (Zone AE) on FIRM Panel 06041C0279D;[128] however, a majority of the project area is located in FEMA Zone X,[129] which represents low-to-moderate flood risk. Based on the Best[130] preliminary hydraulic analysis, the 100-year flood at the proposed bridge crossings is contained within the incised banks of Arroyo de San Jose Creek. The proposed bridge and trail improvements would not involve storage or use of hazardous materials, fuels, or pollutants that could be released in the event of inundation. Construction materials would be managed in accordance with RTMP BMPs to reduce the risk of pollutants during construction.

The project area is not located near any body of water subject to tsunami or seiche. Elevations within the Preserve range well above sea level, and the project area is located several miles inland from San Pablo Bay and the Pacific Ocean. Tsunami waves require coastal proximity and low elevations to propagate inland, and the Buck Gulch Falls site does not meet either condition. Seiches are temporary standing waves in enclosed or partially enclosed water bodies caused by atmospheric pressure changes, earthquakes, or landslides; the project area is not adjacent to any lake, reservoir, or enclosed embayment subject to seiche.

For these reasons, implementation of the proposed project would not risk the release of pollutants due to inundation by flood, seiche, tsunami, or mudflow. Implementation of the proposed project would result in no impact associated with release of pollutants due to project inundation.

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

The proposed project area is within the boundaries of the San Francisco Bay Basin Water Quality Control Plan (Basin Plan)[131] administered by the San Francisco Bay Regional Water Quality Control Board, and within the Novato Sanitary District and Marin Municipal Water District (MMWD) service areas.[132]

The Basin Plan is the San Francisco Bay Regional Water Quality Control Board's master water quality control planning document. It designates beneficial uses and water quality objectives for Waters of the State, including surface waters and groundwater, and establishes programs of implementation to achieve those objectives. The proposed project would be subject to Clean Water Act Section 401 Water Quality Certification and/or a Report of Waste Discharge from the San Francisco Bay Regional Water Quality Control Board. The proposed project would implement applicable RTMP Policies and BMPs in addition to

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128 FEMA 2026. National Flood Hazard Layer FIRMette. https://www.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd.

129 ibid

130 Best. 2021. Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study. August.

131 California Regional Water Quality Control Board, San Francisco Bay Region. Water Quality Control Plan (Basin Plan). Updated to reflect the Basin Plan amendments adopted up through May 4, 2017. https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/basin_plan/docs/basin_plan07.pdf.

132 EKI Environmental & Water, Inc. 2024. *Updated 2020 Urban Water Management Plan for Marin Municipal Water District.* January 2024. https://marinwater.org/wp-content/uploads/2024/01/MMWD-Updated-2020-UWMP-FINAL-January-2024_0.pdf.

any special conditions included in the Section 401 permit and therefore would not conflict with or obstruct implementation of the Basin Plan.

Regarding groundwater, the 2020 Updated MMWD Urban Water Management Plan (UWMP) states that water supply within MMWD's service area is derived primarily from local precipitation contributing to surface runoff and from the Russian River via import agreement with Sonoma Water. The UWMP concluded that the potential for municipal groundwater use within MMWD's service area is very limited due to limited production capabilities, water quality constraints, and potential water rights issues, and that groundwater is not currently used or planned to be used as a municipal water supply source. The proposed project would not utilize groundwater during construction or operation, would not install wells or groundwater extraction facilities, and none of the proposed improvements would impede groundwater recharge. Trail tread would remain native soil surfacing with improved drainage, resulting in no substantive change to infiltration patterns at the site or subbasin scale.

For these reasons, implementation of the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Implementation of the proposed project would result in no impact associated with conflict with or obstruction of a water quality control plan or sustainable groundwater management plan.

LAND USE AND PLANNING

TABLE 13: LAND USE AND PLANNING CHECKLIST QUESTIONS

	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 the Ignacio Valley Open Space Preserve, which includes the Buck Gulch Falls Trail and Spyglass Trail. The project area is located on the north-facing slopes of Big Rock Ridge, in southern Novato, adjacent to the unincorporated community of Ignacio, and approximately 5 miles north of San Rafael. Land uses surrounding the Preserve include further passive recreational opportunities on the Indian Valley Open Space Preserve and Indian Valley College to the north, Loma Verde and Pacheco Valle Open Space Preserves to the east, and the Lucas Valley and Marinwood Open Space lands to the south. Other land uses include private ranchlands immediately to the west, and the single-family residential development of the Fairway Neighborhood surrounding Marin Country Club and Golf Course to the east. Most of the proposed project lies within the Ignacio Valley Open Space Preserve, with a portion of the project – Buck Gulch Falls – located on private property at the end of the trail. MCOSD also holds a public use easement with Hill Ranch and Marin County Club Estates, LLC, along the trail entrance for access to the Preserve, and on City of Novato property.[133] The Preserve was acquired by MCOSD in 1975, and Buck Gulch Falls Trail was formally approved in 2016 by the MCOSD Board, subject to improvements as part of the RTMP. The project area includes a portion of the Spyglass Trail, the Buck Gulch Falls Trail, Buck Gulch waterfall, and a portion of the eroding streambank and riparian area along Arroyo de San Jose Creek.

Access to the project area is from Fairway Drive via Ignacio Boulevard in the City of Novato. There is limited roadside parking along Fairway Drive and Saint Andrews Drive, which are local public streets but no dedicated visitor parking within Ignacio Valley Open Space Preserve. The W-Trans transportation checklist[134] noted there is no on-site parking for the Buck Gulch Falls Trail. W-Trans found there are approximately 25 curb space parking on the side of the roadway without homes on Fairway Drive and Saint Andrews Drive within 1,000 feet of the trailhead. Available parking is a limiting factor regarding visitation. Ignacio Valley Open Space Preserve can be accessed from the adjoining open space preserves and other public lands.

Ignacio Valley Open Space Preserve is used for walking, hiking, horseback riding, and other outdoor nature-based activities. Mountain biking is allowed on designated fire roads with the Preserve; however, mountain bikes are not allowed at the proposed project site.

[133] The proposed project lies along a public trail easement that coincides with unimproved road right-of-way labeled as Fairway Drive on the subdivision map entitled Marin County Club Estates Unit 3, dated March 30, 1990. The public trail easement was granted to the District as part of a conservation easement that protects the privately owned parcels alongside it, for open space and conservation purposes. The final 517 feet of the trail crosses private property known as Hill Ranch via a separate public trail easement and terminates at Buck Gulch Trails.

[134] W-Trans. 2025. Buck Gulch Falls Trail Improvement Project, Transportation Checklist.

Applicable RTMP Policies and BMPs

The RTMP does not include Policies and BMPs specific to land use and planning. The RTMP is governed as an extension of the Marin Countywide Plan and therefore the proposed project is exempt from the land use/development code permit requirements pursuant to Municipal Code Section 22.06.050: Exemptions from Land Use Permit Requirements. 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

Implementation of the proposed project would occur exclusively within the Ignacio Valley Open Space Preserve and private lands in which MCOSD holds along the trail entrance for access to the Preserve. The southeastern extent of the project area abuts Fairview Drive and a residential community. The proposed project includes installing two pedestrian bridges for visitors to use instead of the existing unimproved rock ford crossings; realigning existing trail segments away from the eroding streambanks; trail designation use changes for Buck Gulch Falls Trail from hiker/equestrian only to hiker only use to reduce future erosion on the trail; decommissioning and restoring eroding and streamside social trails; and restoring eroding an streambank and riparian areas along Arroyo de San Jose Creek. 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.

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

Most of the proposed project is located within the Ignacio Valley Open Space Preserve, with a portion of the project – Buck Gulch Falls – located on private property at the end of the trail, and MCOSD holding a public use easement along the trail entrance for access to the Preserve. The project area is located within the jurisdiction of both the City of Novato and the County of Marin. The parcels located within the City of Novato's jurisdiction are designated as either Open Space or Low-Density Residential and zoned as Planned District. The parcel located within the County of Marin's jurisdiction is designated Planned Residential and zoned Residential Multiple Planned District. The Open Space land use designation applies to a majority of the project area located within the City of Novato and County of Marin, and is intended to support preservation of natural resources, agriculture, and outdoor recreation. The Low-Density/Planned Residential land use designation applies to the parcels providing access to the Preserve, located adjacent to an existing residential neighborhood.[135][136] This area was previously intended for the development of single-family homes and related accessory residential uses, prior to MCOSD ownership. The Planned District zoning designation applies to parcels located both within the City of Novato and County of Marin and is intended to allow for more flexible development at a particular site, encouraging developments that are sensitive to natural resources and the surrounding community, subject to Council adoption of a Master

[135] City of Novato. City of Novato General Plan 2035. May 2024.
[136] County of Marin. 2025. *Marin Countywide Plan.* April 2025. https://assets.marincounty.gov/marincounty-prod/public/2026-02/cwplan_2023_updated_2026.pdf.

Plan.[137][138] However, Planned District zoned properties, which do not have an approved Master Plan or Precise Development Plan[139], can be utilized for agricultural activities, including nature preserves, outdoor recreation facilities, and hiking trails.[140] The Open Space and Low-Density/Planned Residential land use designations, and Planned District zoning designation for the parcels located within the project area are intended to support preservation of natural resources and outdoor recreation. The proposed project supports and continues these uses.

> ***Figure LUP-1*** shows the land use and zoning designations, as well as easement locations within the project area

The purpose of the proposed project is to 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 the environmental impacts on sensitive resources by reducing sedimentation and erosion, and establish a sustainable system of roads and trails that meet design and management standards and would 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) to the greatest extent feasible given the existing topography of the project area. By relocating visitor access across Arroyo de San Jose Creek onto the two proposed pedestrian bridges and decommissioning and restoring eroding and streamside social trails, erosion and sedimentation into Arroyo de San Jose Creek would be reduced, in addition to impacts to streambank and riparian habitat, resulting in long-term improvement to water quality and the visitor experience over existing conditions. Implementation of the proposed project would not change or otherwise affect land use designations, zoning, or existing use of the project area. The proposed project is consistent with the Open Space and Low-Density/Planned Residential designations included in the City of Novato General Plan, as well as the Planned District designations in the County of Marin General Plan. Preservation of natural resources and outdoor recreation would continue under the proposed project, which is consistent with the applicable land use and zoning designations. The City of Novato does not currently have a habitat conservation or natural community conservation plan. For these reasons, implementation of the proposed project would not 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.

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[137] Novato Municipal Code, §19.14.030: Special Purpose District Land Uses and Permit Requirements. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART2ZODIALLAUSZOECST_DIV19.14SPPUZODI_19.14.030SPPUDILAUSPERE.

[138] Marin County Municipal Code, §22.10. G: RMP (Residential, Multiple Planned) District. https://library.municode.com/ca/marin_county/codes/municipal_code?nodeId=TIT22DECO_ARTIIZODIALLAUS_CH22.10REDI.

[139] A Precise Development Plan in Novato, CA, is a regulatory document that establishes the specific development standards and allowed uses for all or part of a property that already has an approved Master Plan.

[140] Novato Municipal Code, §19.08: Agricultural and Resource Zoning Districts. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART2ZODIALLAUSZOECST_DIV19.08AGREZODI.

MINERAL RESOURCES

TABLE 14: MINERAL RESOURCES CHECKLIST QUESTIONS

	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. The California State Department of Conservation Division of Mines and Geology has designated eight sites in Marin County as having significant mineral resources for the North Bay region.[141] Of the eight mineral resource sites designated in Marin County, four should be considered for removal from State listing because they have been purchased for public open space, are already subdivided and used for residential purposes, or are highly environmentally sensitive. Of the eight sites, two sites are located within an MCOSD preserve, including Ring Mountain and Mount Burdell Open Space Preserve. There are no mineral resources in the Ignacio Valley Open Space Preserve.[142]

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 install two pedestrian bridges and make trail improvements throughout the project area, including realigning existing trail segments away from the eroding streambanks and decommissioning and restoring eroding and streamside social trails. The proposed project would not include mineral extraction and would not impact a known mineral resource. For these reasons, implementation of the proposed project would not 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.

[141] County of Marin, Marin Countywide Plan, section 3.7-2 Mineral Resources. Revised January 24, 2023. https://assets.marincounty.gov/marincounty-prod/public/2026-02/cwplan_2023_updated_2026.pdf.

[142] California Department of Conservation (DOC). 2026. Parrish, John G. California Geological Survey Special Report 205-Plate 1A. https://maps.conservation.ca.gov/cgs/minerals/?page=Mineral-Land-Classification.

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 project area is not identified as a locally important mineral recovery site, and implementation of the proposed project would not include mineral extraction or impact a known mineral resource. For these reasons, implementation of the proposed project would not 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.

NOISE

TABLE 15: NOISE CHECKLIST QUESTIONS

	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 sound is compression waves that can travel through air, earth, and water. Sound is measured in decibels (dB), with zero dB corresponding to the lowest threshold of human hearing and 120 to 140 dB corresponding to the threshold of painful sound. Each 10 decibels reflect a 10-fold increase in noise intensity. Sound waves travel at different frequencies. Decibels are measured using different scales, and because sound drops off with distance, all sound measurements are reported with distance from the source.

The A-weighted decibel scale noted as dBA is cited in most noise criteria. Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A-weighted sound level over a given time period, noted as Leq, which represents a single value of a constant sound level for the duration of the measurement period. Ldn represents a 24-hour A-weighted equivalent sound level with a nighttime adjustment of increased 10dB between 10:00 p.m. and 7:00 a.m. to account for increased sensitivity to noise during the nighttime. Community noise equivalent level, noted as CNEL, is the average A-weighted noise level during a 24-hour day that includes an evening weighting of 5 dB between 7:00 p.m. and 10:00 p.m. and a nighttime weighting of 10 dB between 10:00 p.m. and 7:00 a.m.

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 occurs. 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,[143] 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 tensions, which can affect blood pressure, functions of the ear, and the nervous system. In comparison,

[143] U.S. Department of Housing and Urban Development. *The Noise Guidebook*. May 1985.

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.[144] Table Noise-1 shows typical noise levels associated with common activities.

TABLE NOISE -1: COMMON OUTDOOR AND INDOOR SOUND LEVELS

Common Outdoor Sound Sources	Sound Level in dBA	Common Indoor Sound Sources
Commercial Jet Flyover at 1,000 feet Concrete Mixer at 50 feet Gas Lawnmower at 3 feet	90 +	Rock Band
Diesel truck at 50 feet	80 - 90	Loud Television at 3 feet
Gas Lawnmower at 100 feet Noisy Urban Area	70 - 80	Garbage Disposal at 3 feet Vacuum Cleaner at 10 feet
Commercial Area	60 - 70	Normal Speech at 3 feet
Quiet Urban Daytime Traffic at 300 feet	40 - 60	Large Business Office Dishwasher in Adjoining Room
Quiet Rural and Suburban Nighttime	20 - 40	Library / Bedroom at Night
	10 - 20	Broadcast / Recording Studio
Threshold of Hearing	0	Threshold of Hearing

Source: RCH Group. Cascade Canyon Bridges Project Noise Analysis. December 2018.

The ambient (or background or pre-project) noise level 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.

The Novato General Plan 2035 regulates noise levels associated with new development and other activities within the city limits. The City of Novato Municipal Code Zoning Ordinance[145] establishes specific measures for allowable exterior noise levels; see Table Noise-2. Uses, activities, and processes are not to generate noise in excess of these established standards. However, Section 19.22.070(7) exempts authorized construction activities from the allowable noise level requirements for construction occurring between 7:00 a.m. and 6:00 p.m. on weekdays and between 10:00 a.m. and 5:00 p.m. on Saturdays. Routine maintenance activities are also exempt under the ordinance.

[144] Occupational Safety & Health Administration, 2011. Regulations, Standards 29 CFR, Occupational Noise Exposure 1910.95.

[145] Novato Municipal Code, § 19.22.070: Noise and Construction Hours: https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART3SIPLGEDEST_DIV19.22GEPEST_19.22.070NOCOHO.

TABLE NOISE-2. ALLOWABLE EXTERIOR NOISE LEVELS – CITY OF NOVATO MUNICIPAL CODE

Type of Land Use	Allowable Exterior Levels (1)	
	Time Interval	**Maximum Noise Level**
Residential (3)	10:00 p.m. to 6:00 a.m.	45 dBA
	6:00 a.m. to 10:00 p.m.	60 dBA
Commercial (4)	10:00 p.m. to 6:00 a.m.	60 dBA
	6:00 a.m. to 10:00 p.m.	70 dBA
Industrial or manufacturing (4)	Any time	70 dBA

Notes:

(1) Each of the noise limits specified in Table 3-5 shall be reduced by 5 dBA for impulse or simple tone noises. If the ambient noise exceeds the resulting standard, the ambient shall be the standard.

(2) Maximum noise levels shall not be exceeded for an aggregate period of more than three minutes within a one-hour time period or by more than 20 dBA at any time.

(3) Residential standards apply to sensitive receptors such as schools, hospitals, libraries, group care facilities, and convalescent homes. These uses may require special mitigation.

(4) *Commercial standards apply to Mixed Use Districts.*

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. Near residential areas or roadways, noise levels within preserves would be dominated by those sources. For other areas, noise levels within and adjacent to preserves typically range from 40-60 dBA during daytime, and from 20-40 dBA at night.[146] The project area, located within Ignacio Valley Open Space Preserve, is surrounded by open space with residential development near the Preserve entrance on Fairway Drive. The area is typically quiet with noise levels in the 35 to 55 dBA range during the daytime. The nearest residential receptor on Fairway Drive is a single-family residence, located 275 feet from where trail improvement work would begin, where the trail transitions from the concrete curb cut to a previously rocked access road, approximately 260 feet north of the trailhead at Fairview Drive. The trail moves away from the residence to the northwest.

Figure AIR-1 shows the location of the proposed project and the residences on Fairway Drive

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to noise. The applicable RTMP Policies and BMPs are listed below and are provided, in their entirety, in **Appendix A**.

- BMP Noise-1: County Noise Ordinance Requirements
- BMP 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.

[146] Marin County Open Space District (MCOSD). 2014. *Road and Trail Management Plan Recirculated Final Tiered Program Environmental Impact Report*, November 2014.

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 Impact

Noise standards that apply to the project area are established by the Marin County and the City of Novato Noise Ordinances. The Marin County Noise Ordinance 3431 is incorporated into the Marin County Code Sections 6.70.030(5) and 6.70.040 regarding construction activities and related noise, and penalties for violations. Under this code, construction activities are limited to Monday through Friday from 7:00 a.m. to 6:00 p.m. and Saturday from 9:00 a.m. to 5:00 p.m. The ordinance does not allow construction on Sundays or holidays. As discussed in the Settings section of this Noise section, the City of Novato regulates noise levels associated with new development and other activities within the city limits. The City of Novato Municipal Code Zoning Ordinance establishes specific measures for allowable exterior noise levels, and uses, activities, and processes are not to generate noise in excess of these established standards. However, Section 19.22.070(7) exempts authorized construction activities from the allowable noise level requirements for construction occurring between 7:00 a.m. and 6:00 p.m. on weekdays and between 10:00 a.m. and 5:00 p.m. on Saturdays. Routine maintenance activities are also exempt under the city's ordinance. Consistent with MCOSD's RTMP BMP Noise-1, construction activities associated with implementation of the proposed project would comply with these ordinances.

Implementation of the proposed project would require construction Monday through Friday, from 7:00 a.m. to 6:00 p.m., and would require approximately six months and two construction seasons to implement. Noise generated during project implementation would be from construction equipment to install the proposed pedestrian bridges, decommission and improve existing trails, and restore an eroding streambank and riparian area along Arroyo de San Jose Creek. Equipment would include an excavator, loader, compactor, cement truck, cement mixers, roller compactor, rubber track carrier, generators, dump truck, ATVs, jackhammers, power saws, and other hand tools, as applicable. Construction of the project would require up to five workers on-site. Construction of the project would require approximately 100 total haul trips for hauling construction materials and the import of soil, rock and aggregate, as well as materials associated with the proposed pedestrian bridges.

Estimated noise levels associated with construction of the proposed Bridge 1 would be approximately 64 dB at the nearest residence, which is located approximately 275 feet away. This noise estimate is based on the maximum noise level of an excavator, 81 dB at 50 feet, attenuated by distance. The excavator would produce the highest noise level of the equipment proposed for use during construction.

Proposed trail decommissioning and revegetation along the existing Spyglass Trail as well as proposed trail realignment and tread improvements would begin within 260 feet of the closest residence on Fairway Drive. Proposed trail work in this area would occur between approximately 260 and 630 feet from the residence on Fairway Drive. The noise created from equipment use for the trail work would be less than the noise created from the excavator use at Bridge 1 because decommissioning would be accomplished with equipment, such as a mini excavator and a small tractor that operates with less noise than an excavator. Construction noise would move towards the residence as decommissioning progresses.[147] Estimated noise levels associated with construction of the proposed Bridge 2 and the trail improvements would also be less than that estimated for the proposed Bridge 1 and the trail decommissioning at the nearest residence because the proposed Bridge 2 would be located more than 1,000 feet from the nearest residences. Construction activities would be short-term, requiring approximately six months spread over two construction seasons, and the applicable BMPs included in the MCOSD's RTMP would be implemented. MCOSD would comply with the allowable construction hours in the Marin County and City of

[147] Construction work would start from Buck Gulch waterfall and work backwards towards the trailhead at the end of Fairway Drive. Season 1 would entail all work proposed at the waterfall leading to Bridge 2, as well as the streambank stabilization work at Arroyo de San Jose Creek. Season 2 would entail all work proposed at Bridge 2 leading to the trailhead.

Novato Municipal Codes. For these reasons, construction-related temporary increase in ambient noise 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.

After project construction, use of the trail for public recreation would continue similar to existing conditions. The proposed project does not include parking or other amenities and therefore any increased use of the project area would be negligible and proportional with regional population growth. The proposed project would not result in a substantial permanent increase in ambient noise levels in its vicinity compared to existing conditions. For these reasons, 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 Impact

Groundborne vibration or noise generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration or noise may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels. Groundborne vibration or noise can be a problem in situations where the primary airborne noise path is blocked, such as in the case of a subway tunnel passing near homes or other noise-sensitive structures. Construction equipment and activities have the potential to result in varying degrees of temporary groundborne vibration or noise, the amount is dependent on the specific construction equipment used and the specific construction activity being conducted.

There are no adopted state or local policies or standards for groundborne vibration. The average person is quite sensitive to ground motion, and the human body can detect levels as low as 0.02 inch per second when background noise and vibration levels are low. Vibration intensity is expressed as peak particle velocity (PPV), the maximum speed at which the ground moves while it vibrates. Since ground shaking speeds are very slow, PPV is measured in inches per second. The Federal Railway Administration and the Federal Transit Administration (FRA) have published guidance relative to vibration impacts.[148] According to the FRA, fragile buildings can be exposed to groundborne vibration PPV levels of 0.5 inch per second without experiencing structural damage. Caltrans recommends that extreme care be taken when sustained pile driving occurs within 25 feet of any building, or within 50 to 100 feet of a historic building or a building in poor condition, and neither of these conditions exist in the project area.[149] Groundborne vibration from construction activities that involve “impact activities,” primarily pile driving and use of a hoe ram to break concrete, could produce detectable or significant vibration at nearby sensitive buildings and sensitive receptors unless the project includes proper mitigation. Caltrans has also indicated that in most cases, vibration induced by typical construction equipment does not result in adverse effects on people or structures.

Implementation of the proposed project would require some small construction equipment including an excavator, loader, compactor, cement truck, cement mixers, roller compactor, rubber track carrier, generators, dump truck, ATVs, generators, jackhammers, power saws, and other hand tools, as applicable, but would not require heavy construction equipment or activities that would induce groundborne vibration or noise, such as pile drivers or blasting. The nearest residential receptors are located on Fairway Drive, with the closest residence located approximately 275 feet south of where trail improvement activities and approximately 410 feet away from where the proposed Bridge 1 would be located. Based on guidance

[148] U.S. Department of Transportation. Federal Transit Administration. Transit Noise and Vibration Assessment Manual. September 2018. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

[149] Caltrans. 2013. Transportation and Construction Vibration Guidance Manual. September 2013.

provided by Caltrans,[150] construction equipment and activities would occur at a sufficient distance from the nearest residence such that groundborne vibration and noise would not be detectable. For these reasons, 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 airports nearest to the project area are the public Gnoss Field Airport in Novato, which is over 10 miles east and the private San Rafael Airport, located over six miles to the southeast. The project area is not included in an airport land use plan. For these reasons, 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, an airport land use plan, or within two miles of a public use airport.

[150] ibid

POPULATION AND HOUSING

TABLE 17: POPULATION AND HOUSING CHECKLIST QUESTIONS

	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 proposed project is located within Ignacio Valley Open Space Preserve, which is mostly within the jurisdiction of the City of Novato. The Preserve was acquired by MCOSD in 1975, and Buck Gulch Falls Trail was formally approved in 2016 by the MCOSD Board, subject to improvements as part of the RTMP. MCOSD holds a public use easement with Hill Ranch and Marin County Club Estates, LLC, along the trail entrance for access to the Preserve, located on City of Novato property. A portion of the project is located on private property at the end of the trail, within the County of Marin jurisdiction. Ignacio Valley Open Space Preserve is governed by both the Marin Countywide Plan and zoning ordinance and the City of Novato General Plan and zoning ordinance. The project area is adjacent to an existing residential neighborhood, the Fairway Neighborhood, in the City of Novato. Land uses in this neighborhood are controlled by the City of Novato General Plan and its implementing zoning regulations.

As stated in the Land Use and Planning section of this CEQA Checklist, the parcels located within the City of Novato's jurisdiction are designated as either Open Space or Low-Density Residential and zoned as Planned District, while the parcel located within the County of Marin's jurisdiction is designated Planned Residential and zoned Residential Multiple Planned District. The Open Space land use designation applies to a majority of the project area located within the City of Novato and County of Marin, and is intended to support preservation of natural resources, agriculture, and outdoor recreation. The Low-Density/Planned Residential land use designation applies to the parcels providing access to the Preserve, located adjacent to an existing residential neighborhood[151][152]. This area was previously intended for the development of single-family homes and related accessory residential uses, prior to MCOSD ownership. The Planned District zoning designation applies to parcels located both within the City of Novato and County of Marin and is intended to allow for more flexible development at a particular site, encouraging developments that are sensitive to natural resources and the surrounding community, subject to Council adoption of a Master Plan.[153][154] However, Planned District zoned properties, which do not have an approved Master Plan or a Precise Development Plan, can be utilized for agricultural activities, including nature preserves, outdoor

[151] City of Novato. City of Novato General Plan 2035. May 2024

[152] County of Marin. 2025. *Marin Countywide Plan.* April 2025. https://assets.marincounty.gov/marincounty-prod/public/2026-02/cwplan_2023_updated_2026.pdf.

[153] Novato Municipal Code, §19.14.030: Special Purpose District Land Uses and Permit Requirements. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART2ZODIALLAUSZOECST_DIV19.14SPPUZODI_19.14.030SPPUDILAUSPERE.

[154] Marin County Zoning Code. 2026. https://library.municode.com/ca/marin_county/codes/municipal_code.

recreation facilities, and hiking trails.[155] The Open Space and Low-Density/Planned Residential land use designations, and Planned District zoning designation for the parcels located within the project area are intended to support preservation of natural resources and outdoor recreation. The proposed project supports and continues these uses.

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 project area is located within Ignacio Valley Open Space Preserve used for outdoor recreation purposes, including walking, hiking, mountain biking, horseback riding, and other outdoor nature-based activities. The project area is undeveloped except for trails and a few remnants of the abandoned subdivision grading and dam removal work, prior to MCOSD ownership, providing no housing or business opportunities. The proposed project does not include new homes or businesses, nor infrastructure that would support new homes or businesses, such as the expansion of parking facilities, or the extension of roads or utilities. Implementation of the project would not result in the need for new permanent workers or otherwise induce population growth. For these reasons, 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

There is no housing within Ignacio Valley Open Space Preserve, where the project area is located. For this reason, 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.

[155] Novato Municipal Code, §19.08: Agricultural and Resource Zoning Districts. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHXIXZO_ART2ZODIALLAUSZOECST_DIV19.08AGREZODI.

PUBLIC SERVICES

TABLE 18: PUBLIC SERVICES CHECKLIST QUESTIONS

	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 located within the Ignacio Valley Preserve Preserved is owned and maintained by the MCOSD and includes public access trails. There currently are no park facilities such as parking, restrooms and playgrounds and none are proposed as part of the project. Emergency access to the area is provided from the trailhead at the end of Fairway Drive, with additional access for the wider preserve via existing fire roads and trail connections on surrounding MCOSD lands accessible from Fairway Drive, Cascade Drive, and the Ignacio Valley/Loma Verde Preserve trail network.

The public access the Preserve primarily from Fairway Drive. Access from Fairway Drive occurs along trails that follow public easements. The public trail easement was granted as part of a conservation easement that protects the privately owned parcels adjacent to the trail for open space and conservation purposes. The project area is served by the Novato Fire Protection District (NFPD), the City of Novato Police Department, and rangers from MCOSD. The upper portions of the preserve lie within unincorporated Marin County and are served by the Marin County Fire Department (MCFD) and the Marin County Sheriff's Office.

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 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.

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?
   Police protection?
   Schools?
   Parks?
   Other public facilities?

No Impact

Implementation of the proposed project would improve an existing trail system and improve conditions within the Arroyo de San Jose Creek within Ignacio Valley Preserve. The proposed project would realign and upgrade trail segments, install pedestrian bridges at existing creek crossings, restore eroding streambanks, and revegetate disturbed areas to improve trail sustainability and visitor safety along the Arroyo de San Jose Creek. There are no new trails, just existing trail improvements. Implementation of the proposed project would not increase emergency response demands. Existing emergency access would be maintained during implementation and operation of the proposed project.

The proposed project would not add parking, restrooms, or other amenities. It would not include new housing, commercial, or industrial development that could result in the need for new or improved public services such as fire protection, police protection, schools, parks, or other public facilities. For these reasons, 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.

Because the project does not include residential, commercial, or institutional development, it would not affect school capacities under Novato Unified School District or Novato Unified boundary areas within Marin County, nor would it require new parkland or recreational facilities beyond the existing open space trail system that is being improved. The improved trail and restored creek corridor would remain part of the existing park/open space system managed by MCOSD and would not create a need for new or physically altered governmental facilities to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities in either jurisdiction. Therefore, no impact on public services would occur.

RECREATION

TABLE 19: RECREATION CHECKLIST QUESTIONS

	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

The proposed project, Buck Gulch Falls Creek Restoration and Trail Improvement Project, is located on MCOSD land and easements that comprise the 906-acre Ignacio Valley Open Space Preserve, which includes access to Loma Verde, Pacheco Valle, and Indian Valley Preserves, as well as other adjacent public lands. Ignacio Valley Open Space Preserve, owned and operated by the MCOSD, serves as a recreational corridor connecting residential areas of the City of Novato for hikers, cyclists, and equestrians. Buck Gulch Falls Trail and the Spyglass Trail, located within the Preserve, are public hiking and equestrian trails that provide public access to the Buck Gulch waterfall. The project area consists of approximately 2 acres in the southwestern portion of Ignacio Valley Open Space Preserve, within the unincorporated Marin County and the City of Novato. Recreationalists use both existing system trails and social trails in the project area, including hikers, cyclists, and equestrians. Trail access through two unimproved rock ford crossings within Arroyo de San Jose Creek and three associated ephemeral streams puts visitors at risk of injury during high creek flows in the rainy season, as well as mobilizes fine sediment that could negatively impact habitat for native and listed species. The purpose of the proposed project is to implement the MCOSD's Road and Trail Management Plan (RTMP) and Inclusive Access Plan (IAP) to provide the public with a safe trail system to enhance the visitor experience, reduce the environmental impacts on sensitive resources by reducing sedimentation and erosion, and improve a sustainable system of trails that meet design and management standards and would provide safe year-round access along the trail alignment. Implementation of the proposed project would achieve the following project objectives:

- Restore Arroyo de San Jose Creek and associated ephemeral streams by eliminating the need to cross them using the existing unimproved rock ford crossings and implementing creekbank stabilization;
- Improve in-stream, riparian, and upland habitats along Arroyo de San Jose Creek through the project area by reducing erosion and sedimentation;
- Enhance habitat protection and ecological conditions for listed species[156];

[156] California giant salamander (*Dicamptodon ensatus*, SSC) upland, dispersal, and potential breeding habitat as well as foraging habitat and prey species for Cooper's hawk (*Accipiter cooperii*, WL), and Northern spotted owl (*Strix occidentalis caurina*, FT, ST).

- Provide safe and sustainable year-round all-abilities access along Spyglass Trail and Buck Gulch Falls Trail, leading to Buck Gulch waterfall consistent with the MCOSD's Inclusive Access Plan; and [157]
- Improve trail safety and visitor experience consistent with the MCOSD's Road and Trail Management Plan.[158]

To achieve the project purpose and objectives, the proposed project would install two bridges, two drainage crossings,[159] and realign segments of the existing trails away from the eroding streambanks; improving the trail tread by removing impediments, improving trail drainage, hardening the trail surface; decommissioning and restoring segments of trail segments; upgrade the waterfall viewing area; implement a change in use on Buck Gulch Falls Trail; restore sections of eroding streambank and riparian area along Arroyo de San Jose Creek; and install fencing, signage. The proposed project is consistent with the land use and zoning designations in the City of Novato General Plan, the Marin Countywide Plan, and the MCOSD's Road and Trail Management Plan.

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to improve recreational experience and to minimize or avoid potential environmental impacts from MCOSD's road and trail system. 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.

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?

No Impact

Implementation of the proposed project would support existing uses at the Ignacio Valley Open Space Preserve. The proposed project includes decommissioning and restoring eroding and streamside social trails, realigning existing trail segments away from unstable streambanks, and constructing two pedestrian bridges to eliminate potentially hazardous unimproved creek crossings. Implementation of the proposed project would restore ecological function along Arroyo de San Jose Creek and create a sustainable trail system that reduces visitor impacts on sensitive resources, meets design and management standards, and improves visitor safety, resulting in a net improvement on the sustainability and durability of the existing trail system, and would not impact other regional or local parks. Ignacio Valley Open Space Preserve is used for outdoor recreation, and implementation of the proposed project would not change the existing use patterns.

The proposed project would improve an existing public trail to MCOSD's IAP accessibility standards where feasible, which may result in an increase in visitation after project implementation. Any increase in visitation would remain limited by available parking on public streets at any given point in time and is not expected to result in significant environmental impacts because of the improved trail conditions that would be created through project implementation.

The existing Buck Gulch Falls Trail is currently inaccessible to visitor with mobility challenges due to the existing conditions associated with the creek crossing. Access requires crossing Arroyo de San Jose Creek

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[157] Marin County Parks (Parks). 2016. *Inclusive Access Plan (IAP)*. July 2016.

[158] Marin County Open Space District (MCOSD). 2014. *Road and Trail Management Plan (RTMP)*. December 16, 2014. https://parks.marincounty.gov/projectsplans/memorial-trail-terra-linda/road-and-trail-management-plan-12-16-14.

[159] The three drainage crossings would entail one puncheon, one boardwalk, and aggregate base to prevent muddy conditions and erosion at the unnamed ephemeral streams along Buck Gulch Falls Trail.

twice along unimproved crossings. Installation of the two bridges and upgrading the trail to improve trail tread and trail steepness would allow visitors with limited mobility to visit the site. Full IAP accessibility would be achieved from the trailhead at Fairway Drive to Bridge 2, and the trail from Bridge 2 to Buck Gulch Falls would be accessible under IAP standards. Although the user group would expand, the number of visitors at any one time would still be limited by the available on-street parking. No new parking is proposed. The proposed project does not include designated or additional parking or other amenities, which would typically induce increased visitation. Published recreation-use studies consistently identify parking availability and parking capacity as primary determinants of visitor volume. Weitowitz et al.[160] found that visitor numbers increase with parking capacity and concluded that "one of the main determinants of both overall visitor numbers and their distribution within sites is therefore likely to be the availability of on-site parking." Larson et al.[161] similarly identified parking lots as a key predictor of visitation rates. Newton et.al.[162] found that parking availability was the most important transportation-related factor influencing visitor decisions and that managers can use parking capacity to regulate visitor access. Because the Buck Gulch Falls Trail would continue to rely on the existing limited on-street parking supply, the project would not alter the primary access constraint that regulates visitor volume. Therefore, substantial increases in overall visitation are not expected.

MCOSD completed a visitor use survey from February to March 2023, during winter use,[163] which found an average of 33 weekday visitors and an average of 99 weekend visitors. MCOSD expects similar visitation patterns following project implementation because parking availability would not change with implementation of the proposed project. Visitors would continue to use available public street parking. For this reason, increased visitation associated with the implementation of the proposed project is expected to be negligible and proportional to regional population growth. While it is possible that average weekday visitation could increase to that of average weekend visitation, this would not result in significant environmental impacts because of the improved trail conditions that would be created through project implementation. Implementation of the proposed project would reduce the number of unsustainable trails by decommissioning and restoring eroding and streamside social trails, which would reduce erosion and sediment entering Arroyo de San Jose Creek, impacts to streambank and riparian habitat, and improve the visitor experience. No new off-site facilities would be needed to accommodate visitors as a result of the proposed project. For these reasons, implementation of the proposed project would result in no 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.

The project proposes to change the use designation of Buck Gulch Falls Trail from hiker/equestrian only to hiker only use to reduce erosion on the trail. Spyglass Trail would remain hiker/equestrian only, and equestrians would continue to use the existing rock ford crossing near Bridge 1.

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 project would install two pedestrian bridges for visitors to use instead of the existing unimproved rock ford crossings, realign existing trail segments away from the eroding streambanks; change use on Buck Gulch Falls Trail from hiker/equestrian only to hiker only use to reduce future erosion on the trail; decommission and restore eroding and streamside social trails; install fencing

[160] Weitowitz, et.al. 2019. Parking provision at nature conservation sites and its implications for visitor use. June.
[161] Larson, et.al. 2018. Accessibility drives species exposure to recreation in a fragmented urban reserve network. March.
[162] Newton et. al. 2021. If I can find a parking spot: A stated choice approach to Grand Teton National Park visitors' transportation preferences.
[163] The project area is most popular in the winter and spring for waterfall viewing.

and signage, and implement a creek restoration plan which would support existing uses at the Ignacio Valley Open Space Preserve.

The proposed project has been designed to minimize potential adverse physical effects on the environment through design by incorporating the recommendations included in the Geology and Hydrology Feasibility Study[164] and Geotechnical Investigation[165] into the project design, and implementation of all applicable RTMP Policies and BMPs. This Initial Study has identified potentially significant impacts on biological resources that could result from implementation of the proposed project even with inclusion of the recommendations included in the Feasibility Study and Geotechnical Investigation and the applicable RTMP Policies and BMPs. As such, biological mitigation measures were identified to reduce the potentially significant environmental impacts to less than significant levels.

With the implementation of the recommendations included in the Feasibility Study and Geotechnical Investigation, the RTMP Policies and BMPs, and the mitigation measures identified in this Initial Study, implementation of the proposed project would not result in a significant 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. For these reasons, implementation of the proposed project would have no impact associated with recreational facilities or the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

[164] Best, Timothy C., CEG. Engineering Geology and Hydrology. 2021. *Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study.* August 30, 2021.

[165] Miller Pacific Engineering Group (MPEG). 2025. *Geotechnical Investigation Buck Gulch Pedestrian Bridge Abutment.* January 3, 2025.

TRANSPORTATION

TABLE 20: TRANSPORTATION CHECKLIST QUESTIONS

	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 the City of Novato and unincorporated Marin County and is subject to the City of Novato General Plan and Marin Countywide Plan. The Transportation Authority of Marin (TAM) use the congestion management agency and transportation sales tax authority for Marin County. TAM is responsible for managing a variety of transportation projects and programs in Marin County, receiving federal, state, regional, and local funds, working closely with all eleven city and towns, as well as the County government. As the designated congestion management agency for Marin County, TAM is tasked with preparing a Congestion Management Plan to fulfill state of California legislative requirements Propositions 111 and 116, which were approved in June 1990. The congestion management program monitors local multi-modal transportation networks including level of service monitors levels of service on the county's roadways and works to improve all methods of transportation locally and regionally. The 2021 Congestion Management Plan is the most recent biennial update.[166]

Access to the project area is from Fairway Drive, which is classified as a local street, via Ignacio Boulevard, a collector street, in the City of Novato. Fairway Drive is generally 40 feet wide, though it reduces to 32 feet west of Saint Andrews Drive near the trailhead. Ignacio Valley Open Space Preserve does not have dedicated parking areas. Visitors typically utilize on-street parking along Fairway Drive and Saint Andrews Drive, which also is a local, public street, or they walk from surrounding residential areas to access the project area. There is curbside parking for approximately 25 vehicles within 1,000 feet of the trailhead. There is no direct public transportation to the Preserve. Ignacio Valley Open Space Preserve can also be accessed from the adjoining open space preserves and other public lands. The proposed project does not include the provision of parking facilities.

W-Trans Traffic Memo

W-Trans prepared a *Transportation Checklist Memo* in 2025 to evaluate considerations related to traffic and transportation impacts associated with the proposed project. The memo provides an evaluation of the proposed project's potential to conflict with policies associated with the circulation system, substantially increase roadway hazards, or result in inadequate emergency access. W-Trans reviewed pertinent MCOSD, City of Novato, and Marin County plans, policies, and ordinances in their evaluation, as well as

[166] Transportation Authority of Marin (TAM). 2021. Final Draft 2021 Congestion Management Program (CMP) Update. https://www.tam.ca.gov/wp-content/uploads/2021/10/036-051_Final-Draft-2021-Marin-County-CMP.pdf.

the existing circulation system and vehicle trip generation data. W-Trans assessed existing traffic volumes along from Fairway Drive east of Saint Andrews Drive on Friday, November 14, and Saturday, November 15, 2025. Results indicate that the roadway is carrying about 230 vehicles per day. The traffic counts include vehicles accessing local residences and visitors accessing the Preserve. The study did not differentiate between vehicle trips to residences or Preserve visitors.

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 01, 2020, CEQA documents are required to utilize the vehicle miles traveled (VMT) methodology to analyze transportation impacts. 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

Implementation of the proposed project would create a sustainable trail system at the project area within Ignacio Valley Open Space Preserve that reduces visitor impacts on sensitive resources, meets design and management standards, and improves visitor safety, resulting in a net improvement on the sustainability and durability of the existing trail system, which currently supports outdoor recreation. Under existing conditions, there are no dedicated parking facilities, and no new parking facility is included in the proposed project. Visitors accessing the project area by vehicle would continue to utilize on-street parking on Fairway Drive and Saint Andrews, which are local, public streets, or walk or bike to the site from nearby neighborhoods following implementation of the proposed project. Traffic counts obtained on Fairway Drive east of Saint Andrews Drive on Friday, November 14, and Saturday November 15, 2025[167] indicate that the roadway is carrying about 230 vehicles per day and that implementation of the project would not change from the existing traffic amounts.

A review of the applicable policies for both the County of Marin and City of Novato indicates that there are no policies with which the proposed project would conflict. Per Marin County Municipal Code Section 24.04.440[168], sidewalks are generally required on both sides of streets, though sidewalks may be eliminated on one or both sides of streets where it is found that topography, density, or other circumstances make them impractical as determined by the County. Similarly, City of Novato Municipal Code Section 5-34.008[169] indicates the need for sidewalks on both sides of the street, except where residential frontages are 150 feet or more, where a sidewalk on one side is allowed. The lack of the sidewalk on the undeveloped side of Fairway Drive is therefore consistent with the policy due to the topography and density of development, and the proposed project would not change the sidewalk configuration.

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.

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[167] W-Trans. Buck Gulch Falls Trail Improvement Project Transportation Checklist. January 2026.

[168] County of Marin Municipal Code, § 24.04.440: Sidewalks Required. https://library.municode.com/ca/marin_county/codes/municipal_code?nodeId=TIT24DEST_CH24.04IM_IVSIPEPA_24.04.440SIRE.

[169] City of Novato Municipal Code, § 5-34.008: Sidewalks. https://library.municode.com/ca/novato/codes/code_of_ordinances?nodeId=CHVDEST_5-34PECI.

Additionally, the purpose of the proposed project is to implement the MCOSD's Road and Trail Management Plan and consists of improvements to an existing trail system within Ignacio Valley Open Space Preserve, which would benefit existing pedestrian and bicycle facilities. For these reasons, 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.

b) Would the Project conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

No Impact

CEQA Guidelines Section 15064.3, subdivision (b) describes the criteria for analyzing transportation impacts associated with the proposed project's projected increase in vehicle miles traveled (VMT). This refers to the amount and distance of automobile travel attributable to a project.

Under existing conditions, there is no dedicated parking for Ignacio Valley Open Space Preserve, and the proposed project would not develop parking facilities. For these reasons, implementation of the proposed project is not expected to result in an increase of vehicle miles traveled, public transit, or non-motorized travel. The level and types of recreational use of the project area after implementation of the proposed project are expected to remain essentially the same as existing use patterns. The incorporation of ADA access from the trailhead at Fairway Drive to Buck Gulch Falls, improving all user types experience visiting the Preserve. Visitation is, and would continue to be, limited by the availability of on-street parking, and no new parking or expansion of existing parking is proposed. The proposed change in use from equestrian and pedestrian to pedestrian only may slightly decrease visitation. Overall increased use is expected to be minimal and largely result from the local communities, proportional with regional population growth. The proposed project would not increase the number of visitors at the site at any one time, and implementation of the proposed project is not expected to result in an increase in non-motorized travel. For these reasons, implementation of the proposed project would result in no impact associated with a conflict or inconsistency with CEQA Guidelines Section 15064.3, subdivision (b).

Under Guidance provided by the California Governor's Office of Planning and Research (OPR), several criteria are identified that may be used by jurisdictions to identify certain types of projects that are unlikely to have a VMT impact and can be "screened" from further VMT analysis.[170] One of these screening criteria pertains to small projects, which OPR identifies as projects generating fewer than 110 vehicle trips per day. The anticipated vehicle trip generation for a project is generally estimated using standard rates published by the Institute of Transportation Engineers (ITE) in the Trip Generation Manual.[171] This source provides a means of estimating the anticipated change in the number of trips associated with land uses of various types. There are no land uses that are applicable to an open space recreational area, and independent variables used to estimate additional trips are either via the acreage of the park or the number of trail miles. Under existing conditions, there is no dedicated parking for Ignacio Valley Open Space Preserve, and the proposed project would not develop parking facilities.

As the proposed project would not develop parking facilities, and neither the acreage of the Preserve nor the number of trail miles would change under the project, the proposed improvements to decommission and restore eroding and streamside social trails, realign existing trail segments away from unstable streambanks, construct two pedestrian bridges to eliminate hazardous unimproved creek crossings, and restore sections of eroding streambank and riparian area along Arroyo de San Jose Creek could reasonably be expected to result in a negligible change to the site's vehicle trip generation. For these reasons, implementation of the proposed project is not expected to result in an increase to vehicle miles traveled, public transit, or non-motorized travel, and implementation of the proposed project would result in no impact associated with a conflict or inconsistency with CEQA Guidelines Section 15064.3, subdivision (b).

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[170] Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory. California Governor's Office of Planning and Research. 2018.

[171] Trip Generation Manual, 12th Edition. Institute of Transportation Engineers. 2025.

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 Impact

The project area is located within Ignacio Valley Open Space Preserve, a public outdoor recreation facility that is owned and managed by MCOSD, including public easements on Hill Ranch LLC property and City of Novato property. Implementation of the proposed project would not include any modifications to public roadways and would improve the existing trail system. The proposed improvements would be implemented in compliance with the MCOSD's RTMP, including applicable policies, BMPs, and trail design standards, as well as meeting most IAP standards, and would eliminate existing unimproved rock ford stream crossings, which are less safe than the conditions that would exist following completion of the project. Portions of the proposed trail would meet the highest accessibility standards identified in the IAP, while segments of trail after Bridge 2 would meet Improved Trail Guidelines, limited by steep slopes, geologic and hydrologic impediments, and sensitive animal and vegetation communities. Additionally, the proposed project would change the use designation of Buck Gulch Falls Trail from hiker/equestrian only to hiker only use, which would reduce the potential for conflict between various user types.

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue near the project area. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports, and during the five-year period of January 1, 2020, through December 31, 2024, there were no collisions reported between the trailhead at the end of Fairway Drive and 250 feet east of Saint Andrews Drive.

During project implementation, large construction equipment would access the project area from Fairway Drive, which is generally 40 feet wide, though it reduces to 32 feet west of Saint Andrews Drive near the trailhead, located within a residential neighborhood. As there is an existing sidewalk only on the south side of Fairway Drive and no sidewalk on Saint Andrews Drive, pedestrians must either cross over to the sidewalk on the south side of Fairway Drive or walk in the road or on the shoulder to access the trailhead from the on-street parking – which is permitted. The roadway has open-sighted lines, so oncoming vehicles are visible for pedestrians to move out of the travel lane, if necessary.

As the proposed project would be implemented over approximately six months and two construction seasons, and the existing no-parking street parking signs are located along Fairway Drive, there would be no hazards due to a geometric design feature or incompatible uses. For these reasons, implementation of the proposed project would result in a less than significant impact associated with substantially increasing hazards due to a geometric design feature or incompatible uses.

d) Would the Project result in inadequate emergency access?
Less than Significant Impact

Emergency access to the project area is via Fairway Drive. Additional emergency access for the wider Ignacio Valley Open Space Preserve, outside of the proposed project area, occurs via Montura Fire Road off of Eagle Trail. Novato Police Department and the Novato Fire Protection District provide emergency services to the area. The nearest police station is located in the City of Novato, approximately six miles northeast of the project area. The nearest fire station is located in the City of Novato, approximately three miles east of the project area, at Station 64.

The existing trails are too narrow to provide access for emergency vehicles the Bridge 1 location from Fairway Drive. The proposed bridges and trail improvements would not provide access for emergency vehicles; however, emergency vehicle and park ranger access would be maintained up to Bridge 1 and emergency vehicles could utilize the first existing unimproved rock ford crossing within Arroyo de San Jose Creek, if needed. The improvements to the existing trail system within the project area, at Ignacio Valley Open Space Preserve, would enhance trail access for public use, which would also improve access for rangers and emergency responders on foot or using small all-terrain vehicles. Emergency access to the

project area and the wider Ignacio Valley Open Space Preserve would be maintained during project construction and operation. For these reasons, implementation of the proposed project would result in a less than significant impact associated with inadequate emergency access.

TRIBAL CULTURAL RESOURCES

TABLE 21: TRIBAL CULTURAL RESOURCES CHECKLIST QUESTIONS

	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, 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, 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.

Consultation is defined as means 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 between government agencies and Native American tribes shall be conducted in a way that is mutually respectful of each party's sovereignty. Consultation shall also recognize the tribes' potential needs for confidentiality with respect to places that have traditional tribal cultural significance.

Public Resources Code (PRC) Section 21074 defines tribal cultural resources as either of the following:

- 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).[172]
- 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).[173] 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,[174] a unique archaeological resource described in PRC Section 21083.2(g),[175] or a non-unique archaeological resource as defined in PRC 21083.2(h)[176] if it conforms with the criteria of subdivision (a).[177]

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 should be considered, evaluated, and managed together.

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[172] 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.

[173] 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.

[174] 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.

[175] 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.

[176] 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.

[177] 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 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.

AB 52 Consultation

MCOSD invited the Federated Indians of Graton Rancheria (FIGR) and Guidiville Rancheria of California to provide tribal consultation under Assembly Bill 52 (AB52) on July 16, 2025, consistent with RTMP BMP Cultural Resources-3: Tribal Consultation. The invitation included a project description, project related studies, the proposed CEQA process, and a summary of findings from the *Cultural Resources Study*.[178] FIGR responded August 15, 2025, with a formal request for tribal consultation under CEQA for the mitigation of potential project impacts to tribal cultural resources within FIGR ancestral lands. MCOSD did not receive a response from the Guidiville Indian Rancheria. In their response, FIGR requested to consult on project alternatives, recommended avoidance and mitigation measures, significant effects of the project, type of environmental review necessary, significance of tribal cultural resources, and significance of project impacts to tribal cultural resources. The letter expressed the preferred manner of mitigation impacts to archaeological sites is preservation in place. MCOSD responded August 18, 2025, with an invitation to propose preferred meeting times and followed up on October 13, 2025, and February 4, 2026.

MCOSD and FIGR met on April 16, 2026. During the tribal consultation meeting, the FIGR requested that MCOSD provide a plant list for the proposed restoration element of the project, which was provided on April 20, 2026. FIGR also requested that MCOSD update the previously completed *Cultural Resources Study* prepared by Tom Origer & Associates to reflect the change in project scope, such as the addition of the streambank stabilization work proposed along the southside of Arroyo de San Jose Creek, and address compliance with Section 106 of the NHPA, as the proposed project would likely require a Section 404 Permit from the USACE.

MCOSD commissioned an updated cultural resources study. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

Far Western provided FIGR with the *Supplemental Cultural Resources Study* for the proposed project on May 15, 2026. The *Supplemental Cultural Resources Study* recommended the Presence/Absence Testing, completed by Far Western and described in a June 2026 memo that detailed the results of the additional archaeological testing[179]. FIGR was notified of the scheduled testing for the proposed project on May 26, 2026, and a follow up email was sent to FIGR informing them of the completed fieldwork on June 2, 2026. A copy of this report has been shared with FIGR for review and input. MCOSD continues ongoing consultation, and MCOSD will include FIGR in the public notice for public review of this Initial Study.

Cultural and Historical Resources Studies

Tom Origer & Associates prepared a *Cultural Resources Study* (CRS) for the proposed project, dated April 22, 2021.[180] It included a cultural resources literature search completed at the Northwest Information Center of the California Historical Resources Information System (CHRIS), an initial Native American Consultation with the Native American Heritage Commission, and an archaeological survey of the project area. The CRS satisfies the following RTMP BMPs Cultural Resources-1: Historical and Archaeological Resource Mapping

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[178] Tom Origer & Associates. 2021. *Cultural Resources Study for the Buck Gulch Falls Trails Project Ignacio Valley Open Space Preserve near Novato, Marin County, California.* April 22, 2021.

[179] Far Western. 2026. *Completion of Archaeological Testing for the Buck Gulch Falls Creek Restoration and Trail Improvement Project, Ignacio Valley Open Space Preserve, Novato, Marin County, California.* June.

[180] Tom Origer & Associates. 2021. Op. Cit.

and Cultural Resources-2: Consultation with Northwest Information Center. Much of the setting information and impact analysis included in this section is based on information contained in the CRS.

The study area consists of 4,235 linear feet along an east-to-west alignment, situated on landforms with a slope of approximately 1 percent. The alignment is located adjacent to the Arroyo de San Jose Creek, with a few areas where the study area crosses over the creek. The vertical component would be four feet below the surface for the bridge abutments *(i.e., concrete spread footings)*, while the remaining project elements *(i.e., trail decommissioning and trail construction)* would be completed within one foot below the surface.

CHRIS records search identified no cultural resources within or adjacent to the study area. The study area was included in a previous cultural resources study, and one study was conducted within a quarter mile of the study area. Tom Origer & Associates conducted an intensive field survey on April 13, 2021. No cultural resources or archaeological site indicators were identified within the study area, and application of a buried sites model indicates low to high potential for buried resources throughout the study area. The areas of high sensitivity are concentrated to the Holocene soils around the creek. The exposed soil within the creek bank was thoroughly inspected for archaeological site indicators and anthropogenic soils, but none were noted. No historic resources/or properties are listed on federal, state, or local inventories within or abutting the project area. The Native American Heritage Commission responded that there are sacred sites within the vicinity of the study area, and NAHC recommended contacting the Federated Indians of Graton Rancheria (FIGR) to gather additional information about the area. Tom Origer & Associates sent a letter to the FIGR and the Guidiville Indian Rancheria on April 9, 2021, to request additional information; however, Mr. Origer received no responses to the outreach letters.

Tom Origer & Associates did not recommend any additional work. No cultural resources were found within the study area; therefore, no resource-specific recommendations are warranted. The CRS includes a description of the process to follow should buried or previously unrecognized archaeological deposits or materials be inadvertently exposed during any construction activity. It recommends work in the immediate area of the find be halted until a qualified archeologist can evaluate the finds and provide 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.

As part of continued tribal consultation efforts, MCOSD met with FIGR on April 16, 2026. FIGR requested that MCOSD update the previously completed Cultural Resources Study prepared by Tom Origer & Associates in 2021, which Far Western did in May 2026. MCOSD commissioned an updated cultural resources study. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

Applicable RTMP Policies and BMPs

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 below 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-5: Permanent Protection

- Cultural Resources-6: Construction Discovery Protocol
- Cultural Resources-7: Human Remains

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 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 Public Resources Code Section 5020.1(k)?
Less than Significant Impact

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 anthropogenic soils in the banks of Arroyo de San Jose Creek, or historic resources/or properties that are listed on federal, state, or local inventories within or abutting the project area as confirmed during the Presence/Absence Testing completed by Far Western[181] MCOSD invited the FIGR and the Guidiville Indian Rancheria to consult on the proposed project pursuant to AB52 but did not receive a response from the Guidiville Indian Rancheria. FIGR responded via email requesting consultation under CEQA, and MCOSD met with the Tribal Historic Preservation Officer (THPO) on April 16, 2026.

FIGR identified the need to update the level of analysis provided in the 2021 *Cultural Resources Study* prepared by Tom Origer & Associates. Far Western provided FIGR with the *Supplemental Cultural Resources Study* for the proposed project. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. MCOSD is currently consulting with FIGR and FIGR received a copy of the supplemental study. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

The proposed project includes implementation of the cultural resource protection BMPs from the RTMP. 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 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, MCOSD would directly notify the Federated Indians of Graton

[181] Far Western. 2026. *Completion of Archaeological Testing for the Buck Gulch Falls Creek Restoration and Trail Improvement Project, Ignacio Valley Open Space Preserve, Novato, Marin County, California.* June.

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) 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).

b) Would the Project cause 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? 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 Impact

Public Resources Code Section 21074 defines tribal cultural resources, and PRC Section 5024.1(c) defines the criteria 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 of this Tribal Cultural Resources section.

MCOSD met with the FIGR tribal members on April 16, 2026, to discuss the proposed project and to identify whether or not the proposed project area included significant tribal resources. FIGR expressed concerns pertaining to the level of analysis provided in the 2021 *Cultural Resources Study* prepared by Tom Origer & Associates. FIGR requested that MCOSD update the Origer *Cultural Resources Study* to reflect the change in project scope, such as the addition of the streambank stabilization work proposed along the southside of Arroyo de San Jose Creek, and address compliance with Section 106 of the NHPA, as the proposed project would likely require a Section 404 Permit from the USACE. MCOSD assured FIGR that the Cultural Resource Study would be updated to reflect THPO's requests prior to the public review period of this CEQA Checklist. MCOSD commissioned an updated cultural resources study. As part of the supplemental study, Far Western conducted an additional record search at the Northwest Information Center (NWIC), Sacred Lands Search and pedestrian survey. Far Western also completed on-site archaeological testing for the proposed project on May 29, 2026. Six hand augers were excavated to address the presence/absence of archaeological resources within the Area of Potential Effects (APE). No midden soils or other precontact deposits were observed at any of the auger locations; and no historic properties have been identified within the APE. Far Western identified the need for construction crew cultural resources sensitivity and awareness training to ensure protocols are followed in the event a previously undiscovered site is uncovered during construction. The report also addresses the procedures to follow for inadvertent discoveries and if human remains are discovered.

During the April 16, 2026, meeting, FIGR identified the issues with the level of analysis provided in the *Cultural Resources Study* as it pertains to tribal cultural resources located within the study area, and MCOSD has subsequently addressed these concerns. The design and scope of the proposed project, in conjunction with implementation of the RTMPs measures associated with protection of tribal resources, would be protective of tribal resources. MCOSD and FIGR may continue additional tribal consultation

meetings through implementation and operation of the proposed project. 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.

The MCOSD would directly notify the FIGR of any inadvertent discovery of cultural or historical resources, human remains, and/or tribal cultural resources.

UTILITIES AND SERVICE SYSTEMS

TABLE 22: UTILITIES AND SERVICE SYSTEMS CHECKLIST QUESTIONS

	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 the Ignacio Valley Preserve along the Buck Gulch Falls and Spyglass trails and within Arroyo de San Jose Creek. MCOSD does not provide any parking, restrooms, drinking water or other similar facilities that would require utilities, such as electricity, potable water, or wastewater on its open space preserves. Buried sewer and water pipelines were installed along an approximate 200-foot length from Fairway Drive during development of the adjacent subdivision. These buried utilities were meant to serve previously planned residences. They are not functional, and the proposed project would not change use or condition of these abandoned utilities. Existing facilities include trails, fire roads for emergency and maintenance access, gates, signage, and trash cans at some trailheads to capture trash and pet waste.

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 consists of trail improvements, limited trail realignment, creek restoration, revegetation, and a change in trail users within the existing open space preserve. Implementation of the proposed project would not require relocation, construction, or expansion of any utility or public service facility.

Construction would rely on portable construction equipment powered by diesel fuel and gasoline and would not require extension or modification of electrical, natural gas, or telecommunications infrastructure. Small quantities of water may be trucked in for dust control and, if needed, for soil compaction during construction. Existing site drainage patterns would be maintained or improved through erosion control design and trail drainage features. There is no existing storm drain infrastructure existing in the proposed project area, and no new off-site storm drain infrastructure would be installed as part of the proposed project. For these reasons, implementation of the proposed project would not 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 would occur.

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

Implementation of the proposed project may require water be imported by tank trucks during construction for dust control and implementation of trail improvements. MCOSD would utilize recycled wastewater if it is available. Operation of the proposed project would not require regular and on-going water supply. The project area currently does not have water service, and none is proposed as part of the project. Implementation of the proposed project will not create new demands for water supply and would not include or require any drinking fountains, irrigation, or water facilities. For these reasons, 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 bathrooms or water facilities available within the project area. Implementation of the proposed project does not include new restrooms that would increase projected demand for wastewater treatment. For these reasons, 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

Implementation of the proposed project would generate a nominal amount of solid waste, primarily associated with vegetation clearing, which would be removed to the Redwood Landfill, located in Novato. Redwood Landfill is permitted to receive 2,310 tons per day of waste material, has a design capacity of

26,000,000 cubic yards. Construction of the proposed project would generate relatively small amounts of solid waste, primarily consisting of excess soil, rock, and organic material from trail recontouring, as well as wood and green waste from vegetation trimming and limited tree removal. The volume of construction-related solid waste would not affect landfill capacity. Implementation of the proposed project would comply with applicable county, state, and federal regulations regarding solid waste disposal. For these reasons, 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

As discussed in item (d), implementation of the proposed project would generate a nominal amount of solid waste, primarily associated with vegetation clearing, which would be removed to the Redwood Landfill, located in Novato. The volume of construction-related solid waste would not affect land landfill capacity. Implementation of the proposed project would comply with applicable county, state, and federal regulations regarding solid waste disposal. For these reasons, 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.

WILDFIRE

TABLE 23: WILDFIRE CHECKLIST QUESTIONS

	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

The California Department of Forestry and Fire Protection (CalFire) has mapped areas of high wildfire hazards throughout California, including Marin County. The proposed project area is mapped as a High Fire Hazard Zone.[182] The County of Marin Community Wildfire Protection Plan (CWPP) identifies fire hazards to homes in the wildland urban interface (WUI).[183] The neighborhood adjacent to the project area is designated as a wildland urban interface area and as having a greater risk from wildland fires based on proximity to wildland vegetation and local conditions.[184] Additionally, the Buck Gulch Falls trailhead and a portion of the existing trail is located with the Fuel Break Zone of the Greater Novato Shaded Fuel Break Project (GNSFB), a fuel reduction and forest health zone adjacent to the wildland-urban interface structures managed by the Marin Wildfire Prevention Authority.[185]

Most of the Ignacio Valley Preserve has not burned since the 34,000-acre Ignacio fire in 1923. The natural fire return interval for the project area and surrounding region is roughly 34-56 years.[186] The areas that

[182] CA State Geoportal Fire Hazard Severity Zone Viewer. https://gis.data.cnra.ca.gov/apps/CALFIRE-Forestry::fire-hazard-severity-zone-viewer/explore.

[183] Urban Wildland Interface & Evacuation Routes. March 2026. https://marincounty.maps.arcgis.com/apps/webappviewer/index.html?id=688f506cfb144067826bb35a062b0f0a

[184] Marin Community Wildfire Protection Plan. December 2020. https://firesafemarin.org/wp-content/uploads/CWPP_2020_Final.pdf

[185] Marin Wildfire Prevention Authority. 2026. Greater Novato Shaded Fuel Break Project. https://www.marinwildfire.org/project/greater-novato-fuel-break-plan.

[186] Golden Gate National Parks Conservancy. 2023. Appendix B: Wildfire History. In Marin Regional Forest Health Strategy. Tamalpais Lands Collaborative (One Tam). https://www.onetam.org/forest-health.

comprise Ignacio Valley Open Space Preserve burned five to six times in the period between 1859 and 2020. Compared to other areas like the upper slopes of Mt. Tamalpais which burned seven to 11 times. Ignacio Valley is located adjacent to a less intensive frequent burn zone to the south, Big Rock Ridge with four to six fires between 1852 and 2020.[187]

The Marin County Fire Code includes requirements for property owners within Wildland Urban Interface areas to comply with Fire Hazard Reduction procedures including removal of dead vegetation or other potential fuels that may contribute to the spread of wildfires.[188]

Marin County implements fire prevention procedures to reduce the likelihood of maintenance or construction activities igniting fuels and to reduce the likelihood of fire spread in the unlikely event of an ignition. These procedures are modeled after 2025 California Wildland-Urban Interface Code, Title 24, Part 27 and include general requirements to support vegetation removal, access restrictions and ignition source control.[189] The CWPP provides supplemental guidelines for fire hazard assessments and mitigation measures and strategies for public outreach, reducing structure ignitability, defensible space, vegetation management, and evacuation planning. These guidelines include building development standards with recommended material types for new and remodel construction, vegetation removal and maintenance requirements, and fuel reduction for areas with non-residential vegetation. Additional best management practices are discussed in the Vegetation and Biodiversity Management Plan, including fire extinguisher requirements, vehicle staging, inspection, and maintenance requirements, and halting vegetation removal operations during red flag warnings.[190]

The industry standard for wildfire risk is based on two zones: Wild Urban Interface (WUI) and Fire Hazard Severity Zones (FHSZ). The Public Resources Code 4201-4204 directs the California Department of Forestry and Fire Protection (CalFire) to map fire hazard within State Responsibility Areas (SRA) based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a major cause of wildfire spread. These zones, referred to as FHSZ, classify a wildland zone as Moderate, High, or Very High fire hazard based on the average hazard across the area included in the zone. CalFire–has mapped areas of high wildfire hazards throughout California, including Marin County. The project area is within the Local Responsibility Area (LRA) and the State Responsibility Area (SRA). Under the authority of Government Code 51175-89, Cal Fire makes recommendations of Very High Fire Hazard Severity Zones in LRAs based on the same hazard model used for the State Responsibility Area (SRA) for areas that meet the criteria for the Very High classification. Upon adoption by local ordinance, these areas confer on similar fire safety regulations as those required in SRA FHSZ zones. The project area is not mapped as a Very High Fire Hazard Severity Zone (VHFHSZ).[191] Other areas of the Ignacio Valley Open Space Preserve and the surrounding area are in the SRA. Those areas adjacent to the LRA include areas mapped as Very High and High severity zones.

Figure WF-1 shows the Fire Hazard Severity Zones for the project area and surrounding neighborhoods

Figure WF-2 shows the Wildland Urban Interface Zone for the project area and surrounding neighborhoods

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187 Golden Gate National Parks Conservancy. 2023. Appendix B: Wildfire History. In Marin Regional Forest Health Strategy. Tamalpais Lands Collaborative (One Tam). https://www.onetam.org/forest-health.

188 County of Marin. 2022. Ordinance No. 3775. Adopted November 15, 2022. https://assets.marincounty.gov/marincounty-prod/public/2024-12/marin_county_fire_code_ordinance_3775_final.pdf.

189 ICC Digital Codes, 2025 California Wildland-Urban Interface Code, Title 24, Part 7, Appendix A: General Requirements. https://codes.iccsafe.org/content/CAWUIC2025P1/appendix-a-general-requirements

190 Marin County Open Space District (MCOSD). 2015. *Vegetation and Biodiversity Management Plan (Draft).* April 2015. https://parks.marincounty.gov/sites/parks/files/2024-12/guidingdocuments_vbmp2016.pdf.

191 Cal Fire. 2024. Find your Fire Hazard Severity Zone (FHSZ). Effective April 1, 2024. https://experience.arcgis.com/experience/5065c998b4b0462f9ec3c6c226c610a9.

MCOSD currently implements RTMP Policy SW.26: Control or Restrict Access to Ignition Prevention Zones when Red-Flag Conditions Exist and would continue to do so regardless of whether the proposed project is implemented.

Applicable RTMP Policies and BMPs

MCOSD would incorporate applicable RTMP Policies and BMPs, which were designed to minimize or avoid potential environmental impacts to wildfire. The applicable RTMP Policies and BMPs are listed below 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
- Construction Contracts-1: Standard Procedures in Construction Contracts

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?
No Impact

The proposed project area is located within an adopted emergency response plan area and has an emergency evacuation plan through Fire Safe Marin. The neighborhood is Zone 14 on the Fire Safe Marin evacuation map.[192][193] Neighborhoods adjacent to Ignacio Valley Open Space Preserve are directed to evacuate utilizing Fairway Drive towards Ignacio Boulevard. MCOSD would maintain emergency access to the proposed project area during construction activities to facilitate emergency evacuation during project implementation, if needed. Implementation of the proposed project would improve access for rangers and emergency responders on foot or using small all-terrain vehicles. Emergency vehicle and park ranger access would remain over the existing rock ford crossing near Bridge 1, within Arroyo de San Jose Creek following implementation. Implementation would improve trail access and safety within the project area, which would improve egress of visitors from the project area in case of an emergency. For these reasons, implementation of the proposed project would result in no impact associated with impairment an adopted emergency response plan or emergency evacuation plan.

Figure HH-1 shows the Fire Safe Marin Evacuation Route for the neighborhoods adjacent to Ignacio Valley Open Space Preserve.

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 Impact

Implementation of the proposed project would not exacerbate wildfire risks in the area. The trails would continue to be utilized for outdoor recreation. No structures or amenities would be developed that could potentially exacerbate wildfire risks and implementation of the proposed project is not expected to result in a significant visitation increase.

Construction and maintenance equipment could generate sparks and could temporarily increase fire risk. To address this potential, MCOSD vehicles are equipped with fire extinguishers to address small fires ignited by construction activities before a problem develops and the MCOSD Road and Trail Management Plan Best Management Practice Construction Contracts requires all construction vehicles to be equipped

[192] Fire Safe Marin. Fairway Know your way out. https://www.novatofire.org/home/showpublisheddocument/9410/637327499871900000.

with a suitable fire extinguisher. For these reasons, implementation of the proposed project would result in a less than significant impact associated with exacerbation of wildfire risks that would thereby 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 the existing trail system at Ignacio Valley Open Space Preserve, the only infrastructure within the project area. There are no existing vehicular roads, water sources, power lines or other utilities within the project area and none are proposed as part of the project. The proposed project does not include any structures or other facilities that would be flammable or otherwise increase the wildfire risk. Implementation of the proposed project would not increase emergency response demands.

Implementation of the proposed project would result in a beneficial effect on the existing MCOSD's fuel management activities within Ignacio Valley Open Space Preserve because trail access would be improved. The proposed trail system improvements would improve safety for trail users, which has a beneficial effect and would provide improved egress for visitors utilizing the trail system in case of emergency. The proposed project would improve access for emergency responders and would maintain the existing rocked crossing adjacent to Bridge 1. This would be a beneficial impact. For these reasons, 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

As described in the Hydrology and Water Quality section of this CEQA Checklist, implementation of the proposed project would not adversely affect the flow of drainage within the project area or result in other drainage changes. The proposed project does not include any structures or other facilities that would be at risk due to post-fire slope instability. The trail network, including the proposed bridges, could be damaged due to post-fire runoff or slope instability, but the risk to people or structures would be low. Use of the project area would be similar to existing conditions and would not result in increased wildfire risk. For these reasons, 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

TABLE 24: MANDATORY FINDINGS OF SIGNIFICANCE CHECKLIST QUESTIONS

	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 improve conditions in Arroyo de San Jose Creek by installing new bridges, relocating trails, decommissioning trails, restoring eroding banks along the creek, and changing trail users from pedestrian and equestrians to pedestrian only. Potential impacts described in this document that could result from implementation of the proposed project would be temporary and mitigation measures have been included in this document to reduce the significance of potentially significant impacts to a less than significant level. MCOSD would implement the recommendations included in the geotechnical and hydrology reports, 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 geotechnical and hydrology reports or Road and Trail Management Plan Best Management Practices to a less than significant level.

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 Impact with Mitigation

The proposed project would reduce erosion and sedimentation associated with the existing eroding trail alignments in the project area within Ignacio Valley Open Space Preserve, which would restore ecological

function along Arroyo de San Jose Creek, specifically hydrologic and geomorphic conditions along the creek, reducing sediment delivery and supporting the recovery of riparian plant communities, as well as creating a sustainable trail system that reduces visitor impacts. The proposed project would improve drainage by replacing the existing unimproved rock ford crossings with spanning bridges to eliminate in-stream visitor access through Arroyo de San Jose Creek; re-grading and decompacting eroded streamside social trails; and installing rolling dips and cross-drains to intercept and disperse concentrated runoff to the adjacent landscape rather than routing flows along the trail corridor. Overall, implementation of the proposed project would reduce the existing impacts from the existing trail alignments within the project area by reducing erosion and sedimentation, as well as reducing the area of streambank and riparian habitat disturbed by visitors.

Potentially significant construction-related impacts to special-status species would be reduced to less-than-significant levels by implementation of the applicable Best Management Practices included in the MCOSD's Road and Trail Management Plan and the implementation of mitigation measures included in this document. As described in the Cultural Resources section of this CEQA Checklist, the project area does not contain any important examples of the major periods of California history or prehistory. For these reasons, with mitigation measures identified in this document, the implementation of the proposed project would result in a less than significant impact associated with 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.)
Less than Significant Impact

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:

- Baltimore Canyon Open Space Preserve, Larkspur - Dawn Falls Trail
- Blithedale Summit Open Space Preserve, Larkspur - Piedmont Trail
- Cascade Canyon Open Space Preserve, Fairfax - Cascade Canyon Fire Road
- Loma Alta Open Space Preserve, Fairfax - Old Railroad Grade Trail
- Roy's Redwoods Open Space Preserve, San Geronimo Valley - Roy's Redwoods Loop Trail

During 2025 and 2026 at the time of publication of this document, the MCOSD implemented improvements and repairs to several roads and trails, including the following:

- Camp Tamarancho, Marin County - Saddlecut Road to Trail *(MCOSD component)*[194]
- Cascade Canyon Open Space Preserve, Fairfax - Cascade Bridges
- Ring Mountain Open Space Preserve, Corte Madera - Reed Ranch Fire Road
- Stafford Lake Park, Novato - Back Meadow Trail
- Terra Linda/Sleepy Hollow Open Space Preserve, San Rafael - Sorich Park Trail
- Terra Linda/Sleepy Hollow Open Space Preserve, San Rafael - Eagle Rock Trail and Jameson Trail

All past RTMP projects have complied with the requirements of the RTMP and all future RTMP would also 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

[194] Project is located at the Marin Council of the Boy Scouts of America's (MCBSA) Camp Tamarancho facility.

environmental impacts from the existing road and trail system. The projects would achieve this policy goal through reducing erosion and sedimentation, improving the environmental impacts from existing stream crossings, redesigning trails to avoid impacts to sensitive habitat and species, and decommissioning of existing non-designated trails. In combination, these projects would result in a net improvement to the environmental resources of the open space preserves.

Regarding the proposed project, MCOSD would implement the recommendations included in the geotechnical and engineering reports,[195][196] applicable Road and Trail Management Plan BMPs described in this document and would implement the mitigation measures included in this document to reduce potential impacts not addressed by the geotechnical and engineering reports or Road and Trail Management Plan BMPs to a less than significant level. Cumulatively, MCOSD projects would result in beneficial effects to environmental resources by improving its trail system. For these reasons, implementation of the proposed project would not result in impacts that are individually limited, but cumulatively considerable.

c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?
Less than Significant Impact

The nearest private residence is on Fairway Drive, approximately 275 feet south of where trail improvement activities and approximately 410 feet away from the proposed Bridge 1 would be located. Potential environmental effects of the proposed project in the vicinity of the residential area would be very limited as the proposed project would take place within open space areas, and 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, over approximately six months and two construction seasons.

Implementation of the proposed project may slow traffic, and isolated areas of Fairway Drive may be posted to prohibit street parking on days that construction equipment and the bridge sections would be delivered to the project area, and for equipment to exit the project area. However, the roadway has open-sighted lines, so oncoming vehicles are visible for pedestrians to move out of the travel lane, if necessary. As the proposed project would be implemented over approximately six months and two construction seasons, the roadway has open-sighted lines, and there are existing no-parking street parking signs located along Fairway Drive, there would be no hazards due to a geometric design feature or incompatible uses when large construction equipment would access the project area.

Implementation of the proposed project could affect visitors for recreational purposes during project implementation as trails within the project area would be closed during that time due to potential safety concerns. This would be a temporary impact, and ultimately, implementation of the proposed project would improve the visitor experience. For these reasons, implementation of the proposed project would result in less than significant environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.

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[195] Miller Pacific Engineering Group (MPEG). 2025. *Geotechnical Investigation for the Buck Gulch Pedestrian Bridge Abutment*. January 2025.

[196] Best, Timothy C., CEG. Engineering Geology and Hydrology. 2021. *Buck Gulch Falls Trail Bridge Geologic Hazard Assessment and Feasibility Study.* August 30, 2021.

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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