

Notice of Determination

21-2018-137

Appendix D

To:

☒ Office of Planning and Research
 U.S. Mail: _____ Street Address: _____
 P.O. Box 3044 1400 Tenth St., Rm 113
 Sacramento, CA 95812-3044 Sacramento, CA 95814

☒

County Clerk
 County of: Marin
 Address: 3501 Civic Center Dr #234
 San Rafael, CA 94903

From:

Public Agency: Marin RCD
 Address: P.O. Box 1146
 Point Reyes Station, CA 94956
 Contact: Elise Suronen
 Phone: (415) 663-1170 ext. 305

Lead Agency (if different from above):

Address: _____

Contact: _____

Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2018032048

FILED

Project Title: Marin Permit Coordination Program

JUN 15 2018

Project Applicant: Marin Resource Conservation District (Marin RCD)

Project Location (include county): Seven watersheds within Marin County

RICHARD N. BENSON
 MARIN COUNTY CLERK
 BY: C. SANCHEZ Deputy

Project Description:

The Marin Permit Coordination Program (PCP) provides programmatic environmental review to assist landowners within the project area to efficiently implement environmentally beneficial land management projects. The PCP covers seven watersheds within Marin County and includes 44 conservation practices, drawn from established Conservation Practice Standards developed by USDA NRCS and designed to protect soil and water quality, increase carbon sequestration, promote agricultural sustainability, and improve wildlife habitat conditions. The PCP was first adopted in 2004; this updated version expands the geographical scope and number of practice covered by the PCP.

This is to advise that the Marin RCD Board of Directors has approved the above
☒ Lead Agency or ☐ Responsible Agency)

described project on June 13, 2018 and has made the following determinations regarding the above
 (date)
 described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:

80 Fourth Street, Suite 202, Point Reyes Station, CA 94956

Signature (Public Agency):

Title:

EXECUTIVE DIRECTOR

Date:

06-14-18

Date Received for filing at OPR:

Authority cited: Sections 21083, Public Resources Code.
 Reference Section 21000-21174, Public Resources Code.

Revised 2011

POSTED 6/15/18 TO 7/15/18



State of California - Department of Fish and Wildlife

2018 ENVIRONMENTAL FILING FEE CASH RECEIPT

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RECEIPT NUMBER:

21 — 6/15/18 — 137

STATE CLEARINGHOUSE NUMBER (If applicable)

2018032048

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY MARIN RCD	LEAD AGENCY EMAIL	DATE 6/15/18
---------------------------------	-------------------	------------------------

COUNTY/STATE AGENCY OF FILING Marin	DOCUMENT NUMBER
---	-----------------

PROJECT TITLE MARIN PERMIT COORDINATION PROGRAM

PROJECT APPLICANT NAME MARIN RCD	PROJECT APPLICANT EMAIL	PHONE NUMBER (415) 663-1170
--	-------------------------	---------------------------------------

PROJECT APPLICANT ADDRESS P.O. BOX 1146	CITY POINT REYES STATION	STATE CA	ZIP CODE 94956
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PROJECT APPLICANT (Check appropriate box)☒ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity**CHECK APPLICABLE FEES:**

<input type="checkbox"/> Environmental Impact Report (EIR)	\$3,168.00	\$	0.00
<input checked="" type="checkbox"/> Mitigated/Negative Declaration (MND)(ND)	\$2,280.75	\$	2,280.75
<input type="checkbox"/> Certified Regulatory Program document (CRP)	\$1,077.00	\$	0.00

☐ Exempt from fee☐ Notice of Exemption (attach)☐ CDFW No Effect Determination (attach)☐ Fee previously paid (attach previously issued cash receipt copy)

<input type="checkbox"/> Water Right Application or Petition Fee (State Water Resources Control Board only)	\$850.00	\$	0.00
<input checked="" type="checkbox"/> County documentary handling fee		\$	50.00
<input type="checkbox"/> Other		\$	

PAYMENT METHOD:☐ Cash ☐ Credit ☐ Check ☐ Other**TOTAL RECEIVED** \$ 2,330.75

SIGNATURE

X *C. Sanchez*

AGENCY OF FILING PRINTED NAME AND TITLE

MARIN COUNTY CLERK; C.SANCHEZ DEPUTY CO. CLERK



DRAFT

INITIAL STUDY/PROPOSED MITIGATED NEGATIVE DECLARATION

FOR

MARIN PERMIT COORDINATION PROGRAM

COORDINATED CEQA COMPLIANCE

March 19, 2018

Prepared for:
Marin Resource Conservation District
Post Office Box 1146
Point Reyes Station, CA 94956
(415) 663-1170

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

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Appendices

- Appendix A: Air Quality and Greenhouse Gas Emissions Calculations
- Appendix B: Biological Resources

1 Project Information

1. Project Title	Marin Resource Conservation District (Marin RCD) Marin Permit Coordination Program (PCP)
2. Lead Agency Name & Address	Marin RCD Post Office Box 1146 / 80 Fourth Street, Suite 202 Point Reyes Station, CA 94956
3. Contact Person & Information	Elise Suronen, Environmental Planner 415.663.1170, extension 305 elise@marinrcd.org
4. Project Location	Marin County, California, which is located due north of San Francisco. The Program Area covers the greater Tomales Bay watershed, which includes Lagunitas Creek, San Geronimo Valley, Marin County portions of Walker Creek, Inverness, and the direct eastern and western drainages into Tomales Bay; Stemple Creek-Estero de San Antonio; Marin County portions of the Estero Americano watershed; Novato, Miller, and San Antonio Creek watersheds; and the creeks in the northern portion of western Point Reyes National Seashore that flow directly to the Pacific Ocean.
5. Project Sponsor's Name & Address	Marin RCD Post Office Box 1146 / 80 Fourth Street, Suite 202 Point Reyes Station, CA 94956
6. General Plan Designation	Countywide agriculture; resources and rural development; public facility; office commercial; multi- and single-family residential.
7. Zoning	Countywide (varies)
8. Description of Project	Approval and implementation of Marin RCD's PCP to provide programmatic environmental review to assist farmers, ranchers, riparian landowners, and other land managers to efficiently implement beneficial land management projects. The PCP includes 44 practices designed to protect soil stability and water quality, increase carbon sequestration, and improve wildlife habitat conditions and agricultural sustainability.
9. Surrounding Land Uses & Setting	Varies; primarily agriculture, rural and riparian residential, open space, parklands, and other recreational areas.
10. Other public agencies whose approval may be required	See Table 3-2 for a list of the regulatory agencies that may have authority to permit or otherwise authorize PCP activities.
11. Have California Native American Tribes traditionally and culturally affiliated with the Program Area requested consultation pursuant to Public Resources Code §21080.3.1? If so, has consultation begun?	Yes, after requesting a sacred lands search and receiving a list of contacts from the Native American Heritage Commission (NAHC), Marin RCD initiated consultation with the Federated Indians of Graton Rancheria (FIGR), the Tribe traditionally and culturally affiliated with the proposed Program Area; see discussion in Section 1.2.2 below.

1.1 Background and Need for the Permit Coordination Program (PCP)

Coastal watersheds in California have experienced water quality challenges and a reduction in the quality and quantity of aquatic habitat due to increased sedimentation, water temperature, habitat fragmentation, nutrients, and, in the case of Walker Creek, mercury contamination due to historic mining practices. The links between overland runoff, erosion, water quality and quantity, and fish and wildlife habitat are a concern for agricultural, conservation, and regulatory interests. Increased focus on nonpoint source pollution by federal, State, and local regulatory agencies presents riparian landowners,¹ including livestock ranch and dairy operators, with serious management challenges. Many people in the coastal watersheds are interested in reducing nonpoint source pollution, in achieving carbon neutrality, and in restoring and enhancing the resources of their property and, in turn, the sustainability of agriculture in Marin County. However, regulatory approval processes that are intended to protect natural values often act as *disincentives* to voluntary efforts.

The Marin Permit Coordination Program (PCP) is based on a model of coordinated, multi-agency regulatory review that ensures the integrity of resource-protection mandates but allows environmental compliance to be more accessible to private landowners and other agency partners than the traditional processes. The PCP is designed to provide a catalyst for high-quality resource protection and restoration projects on both public and private properties throughout western and northeastern Marin County. Since 2004, Marin Resource Conservation District (Marin RCD) and its partners have utilized the PCP to help landowners and managers plan, permit, fund, implement, monitor, and maintain projects that promote healthy, viable land management practices.

1.2 California Environmental Quality Act (CEQA) Requirements

Approval and implementation of the PCP are subject to the provisions of the California Environmental Quality Act (CEQA), which is codified in Public Resources Code [PRC] §§2100-21177 and the CEQA Guidelines (California Code of Regulations [CCR], Title 14, §§15000-15387). CEQA requires public agencies to identify, document, disclose, and avoid or mitigate potential significant environmental effects of a proposed action. Marin RCD is the local sponsor and lead agency for the approval and implementation of the updated PCP.

1.2.1 Programmatic CEQA Review

The PCP was first approved in 2004 and was revised and readopted in 2010. The updated programmatic CEQA assessment herein includes an overview and descriptions of existing conditions in the Program Area in Section 2 below, discussion of the proposed actions in the Project Description in Section 3, and analyses of potential adverse impacts from implementation of the practices included in the PCP and proposed mitigation to reduce impacts to less-than-significant levels in the Initial Study that follows in Section 4. The Best Management Practices (BMPs) outlined in Table 3-3 are programmatic requirements to guide project planning and implementation to avoid and minimize potential adverse impacts.

¹ Landowners and other PCP participants are also referred to as “cooperators.”

1.2.2 Tribal Consultation

Pursuant to PRC §21080.3.1 and CEQA Guidelines §15064.5, Marin RCD staff began consultation with the Federated Indians of Graton Rancheria (FIGR), the California Native American Tribe that is traditionally and culturally affiliated with the proposed Program Area, during initial planning for the PCP. A meeting was convened at the Tribe's offices in Rohnert Park on July 26, 2016. Details about the proposed process for Tribal review of site-specific projects are found in Section 3.1.2 below.

1.2.3 CEQA Initial Study Requirements

This Initial Study/Proposed Mitigated Negative Declaration (IS/MND) has been prepared under the direction of Marin RCD to comply with the requirements of CEQA. Guidelines §15063(d) enumerates the content requirements of an Initial Study:

An Initial Study shall contain in brief form:

- 1) A description of the Project including the location of the Project;
- 2) An identification of the environmental setting;
- 3) An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries;
- 4) A discussion of the ways to mitigate the significant effects identified, if any;
- 5) An examination of whether the Project would be consistent with existing zoning, plans and other applicable land use controls; and
- 6) The name of the person or persons who prepared or participated in the Initial Study.

1.2.4 PCP CEQA Public Comment Period and Process

The IS/MND will be circulated for public and agency comment from March 19, 2018, through April 17, 2018. Written comments may be emailed, delivered, or mailed to the following until close of business on April 17, 2018:

Elise Suronen, Environmental Planner
Marin Resource Conservation District
Post Office Box 1146
80 Fourth Street, Suites 202
Point Reyes Station, CA 94956
elise@marinrcd.org

The Marin RCD Board of Directors will also consider public comments provided at its regularly scheduled meeting on May 9, 2018, to be held at the Marin County Farm Bureau Conference Room, 520 Mesa Road, Point Reyes Station, CA 94956.

1.3 Proposed CEQA 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.

- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input checked="" type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Tribal Resources | <input type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems |
| | <input type="checkbox"/> 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.

Signature

Date

2 Program Overview

The updated PCP includes 44 Conservation Practice Standards developed by the Natural Resources Conservation Service (NRCS)² that are grouped into ten categories; see Table 3-1 in Section 3.1. Each addresses a broad range of resource conservation needs by providing a framework under which site-specific designs and specifications will be developed. They include activities that are currently authorized by the existing PCP, as well as newly added practices; see Section 3.2 for details.

Marin RCD is proposing several important changes to the existing PCP that include a suite of new practices to assist with vegetation management and implementation of carbon-beneficial projects. The geographic scope has been expanded to include three new watersheds (Miller, Novato, and San Antonio creeks) to allow the RCD and its PCP partners to assist landowners in northeastern areas of the County. Finally, in addition to the existing PCP partners (NRCS, Point Reyes National Seashore [PRNS or the Seashore], and Point Blue's Students and Teachers Restoring a Watershed [STRAW]), the team will also include the Marin Agricultural Land Trust (MALT).

2.1 PCP Geographic Scope

The PCP Program Area encompasses the greater Tomales Bay watershed (Lagunitas Creek, San Geronimo Valley, Marin County portions of Walker Creek, Inverness, and the direct eastern and western drainages into Tomales Bay); Stemple Creek-Estero de San Antonio; Marin County portions of the Estero Americano watershed; Novato, Miller, and San Antonio Creek watersheds in the northeast; and the creeks in the northern portion of western PRNS that flow directly to the Pacific Ocean; see Figure 1. Each is briefly described in Section 2.2.

2.1.1 Natural Communities and Species Excluded from the Program

Several natural communities and special-status species are *excluded* from the PCP because they have been determined to be particularly sensitive and inappropriate for programmatic CEQA review. Work that would occur within or affect the natural communities and species listed below would require traditional, project-specific environmental review.

Excluded Natural Communities:

Coastal estuaries,
Salt marshes and mudflats,
Tidally influenced wetlands and waters,
Vernal pools,
Dune or beach habitat, and
Serpentine grasslands.

Excluded Species and Habitats:

Tidewater goby,
Salt marsh harvest mouse,
Clapper rail, California black rail,
Point Reyes mountain beaver, and
Baker's and yellow larkspur critical habitat.

² Full descriptions of the NRCS practice standards are available online at (www.ca.nrcs.usda.gov/technical/efotg). However, they have been tailored for inclusion in the PCP in order to avoid and minimize potential impacts on the environment; see descriptions in Section 3.5 that define the limitations to each overall NRCS practice. For example, although the original NRCS *Pond* practice (378) allows construction of new ponds, the actions authorized by the *Pond* practice in the PCP are limited to restoration of *existing* ponds; no new ponds are authorized under the PCP.

Figure 1. Marin Permit Coordination Program Area



2.2 Existing Conditions of Watersheds Included in the Program Area

The watershed boundary designations and summaries below have incorporated information contained on the Marin County Watershed Program website, <http://www.marinwatersheds.org>, which also provides citations to the original sources of information such as the National Park Service, University of California Cooperative Extension (UCCE), U.S. Fish & Wildlife Service (USFWS), and the Tomales Bay Watershed Council. Summaries and maps from the Marin County Watershed Program were augmented with information on the Program Area obtained from the following sources:

- Bay Area Protected Areas Database (BAOSC 2015);
- California Natural Diversity Database (CNDDDB 2017);
- CalWater 2.2.1 (State Water Resources Control Board et al. 2004);
- Conservation Lands Network: Upland Habitat Goals (BAOSC 2011);
- Marin Countywide Plan (MCCDA 2007b);
- Point Reyes National Seashore (National Park Service 2015); and
- National Wetland Inventory (USFWS 2017).

Each section provides a brief description of the watershed and an overview of vegetation, fish and wildlife, and land use; complete lists of special-status plants and animals that may be present in each are found in **Appendices A-1 and A-2**, respectively. It should be noted that, although discussion of coastal estuaries, baylands, tidally influenced wetlands and other waters, vernal pools, dune habitat, and serpentine grasslands is included below, these habitat types and the species that inhabit them (e.g., tidewater goby, California clapper and black rails, salt marsh harvest mouse, western snowy plover, Point Reyes mountain beaver, saltmarsh common yellowthroat, San Pablo song sparrow) are *not included* in the PCP; see Section 2.1.1 above, *Natural Communities and Species Excluded from the Program*.

2.2.1 Greater Tomales Bay Watershed

The land area draining into Tomales Bay is nearly 20 times the size of the bay itself. The greater watershed is 255 square miles, of which 215 are included in the PCP Program Area. The bay, which is located atop the San Andreas Fault, is twelve miles long and only about one mile wide. Flows that enter the bay come from Mt. Tamalpais and Bolinas Ridge to the south and east, Walker Creek watershed to the northeast, and Inverness Ridge to the west. Subwatersheds also include the east shore drainages that flow west into the bay. Tomales Bay is part of the Gulf of the Farallones National Marine Sanctuary, Central California Coastal Biosphere Reserve, and the Western Hemisphere Shorebird Reserve Network. In 2002, the USFWS designated Tomales Bay a Wetland of International Importance, and the National Audubon Society has recognized Tomales Bay as an Important Bird Area.

Lagunitas Creek is the largest drainage into Tomales Bay. Much of the 103-square mile area consists of open space and watershed land; a few beef ranches occur in the lower areas. The watershed originates on the northern slopes of Mount Tamalpais and flows northerly for approximately 25 miles before

entering the bay. Its major tributaries include **San Geronimo Creek, Devil's Gulch, Deadman's Gulch, Cheda Creek, Nicasio Creek, and Olema Creek.**

Flows within the Lagunitas Creek watershed are highly regulated by reservoirs in the upper reaches; only San Geronimo Creek and Olema Creek are not regulated. The watershed includes the Kent, Alpine, Bon Tempe, Lagunitas, and Nicasio reservoirs. Relative to other streams in the Program Area and throughout coastal California, Lagunitas Creek is in good condition and supports notable runs of steelhead trout and coho salmon.

The headwaters of the 76-square mile **Walker Creek** watershed lie in both Marin and Sonoma counties. Of this, the 70-square mile portion within Marin County is included in the Program Area. The creek flows west through an alluvial valley encircled by gently rolling hills to where it enters Tomales Bay near the historic town of Hamlet. Walker Creek contains four main subwatersheds — **Chileno Creek**, which flows through the gentle, grassy hills of Chileno Valley; **Arroyo Sausal** and **Salmon Creek**, which flow through Hicks Valley; and **Keys Creek**, which flows through the low hills south of Tomales. Stream channels in the upper watershed, including Arroyo Sausal, Salmon Creek, and the mainstem of Walker Creek, have downcut dramatically, leaving old stream terraces high above the channel. Soulajule Reservoir, built and maintained by the Marin Municipal Water District (MMWD), isolates Arroyo Sausal from the rest of the watershed approximately 2.75 miles upstream of Walker Creek.

The **Inverness watershed** is a collection of many small creeks on both public and private lands that drain into the west shore of Tomales Bay. These creeks include Haggerty Gulch, Fish Hatchery Creek, Redwood Creek, and First, Second, and Third Valley Creeks. The **small tributaries draining to the east side of Tomales Bay** include Millerton Gulch, Grand Canyon, Tomasini Canyon, and other unnamed tributaries.

Vegetation in the Greater Tomales Bay Watershed

The upper **Lagunitas Creek** watershed is steep and fairly heavily forested. Parts of San Geronimo Creek, Olema Creek, and mainstem Lagunitas Creek through Samuel P. Taylor State Park have areas of dense redwood growth and cool water year-round; these reaches provide important spawning and rearing habitat for salmonids. Except for a few open areas, most of Lagunitas Creek downstream of the State Park is thickly forested with willows and alders. The valley opens below Tocaloma Bridge to broader, more gently sloping hills that are primarily used for livestock grazing. Sensitive habitats that occur within the Tomales Bay watershed include serpentine bunchgrass, northern maritime chaparral, northern vernal pool, and northern coastal saltmarshes. The serpentine bunchgrass, vernal pools, and saltmarshes are not included in the PCP Program Area; see Section 2.1.1.

Walker Creek watershed is a mosaic of valley foothill riparian forest, coastal scrub, oak bay woodland, and grasslands that are mostly annual but grade towards perennial near the coast. The mainstem of Walker Creek contains areas of thick riparian forest, some of which are contiguous to upland forest, and a small stand of redwood trees is present in the upper reaches of the Arroyo Sausal drainage. Other areas, particularly Chileno and Keyes creeks, have little mature riparian forest remaining, although there are successful, ongoing efforts by Marin RCD, STRAW, MALT, and NRCS to re-establish native riparian vegetation.

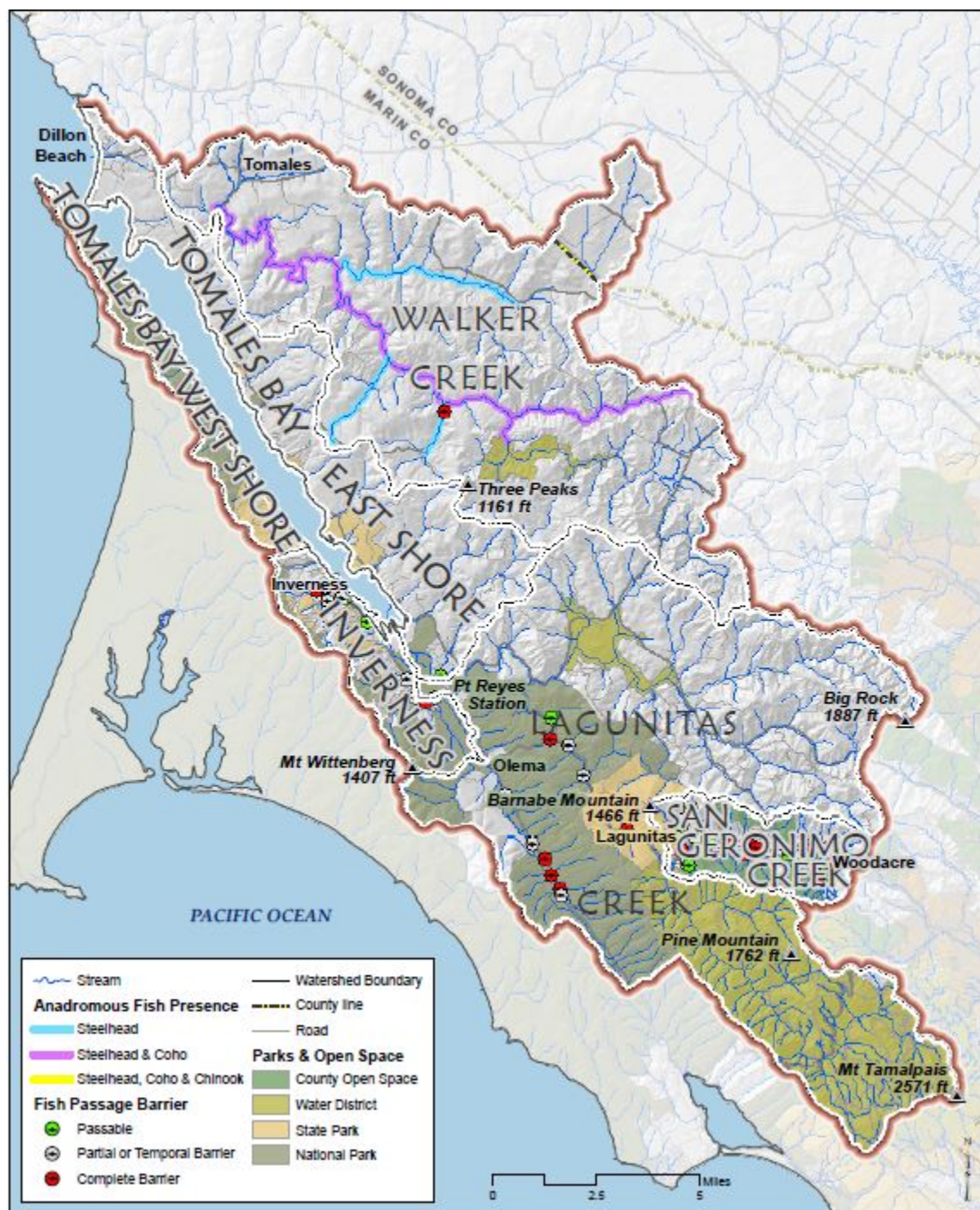
The **Inverness watershed** and surrounding habitats are one of the most biologically diverse and ecologically significant areas on the California coast. Despite scattered residential and commercial development, the watershed supports a diverse mix of well-connected upland and aquatic habitats. Agricultural grasslands along the northeastern peninsula transition to bishop pine/Sargent's cypress forest in the central portion and coast redwood and Douglas-fir forests in the south.

Figure 2. Vegetation in the Greater Tomales Bay Watershed



Source: County of Marin www.marinwatersheds.org

Figure 3. Anadromous Fish Occurrences in the Greater Tomales Bay Watershed



Source: County of Marin www.marinwatersheds.org

The eastern shore of Tomales Bay is largely grassland with isolated patches of oak-bay woodland, coastal scrub, and eucalyptus. Fresh and saltwater marshes line Tomales Bay. Scattered stands of coastal terrace prairie are found within the tributaries along the east shore.

Fish and Wildlife in the Greater Tomales Bay Watershed

The greater Tomales Bay watershed is home to rich wildlife communities, including nearly 470 species of birds. Approximately 45% of all bird species in North America have been recorded on or near the adjacent Point Reyes peninsula, and as many as 50,000 water birds may depend on the bay during winter. The watershed is home to 96 special-status plant and animal species. Details for each major subwatershed are provided below.

Lagunitas Creek watershed supports a significant population of coho salmon, with some estimates ranging as high as 10% of the Central California Coast Evolutionarily Significant Unit (ESU) population. Steelhead trout, California freshwater shrimp, foothill yellow-legged frog, and California red-legged frog have also been observed. Mountain lions are frequently seen in the watershed. Northern spotted owl territories have been identified along Lagunitas Creek, and river otters have been sighted in the mainstem. An osprey colony has been documented at Kent Lake since the 1960s, with approximately 25-50 occupied nests observed annually since 1994; bald eagles have also been sighted in recent years.

Walker Creek grasslands provide habitat for raptors, including Swainson's hawks, ferruginous hawks, and golden eagles. Restored riparian corridors in Chileno Valley provide habitat for a variety of neotropical songbird species, including warblers, vireos, flycatchers, and thrushes. Both coho and steelhead have been observed in Walker and Chileno creeks, and the watershed is part of designated critical habitat for California red-legged frog. Laguna Lake, a shallow, 220-acre natural waterbody in Chileno Valley, and wetlands at the mouth of Walker Creek are important habitat used extensively by migrating and breeding waterfowl.

The **Inverness** watershed's lower baylands are prime habitat for birds, reptiles, amphibians, mammals, invertebrates, and fish. Seals and sea lions also use the shores for foraging and as haul-out sites. Large numbers of birds, including 20,000 wintering shorebirds and up to 25,000 water birds, utilize the shores both year-round and during migration. There are also reported occurrences of California red-legged frog and western pond turtle. In addition, the Inverness watershed potentially supports over 50 species of mammals, including Point Reyes jumping mouse and Point Reyes mountain beaver. Southwestern river otter burrows have been observed along Fish Hatchery Creek, as well as several special-status bat species.

Land Use in the Greater Tomales Bay Watershed

Over half of the **Lagunitas Creek** watershed is in public ownership. The upper watershed is owned and managed by MMWD to supply water to residents of eastern Marin County. Samuel P. Taylor State Park is completely within the watershed boundaries, and the National Park Service (NPS) manages extensive holdings at the Seashore and Golden Gate National Recreation Area north and west of Samuel P. Taylor State Park and in the Olema Creek and Bear Creek subdrainages. The watershed also contains many small rural communities, including Woodacre, San Geronimo, Forest Knolls, and Lagunitas in San

Geronimo Valley, as well as Nicasio, Olema, and Point Reyes Station. In addition to public and residential uses, the watershed supports dairy farming, beef ranching, vineyards, commercial fishing, and mariculture; it has been the focus of salmonid restoration efforts for over 20 years.

Current land use in the **Walker Creek** watershed is 80% agricultural, primarily grazing for dairy and beef cattle. The small community of Tomales is present near the headwaters of Keyes Creek. One vineyard has been established in the Salmon Creek subdrainage, a small organic apple orchard is planted in Chileno Valley, and one farm is producing organic strawberries. Other land uses include non-agricultural open space, tourism, and recreation. The watershed has been the focus of a number of studies and programs to assess and improve watershed health since the 1960s; efforts have focused on erosion and sedimentation problems, elevated mercury levels, salmonid populations and impacts of water quality impairments on fisheries, commercial shellfish production, and commercial and recreational fishing (PCI 2005).

The **Inverness** watershed is located on the western shore of Tomales Bay, which runs southeast along the line of the San Andreas Fault. Surrounded by PRNS lands, the town of Inverness is primarily a residential community with little industry other than tourism. In addition to a small downtown area with a general store, post office, library, restaurants, and gift shop, there is a small public marina, a few private piers, and the Inverness Yacht Club that provide opportunities for recreational and some commercial boating.

The **eastern drainages** of Tomales Bay are mostly on private agricultural and residential lands. One winery with associated vineyards is present north of Point Reyes Station. Miller County Park offers boat launching facilities, and the eastern portion of Tomales Bay State Park has facilities at Tomasini and Millerton Points and a small parcel adjacent to Cypress Grove. The California Department of Parks and Recreation operates the Marconi Conference Center. Cypress Grove is a 139-acre reserve owned and managed by the Audubon Canyon Ranch on the east shore of the bay, and NPS owns the former site of the historic town of Hamlet.

2.2.2 Stemple Creek-Estero de San Antonio Watershed

The Stemple Creek watershed begins just west of Petaluma, drains an area of 50 square miles (26 square miles within Marin County), and empties into the Pacific Ocean through the Estero de San Antonio, a small coastal lagoon that is part of the Gulf of the Farallones National Marine Sanctuary and the Central California Coast Biosphere Reserve. The watershed is characterized by grassy, rolling hills that are used extensively for agriculture. The drainage is cut almost exactly in half by the Sonoma-Marin county line, and the watershed changes sharply from Highway 1 west where slopes increase in steepness, and coastal scrub and dense stands of native perennial grasses take over the hills.

Figure 4. Vegetation in the Stemple Creek-Estero de San Antonio Watershed

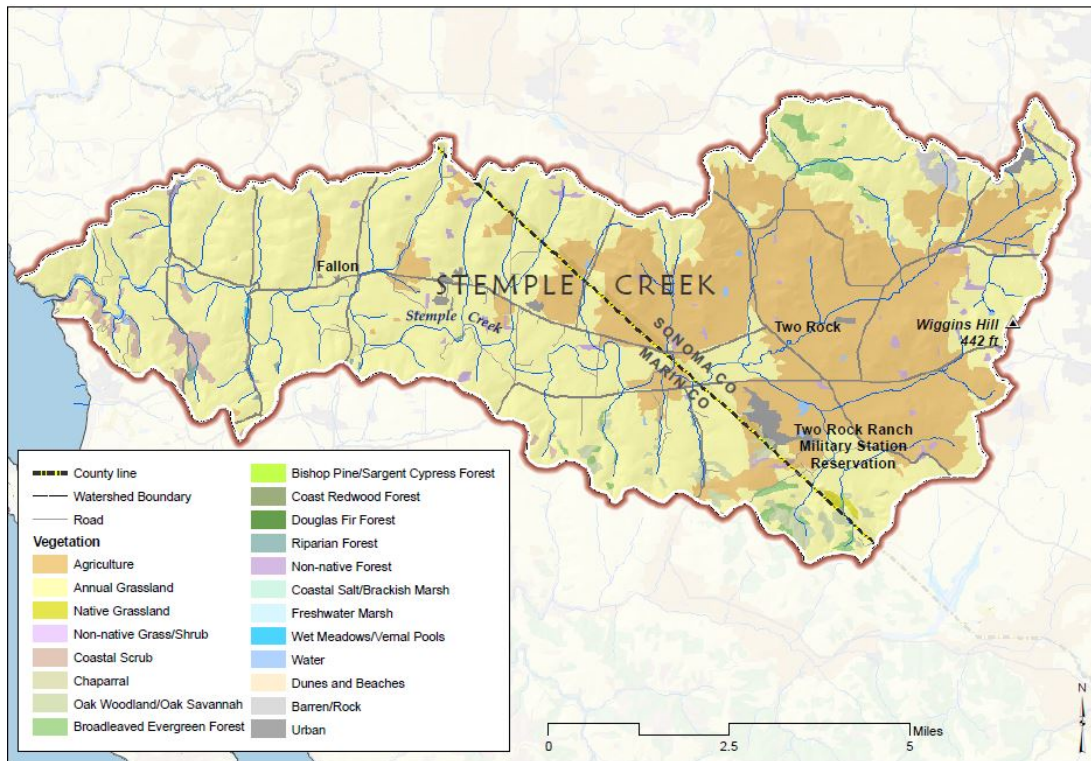
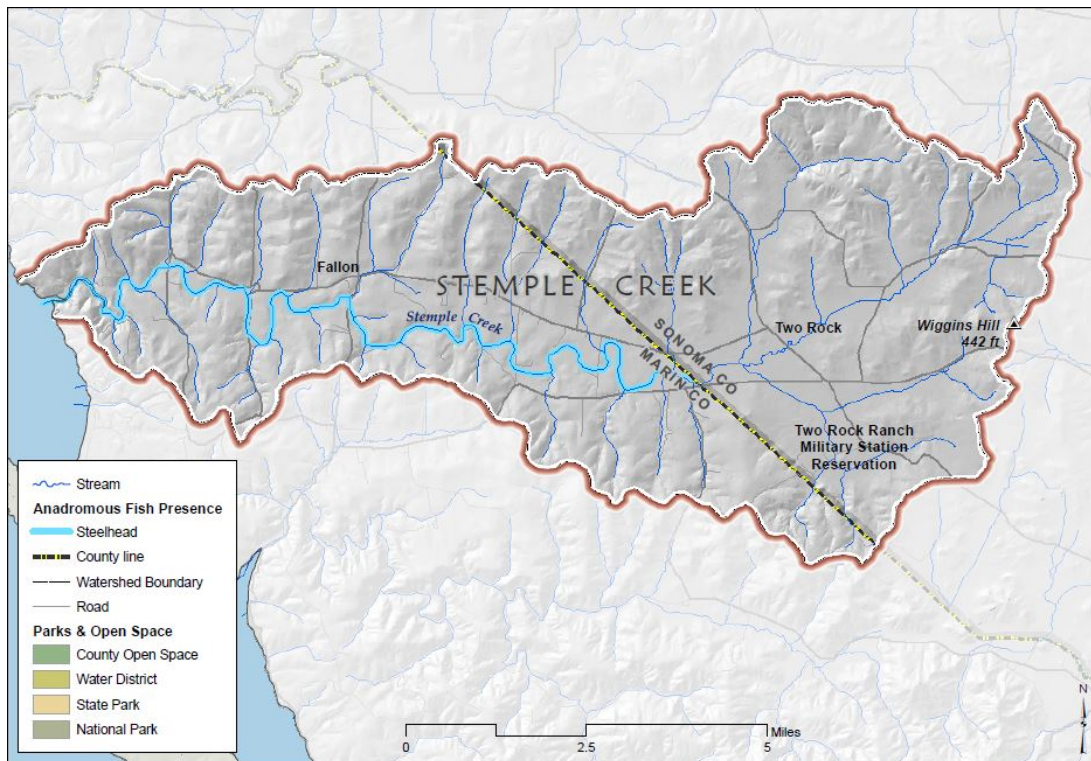


Figure 5. Anadromous Fish Occurrences in the Stemple Creek-Estero de San Antonio Watershed



Source: County of Marin www.marinwatersheds.org

Vegetation in the Stemple Creek-Estero de San Antonio Watershed

The California Department of Fish and Wildlife (CDFW) has identified the Estero de San Antonio and Estero Americano to the north as among the most significant habitat areas in the State (GRRCD 2007). They support a mosaic of intermingling habitat types, including densely wooded riparian ravines, small freshwater ponds, saltgrass areas, coastal brackish marsh, mudflats, and eelgrass beds; of these, only the riparian zones and freshwater ponds are included in the PCP Program Area. The area between the two esteros contains extensive native coastal terrace prairie habitat. The areas draining into Stemple Creek are largely grassland. Willows have been re-established along parts of the mainstem and tributary streams, and coastal oak woodland can still be found along some of the higher tributaries. Eucalyptus, planted in rows for windbreaks and fuel, is now one of the most common trees.

Fish and Wildlife in the Stemple Creek-Estero de San Antonio Watershed

Special-status species potentially present in the watershed include California freshwater shrimp, western pond turtle, tidewater goby, Myrtle's silverspot butterfly, and California red-legged frog. Farm ponds, especially those with shallow edges, provide some of the best remaining habitat for waterfowl, frogs, turtles, and other aquatic species. Stemple Creek was once a marginal coho and steelhead stream until a small dam for livestock built in the early 1960s closed off the last available spawning areas. The Estero de San Antonio is used by over 40 species of waterfowl and is an important winter feeding area for migrating birds. Residents tell of dense flocks of waterfowl, but, as in most areas along the Pacific Flyway, their numbers have dropped. Golden eagles are known to nest in the upper watershed.

Land Use in the Stemple Creek-Estero de San Antonio Watershed

Land use in the watershed is almost exclusively agricultural; 90% is grazing land for livestock, mostly cows and sheep in the Marin County portion, as well as some dairies. Sonoma County Agricultural Preservation and Open Space District and MALT are both active in the watershed, protecting agricultural land use through conservation easements. Although the Estero itself is part of the Gulf of the Farallones National Marine Sanctuary, the land surrounding it is all privately owned. Since access across those lands is by permission only, recreational use is limited. There are no cities or towns in the Marin County portion of watershed.

2.2.3 Estero Americano Watershed

The Estero Americano is a coastal lagoon at the base of Americano Creek, which flows along the border between Marin and Sonoma counties before it drains into Bodega Bay from the Estero. The total watershed area is 49 square miles; only 9 square miles are in Marin County and included in the PCP Program Area. In some years, a seasonal sand bar at the mouth restricts tidal exchange, and periods of hyper-salinity have been recorded. When the mouth is open, the tidal influence ranges as far as four miles upstream. Americano Creek is ephemeral and generally dries up for four to six months between late spring and fall.

Figure 6. Vegetation in the Estero Americano Watershed

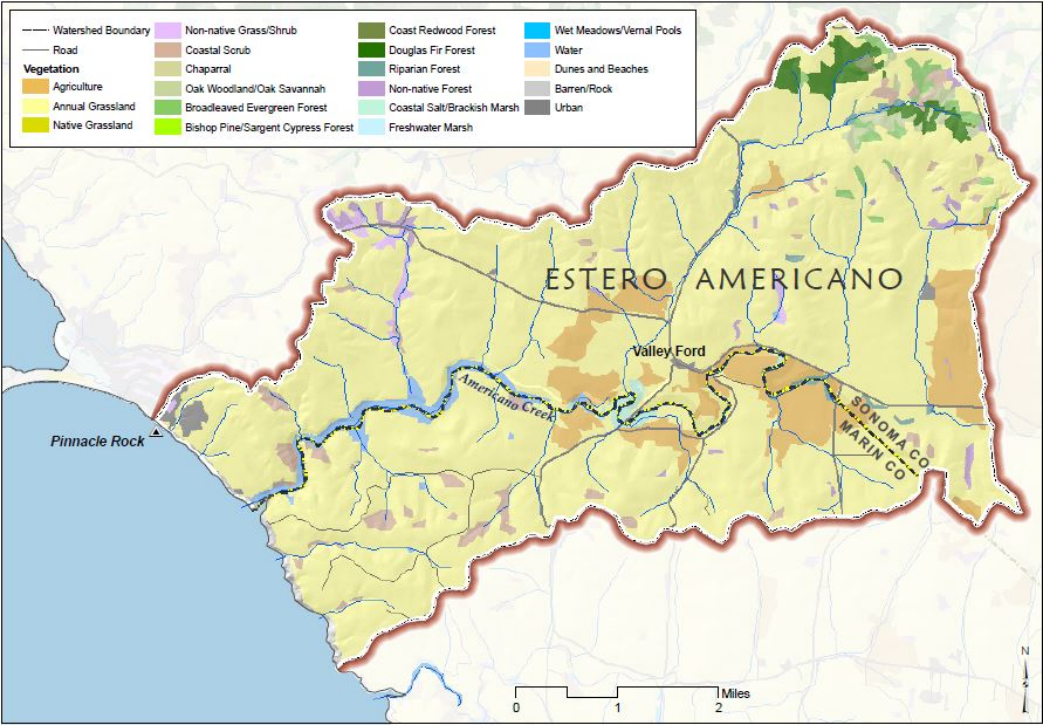


Figure 7. Anadromous Fish Occurrences in the Estero Americano Watershed



Source: County of Marin www.marinwatersheds.org

Vegetation in the Estero Americano Watershed

The Estero Americano contains 301 acres of open water and 412 acres of wetland habitat, including mudflats and seasonal brackish marsh areas that are excluded from the Program Area, as well as freshwater marsh, which is included. Streamside habitat along Americano Creek consists of grazed pastures with a few trees interspersed with dense willow thickets. Freshwater marsh south of Valley Ford transitions into the open water of the Estero as Americano Creek flows west.

Fish and Wildlife in the Estero Americano Watershed

As discussed above, CDFW has identified the Estero Americano and its southern neighbor, Estero de San Antonio, as among the most significant habitat areas in the State. Special-status species that have been observed in the watershed include steelhead, California red-legged frog, Myrtle's silverspot, tidewater goby, and tricolored blackbird. Other noteworthy species identified in and surrounding the Estero include 71 species of water and marsh-associated birds, 66 species of terrestrial birds, and 44 marine and freshwater fish species.

Land Use in the Estero Americano Watershed

Land use within the watershed is agricultural, primarily grazing of cattle and sheep and dairy operations, with scattered rural residences. As is true in the Stemple Creek watershed, the Sonoma County Agricultural Preservation and Open Space District and MALT are both active in protecting agricultural land use through conservation easements. The Sonoma Land Trust owns the 127-acre Estero Americano Preserve, which includes salt marsh habitat and some grazing lands.

2.2.4 Novato Creek Watershed

Novato Creek, located at the northwestern extent of San Pablo Bay, is the largest watershed in eastern Marin County. Its creeks flow eastward through oak and bay forests, grasslands, the City of Novato, and into San Pablo Bay near the mouth of the Petaluma River. The basin is 48 square miles, and the main drainage in the watershed is Novato Creek, which is joined by six major tributaries along its 17-mile length: Leveroni, Bowman Canyon, and Warner creeks; Arroyo Avichi; Arroyo de San Jose; and Simmonds Slough. The watershed's channel network has been altered from its historic natural conditions; the mainstem of Novato Creek and its major tributaries are all highly entrenched within the Novato city limits and are constrained by development on the banks.

Channels in the upper watershed are incising and expanding headward into hillside swales. The majority are narrower than would be expected for the watershed size, and rainfall and urbanization have likely increased the timing and magnitude of peak runoff events. Sediment production in the watershed occurs due to upslope processes, such as landslides and gully development, as well as channel bed incision and bank erosion.

Figure 8. Vegetation in the Novato Creek Watershed

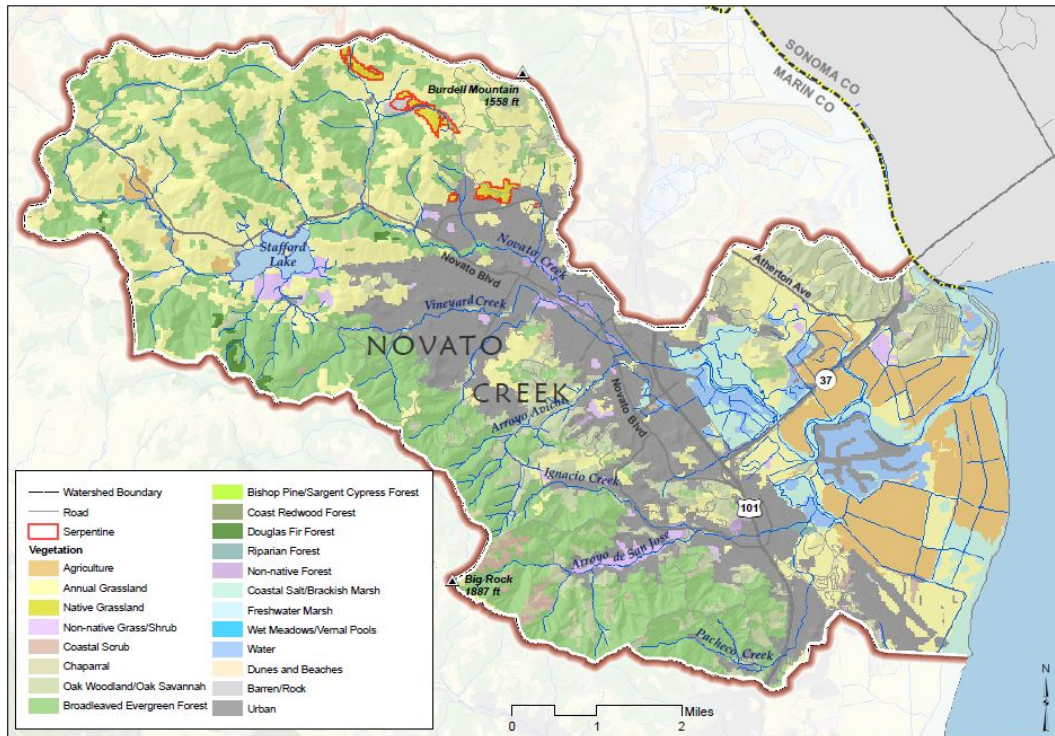
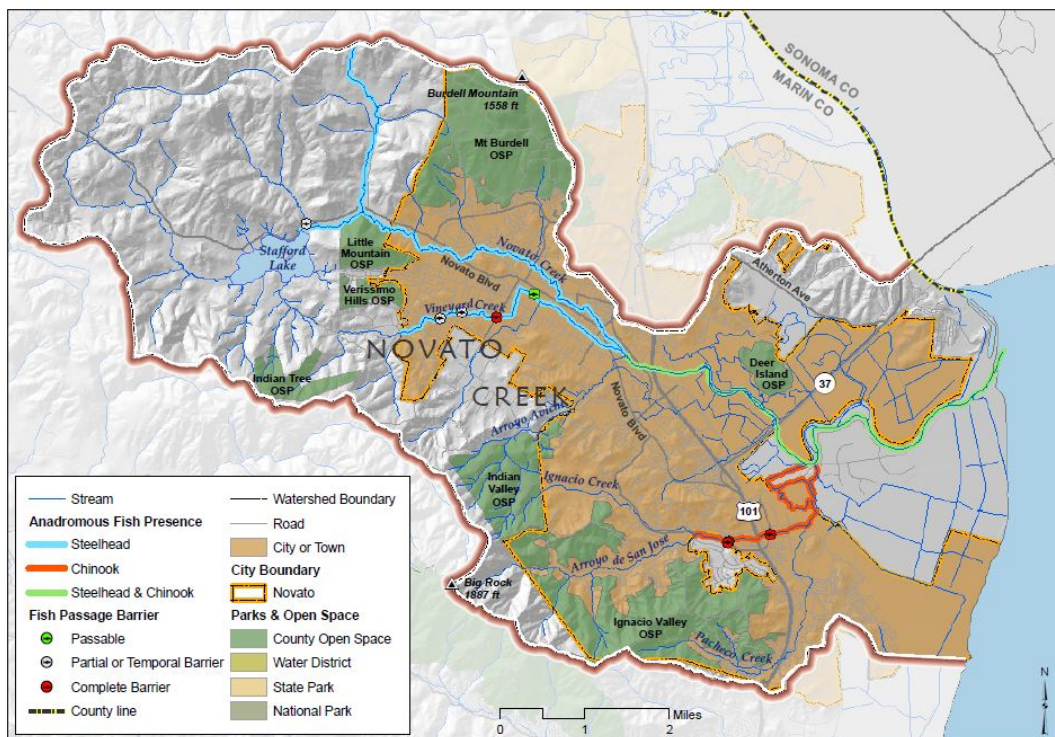


Figure 9. Anadromous Fish Occurrences in the Novato Creek Watershed



Source: County of Marin www.marinwatersheds.org

The stream and tidal channels in the lower reaches of the watershed are managed for flood conveyance and navigation. They no longer function optimally for sediment transport (Novato 1996). Sediment aggradation³ is occurring in the lower reaches to re-establish a natural channel configuration based on hydrology, slope, and sediment supply dynamics.

Vegetation in Novato Creek Watershed

The Novato Creek watershed supports a number of special-status plants and a diversity of habitat communities — from mountainous and hilly headwaters to saltwater and brackish marshes along San Pablo Bay. The watershed is composed primarily of annual grasslands interspersed with oak-bay woodland and oak savanna in the upper areas. Small patches of northern coastal scrub occur within the woodlands, and serpentine outcroppings are present at the upper elevations in the northern watershed. In the lower areas, oak woodlands and savanna become more prevalent. According to the Novato General Plan (1996), the most thriving and structurally diverse riparian communities occur in the upper watershed along Novato Creek and Arroyo San Jose.

The lower reaches of Novato Creek east of Highway 101 are subject to tidal action and support saltwater and brackish marshes, including northern coastal saltmarsh. Freshwater seasonal wetlands occur in areas that were once historic baylands. These wetlands have been diked to provide agricultural land and now support oat hay production.

Fish and Wildlife in Novato Creek Watershed

Despite being one of the driest drainages in Marin County, the Novato Creek watershed supports both rearing and spawning habitat for steelhead, as well as a number of native fish, including California roach, Sacramento pikeminnow, Sacramento sucker, threespine stickleback, and prickly sculpin. Introduced species include rainwater killifish, western mosquitofish, striped bass, green sunfish, bluegill, largemouth bass, brown bullhead, chameleon goby, Shamshiri goby, and inland silverside. Historically, the watershed supported native tidewater goby; the last collection occurred in 1945.

The watershed is home to a number of other special-status animals. In addition to species excluded from the PCP (e.g., California clapper and black rails and salt marsh harvest mouse), western pond turtles are known to use the marshes along San Pablo Bay as well as upper watershed areas, including Stafford Lake. Oak woodlands also provide food, shelter, and breeding opportunities for terrestrial wildlife species.

Surveys conducted during the 2006 nesting season reported 65 avian species over a 1,300-meter reach of the Novato Flood Control Project. Noteworthy species include great blue heron, Cooper's hawk, Allen's hummingbird, purple martin, oak titmouse (nesting), and Nuttall's woodpecker (nesting). Heron and egret nesting colonies have been monitored by Audubon Canyon Ranch since the early 1990s, which include two active and one inactive heronries within the greater watershed.

³ Aggradation occurs when sediment is deposited in the channel bed, thus raising its elevation and reducing its cross-sectional area.

Land Use in Novato Creek Watershed

The town of Novato covers 49% of the watershed area. The Marin Countywide Plan (2007) identifies Novato as having the greatest potential in Marin for commercial and industrial development. Land protection and restoration efforts in the watershed include the Hamilton Wetland Restoration, Rush Creek and Bahia restoration projects, and planning by the City of Novato and Marin County Open Space District for preservation and land acquisition for trails.

Land uses in the upper watershed are primarily agriculture and open space. Stafford Lake Park is a 139-acre regional facility located approximately 11 miles upstream of San Pablo Bay and three miles west of Novato; it is the least developed of Marin County's parks and is representative of the County's agricultural heritage, such as the family-owned and operated dairy immediately across the street. The park offers a venue for special events and recreational opportunities, including shore fishing, a nature trail, picnic and lawn areas, large meadows, volleyball, a disc golf course, bike park, and horseshoe courts. The Stafford Lake reservoir has a storage capacity of about 4,450 acre-feet and a water surface area of about 230 acres. The water treatment facility that provides about 20% of Novato's drinking water from Stafford Lake is adjacent to the park.

2.2.5 Miller Creek Watershed

The Miller Creek watershed covers 12 square miles with 30 miles of channels. The creek flows eastward from open space and private ranches on Big Rock Ridge through multiple unincorporated housing developments, including Miller Creek Estates and Marinwood, until it passes under Highway 101 and enters the baylands at the Northwest Pacific Railroad Bridge. Miller Creek is atypical in eastern Marin in that it has a relatively intact riparian zone with very high widths and depths relative to its drainage acreage; in many locations, the banks are 20 to 25 feet high, and the creek's width is often over 100 feet.

Channel incision in Miller Creek has resulted in bank instability. Vertical banks are undercut by moderate flows, with bank slumping and retreat occurring until there is sufficient width to accommodate flood flows and develop inset floodplains and terraces. In the lower reaches of the valley, the channel is wide, with well-developed, vegetated inset floodplains and an inner terrace. Bank instability at the outside bends of the channel meanders occurs throughout the valley as the channel continues to widen.

The channel reaches through Miller Creek Estates and the upper Miller Creek area were graded into a trapezoidal channel during housing development construction in the 1970s and 1980s. These reaches have a 100-foot setback along the channels. A post-development evaluation of this stretch of Miller Creek (Yin and Pope-Daum 2004) indicated that riparian vegetation had established, and the creek had developed a low-flow channel and discontinuous floodplains. The channel complexity and habitat features are not as well developed as in the non-graded reaches downstream. However, the Miller Creek Estates reach has better habitat conditions than have been observed in the upstream reaches that are characterized by vertical banks, a wide homogenous channel bottom, and little mature riparian vegetation.

Tributary channels have undergone extensive downcutting and gully formation in response to the main channel incision. Large volumes of sediment are delivered to the mainstem from tributary erosion, and fine sediment aggradation reduces pool depths and degrades spawning gravels. The sediment produced by the upper watershed is deposited in the lower reaches of the system.

Vegetation in Miller Creek Watershed

Miller Creek flows through a mosaic of open ridges and grazing lands in the upper watershed, residential and limited commercial development along the narrow valley floor, and lower baylands. Some stretches of the creek are bordered by healthy riparian plant communities. The watershed supports numerous special-status plants, although it is composed primarily of annual grasslands interspersed with oak-bay woodland and oak savanna with patches of chaparral in the upper watershed.

The St. Vincent's School for Boys and Silveira Ranch provide critical habitat within the lower Miller Creek watershed. St. Vincent's school property supports oak woodlands, valley oak savanna, tidal and seasonal wetlands, historic diked tidelands, seeps and swales, the creek's riparian corridor, and grassland habitats. Pacheco Ridge at the upper elevations of the site supports intact native oak woodlands, an important habitat resource and community separator. Its central location provides habitat connectivity between the Gallinas Creek watershed to the south, San Pablo Bay to the east, and Hamilton tidal marshes to the north.

Fish and Wildlife in Miller Creek Watershed

The watershed supports a number of special-status animals. Of particular interest are the occurrences of wetland-adapted species along the lower baylands, including San Pablo song sparrow, California black rail, saltmarsh harvest mouse, and California clapper rail. Tidal wetland and bayland areas are not part of the Program Area, and impacts on species in those areas are not assessed herein.

Freshwater seasonal wetlands occur in areas that were once historical baylands that were diked off to provide agricultural land and now support oat hay production. The reclamation ponds created by Las Gallinas Valley Sanitary District adjacent to tidal marshes in the lower watershed provide critical habitat for over 200 bird species; sightings include golden eagle, ferruginous hawk, and rails. River otters are also known to frequent the area.

Seven species of fish (six native and one introduced) and one extinct native species are known to be present or to have occurred in the Miller Creek watershed. Native fish include a small population of steelhead, California roach, three spined stickleback, staghorn sculpin, prickly sculpin, and riffle sculpin; common carp have been introduced. Historically, the watershed also supported native Sacramento sucker.

Figure 10. Vegetation in the Miller Creek Watershed

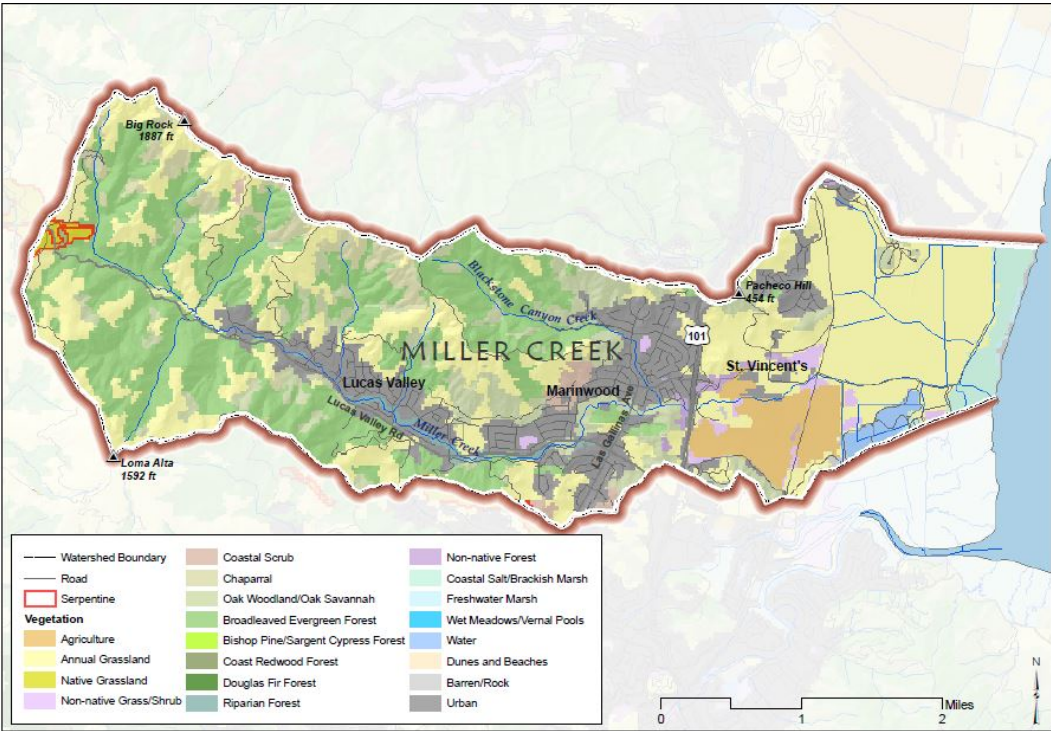
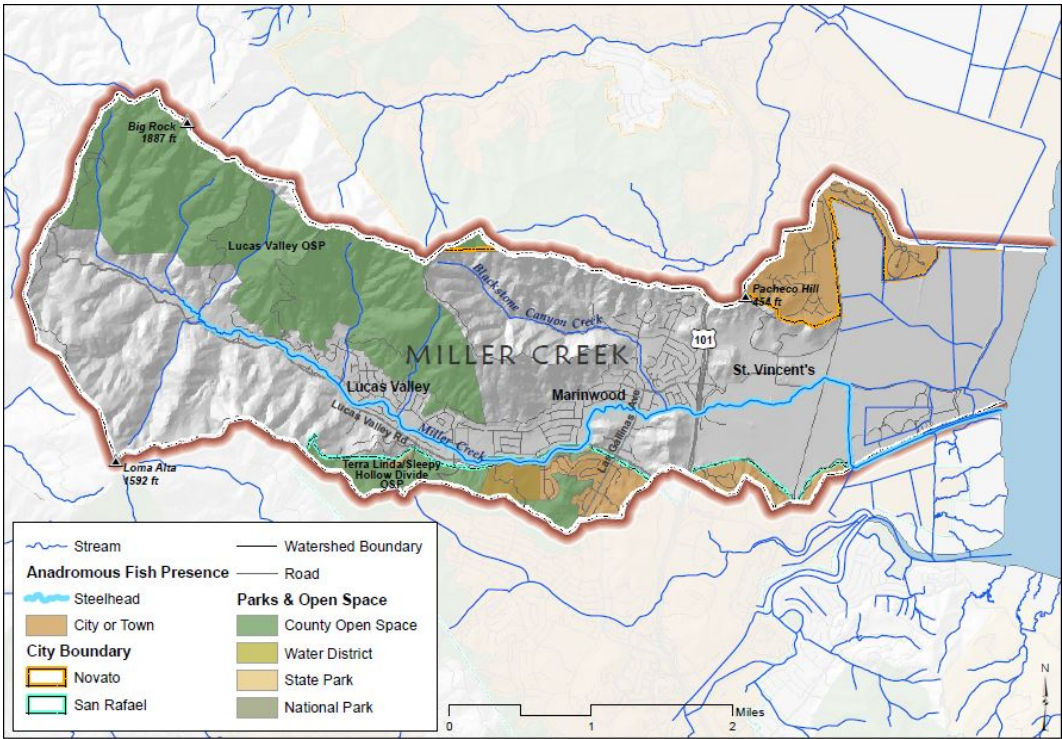


Figure 11. Anadromous Fish Occurrences in the Miller Creek Watershed



Source: County of Marin www.marinwatersheds.org

Land Use in Miller Creek Watershed

The upper watershed was heavily grazed in the past, which has resulted in destabilization of tributary channels and somewhat degraded riparian habitat. The most well developed riparian plant communities occur west of Highway 101 near Miller Creek Middle School upstream towards Mt. Shasta Drive. Urban areas dominate the middle reaches, and the bulk of the population is concentrated along the narrow valley floor.

The Marinwood Community Services District owns 812 acres of open space in the watershed, including part of the ridge between Miller Creek and Novato. The developed area of the watershed fills the valley, with large portions of the upper watershed ridges in Marin County Open Space District ownership that are used as grazing lands and the balance held in private ranches. Thirteen percent of the watershed is incorporated.

2.2.6 San Antonio Creek Watershed

The San Antonio Creek watershed extends from Antonio Mountain and Chileno Valley in the northwest to Petaluma Marsh and the Petaluma River to the southeast. The creek, which has a seasonal flow, forms a portion of the border between Sonoma and Marin counties. The channel currently drains a 23-acre watershed within the boundaries of Marin County.

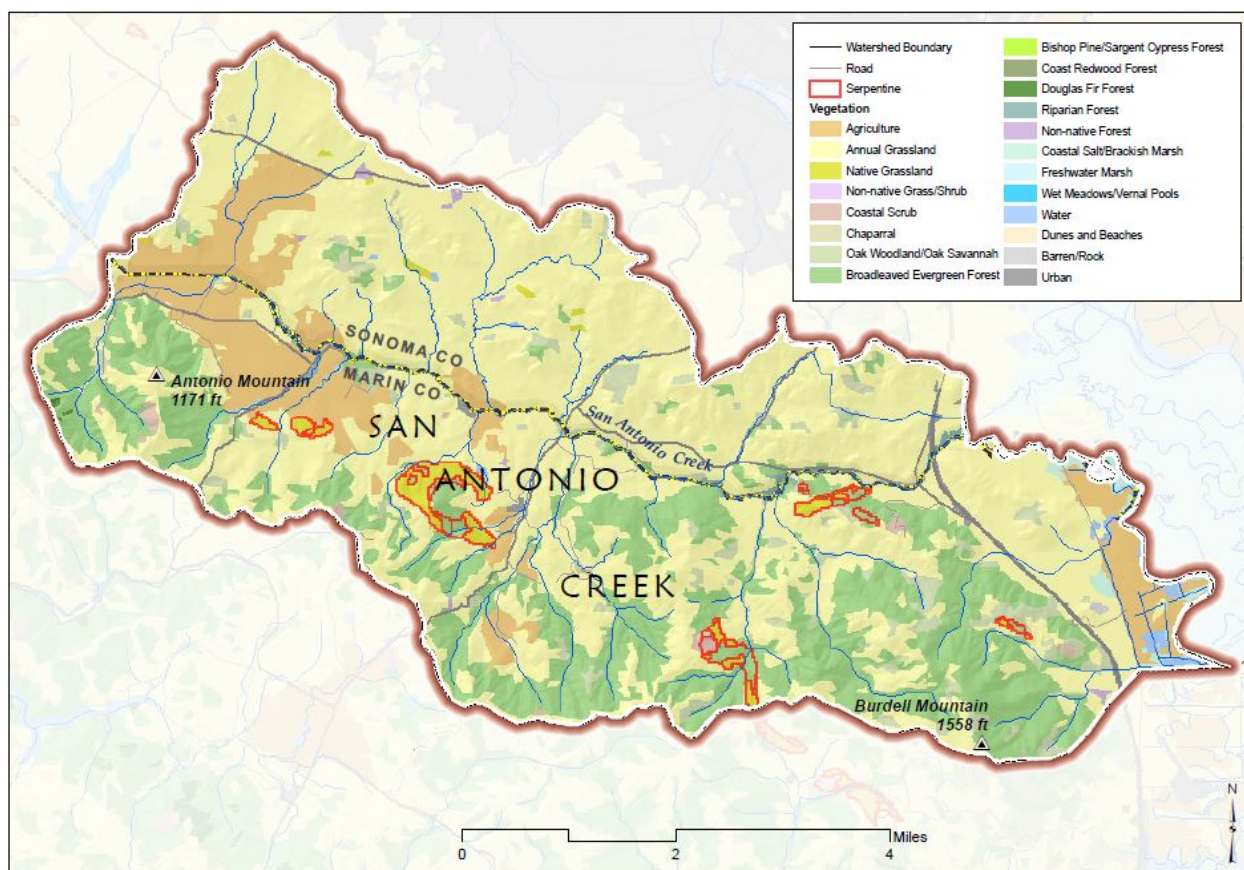
Changes to the watershed have included the draining of a shallow lake at the headwaters of the creek for agricultural uses in the late 1800s. This may have increased the magnitude and frequency of peak flows while lowering the water table in Chileno Valley, which in turn is likely to have accelerated erosion and bank incision. Studies show that relative to pre-European settlement conditions, sediment production in the watershed has greatly increased, the base flow of the creek has been greatly reduced, and peak flows have increased.

The mainstem creek was historically a perennial stream, at least in its lower reaches, and perhaps for much of its length. The tidal channel of San Antonio Creek was diverted from its natural slough through the much smaller and shorter Schultz Slough around 1930. This change in course has flattened the gradient of the stream and contributed to aggradation in the lower reaches.

Vegetation in San Antonio Creek Watershed

The upper San Antonio Creek watershed is dominated by annual grassland and mixed evergreen forest, with patches of oak and bay woodland, as well as agricultural grasslands that are primarily used for grazing. The lower watershed includes extensive coastal salt marsh, brackish marsh, and coastal scrub, which provide valuable habitat for fish and wildlife. Much of the land in the lower watershed is in agricultural production or grazing on diked baylands.

Figure 12. Vegetation in the San Antonio Creek Watershed



Source: County of Marin www.marinwatersheds.org

Fish and Wildlife in San Antonio Creek Watershed

Special-status species recorded in the watershed include California black rail, clapper rail, salt marsh common yellowthroat, San Pablo song sparrow, Townsend's big-eared bat, California tiger salamander, California red-legged frog, western pond turtle, and salt marsh harvest mouse. There are limited records of salmonids. Up until the mid-1900s, steelhead were fairly common; they were last documented in 2000. Experts believe they are now extinct from the watershed, and, therefore, no map of anadromous fish occurrences is included herein. California roach and threespine stickleback are still present.

Land Use in San Antonio Creek Watershed

San Antonio Creek watershed lands are primarily in private agricultural ownership; however, almost half of the Marin County side is developed, including the outskirts of Novato, Marin's airport, and extensive diked agricultural lands. Most of the tributaries flowing from the west and south on the Marin County side have steep gradients and incised channels, and the surrounding land is used primarily for livestock grazing. The northern (Sonoma County) portion of the watershed has moderate slopes and is used for vineyards and dairy production, as well as livestock grazing. MALT is actively protecting agricultural lands in the watershed, having purchased conservation easements on a number of ranches. Public lands include Olompali State Historic Park on the eastern slopes of Mount Burdell and a portion of the 1,950-

acre CDFW Petaluma Marsh Wildlife Area. A 600-acre landfill and recycling center is located adjacent to a portion of creek channel and marshlands in the southeastern portion of the watershed.

2.2.7 Point Reyes National Seashore Watershed

The Seashore includes the watersheds that drain west into Drake's Estero, Abbotts Lagoon, Estero de Limantour, the Pacific Ocean, and portions of Bolinas Lagoon. It extends from Tomales Point at the mouth of Tomales Bay south toward the town of Bolinas at Pablo Point. PRNS is renowned for its unique biological and historical elements.

Vegetation in PRNS Watershed

PRNS contains numerous habitat types, including estuaries, mudflats, sandy shores, intertidal communities, coastal and valley freshwater marsh, coastal dune scrub, and a variety of upland communities. It comprises nearly 100 square miles of open grasslands, coastal scrub, forested lands, and coastal beaches and headlands, as well as nearly 80 miles of undeveloped coastline. The primary vegetation communities within the watershed are coastal scrub, riparian woodland, Douglas fir forest, bishop pine forest, and grasslands.

Fish and Wildlife in PRNS Watershed

The Point Reyes Peninsula is home to numerous special-status plants and animals. Over 50% of North American bird species, 20% of the State's flowering plants, over 25 native land mammals, and two dozen marine mammals have been identified there. Mammals include the Point Reyes mountain beaver, which is endemic to the area and found nowhere else, Point Reyes jumping mouse, various bats, and whales. Invertebrates include Myrtle's silverspot, Point Reyes blue butterfly, and San Francisco forktail damselfly. Point Reyes has been recognized as an "Important Bird Area" by the National Audubon Society; in particular, the extensive saltmarsh and mudflats of Drake's Estero provide habitat for many migrating and wintering water birds.

Several tributaries, including Schooner and Home Ranch Creeks, are known to support steelhead populations. They have also been documented in Alamere Creek near the southern portion of the peninsula. Most tributaries, however, are believed to be non-fish bearing streams, although potential usage by strays is considered possible.

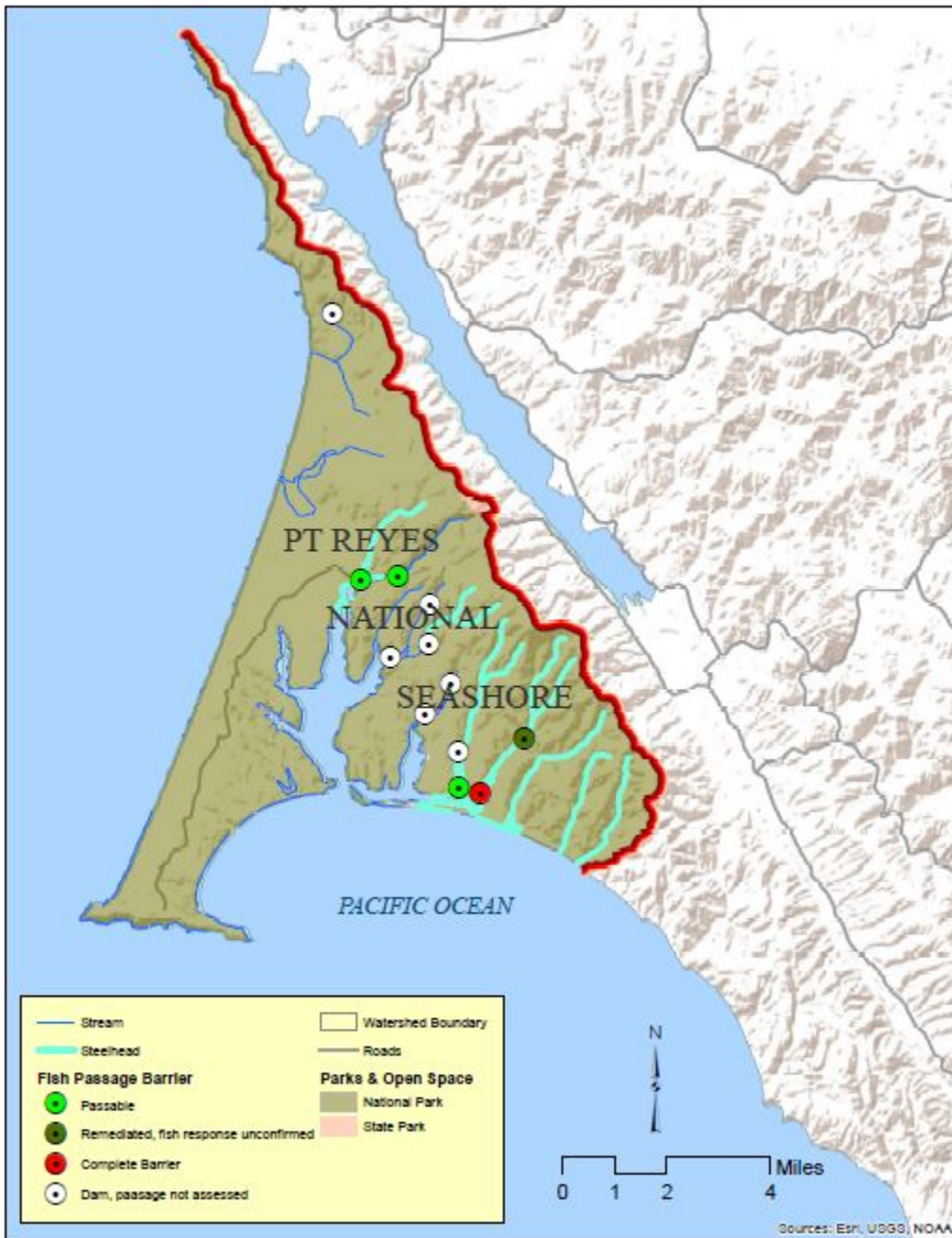
A resident of particular interest is the tule elk, a subspecies of the North American elk that is found only in California. Historically, large herds of elk thrived throughout the grasslands of central and coastal California, but they were hunted to near extinction in the 1800s. Tule elk disappeared from the peninsula by the 1860s, but, in 1978, a small herd (10 animals) was reintroduced to PRNS. Today, there are over 500 animals in three separate herds, which is one of the largest populations in California. The largest herd occurs on Tomales Point in a 2,600-acre fenced preserve.

Figure 13. Vegetation in the Point Reyes National Seashore Watershed



Source: County of Marin www.marinwatersheds.org

Figure 14. Anadromous Fish Occurrences in the Point Reyes National Seashore Watershed



Source: County of Marin www.marinwatersheds.org

Land Use in PRNS Watershed

All of the land within PRNS is owned by NPS. The most widely spread land use is open space. Agricultural operations continue on the historical ranches, many of which are in long-term leases with former owners, and the primary uses are livestock grazing and grazing operations with interspersed agricultural residences and farm facilities.

3 Project Description

3.1 Overview of Activities and Practices Included in the PCP

Marin RCD has identified 44 NRCS Conservation Practice Standards, technical guidelines for the conservation of soil, water, air, and related plant and animal resources, for inclusion in the PCP. In addition, other standards, such as the *California Salmonid Stream Habitat Restoration Manual* (CDFW 2010) and the *Handbook for Forest, Ranch, and Rural Roads* (PWA 2015), may guide project planning. The 44 conservation practices are grouped into ten activity categories. A brief summary of each type of activity is provided in Table 3-1. They include land management actions to address water quality, sedimentation, and erosion from rural roads, stream crossings, vegetation, and facility operations, as well as resource management activities for waterways, alternative water sources for livestock, erosion and sediment control, and aquatic habitat restoration. This section also describes the annual selection and evaluation process for individual projects, the PCP implementation period and estimated number of projects, and requirements for plans and specifications and for operations and maintenance. Section 3.2 includes detailed descriptions of the activities included in the PCP.

Table 3-1. Marin PCP Activities and Practices

Activities	Description	Associated NRCS Practices*
Road Upgrade and Decommissioning	Improvements to an existing road network for the purpose of preventing erosion and protecting water quality that may include re-grading surfaces (e.g., out-sloping, crowning, in-sloping); construction of water bars, rolling dips, or critical dips; removal or addition of roadside ditches to assist with stormwater drainage; installation or repair of ditch relief culverts or critical culverts; removal of a screen or installation of a trash rack at a culvert inlet; construction of cross-road drains; and protection of ecologically sensitive, erosive, or potentially erosive sites.	Access Road (560), Trails and Walkways (575), Structure for Water Control (587), Road Closure and Treatment (654)
Stream Crossing	Installation of a ford, bridge (channel-spanning when feasible), or culvert crossing for people, livestock, equipment, or vehicles where necessary for access over an intermittent or perennial watercourse to protect water quality, habitat, and species and to facilitate healthy agricultural operations.	Stream Crossing (578)
Operations Management	Agricultural management practices to protect water quality, such as the amount (rate), source, orientation, collection, placement, and timing of plant nutrients, residue, and amendments on the soil surface year-round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops. Other practices address vegetation management with grazing and browsing animals and provide measures to control the movement of animals, people, and vehicles.	Nutrient Management (590), Residue and Tillage Management/ No-Till (329), Fence (382), Mulching (484), Heavy Use Area Protection (561), Roof and Covers (367), Roof Runoff Structure (558)

Table 3-1. Marin PCP Activities and Practices

Activities	Description	Associated NRCS Practices*
Manure Management	Installation of practices that improve management of manure, thereby resulting in improved water and/or air quality conditions. Actions include installation of manure/liquid separators, composting pads, techniques resulting in a reduction of Greenhouse gas (GHG) emissions, such as conversion from dairy flush to scrape systems, and the proper transfer of liquid manure to avoid impacts on environmentally sensitive areas.	Composting Facility (317), Waste Treatment (629), Waste Separation Facility (632), Waste Transfer (634), Waste Storage Facility (313)
Upland and Riparian Vegetation Management and Planting	Plant establishment to stabilize a disturbed area, reduce stormwater flow velocity and surface flow erosion, encourage infiltration, and enhance wildlife habitat. Actions may include planting a vegetative buffer along a field perimeter to filter runoff exiting the area; establishing native grasses, forbs, shrubs, or trees in disturbed or eroding areas; lightly re-grading and planting a vegetated barrier to collect and filter runoff; planting permanent vegetation at a pipe or underground outlet; establishing a dense line of vegetation to function as a wind break/habitat enhancement/barrier to noise or to increase carbon storage capacity; establishing perennial or self-sustaining vegetation across fields used as rangeland; and replacing invasive species and potential disease-host plants with native species.	Critical Area Planting (342), Prescribed Grazing (528), Range Planting (550), Hedgerow Planting (422), Riparian Herbaceous Cover (390), Riparian Forest Buffer (391), Vegetative Barrier (601), Forage & Biomass Planting (512), Windbreak/ Shelterbelt Establishment (380), Silvopasture (381), Tree/Shrub Establishment (612), Conservation Cover (327)
Waterway Vegetation and Planting	Establishment of suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet or where environmentally sensitive areas need to be protected from sediment, other suspended solids, or dissolved contaminants in runoff.	Grassed Waterway (412), Filter Strip (393)
Waterway Stabilization	Stabilization of a gully or downcutting channel by installing a structure to control the grade and/or stabilize the slope. Implementation may require some grading and installation of brush, erosion-control fabric, rock, or timber structures that do not impound water but rather allow water to be conveyed in a stable manner. Actions may include installing a rock weir to control and slow in-channel flow; adding rock to stabilize a gully draining towards a stream channel; lining an eroding swale or diversion ditch; rock armoring an eroding ditch; armoring below an outlet; installing an energy dissipater at a spillway or pipe outlet to a channel; and stabilizing and protecting streambanks through laying back the bank, bioengineering, or vegetated rock installation.	Grade Stabilization Structure (410), Lined Waterway/Outlet (468)
Alternative Livestock Water Supply	Actions to provide a dependable supply of water for livestock, including the collection system (e.g., pipeline, trench, appurtenances below ground). Implementation will require shallow digging/trenching for removal/installation of piping and associated equipment. Practice may include installation of an underground outlet to safely disperse concentrated runoff.	Spring Development (574), Livestock Pipeline (516), Underground Outlet (620), Watering Facility (614), Pumping Plant (533)

Table 3-1. Marin PCP Activities and Practices

Activities	Description	Associated NRCS Practices*
Sediment Basin	Protection of water quality through installation of a basin with an engineered outlet designed to capture and detain sediment-laden runoff for a sufficient length of time to allow it to settle out. Practice is used when physical conditions or land ownership preclude use of erosion control measures.	Sediment Basin (350)
Aquatic Habitat Improvement	Restoration, enhancement, or maintenance of aquatic habitat by improving physical, chemical, or biological conditions of ponds, streams, and associated riparian zones. Practices may include controlling erosion; maintaining in-stream flows; restoring floodplain connectivity; ensuring up- and downstream passage; and enhancing in-stream habitat elements to increase complexity, such as large wood, rootwads, spawning gravels, headcut repairs, and pool and riffle habitat.	Pond Restoration (378[R]), Stream Habitat Improvement (395), Channel Bed Stabilization (584), Aquatic Organism Passage (396), Streambank Protection (580)

* NRCS Conservation Practice Standards are available at:

http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/technical/cp/ncps/?cid=nrcs143_026849

3.1.1 PCP Implementation Period and Estimated Number of Projects

Marin RCD intends the Program to continue for ten years, with implementation of PCP-approved projects in 2018 through the fall of 2027. A five-year program evaluation and assessment report will be prepared and distributed to environmental regulators and other interested parties after completion of the 2022 construction season. The estimated number of individual projects to be implemented is up to 30 per year for an estimated maximum total of 300 for the life of the Program. Marin RCD activities that are not covered under the PCP will continue to require CEQA review and permitting on a project-by-project basis.

3.1.2 Project Selection, Impact Assessment, and Regulatory Review Process

Project selection and evaluation for inclusion in the PCP will follow the standard Marin RCD policies described below. Rankings are guided by funding objectives, grant deliverables, regulatory mandates, and regional priorities. Projects are initially vetted by a Technical Advisory Committee (TAC) composed of representatives from Marin RCD and members approved by the Marin RCD Board of Directors, which depending on the complexity and specifications of each project may include NRCS, MALT, PRNS, STRAW, UCCE, Regional Water Quality Control Board (RWQCB), project funders, and technical consultants. The purpose of the TAC is to guide development of projects to ensure selection of an optimal set of conservation practices to maximize resource protection and enhancement dollars. The TAC tours potential project sites; meets with landowners and operators to identify resource challenges, determine objectives, and agree upon goals; and provides ranking and recommendations to the Marin RCD Board of Directors. The role of the Marin RCD Board of Directors is to establish local program priorities and secure appropriate technical expertise to help guide and inform the Board's decision-making process.

Project Selection Criteria

The TAC has developed selection criteria and a ranking system to ensure projects will improve land and resource management, habitat conditions, and water quality. The selection criteria may be periodically updated during the life of the Program. The committee is convened once per year, or as necessary depending on the number and status of proposed projects, to review and rank potential projects and to determine their qualification for inclusion in the PCP. Examples of questions that the TAC uses include:

- Will the project occur in a biologically important subwatershed?
- Is the project contiguous with existing high-quality habitat?
- Will the project support a diversity of plant or animal species?
- Will the project create or improve habitat for rare, threatened, or endangered species?
- Will the project support sensitive life stages of species (e.g., nesting, spawning)?
- Will the project restore an impaired watershed process (e.g., address sediment, nutrients, temperature issues)?
- Will the project contribute to climate change mitigation/resilience?
- Will the project improve stream geomorphic functions?
- Is the project technically sound, effective, and appropriate?
- Will the project address causes rather than symptoms?
- Will matching funds or in-kind services be applied to the project?
- Is the project financially sound, effective, and appropriate for inclusion in the PCP?

Individual Project Background Scoping and Impacts Assessment

Once a project has been vetted and ranked by the TAC or Marin RCD staff, a conceptual plan will be developed that describes the project's boundaries, access, and implementation. Potential impacts on biological and cultural resources will be evaluated in cooperation with the project biologist and local archaeological experts and Tribal representatives. On-site assessments will occur, as needed, to identify potential impacts and to agree upon avoidance and mitigation measures that will become part of the project description, landowner and construction contracts, and permit requirements.

Marin RCD staff and technical consultants will review the conceptual plan, potential impacts, and proposed impact avoidance/mitigation measures to determine if the project fits within the requirements of the PCP, which include the maximum dimensions and volumes of allowable disturbance found in the detailed practice descriptions in Section 3.2 below. Overall BMPs and conditions to avoid adverse impacts are summarized in Section 3.3; they include design considerations and protective measures for aesthetic and biological resources, air and water quality, and vegetation management, as well as construction-period impact avoidance BMPs.

Environmental Review of Individual Projects

Following project selection, Marin RCD will send a list of projects and a map of project locations to Tribal representatives for review. Additionally, during development of the conceptual plan and assessment of

potential impacts for each project, if the archaeological review for any project identifies potential concerns related to cultural resources, a preliminary design will be developed and submitted to Tribal representatives for review. If deemed necessary, the Tribal representative will respond within 30 days to request consultation or a site visit. Marin RCD will respond to the request within 30 days.

To solicit public input, Marin RCD will place a notice on the Marin RCD website and in the *Pt. Reyes Light* or the *Marin Independent Journal* that the preliminary designs are available for review at Marin RCD's office and that the Board of Directors will consider written comments received and hear public comments on the projects proposed for the coming construction season at a regularly scheduled Board meeting. In addition, the public may submit written comments to the Board prior to the meeting for consideration before the Board makes final project decisions. Following the Board's approval of PCP CEQA coverage for a project, final designs will be prepared and permit applications will be submitted to regulators.

Many conservation practices, in particular those that will occur within or near waterways, are subject to a multitude of environmental permits and approvals. The Marin RCD prepares and submits applications to obtain the site-specific authorizations for the individual PCP projects. Table 3-2 below lists the federal, State, and local regulatory or permitting agencies that may have authority over projects within the Program Area.

Table 3-2. Regulatory Agencies with Potential Jurisdiction over PCP Activities

Regulatory Agency	Requirement	Potential Permit/Approval
<i>Federal Agencies</i>		
U.S. Army Corps of Engineers	Compliance with federal Clean Water Act (CWA) Section 404	Approval of fill in waters of the U.S. or jurisdictional wetlands
U.S. Fish and Wildlife Service	Endangered Species Act (ESA) Section 7 consultation	Programmatic Biological Opinion for projects with federal funding or for projects requiring CWA Section 404 permit from the Corps; utilize livestock operation California red-legged frog exemption if no federal agency involvement ⁴

⁴ USFWS. 2006. 50 CFR Part 17. *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-Legged Frog, and Special Rule Exemption Associated With Final Listing for Existing Routine Ranching Activities; Final Rule*. 71 *Federal Register* 19285. April 13, 2006.

Table 3-2. Regulatory Agencies with Potential Jurisdiction over PCP Activities

Regulatory Agency	Requirement	Potential Permit/Approval
	ESA Section 10 consultation	Individual consultation for projects without federal agency involvement
National Marine Fisheries Service	ESA Section 7 consultation	Programmatic Biological Opinion for projects with federal funding or for projects requiring CWA Section 404 permit from the Corps
	ESA Section 10 consultation	Individual consultation for projects without federal agency involvement
State Agencies		
San Francisco Bay or North Coast Regional Water Quality Control Board	Compliance with the CWA Section 401 or State CWA (Porter-Cologne Act)	Water Quality Certification (§401) or Waste Discharge Requirements
California Department of Fish and Wildlife	Compliance with Fish and Game Code Section 1600, <i>et seq.</i>	Fish & Game Code §1600 Lake and Streambed Alteration Agreement
	Compliance with Fish and Game Code Section 2081	Incidental Take Permit for State-listed wildlife and plant species covered under the California ESA (CESA)
California Coastal Commission (CCC)	Coastal Zone Management Act	Coastal Development Permit (CDP)
Local Agency		
Marin County Department of Public Works	Marin County Ordinances	Creek, Grading, Building, and Coastal Development Permits

Permit terms and conditions will be included with the individual designs and specifications for each project to be implemented, in the cooperator agreement with the landowner, and in the construction contract. They will be summarized and reviewed with the construction supervisor prior to project implementation. If requested by the project biologist or Tribal contact, a pre-construction crew training will provide all workers with information on sensitive resources, including special-status species and cultural artifacts, as well as the specific protective measures to be followed during implementation of the practices. Table 3-3 summarizes required BMPs for all PCP projects. Resource-specific mitigation measures are found in the applicable section of the Initial Study below.

Procedure to Address Noncompliance with Program or Permit Conditions

If a landowner does not carry out work in compliance with project design standards and specifications, including the permit conditions, Marin RCD, NRCS, MALT, or PRNS will notify the landowner and work directly with him/her to resolve the problem. If the landowner still fails to conform, Marin RCD, NRCS, MALT, or PRNS will notify the landowner that his/her activities are inconsistent with the standards and specifications contained in their contracts and that the landowner's actions are no longer covered by the PCP's programmatic and individual permits and agreements. The landowner will then be responsible for obtaining environmental review and individual permits from the appropriate regulatory agencies and may be held liable for any violations by regulators.

3.1.3 Plans and Specifications for PCP Projects

The NRCS Conservation Practice Standards contain guidelines for site-specific plans and specifications, discussion of overall objectives and detailed goals of each practice, and requirements for applying them to achieve the intended purposes. The level of detail developed for each project will depend on what is proposed and may be as simple as location, level of treatment, and equipment to be used to a complex set of construction specifications and plans with grades, dimensions, materials and quantities, and hydraulic and structural requirements. When grading or other earth-disturbing activities will occur, the design documents will provide construction-period and post-construction BMPs, such as erosion control and dust suppressant applications, and impact avoidance measures and provisions necessary to comply with permit conditions and any other environmental agreements; sequence and timing of construction; installation specifications with measures to control concentrated flow during construction and the establishment period; method of surface water diversion and dewatering during construction, if required; fencing and safety features, as needed; disposal requirements for excess soil and construction debris; location of utilities; and vegetation establishment requirements.

When appropriate to ensure plant community establishment success, a vegetation management plan based on the *Critical Area Planting* practice standards (342) will be included for erosion control and habitat enhancement plantings. The plan will provide species selection and seeding, planting, and sprigging rates; planting dates and methods; specific care and handling requirements for seed or plant materials to ensure an acceptable rate of survival; a statement that only viable, high-quality, and locally adapted seed will be used; and site preparation instructions sufficient to establish and grow selected species. Site-specific success criteria, monitoring, and reporting required by project-specific permits will also be included.

3.1.4 Operation and Maintenance for PCP Projects

The NRCS Conservation Practice Standards also provide guidelines for operation and maintenance of each practice. The operations and maintenance plan will provide a schedule and methods to maintain design capacity, stability, and vegetative cover during the establishment period. Inspections will be conducted to determine if implemented actions are providing improvements as planned. Monitoring will occur at least semi-annually and after significant rain or high-wind events until the site is determined to be stable. It will include evaluation of both geomorphic stability and vegetative success if plantings are

part of the installation. Monitoring responsibilities will be shared by Marin RCD and the individual landowner, and will be outlined in Landowner Authorization Agreements for each specific project.

Prompt repair of any damaged elements will be required in the cooperator agreement with Marin RCD or one of its PCP partners. Maintenance activities may include removal of organic material, woody debris, or excess sediment to maintain capacity of the installation; replacement of materials to stabilize the site; measures to prevent concentrated flow through the installation; and periodic mowing, grazing, or reseeding of disturbed areas, or other measures to control invasive species and maintain vegetative cover. All sediments removed during periodic cleaning will be placed in an upland area and stabilized to prevent entry into sensitive environments, such as waterways and wetlands. All repair actions will comply with State and federal guidelines for protecting spawning, breeding, incubation, and rearing cycles of aquatic species and breeding and nesting times of terrestrial animals. As required by permit or grant funding conditions, reports will be submitted to project regulators and funders.

3.2 Detailed Descriptions of Activities and Practices Included in PCP

Marin RCD and its partners have chosen practices for inclusion in the PCP that support their mission to assist landowners to conserve and enhance Marin County's agricultural and natural resources, including its soil, water, vegetation, and wildlife. The sections below contain descriptions of the ten overall activities and the practices included in each. A table of practice size limitations, where appropriate, and discussion of the environmental benefits of each activity group follow the descriptions. All practices must fit within their individual maximum size limits; individual practices or projects that exceed the maximum limits do not qualify for CEQA coverage through the PCP. To avoid the potential to "piecemeal" projects (i.e., divide larger projects into sizes that fit within the practice limitations but that, as a whole, would not qualify), Marin RCD and its partners will use the process and procedures described in Section 3.1.2 above to evaluate, select, and track the projects to be implemented.

Individual practices may be combined to develop a single "project". The collective practices grouped together must meet Program size limitations to qualify for use of the Program. For example, a project to address erosion from a ranch road could require use of 1) *Access Road* upgrades with a 2) *Lined Waterway* that would carry excess upland surface runoff to a 3) *Structure for Water Control* (e.g., culvert). The three practices together would make up one project. Also, projects that would result in ground disturbance, such as *Road Upgrades*, *Stream Crossings*, or *Aquatic Habitat Improvements*, may also utilize actions to control erosion, such as *Critical Area Planting*, *Mulching*, or exclusionary *Fencing*.

3.2.1 Road Upgrades and Decommissioning

Road upgrade and decommissioning activities are intended to improve roadway stability and durability, limit road damage during all types of weather conditions, and prevent polluted runoff from entering sensitive environments. Roadways that are no longer needed for land management purposes will be decommissioned to protect water quality and restore habitat connectivity. Implementation typically requires use of heavy equipment, and improvements often involve multiple installations spread out over a long stretch of road. Four road improvement practices are included in the PCP: *Access Road*, *Trails and Walkways*, *Structure for Water Control*, and *Road Closure and Treatment*. Note that installation of

bridges placed at top-of-bank to allow safe passage for livestock, pedestrians, equestrians, and farm vehicles is included in the PCP through use of the *Stream Crossing* practice described in Section 3.2.2 below.

Access Road (560)

An access road is a fixed route for equipment and other vehicles used for agricultural and resource management activities. Access roads range from single-purpose, seasonal roads designed for low speed and rough driving conditions to all-purpose, all-weather roads. This practice is intended to make improvements to existing roads used for moving livestock, produce, or equipment and may include surface grading to effectively drain water. Water bars and rolling dips may be installed along roadways to redirect water off the road before it can concentrate and lead to erosion of the road surface or gully formation. Roadside ditches may be added, removed, or modified to improve water conveyance.

No improvements to accommodate future non-agricultural development are authorized under the PCP. The access road practice does not include construction of new roads, addition of asphalt or concrete to existing roads, widening roadways, or increasing weight-bearing capacity of bridges. An exception may include construction of a short segment of new access road where a segment of existing roadway is relocated out of a sensitive area to protect natural resources.

Culverts may be installed or replaced under the road to provide or improve drainage. Although culverts will generally be sized for a 100-year, 24-hour storm event, smaller culverts may be used (minimum 10-year storm capacity but not less than 12 inches in diameter) if topography and overflow facilities are adequate to prevent damage from larger storms or site conditions preclude use of a larger culvert. Outlets will be placed in a well-vegetated area that will not be subject to erosion, or the outlet will be rocked with an energy dissipater or stabilized by other means to provide a suitable location to discharge stormwater from the roadway.

Trails and Walkways (575)

This practice applies to a “trail,” which is a feature with a vegetated or earthen surface, or a “walkway,” which has an artificial surface. Upgrades include improvement of an existing travel lane on agricultural lands for livestock, pedestrians, and off-road vehicles used exclusively for agricultural purposes (e.g., farm ATVs that are not designed for use on public roads) to traverse difficult, ecologically sensitive, or erosive terrain. Trails and walkways may also improve access to forage or water and to agricultural or maintenance operations. The practice does not apply to roads constructed for movement of equipment or non-agricultural vehicles. Any required culverts will be designed to carry, at a minimum, a 2-year, 24-hour flow, although, if watershed conditions or anticipated usage warrant, a larger storm-event design may be utilized.

Structure for Water Control (587)

Structures for water control cover a gamut of water management system activities to convey water, control the direction or rate of flow, maintain a desired water surface elevation, or measure water. For the PCP, the practice is intended to remove culverts entirely where possible and is limited to:

- Removal or replacement of existing culverts in streams and other waterways when they are either not functioning properly or are a barrier to aquatic passage; and
- Construction of new culverts to properly convey overland or concentrated water flow into a drainage or under a road, for example, as part of an improvement design for an access road.

Structures for water control on public roads are *not authorized* by the PCP.

Careful consideration will be given to addressing upslope sources of flow that are causing the need for a culvert (i.e., rather than replacing an undersized or defective culvert in an in-sloped road with a properly sized, functioning culvert, the road will be out-sloped to eliminate the need for the culvert). As with the *Access Road* (560) practice, culverts will generally be sized for a 25-year, 24-hour event. However, smaller culverts may be used (minimum 10-year storm capacity and not less than 12 inches in diameter) if topography and overflow facilities exist to prevent damage from larger storms or if on-site conditions preclude use of a larger culvert.

Road Closure and Treatment (654)

The road closure and treatment practice involves decommissioning and abandoning roads, trails, and landings. Closure and decommissioning will include a range of activities, such as blocking the entrance to eliminate vehicle access, revegetation and water barring to reduce runoff, removal of fills and culverts, establishment of drainages, and full obliterations through recontouring and restoring natural slopes. Treatments to restore vegetative cover, natural topography, and surface hydrology will result in stable slopes and will be compatible with existing land uses in the vicinity.

PCP Size Limitations per Project for Road Upgrades and Decommissioning				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Access Road	2 miles	2 acres	N/A	Road lengths are of disturbed area only; length of road network treated may be greater.
Trails and Walkways	2 miles	2 acres	N/A	Lengths are of disturbed area only; length of trail network treated may be greater.
Structure for Water Control	150 feet	0.25 acres	500 cy	Culverts that require permits shall be designed and stamped by a licensed engineer, geologist, or landscape architect or a qualified NRCS engineer.
Road Closure and Treatment	2 miles	2 acres	N/A	Up to 1,000 feet of channel may be dewatered at each site or current regulatory standards.

Environmental Benefits of Road Upgrades and Decommissioning

Installation of road and trail upgrades and structures to direct the flow of water will improve water quality by controlling runoff and removing sources of chronic erosion and sediment input. Road closure and treatment will restore land to a productive state by re-establishing native plants and habitat elements (e.g., food, cover, and shelter for wildlife); will reconnect wildlife habitat and migration corridors, including streams and riparian areas; will reestablish drainage patterns; and will minimize human impacts to meet safety, aesthetic, sensitive area protection, and wildlife habitat requirements.

Many projects will also include measures to remove or control invasive species that are deleterious to agricultural operations, as well as to the environment.

3.2.2 Stream Crossing

The purpose of the *Stream Crossing* practice (578) is to install a permanent stabilized area or structure across a perennial or intermittent watercourse to provide access for people, livestock, equipment, and vehicles and to protect water quality through reducing potential for delivery of sediment and other pollutants into the water during use of the crossing. Stream crossings include stabilized areas, such as fords, and structures (e.g., bridges and culverts). Bridges authorized by the PCP will fully span the watercourse from top-of-bank to top-of-bank.

Stream crossings will be designed to account for site conditions and accommodate sediment transport and passage of large woody materials. Proposed sites will be evaluated to determine potential flood stages and discharge, hydraulics, fluvial geomorphic conditions, sediment transport and flow continuity, and movement of woody and organic material. In addition, habitat requirements of both target aquatic organisms and other aquatic and terrestrial species that may be affected by construction of the crossing will be assessed.

Ford crossings are best suited for use in wide, shallow watercourses with firm streambeds and when use of the crossing is infrequent. However, if the stream crossing will be used often, as in a dairy operation, a bridge or culvert will often be required. Implementation of stream crossings may require grading and use of mechanized equipment.

PCP Size Limitations per Project for Individual Stream Crossings				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Stream Crossing	100 feet (per structure)	1 acre	250 cy	Crossings will be designed to require the minimum amount of dewatering, not to exceed 1,000 feet of channel unless regulatory standards allow more. Bridges shall be designed and stamped by a licensed California engineer or a qualified NRCS engineer. Culverts that require permits shall be designed and stamped by a licensed engineer, geologist, or landscape architect or a qualified NRCS engineer. Stream crossing removals in a salmonid-bearing stream must be 1,500 meters (4,921 feet) apart. Crossings in a non-fish bearing stream must be at least 100 feet apart (NOAA Fisheries 2016).

Environmental Benefits of Stream Crossings

Properly installed stream crossings will prevent loss of land and improve water quality by providing protection against streambed and bank erosion and by reducing sediment, nutrient, organic, and inorganic input to waterbodies. New or improved crossings will address existing passage barriers and improve habitat connectivity for salmonids and other aquatic organisms. Crossings will be designed to exclude livestock from waterways except when they are moved from one side to the other, which will reduce riparian habitat disruption from unrestricted access and trampling.

3.2.3 Operations Management

Marin RCD is part of the Marin Carbon Project (MCP) Implementation Task Force, which has worked with the local NRCS office to identify a suite of farm management practices to build soil carbon and improve soil health, on-farm productivity, and forage quality. MCP implementation of whole-farm, carbon-focused conservation plans (Carbon Farm Plans) started in 2013. To date, the partnership has developed eight plans, totaling 3,736 acres, within Marin County.

Operations management practices allow control of the amount, orientation, and distribution of conservation practices, while limiting soil-disturbing activities to only those necessary to place soil amendments and plant materials. The operations management conservation practices are also identified as measures to increase organic matter (leading to sequestration of carbon) in agricultural and rangeland soils. There are seven operations management practices included in the PCP: *Nutrient Management, Residue and Tillage Management/No-Till, Fence, Mulching, Heavy Use Area Protection, Roof and Covers, and Roof Runoff Structure.*

Nutrient Management (590)

Nutrient management involves development of a plan to manage the amount (rate), source, placement (method of applications), and timing of plant nutrients and soil amendments to all lands where plant nutrients and soil amendments are applied. The purpose of nutrient management is to minimize nonpoint-source pollution to surface and groundwater, to properly utilize compost as a soil amendment, to protect air quality, and to maintain or improve soil and crop conditions. The type, amount, and timing of nutrients and soil amendments will be based on soil testing, planned crop yield, growing season of target plants, and carbon sequestration goals and potentials. Farm-level planning will help assess the carbon sequestration enhancement potential, identify appropriate conservation practices needed to achieve the sequestration goals, and evaluate the potential to increase on-farm terrestrial carbon stocks and reduce greenhouse gases (GHG) emissions. A Nutrient Management Plan or Carbon Farm Plan will be used to capture baseline conditions and proposed conservation practices at each property, including soil mapping, site condition assessment, and establishment of performance monitoring protocols.

Nutrient management activities will include a budget for nitrogen and, if needed, for phosphorus and potassium, that considers all potential sources of nutrients, including, but not limited to, green manures, legumes, crop residues, compost, animal manure, organic by-products, organic matter, soil biological activity, and irrigation water. Compost application rates will be consistent with established agronomic practice and applicable water quality regulations. On organic operations, the nutrient sources and management must be consistent with the United States Department of Agriculture (USDA) National Organic Program.

Residue and Tillage Management/No-Till (329)

The residue and tillage management/no till practice limits soil disturbance and addresses the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round. Crops are planted and grown in narrow slots or tilled strips established in the untilled residue of the previous crop, and soil cover is maintained. Residues can also be uniformly distributed over the entire field with

residue removal only occurring within the seeding or transplanting area prior to or as part of the planting operation. This practice only involves in-row soil disturbance during strip tillage, the planting, and a device to close the seed row or furrow. There will be no full-width soil disturbance performed from the time immediately following harvest through harvest of the next crop in the rotation regardless of the depth of the tillage operation.

Fence (382)

Fencing is used to facilitate the accomplishment of conservation objectives by providing a means to control the movement of animals, people, and vehicles. The practice includes both digging/trenching for post holes and installation of above-ground fencing. It can be used for livestock management in a rotational grazing program, to restrict access to an area being revegetated, and to restrict access by livestock into a riparian area or creek. Based on objectives, fences may be permanent, portable, or temporary. Fencing materials, type, and design of fence installed will be of a high quality and durability designed to meet the management objectives and site challenges. Fences will be located and installed to meet appropriate local wildlife and land management needs and requirements.

Mulching (484)

Mulching involves application of plant residues or other suitable materials (e.g., compost, wood chips, bark) to the land surface to help control soil erosion, protect crops, conserve moisture, moderate soil temperature, prevent soil compaction and crusting, reduce runoff, enhance soil carbon, and suppress growth of weeds. The practice is used on sites subject to erosion and high runoff rates that need the additional protection from material brought in from off the site, as well as to accelerate soil organic matter accumulation. The material may be manufactured and commercially available or it may be hay or crop residues. Selection of materials is dependent upon site conditions and the availability of materials. This practice is often used in production of specialty crops, including grapes, other fruits and vegetables, as well as on construction sites.

Heavy Use Area Protection (561)

Heavy use area protection is installed to protect and improve water quality by providing a stable, non-eroding surface for areas frequently used by animals, people, or vehicles. Commonly used treatments include vegetative cover, surfacing with suitable materials (e.g., concrete pad, gravel), or installing needed structures (e.g., roof, drainage and stable outlet, or vegetative filter strip)

This practice is often used to provide surface stability in areas where concentration of livestock is causing a resource concern. These include feeding areas, portable hay rings, watering facilities, feeding troughs, and mineral areas where provision must be made for the collection, storage, utilization, and treatment of manure and contaminated runoff.

Roof and Covers (367)

A roof and cover system consists of a rigid, semi-rigid, or flexible manufactured membrane, composite material, or roof structure installed on an existing structure or waste management facility to divert clean water from animal management areas, waste storage facilities, or gutters and downspouts to prevent

the escape of gases from waste facilities or to exclude precipitation from these facilities. It may also involve attaching downspouts into a subsurface drainage system. The roof and covers practice is a component of an agricultural waste management system.

Roof Runoff Structure (558)

A roof runoff structure is made of various components that collect, control, and convey precipitation runoff from a roof; components of this practice can include gutters, downspouts, rock-filled trenches or pads, and subsurface drains or outlets. The practice applies where roof runoff from precipitation needs to be diverted away from structures or contaminated areas. Roof runoff water that becomes contaminated by contact with animal waste will be diverted to an established manure pond or to a field for land application. Roof runoff water can be collected and used for many purposes. For example, non-potable water can be used for irrigation.

PCP Size Limitations Per Project for Operations Management		
	Practice Acres	Additional Criteria
Nutrient Management	N/A	Nutrient Management Plans or Carbon Farm Plans will be reviewed and revised, as needed, with each soil test cycle and changes in compost volume or analysis, crops, or crop management. Adaptive management strategies will be used based on monitoring results.
Residue and Tillage Management/No-till	N/A	Limited tillage (no more than 10% of the field) is allowed to close or level ruts from harvesting equipment.
Fence	N/A	Livestock fencing must be wildlife-friendly, where feasible.
Mulching	N/A	
Heavy Use Area Protection	N/A	
Roof and Covers	N/A	
Roof Runoff Structure	N/A	No capture of roof runoff for use as potable water is authorized by the PCP.

Environmental Benefits of Operations Management

The operations management conservation practices are designed to provide environmental benefits, including erosion and compaction reduction, water conservation, nutrient management, water quality improvement, pest management, food and cover for wildlife, and food for domestic livestock. Nutrient management is commonly used in combination with no-till/strip till or permanent pasture to increase soil organic matter, increase aggregate stability, improve water infiltration, and enhance soil biological activity. Operations management practices will help achieve other management goals, including:

- Improve or maintain surface and/or groundwater quality;
- Reduce soil erosion and maintain or improve soil conditions for the sustainability of the resource;
- Protect air quality;
- Increase the rate of soil organic matter accumulation;
- Sequester additional organic carbon in the soil;

- Manage nutrients to limit losses prior to nutrient utilization;
- Improve nutrient cycling; and
- Promote increased productivity and economic stability through farm and ranch land sustainability.

Roofs and covers can improve air and water quality and facilitate the capture of biogases for energy production. The gases captured include methane (odorless), as well as ammonia and other gases that cause odors. The methane can be captured and burned for fuel or flared to prevent it from entering the atmosphere as a GHG that is 25 times more potent than carbon dioxide (CO₂) over a 100-year time frame. The partial pressures created by placing a cover over a liquid storage or treatment facility allow more nitrogen to be retained in the waste that can be used for crop production. Collecting roof runoff and transporting it to a stable outlet will reduce soil erosion and improve water quality. Diverting clean water away from animal waste concentration areas reduces the amount of liquid that must be stored and utilized.

3.2.4 Manure Management

The purposes of manure management activities are to protect water and air quality and to improve soil conditions. Actions include installation of composting pads and manure/liquid separators; use of techniques that result in a reduction of GHG emissions, such as conversion from dairy flush to scrape systems; and the proper transfer of liquid manure to avoid impacts on environmentally sensitive areas. The work associated with manure management includes five practices: *Composting Facility*, *Waste Treatment*, *Waste Separation Facility*, *Waste Transfer*, and *Waste Storage Facility*.

Composting Facility (317)

A composting facility is a structure to contain and facilitate controlled aerobic decomposition of manure or other organic materials into biologically stable organic matter that is suitable for beneficial reuse. It is designed to produce a soil amendment that adds organic matter and beneficial organisms to the soil, provides slow-release plant-available nutrients, reduces GHG emissions from waste material decomposition, and improves soil condition. Composting can be used to reduce water pollution potential and improve handling characteristics of organic waste materials, to repurpose organic waste into animal bedding, and to suppress potential plant and animal pathogens.

The structure of a composting facility is typically a concrete pad with concrete or wood walls. It may also include a roof and a drain to outlet leachate into a vegetated swale, or otherwise stable area. Design considerations will include landscape features to buffer prevailing winds, minimize odor transport, and protect visual resources; equipment access; and a determination if a heavy use area apron is needed to properly manage the compost.

Waste Treatment (629)

Waste treatment is the mechanical, chemical, or biological treatment of agricultural waste. The waste treatment practice is used to:

- Improve ground and surface water quality by reducing the nutrient content, organic strength, and pathogen levels of agricultural waste;
- Improve air quality by reducing odors and gaseous emissions;
- Produce value-added by-products; and
- Facilitate desirable waste handling, storage, or land application alternatives.

This practice applies where a new technology can be used to manage the form and characteristics of agricultural waste to prevent it from becoming a nuisance or hazard, or where changing the form or composition provides additional utilization alternatives. This practice will be part of an agricultural waste management system plan.

Waste Separation Facility (632)

A solid/liquid waste separation facility is a filtration or screening device, settling tank, settling basin, or settling channel used to separate a portion of solids from a liquid waste stream. This practice applies where solid/liquid separation will:

- Remove solids from the liquid waste stream and allow further treatment processes to be applied to the separated materials;
- Reduce problems associated with solids accumulation in liquid storage facilities;
- Reduce solids in stored liquids so liquids can be recycled for other uses; and
- Assist with partitioning nutrients in the waste stream to improve nutrient management.

The type of solid/liquid separation facility that is selected will depend on the separation efficiency needed, the available space, and the planned use of the separated material.

Waste Transfer (634)

Waste transfer is a system of structures, pipes, or conduits installed to convey wastes or waste byproducts from the agricultural production site to storage, treatment, or application; it may involve one to several conservation practices, such as various types of structures, pipelines, and pumps. The purpose of the practice is to transfer animal waste, bedding material, spilled feed, wastewater, and other residues associated with animal production to a treatment facility or to agricultural land for application. Generated material is conveyed from the source to a storage/treatment facility or a loading area and from storage/treatment to an area for utilization.

The system design will include items necessary for the safety of humans and animals, including fencing, ventilation, and warning signs. The design will also include measures to prevent tractors or other equipment from slipping into waste collection, storage, or treatment facilities. This practice is only one component of a manure management system.

Waste Storage Facility (313)

A waste storage facility is an impoundment or containment made by constructing an embankment, by excavating a pit or dugout, or by fabricating a structure. The waste storage facility provides temporary storage of manure, agricultural by-products, wastewater, or contaminated runoff and allows agricultural

operation management flexibility for waste utilization. Storage structure types include liquid waste storage ponds or tanks and solid waste stacking structures.

Facility planning will incorporate environmental concerns, economics, the overall waste management system plan, and safety and health factors. The design of waste storage structures will depend on the intended storage period; the site location; federal, State, and local laws and regulations; waste type and production rate; equipment limitations; and safety concerns.

PCP Size Limitations per Project for Manure Management					
	Length	Disturbance Area	Soil Disturbance	Volume	Additional Criteria
Composting Facility	N/A	N/A	N/A	25,000 cy	Required setback of 100 feet from nearest surface waterbody or the nearest water supply well. A lesser setback may be allowed by the RWQCB if MRCD can demonstrate that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality (SWRCB 2015).
Waste Treatment	N/A	N/A	N/A	N/A	Same as Composting Facility
Waste Separation Facility	N/A	N/A	N/A	N/A	Required setback of 100 feet from any down gradient surface waters, open tile line intake structures, sinkholes, agricultural or domestic well heads, or other conduits to surface water, unless a 35-foot wide vegetated buffer or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback (SFB RWQCB 2016).
Waste Transfer	N/A	N/A	N/A	N/A	Same as Composting Facility
Waste Storage Facility	N/A	N/A	N/A	N/A	Same as Composting Facility

Environmental Benefits of Manure Management

Manure has long been used as a crop fertilizer and soil amendment, and its management is fundamental to the overall success of any agricultural operation. Research has shown that manure application can positively impact infiltration rates, soil aggregation, water-holding capacity, and crop yields (Heemstra 2017). Properly applied, animal manure acts as a soil “builder” that provides many environmental benefits, including:

- Increased soil carbon and reduced atmospheric carbon levels;
- Reduced soil erosion and runoff;
- Reduced nitrate leaching; and

- Reduced energy demands as compared to chemical fertilizers.

3.2.5 Upland and Riparian Vegetation Management and Planting

The PCP upland and riparian vegetation management and plantings activity includes twelve practices: *Critical Area Planting, Prescribed Grazing, Range Planting, Hedgerow Planting, Riparian Herbaceous Cover, Riparian Forest Buffer, Vegetated Barrier, Forage and Biomass Planting, Windbreak and Shelterbelt Establishment, Silvopasture, Tree and Shrub Establishment, and Conservation Cover*. The purposes of vegetation management and plantings are to:

- Restore, enhance, or create desired plant communities and fish and wildlife habitats;
- Protect soils, control erosion, reduce sediment, and improve water quality;
- Improve accessibility, quantity, and quality of forage and browse for livestock and wildlife;
- Reduce fire hazards by managing fuel loads to prevent potential fires from reaching the tree canopy;
- Improve air quality; and
- Sequester carbon.

The practices allow management of vegetation with grazing and browsing animals and support establishment of adapted perennial or self-sustaining vegetation, such as grasses, forbs, legumes, shrubs, and trees. Herbicides and other biological treatments (e.g., grazing) may be used to control or eliminate invasive, noxious, or toxic infestations. When herbicides are used, written guidance for herbicide use will include acceptable treatment references for containment and management or control of target species; evaluation and interpretation of herbicide risks associated with selected treatments; acceptable dates or plant growth stage at application to best effect control and discourage re-invasion; any special measures, timing, or other factors (e.g., protection of non-target species and soil texture and organic matter content) that must be considered to ensure the safest, most effective application of the herbicide; and reference to product label instructions. Biological treatment plans for upland and riparian vegetation management will provide references for containment and management or control of target species; kind of grazing animals to be used; timing, frequency, duration, and intensity of grazing or browsing; desired degree of grazing or browsing use for effective control of target species; maximum allowable degree of use on desirable non-target species; and precautions or requirements associated with the selected treatments. Vegetation management activities may include minor grading or digging to remove roots and prepare the area for planting.

Critical Area Planting (342)

Critical area planting is the establishment of permanent vegetation on sites that have, or are expected to have, high wind or water erosion rates, and that have physical, chemical, or biological conditions that prevent the establishment of vegetation with normal seeding/planting methods. The practice may be used to stabilize stream and channel banks and pond and other shorelines. Permanent vegetation may include trees, shrubs, vines, grasses, forbs, or legumes depending on the site characteristics and management objectives. This practice reduces damage from sediment and runoff to downstream areas and improves wildlife habitat and visual resources. It can be used to replant areas where invasive

vegetation has been removed or as an ancillary to stream restoration activities. Native plants characteristic of the local habitat type will be used when implementing and maintaining the practices in natural areas.

Prescribed Grazing (528)

Prescribed grazing involves harvest or management of vegetation with grazing or browsing animals. The practice is often used as part of a conservation strategy designed to improve or maintain plant species composition, improve quantity and quality of forage, improve or protect water quality, reduce soil erosion, improve or maintain riparian and watershed function, improve quantity and quality of food or cover for wildlife, and manage fuel loads. General criteria for use of prescribed grazing will focus on a mixture of plant requirements with the nutritional needs of grazing animals. The number and kinds of animals and the timing and length of grazing periods will be determined on a site-by-site and project-by-project basis to ensure that the grazing objectives are achieved, and resources are protected or enhanced. Additional criteria will be used to meet specific conservation strategies and to protect soil, water, air, plant, and animal resources.

Range Planting (550)

Range planting involves the establishment of adapted vegetation on grazing land. The practice applies to rangeland, native or naturalized pastures, grazed forest, or other suitable areas where the principal method of vegetation management is grazing. Range planting is commonly used where existing stands of vegetation are inadequate for natural reseeding to occur and can be used to increase carbon sequestration. Plantings commonly include grasses, forbs, legumes, shrubs, and trees that are selected based on site-specific characteristics, erosion control and water quality improvement goals, wildlife values, carbon sequestration goals, and other management objectives. Deep-rooted perennial species are commonly used to increase soil carbon storage.

Hedgerow Planting (422)

Hedgerow planting involves establishment of multi-story, multi-species dense vegetation over a linear extent to achieve natural resource conservation goals (e.g., to establish habitat corridors for terrestrial wildlife; enhance habitat for pollinators; provide food, cover, and shade for aquatic organisms that live in adjacent streams; intercept airborne particulate matter; screen for noise and dust; or increase carbon storage in biomass and soils). Hedgerows will be established using a variety of woody plants or perennial bunch grasses; the species will be selected based on soil and site conditions, climate, and conservation purposes. Hedgerows will be planned in combination with other practices to develop holistic conservation systems that enhance landscape aesthetics, reduce soil erosion, improve sediment trapping and water quality, and provide wildlife habitat.

Hedgerows will be protected from livestock grazing and trampling to the extent necessary to ensure that they perform the intended purposes. Competing vegetation will be controlled until the hedgerow becomes established. Supplemental planting may be required when survival is too low to produce a continuous hedgerow.

Riparian Herbaceous Cover (390)

Riparian herbaceous cover involves establishment and maintenance of grasses, grass-like plants, and forbs that are tolerant of intermittent flooding or saturated soils and that are established or managed in the transitional zone between terrestrial and aquatic habitats. This practice will be used on lands along watercourses or at the boundary of waterbodies or wetlands where the natural or desired plant community is dominated by herbaceous vegetation; the ecosystem has been disturbed, and the natural plant community is missing, changed, or has been converted to agricultural crops, lawns, or other high maintenance vegetation; or invasive species dominate. The purposes of this practice include provision of food and shelter; shading of aquatic substrate; access to adjacent habitats and pathways for movement by resident and non-resident aquatic, semiaquatic, and terrestrial organisms; improvement and protection of water quality; stabilization of streambanks and shorelines; and increased net carbon storage in the biomass and soil.

Plant selection will focus on native perennial plants that are adapted to site and hydrologic conditions and provide the structural and functional diversity preferred by fish and wildlife likely to benefit from the installation of the practice. In areas where native seeds and propagules are present, passive regeneration may be used in lieu of planting; however, planting will be required if no native seed bank is present. Plantings will be protected until the desired plant community is well established; protection measures may include plant shelters, wire mesh, weed-free mulching around the plant base to inhibit grass and weed growth, or preventing wildlife or cattle from accessing newly planted areas through use of exclusionary fencing.

Riparian Forest Buffer (391)

The establishment of riparian forest buffers serves to reduce sediment, nutrient, and other contaminant loading to streams and waterbodies and to improve wildlife habitat. This practice will be used to create shade to lower water temperatures, to provide a source of detritus and large woody debris for fish and other aquatic organisms, and to improve overall riparian habitat and travel corridors for wildlife. It will be applied on stable areas adjacent to waterbodies and consist of native vegetative plantings ultimately resulting in forest canopy and understory development. Riparian forest buffers will be planted with native species characteristic of the local habitat type. Planting layout will be designed in such a way as to minimize maintenance and the potential for flooding.

Vegetated Barrier (601)

The establishment of a permanent strip of dense vegetation or vegetation barrier will be used to reduce sheet and rill erosion, manage water flow, stabilize steep slopes, and trap sediment. The practice can be used on eroding grazing land, forest land, construction sites, and crop lands. Plant species will be selected based on the soil and climate conditions, and the species selected will also be easily established and long-lived to provide long-term benefits. Vegetated barriers will be placed on contour or across concentrated flow areas perpendicular to the direction of the water. In areas of concentrated flows, two or more rows of vegetation may be used.

Forage and Biomass Planting (512)

Forage and biomass planting can be used on all lands appropriate for establishment of annual, biannual, or perennial herbaceous species suitable for pasture, hay, or biomass production. Forage and biomass planting can help improve or maintain livestock nutrition and/or health, provide or increase forage supply during periods of low forage production, reduce soil erosion, and improve soil and water quality. It can also be used to provide feedstock for biofuel or energy production.

The selection of species will depend on the intended use, level of management, and compatibility with other species. The plant selection process will utilize the following guidelines:

- Use forage species that meet the desired level of nutrition (quantity and quality) for the kind and class of the livestock to be fed;
- Select plants that help meet livestock forage demand during times that normal farm/ranch forage production is not adequate to augment forage supply;
- Select plants with sufficient ground cover and root mass when the practice is used to reduce erosion and improve water quality; and
- Promote carbon sequestration.

Planting will require site preparation activities that may include grading and use of heavy equipment.

Windbreak and Shelterbelt Establishment (380)

Windbreaks and shelterbelts use vegetation to reduce wind erosion and to protect plants from wind-related damage. The effectiveness of a windbreak or shelterbelt is dependent on the height of the mature plants; it may take 20 years or more for the practice to become fully functional. The practice also includes windbreak/shelterbelt renovation that may involve widening, partial replanting, removing, or replacing selected trees and shrubs to improve an existing windbreak or shelterbelt.

Windbreaks will be oriented as close to perpendicular to the troublesome wind as possible, and the length of the windbreak will be sufficient to protect the site. The interval between windbreaks will be determined using currently approved wind erosion technology. Widths will be based on planned soil loss objectives. For wind erosion control, temporary measures may be installed to supplement the windbreak until it is fully functional. For optimal carbon sequestration, plants that have higher rates of sequestration in biomass and soils will be selected, and the plants will be managed to maximize the above and below ground biomass production. Windbreaks will be designed to be multi-species and multi-story in character to maximize wildlife and conservation benefits.

Silvopasture Establishment (381)

A silvopasture is created when forage crops are introduced or enhanced in a forested environment, when trees are added to a forage system, or when both trees and forage are established on suitable land. Silvopasture systems are specifically designed and managed to support trees, forage, and livestock on the same acreage. Silvopasture practices contribute to the well-being of livestock by providing high-quality forage along with shade and shelter from sun, wind, and storms.

Tree/Shrub Establishment (612)

Tree/shrub establishment will involve planting seedlings or cuttings, seeding, or creating conditions that promote natural regeneration for conservation benefits, which include establishing forest cover, enhancing wildlife habitat, controlling erosion, improving water quality, capturing and storing carbon, and conserving energy. Tree/shrub establishment can be applied on any site capable of growing woody plants. Species selection, site preparation, planting date and methodology, and tree spacing will vary depending on the planned purpose and site conditions.

Conservation Cover (327)

The conservation cover practice will be used to establish and maintain perennial cover to protect soil and water resources on lands that need permanent vegetative protection to reduce erosion and sedimentation, ground and surface water quality degradation by nutrients and sediment, and emission of particulate matter and GHGs, as well as to enhance wildlife habitat and improve soil health. Plant selection will consider site conditions, climatic influences, and the planned purpose for conservation cover. Site preparation and equipment used for plantings will be based on individual sites and the species to be installed.

PCP Size Limitations per Project for Upland and Riparian Vegetation Management and Planting

There are no size limitations on Upland and Riparian Vegetation Management and Planting. However, the following limitations on vegetation removal included in **BMP VM-1** apply to all the PCP activities:

- No more than 0.10 acre of native riparian trees, shrubs, or woody perennials may be removed from a stream area, and only if the area will be replanted with native vegetation;
- Where the area contains a mix of native and invasive species, no more than 0.25 acre of vegetation may be treated or removed from a streambank or stream channel, and only if the area will be replanted with native vegetation where appropriate;
- Outside of riparian areas and other sensitive habitats, native vegetation may be removed only if replanting with native vegetation is completed at the site; and
- Where the area is exclusively non-native species, up to five acres of riparian vegetation may be removed and/or treated.

Environmental Benefits of Upland and Riparian Vegetation Management and Planting

Upland and riparian vegetation management practices may be used in combination to achieve multiple management goals that combine economic with environmental benefits through increased carbon capture and storage in biomass and soils, improved soil and water quality, and desired species composition and vigor of plant communities, and reduced erosion and loss of property. Plantings will result in new browsing and foraging opportunities for livestock and wildlife, as well as improve or maintain quantity and quality of cover, shelter, and forage for grazing and browsing animals' health and productivity and provide shelter for animals and breeding habitat for birds. Activities to reduce fuel loads will lessen fire hazards and result in improved air quality and agricultural sustainability.

3.2.6 Waterway Vegetation and Planting

Waterway vegetation and plantings are used in areas where added water conveyance capacity and vegetative protection are needed to prevent erosion and improve runoff water quality through infiltration that removes sediment, other suspended solids, and dissolved contaminants in runoff. The PCP waterway vegetation and plantings activity includes two practices: *Grassed Waterway* and *Filter Strip*. Installation of waterway vegetation and plantings will often require grading and use of equipment.

Grassed Waterway (412)

Installation of a vegetated, shaped or graded waterway is used to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet. This practice is designed to reduce erosion in a concentrated flow area, such as a gully, in order to reduce sediment and other substances delivered to receiving waters. Vegetation may act as a filter to remove some of the sediment, although this is not the primary function of a grassed waterway; see *Filter Strip* (393) practice below.

A grassed waterway will be designed to convey the peak runoff expected from a 10-year, 24-hour storm. Capacity may be increased, as needed, to account for potential volume of sediment expected to accumulate between planned maintenance activities. Design criteria include minimum depth, width, and side slopes to provide stability; selection of a stable outlet, such as another vegetated channel, earthen ditch, grade stabilization structure, or filter strip; and requirements to ensure successful vegetation establishment. Other considerations may consist of incorporation of wildlife habitat benefits, such as connectivity or use of plantings to attract pollinators, as well as use of water-tolerant vegetation and invasive species control. Grassed waterways will not be used as field roads or turn-rows and will not be crossed by heavy equipment when wet.

Filter Strip (393)

Filter strips are permanent areas of vegetation designed to remove both suspended and dissolved sediment, organic matter, and other pollutants from runoff and wastewater. This practice will be used between agricultural lands and environmentally sensitive areas. When the field or rangeland borders are located such that runoff occurs as sheet flow, coarser-grained sediments are filtered and deposited. Pesticides and nutrients are removed from runoff through infiltration, absorption, adsorption, decomposition, and volatilization, thereby protecting water quality downstream. When established, filter strips may also reduce erosion.

PCP Size Limitations per Project for Waterway Vegetation and Planting				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Grassed Waterway	2,000 feet	1 acre	500 cy	Length is of disturbed area only; length of area treated may be greater.
Filter Strip	2,000 feet	N/A	N/A	Filter strips may not be installed in riparian zones.

Environmental Benefits of Waterway Vegetation and Planting

Waterway vegetation and plantings are specifically designed to reduce erosion and gully formation, treat suspended solids and associated contaminants in runoff, prevent excessive sediment in surface

waters, and, thus, improve water quality. They can be strategically located not only to reduce runoff but also to increase infiltration and groundwater recharge. Increasing the width of waterway vegetation and plantings beyond the minimum required will increase potential for carbon sequestration. Waterway vegetation and plantings provide opportunities to create, restore, and enhance herbaceous habitat and connectivity for wildlife and beneficial insects and pollinators. These practices may also include measures to control undesired invasive species and to improve the aesthetics of project area.

3.2.7 Waterway Stabilization

PCP waterway stabilization activities will include two practices: *Grade Stabilization Structure* and *Lined Waterway/Outlet*, which are used to stabilize grade, prevent channel downcutting, reduce erosion and undermining of creek banks, avoid formation or advancement of gullies, and reduce sediment delivery to receiving waters. The practices can also be used to remediate sediment aggradation in channels that may be limiting aquatic passage and to install hydraulic alterations designed to maintain the water table. Implementation of waterway stabilization measures will generally require grading and use of heavy equipment.

An assessment of the erosion sites will be conducted in sufficient detail to identify the causes contributing to the instability (e.g., livestock access; watershed alterations resulting in significant modifications of discharge or sediment production; in-channel modifications such as gravel mining, headcutting, and water level fluctuations; increased runoff due to urban development in the watershed; or degradation due to channel modifications). Waterway stabilization measures will be designed to avoid creation of unstable conditions up- or downstream. Design considerations will include an evaluation of the effects of work on existing channel morphology, hydrology, and structures (e.g., culverts, bridges, buried cables, pipelines, and irrigation flumes); analysis of current and future sediment transport; and upstream improvements or structural measures.

To protect water quality and the integrity of the structure, an energy dissipater will be provided at the outlet of any grade stabilization structure or lined waterway in areas where concentrated drainage may cause erosion and sedimentation. Otherwise, outlets will be directed to well-vegetated locations. Toe erosion will be stabilized by treatments that redirect the stream flow away from the toe or by structural treatments that armor the toe. Where toe protection alone is inadequate to stabilize the bank, the upper bank will be shaped to a stable slope and vegetated or will be stabilized with structural or soil-bioengineering treatments. Geotextiles or properly designed filter bedding will be incorporated with structural measures where there is the potential for migration of material from behind the stabilization structure.

This activity is intended to promote biotechnical approaches; hard structural solutions will be recommended only in unusual circumstances and will require justification in order to secure approval. Grade stabilization and stream channel stabilization structures that involve riprap, rock, or other structural components used to prevent localized stream erosion, sediment transport, or movement may be used when biotechnical approaches are not feasible or effective. However, use of rock to facilitate natural stream processes and dynamics with the purpose of achieving stream equilibrium between

erosional and depositional processes is acceptable under the PCP standards. This activity is intended to utilize in-stream structures made of natural materials such as boulders and logs to provide channel stability; no gabions, grouted rock, or concrete will be used in any waterway, and use of chemically treated timbers is prohibited.

Grade Stabilization Structure (410)

A grade stabilization structure is used to control grade or stabilize a slope or downcutting channel, manage gully erosion, and eliminate erosional headcutting⁵ and formation or advancement of gullies. For the PCP, this practice refers to brush, erosion-control fabric, rock, or timber structures that do not impound water but rather allow water to be conveyed in a stable manner that results in reduced erosion and improved downstream water quality. Installation will involve grading and bioengineering techniques for placement of rock or geotextile fabric and revegetation to stabilize the eroding area or prevent headcuts from moving further upslope. Design considerations will include water quantity and quality, as well as the visual quality of downstream water resources.

Lined Waterway/Outlet (468)

A lined waterway or outlet has an erosion-resistant lining of concrete, rock, synthetic turf reinforcement fabric, or other permanent material designed to convey runoff without causing erosion or flooding. This practice is used to provide safe conveyance from diversions, terraces, or other concentrated water sources on sites where it is not practical to establish or maintain a grass-covered waterway; it is not used for irrigation water conveyance or in a natural watercourse. Lined waterways will be used in areas where:

- Concentrated runoff, steep grades, wetness, seepage, or piping are causing erosion,
- Soils are highly erosive or other conditions are present that preclude use of vegetation only to prevent erosion, and
- Limited space is available, and a lining is required to address higher velocities.

PCP Size Limitations per Project for Waterway Stabilization				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Grade Stabilization Structure	1,000 feet	1.5 acres	1,000 cy	No more than 350 cy of fill per rock structure. Practice will be sized to match the dimensions of the channel or gully and will be neither larger nor smaller than required to achieve stability.
Lined Waterway/Outlet	500 feet	2 acres	2,000 cy	No longer than 500 feet per project. If used, concrete must cure for a minimum of 30 days or be coated with an agency-approved sealant until it is dry before being allowed to interface water.

⁵ A headcut is an erosional feature of some streams and drainages where an abrupt vertical drop, also known as a knickpoint, in the streambed occurs. It resembles a short cliff or bluff. Headcuts often migrate upstream or upslope as erosion continues.

Environmental Benefits of Waterway Stabilization

Waterway stabilization activities will provide safe conveyance of runoff; reduce offsite or downstream effects of sediment resulting from bank erosion; improve water quality; prevent loss of land and damage to land uses or facilities adjacent to watercourses, including the protection of known historic, archeological, and traditional cultural resources; and support agricultural sustainability. Stabilization activities will maintain the flow capacity of streams and protect or enhance the stream corridor for fish and wildlife habitat. They will also reduce habitat disruption by addressing sources of sediment input from chronic or episodic erosion.

Native species and, where possible, plantings that benefit pollinators will be incorporated into project designs. Trees, shrubs, forbs, and grasses may be planted into or adjacent to waterway stabilization measures, which will improve aesthetic values, as well as provide habitat benefits and reduce erosion potential. Plantings will be especially beneficial where the channel transitions connect to other habitat types (e.g., riparian areas, wooded tracts, and wetlands).

3.2.8 Alternative Livestock Water Supply

Historically, livestock have been allowed to enter waterways when other sources of water are not available. The result has been damage to bank stability, water quality, riparian vegetation, and in-stream and riparian wildlife habitat. To address these adverse environmental effects, as well as loss of a valuable drinking water resource and loss of agricultural land due to increased erosion, operators have chosen to develop alternative water sources.

The alternative water supply activity for the PCP includes five practices: *Spring Development*, *Livestock Pipeline*, *Underground Outlet*, *Watering Facility*, and *Pumping Plant*. Collection of water from springs and seeps will provide a reliable supply that can be directed to a livestock pipeline, often with the aid of a pump, to move water to areas where it will be useful and can be appropriately managed for livestock and wildlife use. Underground outlets are often used in conjunction with a pipeline to prevent erosion and polluted runoff.

Spring Development (574)

The spring development practice will be used to improve the distribution of water or to increase the quantity of water available for livestock and wildlife. Water-bearing soil and rocks will be used and piping installed to a trough or tank away from the spring. A wooden or concrete box or plastic pipe backfilled with gravel may also be installed to hold the water before distribution. The area around the spring or seep will be fenced to control livestock and, therefore, improve wildlife habitat values. Spring development is included in the PCP for circumstances where the practice will have minimal effects on spring or adjacent wetland habitat and will provide water quality improvements to nearby waterways. Spring development will use an excavation process that does not result in placement of fill in or around spring areas, although fencing may be installed to exclude livestock from the area.

Livestock Pipeline (516)

Livestock pipelines convey water from a source of supply to a point of use in order to direct livestock away from springs, streams, and other waterbodies. Livestock pipelines may be made of flexible conduit materials, such as plastic, steel, or ductile iron pipe. Appurtenances used with pipelines may include inlets, outlets, check valves, backflow prevention devices, booster pumps, pressure tanks, surge tanks, air chambers, and pressure or air relief valves. Pipelines will be placed only in or on soils suitable for the type of material selected. Steel pipe installed above ground will be galvanized or insulated with a suitable protective paint coating. Plastic pipe installed above ground will be resistant to ultraviolet light throughout the intended life of the pipe, or measures will be taken to protect the pipe from damage due to ultraviolet light.

Buried pipelines will be installed using traditional open-cut construction methods, although horizontal drilling may also be used where appropriate. Trenches will be dug using backhoes or other machinery based on the size of the pipeline, although trenches for smaller pipelines may be dug manually depending on the size, location, and availability of machinery. The trench will be wide enough to allow proper pipeline and appurtenance installation; trench width and depth and total disturbance area will depend on the size of the pipeline being installed and the soil conditions.

Underground Outlet (620)

An underground outlet is a conduit or system of conduits installed below the ground to convey surface water to a suitable outlet where the discharge can occur without causing damage by erosion, polluted runoff, or flooding. The design capacity of an underground outlet will be based on size of the structure or feature that it serves and its intended purpose. It may be designed to function as the only outlet or in conjunction with other types of outlets. Components of underground outlets, including inlet collection boxes and conduit junction boxes, will be designed with sufficient size to allow efficient maintenance and cleaning operations. Underground outlets may be used with several other practices included in the PCP (e.g., *Water and Sediment Control Basins* [638]).

Watering Facility (614)

This practice involves the installation of water storage tanks (rainwater and groundwater supply) or water troughs and a plumbed pumping system to deliver water at a designed pressure and flow rate. This can include minor grading, shaping, and construction of a pad for tank/troughs.

A watering facility is used to provide livestock and/or wildlife with drinking water to meet daily needs. Proper location of the trough will improve animal distribution and vegetation. A watering facility is sometimes installed to keep livestock out of streams and other surface water areas where water quality is a concern.

This practice applies to all land uses where there is a need for a watering facility for livestock and/or wildlife, where there is a source of water that is adequate in quantity and quality, and where soils and topography are suitable for a facility.

The water source may be a well, spring, stream, pond, municipal water supply, or other source, including water hauled from off site, in some situations. A tank can be installed to store water to supply the trough. A watering ramp can be used to provide a controlled access to a pond or stream.

Pumping Plant (533)

A pumping plant is a facility that delivers water at a designed pressure and flow rate to meet a conservation need. Components of the facility include the required pump, associated power unit, plumbing, and necessary appurtenances. It also may include on-site fuel or energy sources and protective structures. The power supply for a pumping plant may come from line power, fossil fuel, photovoltaic panels, windmills, or water-powered pumps (hydraulic rams). To improve air quality, new or replacement pumping plants will use non-combustion power sources or technologies that are more efficient in fuel use or fuel type.

A pumping plant may be installed for a wide variety of conservation purposes. This includes, but is not limited to, delivery of water for irrigation or livestock, maintenance of critical water levels in wetland sites, transfer of wastewater for utilization as part of a waste management system, and facilitation of drainage by removal of surface runoff or groundwater. When planning the installation of a pumping plant, consideration will be given to the potential effects on ground and surface water from water removal or delivery, as well as ways to protect the pumping plant from damage by livestock, freezing temperatures, and flooding.

PCP Size Limitations per Project for Alternative Water Supply Practices				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Spring Development	N/A	0.05 acres	75 cy	Springs will not provide water for human consumption, recreation, or construction activities.
*Livestock Pipeline; <i>see also in-stream limitations below</i>	6,000 feet		1,500 cy	Limited to 50 feet across per channel.
*Pipelines located in-stream or in the riparian zone	250 feet	100 ft ²	15 cy	Included in the totals listed above.
Underground Outlet	100 feet	0.1 acre	100 cy	Pipelines and underground outlets installed in a stream will not include grouted rock, headwalls, or similar features. All outlets will have animal guards that allow passage of debris while blocking entry of animals large enough to restrict the flow in the conduit.
Watering Facility	N/A	N/A	N/A	Troughs will be constructed with wildlife ramps.
Pumping Plant	N/A	N/A	N/A	Maximum pump size is 3 horsepower (hp); maximum pump rate is 10 gallons per minute (gpm).

Environmental Benefits of Alternative Water Supply Practices

Use of spring development, pipelines to move water to drinking troughs, and protective underground outlets will allow operators to exclude livestock from creeks and other waterways. Developing alternate

water sources away from riparian areas and watercourses, along with exclusionary fencing, will reduce bank erosion, sediment yield, and impairments to water quality from manure, trampling, and browse. In addition, both in-stream and riparian habitat for sensitive wildlife and plants will be protected from livestock disturbance.

3.2.9 Sediment Basin (350)

The purpose of the *Sediment Basin* practice (350) is to prevent undesirable deposition on bottomlands and in streams and other waterways. Commonly, they are used as a last line of defense for capturing sediment when erosion is already occurring or has potential to occur, and access to address upslope sources is not readily available. A sediment basin is designed to trap and store sediment, sediment-associated materials, and other debris for a sufficient length of time to allow runoff and associated pollutants to settle out. The practice does not treat the source of erosion but provides a barrier to reduce degradation of surface water downstream. Sediment basins are generally located at the base of agricultural lands adjacent to natural drainage or riparian areas. They are often installed in conjunction with measures to control upstream sediment sources. When the source of the erosion is off property or inaccessible, a sediment basin is an appropriate stand-alone practice when physical conditions or land ownership preclude treatment of the sediment source by the installation of erosion control measures.

PCP Size Limitations per Project for Sediment and Water Basins				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Sediment Basin	N/A	1 acre	1,500 cy	Sediment and water basins will not be constructed in a stream channel or other waterbody.

Environmental Benefits of Sediment Basins

Sediment basins will be installed to control fine sediment delivery to watercourses. Basins are often located alongside riparian or wetland environments to buffer impacts of upslope runoff and sediment prior to release to a natural drainage. They trap and remove sediment and sediment-laden substances from runoff and reduce concentrated off-site flow and associated erosion by metering out runoff following large storm events. They protect water quality through detention of silt and polluted runoff, which will result in improved habitat conditions for aquatic life, including listed species such as salmonids. Used in conjunction with other upland practices, basins can be an integral part of a land management plan to improve agricultural sustainability.

3.2.10 Aquatic Habitat Improvement

The purpose of the aquatic habitat improvement activity is to improve in-stream conditions for fish and other aquatic species. The work associated with aquatic habitat improvement is composed of five practices: *Pond*, *Stream Habitat Improvement and Management*, *Channel Bed Stabilization*, *Aquatic Organism Passage*, and *Streambank Stabilization*. Installation of aquatic habitat improvement infrastructure will often require grading and use of heavy equipment.

Aquatic habitat improvement projects will be modeled after the *California Salmonid Stream Habitat Restoration Manual* (CDFW 2010); as appropriate, Marin RCD and its partners will consult with staff from CDFW and/or the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NOAA Fisheries) during project development to ensure compliance with NOAA Fisheries Restoration Center's Programmatic Approach to Endangered Species Act/Essential Fish Habitat Consultation Streamlining for Fisheries Habitat Restoration Projects and Biological Opinion 2016. Treatments will be designed to achieve habitat and population objectives for fish and wildlife species or other communities of concern and to avoid adverse effects on special-status species and their habitats, as well as on aesthetics and pre-historic, historic, or traditional Tribal cultural values. To the extent feasible, design criteria will include the requirements of different aquatic species (e.g., coho, steelhead, California freshwater shrimp) and age classes (i.e., adults and juveniles).

Aquatic habitat improvements will be based on an assessment of watershed, stream, and riparian conditions, including a site-specific assessment of erosion sources, local hydrology, channel morphology, geomorphic setting, fish and other aquatic species present, riparian and floodplain conditions, and any habitat limitations such as water quantity and quality, food supply, and restriction of up- and downstream movement of aquatic species. Emphasis will be on establishing an ecologically self-sustaining stream-riparian system, improving floodplain-to-channel connectivity, and enhancing wetland and off-channel habitats consistent with the local climate and hydrology of the stream. The activities will be designed to work within the hydrologic and geomorphic context of the watershed as a whole, including managing upland land uses that may adversely affect aquatic and riparian functions.

Pond (378[R])

The PCP pond practice is limited to restoration and maintenance of existing water impoundment structures. No new in-stream ponds or restoration activities that would involve an increase in the original area or storage capacity of a pond are authorized. It is the responsibility of the landowner to obtain the appropriate water right approvals from the State Water Resources Control Board's Division of Water Rights.

The purpose of this practice is to improve water availability for livestock, as well as fish and wildlife, and to maintain or improve water quality. It will be used to repair emergency spillways, provide alternative pipe outlets for water flow, and remove built-up silt to restore the pond's original storage capacity. Material excavated from the pond will be securely compacted onto the pond berm or placed in an upland area where it will not be washed back into the pond or into an adjacent waterway by rainfall, or it will be legally disposed of off-site. Placement in wetlands will be avoided.

Stream Habitat Improvement and Management (395)

Stream habitat improvement and management involves maintenance, enhancement, and restoration of aquatic habitat by improving physical, chemical, or biological conditions of the stream and associated riparian zone. Its purpose is to provide suitable habitat for desired fish and other aquatic species. It will be used to enhance in-channel habitat and riparian conditions that maintain hydrological connections of diverse stream habitat types and ecological processes that are important to aquatic species.

This practice will be conducted in streams and their adjoining backwaters, floodplains, wetlands, and riparian areas where conditions limit reproduction, growth, survival, and diversity of aquatic species. It will also be used to remove structures that are barriers to aquatic passage; add habitat features for salmonids, such as spawning substrates and structural elements (e.g., boulder clusters for step pools, root wads, large wood, summer rearing pools, overhead cover, and overall elements that provide stream complexity); and plant native riparian vegetation on streambanks for water quality enhancement and improved habitat.

Channel Bed Stabilization (584)

The channel bed stabilization practice consists of suitable structures or plantings used to stabilize the bed of a channel in order to maintain or alter the bed elevation or gradient, modify sediment transport or deposition, or manage surface water and groundwater levels in floodplains, riparian areas, and wetlands. Channel bed stabilization is applied when an imbalance in a stream system causes damage to the bed. It is used in channels undergoing damaging aggradation or downcutting that cannot be feasibly controlled by pruning or otherwise clearing vegetation, establishment of vegetative protection, installation of bank protection, or installation of upstream water control measures.

Aquatic Organism Passage (396)

This practice, commonly referred to as fish passage, consists of modification or removal of barriers that restrict migration or movement of fish and other aquatic organisms. It addresses functional and physical conditions in freshwater channels to improve target species' population status by restoring access to spawning, rearing, and foraging habitat. At a minimum, passage structures will be designed and evaluated for hydraulic performance and structural integrity at bankfull discharge and 25-year peak flow events.

Aquatic organism passage design criteria will include considerations of hydraulics, geomorphic impacts, sediment transport and continuity, and organic debris movement. Barrier removal will be the preferred method for creating aquatic passage because it provides the best mix of passage quality and geomorphic function. Where removal of the barrier is not possible, options include culverts with natural bottoms, culverts set below grade, low-water crossings, and channel-spanning bridges.

Streambank Protection (580)

Streambank protection treatments are used to stabilize and protect banks of natural or constructed channels to maintain flow capacity; prevent loss of land or damage to land uses; reduce scour, erosion, and the resultant offsite or downstream effects of sedimentation; and improve or enhance the stream corridor for fish and wildlife habitat. An assessment will be prepared in sufficient detail to identify the causes contributing to the instability and to determine the appropriate sizing and specifications of any structure.

As with waterway stabilization structures, this practice is intended to promote biotechnical approaches; hard structural solutions will be used only in unusual circumstances and will require justification in order to secure regulatory approval. Plans and specifications will include treatments that minimize erosion

and sediment production during construction; that result in stable toes, slopes, and transition zones; and that provide long-term protection from erosion and overbank flows. Proposed protective treatments will be compatible with improvements being planned or installed by others in the watershed and with the local bank materials, water chemistry, channel hydraulics, and slope characteristics.

PCP Size Limitations per Project for Aquatic Habitat Improvement				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Pond Restoration	Up to 300 feet of spillway	1 acre	N/A	No new or enlarged ponds are allowed.
Stream Habitat Improvement	2,000 feet	5 acres	10,000 cy	May include multiple in-stream structures, maximum 1,000 feet channel dewatered.
Stream Channel Stabilization	1,000 feet	1.5 acres	1,000 cy	No longer than 1,000 feet per project. If used, concrete must cure for a minimum of 30 days or be coated with an agency-approved sealant until it is dry before being allowed to interface water.
Aquatic Organism Passage	250 feet*	0.25 acres*	1,000 cy*	Includes barrier removal, rock weirs, riparian area planting. Maximum 1,000 feet of channel may be dewatered.
Streambank Protection	1,000 feet	5 acres	1,500 cy	Length is of disturbed area only; length of area treated may be greater.

* The size limitations for aquatic passage are intended as general guidelines; they may be greater or lesser but in all cases will be sufficient to achieve NOAA Fisheries' or CDFW's fish passage criteria.

Environmental Benefits of Aquatic Habitat Improvements

Aquatic habitat improvement activities will restore and enhance physical, chemical, and biological functions of aquatic and riparian habitats, and installation of in-channel structures will produce a stable streambed favorable to wildlife and riparian growth. Implementation will provide channel and riparian conditions that maintain stream corridor ecological processes and hydrological connections of diverse stream habitat types and provide passage to previously unavailable habitat for salmonids and other aquatic species. Improved floodplain connectivity will allow development of backwaters, wetlands, and off-channel habitat consistent with local climate and hydrology. Pools and riffles in degraded stream sections will be formed through strategic placement of root wads or natural rock to reduce the flow velocity through the area. Use of these practices will also protect and improve water quality through erosion control and native revegetation.

Vegetative components will be included as necessary for ecosystem functioning and stability and will utilize native species that are compatible with the local environment. Multilayer riparian plantings installed in conjunction with aquatic habitat improvements will provide shade to keep temperatures low, improve water quality by capturing contaminants from runoff, and provide an improved food base for aquatic systems. In addition, dissolved oxygen content may be increased, improving the stream's assimilative capacity. Plant materials that have multiple values, such as those suited for biomass, nuts, fruit, browse, nesting, and aesthetics, and that provide habitat requirements for desirable wildlife and pollinators are preferred. The establishment of vegetation on channel banks and associated areas will be in accordance with conservation practice standard *Critical Area Planting* (342).

3.3 General PCP Environmental Protection Measures

The intent of the PCP conservation and restoration activities is to improve water quality, enhance wildlife habitat, and support sustainable agriculture in Marin County. However, any activity that involves work in an area with sensitive resources, no matter what the intent, has potential to result in adverse effects. The *Required Best Management Practices (BMPs) for PCP Activities* are presented in Table 3-3.

The BMPs in Table 3-3 are an essential part of the PCP's *Project Description*. They are mandatory requirements and will be incorporated into all phases of each project from planning and design through implementation, monitoring, maintenance, and reporting. The environmental protection measures focus on project planning to avoid impacts through placement and design of individual PCP projects. The *Initial Study* impact analyses and determinations presented in Section 4 are based on implementation of these measures, as well as the project-specific additional criteria contained in the description of each of the ten activity areas in Section 3.2 above. Additional mitigation measures are identified in Section 4. Mitigations measures were developed to reduce or avoid specific resource impacts.

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
Design Considerations		
BMP DC-1	Requirements to Minimize Area of Disturbance	<p>MRCD shall ensure that special attention is given to minimizing the area of disturbance during project planning and design by requiring the following:</p> <ol style="list-style-type: none"> 1. Ground and vegetation disturbance shall not exceed the minimum area necessary to complete the project and shall be limited to the Work Area, which is defined as anywhere subject to disturbance from access, staging, vegetation management, grading, and other human activities. Removal of trees and other vegetation that provide shade and other habitat elements for fish and wildlife, reduce erosion and runoff, or add to the visual quality of the area shall be avoided to the extent feasible while achieving the project objectives; selective pruning is allowed for safety purposes. See BMP VM-1 below for areal limitations on vegetation removal. 2. Site-specific design plans shall show the maximum extent of grading and shall include requirements to protect sensitive environmental resources during construction and on-going maintenance activities. 3. Erosion and sediment control measures shall be incorporated into project design and implemented upon completion of grading. 4. Project plans shall include measures to restore all disturbed areas to pre-construction or better conditions unless project regulators determine that other measures should be implemented.
BMP DC-2	Requirements to Protect and Avoid Disturbance of Aquatic Environments	<p>MRCD shall ensure that special attention is given during project planning and design to protect aquatic habitat by requiring the following:</p> <ol style="list-style-type: none"> 1. Avoid impacts in aquatic environments where feasible; if avoidance is not possible, minimize disturbance to areas necessary to achieve individual project objectives. 2. Aquatic habitat improvement project designs shall employ current engineering and scientific standards (e.g., the <i>California Salmonid Stream Habitat Restoration Manual</i> [CDFW 2010]). 3. Aquatic organism passage concerns (e.g., velocity, depth, slope, air entrainment, screening, swimming and leaping performance for target species) shall be addressed during design to avoid creation of potential passage issues. 4. Stabilization structures utilized to improve habitat shall not impede or prevent

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		<p>passage of fish and other aquatic organisms or impair wildlife connectivity or movement.</p> <p>5. Important fish and wildlife habitat elements, such as woody cover or wetlands, shall be avoided or protected if possible when siting practices.</p>
BMP DC-3	Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality	<p>During project design, MRCD shall ensure that:</p> <ol style="list-style-type: none"> 1. Road improvements shall be modeled on the <i>Handbook for Forest, Ranch, and Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining and Closing Wildland Roads</i> by Weaver, Weppner, & Hagens (PWA 2015) and Publication 8262 <i>Rural Roads: A Construction and Maintenance Guide for California Landowners</i> (University of California ANR 2007) or the most current industry standard at the time of project planning. 2. Culverts installed in anadromous fish streams shall be consistent with CDFW's <i>Culvert Criteria for Fish Passage Revised May 2002</i> and NOAA Fisheries' Southwest Region's <i>Guidelines for Salmonid Passage at Stream Crossings</i> (2001a) or the most current industry standard at the time of project planning. 3. Culverts shall be designed to minimize habitat fragmentation and barriers to aquatic movement. Channel-spanning bridges, bottomless arch culverts with natural streambed substrates, or other fish-friendly solutions shall be required in salmonid streams to allow passage for fish and other aquatic organisms. 4. All crossings shall be designed to pass low and high flows. The design and location of crossings shall provide passage for as many different aquatic species and age classes as possible. 5. In-stream crossings shall not be designed for placement within 300 feet of known spawning or breeding areas of listed species. 6. Access roads shall be relocated only to provide a setback from a stream corridor or wetland area or in order to plant riparian vegetation as part of a stream corridor restoration project or other natural resource protection or enhancement purposes. A biologist shall determine the appropriate setback distance to protect riparian and stream resources. Relocated roadway segments shall be constructed to follow natural contours and shall be sited on low slopes to minimize disturbance of drainage patterns. 7. Roads and trails shall be designed to avoid runoff directly into a stream or waterbody. An energy dissipater shall be installed at the outlet of any water bar, cross drain, or culvert in areas where roadway drainage may cause erosion and sedimentation; otherwise, outlets shall be directed to well-vegetated locations. 8. Site-specific land-use operations shall be assessed to consolidate and minimize the number of crossings needed. 9. Crossings shall be designed with sufficient capacity to convey the design flow and transported materials without altering the stream flow characteristics. They shall be protected so that flood flows safely bypass without damaging the crossing or eroding the streambanks. 10. Crossings shall be sized to accommodate the intended traffic without damage to livestock, people, or vehicles.
BMP DC-4	Considerations for Placement of Livestock Watering Facilities	<p>MRCD shall ensure that installation of watering facilities will not adversely affect sensitive resources by requiring the following:</p> <ol style="list-style-type: none"> 1. An 800-foot buffer in urban areas and a 1,600-foot buffer in rural areas shall be established from neighboring schools, residences, hospitals, and other sensitive noise receptors. 2. Watering facilities shall not be sited in areas prone to erosion or in sensitive habitat, except where such addition would improve conditions.
BMP DC-5	Placement of Composting and other Constructed Facilities	<p>MRCD shall ensure that placement of composting and other constructed facilities will not block or otherwise inhibit use of a known wildlife migration corridor. Facilities shall be placed at least 100 feet from a riparian corridor.</p>
BMP DC-6	Setback from Water Supply Wells at Waste	<p>For newly constructed waste storage facilities, MRCD shall ensure that a setback of 100 feet is established between any water supply wells and animal waste storage</p>

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
	Storage Facilities	facilities unless a more stringent setback standard is adopted by a regulatory agency with jurisdiction over the project, at which time, the more stringent setback shall be required.
Aesthetic Considerations		
BMP AS-1	Required Aesthetic Design Considerations	To avoid adverse impacts on aesthetic resources, MRCD shall design projects in the following manner: <ol style="list-style-type: none"> 1. Structural materials, water elements, and plant materials shall be designed to visually and functionally complement their surroundings. 2. Designs shall indicate how and where excavated material and cut slopes will be shaped to blend with the natural topography.
Biological Resources Protection		
BMP BR-1	Required Biological Assessment during Project Planning	To avoid or minimize adverse impacts on sensitive biological resources, MRCD shall ensure that site planning includes the following initial site evaluation: <ol style="list-style-type: none"> 1. A qualified biologist shall perform a literature review of each proposed project site to identify potential habitat for sensitive biological communities and special-status species. If an area of possible concern is identified in or near a project site, the area must be further evaluated by a qualified biologist as presented in Mitigation BIO-1c.
BMP BR-2	Avoid Creation of Population "Sinks"	MRCD shall ensure that, if wildlife habitat benefits are incorporated into a project design, care shall be taken to avoid creating small isolated zones that could become population "sinks" (i.e., where wildlife that are attracted to an area experience loss due to predation or other issues, such as seasonal drying out of ponds).
BMP BR-3	Temporal Limitations and Requirements to Protect Special-species during Construction, Vegetation Management and Other Maintenance Activities	MRCD shall ensure that the following limitations are placed on project implementation timing to avoid or minimize adverse impacts on sensitive biological resources: <ol style="list-style-type: none"> 1. Wildlife usage in the vicinity shall be taken into consideration for project timing. In general, in-stream and riparian activities shall be implemented in the period between June 1 and Oct. 31, unless project-specific recommendations from regulators or the project biologist suggest an alternative work window to avoid impacts on special-status species. Work that would disturb waterways or sensitive riparian habitats outside the June through October timeframe must be approved in advance by project regulators. 2. Work in and around streams that support anadromous fish populations or California freshwater shrimp shall not begin until June 15 and shall be completed by Oct. 15. Work prior to June 15 or beyond Oct. 15 may be authorized on a site-specific basis with approval from project regulators. 3. Planting may occur after Oct. 31 if potential for vegetation success is improved due to favorable environmental conditions; planting above the ordinary high water line may occur at any time of the year. 4. Work in and around areas that may support bird nesting shall be performed before March 15 or after August 15. See Mitigation BIO-j for requirements if activities are performed during bird nesting season (March 15 to August 15). 5. Vegetative treatments shall be conducted during periods of the year when weed species are most vulnerable and shall promote restoration of the native or desired plant communities.
Water Quality Protection		
BMP WQ-1	Measures to Ensure Compliance with Water Quality Standards	To avoid adverse impacts on water quality, MRCD shall ensure that: <ol style="list-style-type: none"> 1. Discharge of storm water from a facility or activity that causes or contributes to the violation of water quality standards or water quality objectives is prohibited. 2. Creation of a condition of pollution, contamination, or nuisance, as these terms are defined in California Water Code Section 13050(d), is prohibited. 3. Discharge of soil, bark, slash, sawdust, or other organic and earthen material from any construction or associated activity of whatever nature into any stream or watercourse in quantities deleterious to fish, wildlife, or other beneficial use is prohibited.

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		<ol style="list-style-type: none"> 4. Placing or disposal of soil, silt, bark, slash, sawdust, or other organic material from any construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in quantities that could be deleterious to fish, wildlife, or other beneficial uses is prohibited. 5. Discharge of decant water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters is prohibited, except as authorized by regulatory agencies. 6. Maintenance activities that result in the direct or indirect discharge of waste, to surface waters or surface water drainage courses are prohibited unless authorized by separate permit action. 7. Sediment removal may not occur in a flowing stream or standing water. 8. If used, concrete shall be allowed to cure for a minimum of 30 days before being allowed to interface with a waterway, or it shall be coated with an agency-approved sealant. If sealant is used, water shall be excluded from the site until the sealant is dry.
Vegetation Management		
BMP VM-1	Project Areal Limitations on Vegetation Management	<p>MRCD shall ensure that the following areal limits on vegetation management are implemented during project planning and design:</p> <ol style="list-style-type: none"> 1. Disturbance of native trees, shrubs, and woody perennials or removal of trees from riparian areas, including streambanks or stream channels, shall be avoided where possible and minimized where avoidance is not feasible. 2. Ground-disturbing work shall occur above summer low-flow water levels unless a regulator-approved dewatering system is in place. Dewatering requirements are addressed in Mitigation BIO-1d. 3. Removal of native trees and shrubs will be minimized and will only occur when necessary to meet project objectives. 4. No more than 0.10 acre of native riparian trees, shrubs, or woody perennials shall be removed from a stream area for a single project. 5. Where the area contains a mix of native and invasive species, no more than 0.25 acre of vegetation shall be removed from a streambank or stream channel. 6. Outside of riparian areas and other sensitive habitats, native vegetation may be removed only if replanting with native vegetation is completed at or near the site. 7. If the area is exclusively non-native species, up to five (5) acres of riparian vegetation may be removed.
BMP VM-2	Requirements for Invasive and Noxious Plant Species Control	<p>MRCD shall ensure that the spread or introduction of invasive plant species and other noxious weeds is avoided to the maximum extent possible by protecting areas with established native vegetation; implementing preventative measures, such as use of certified weed-free materials and inspection and cleaning of all equipment before entering or exiting sites during construction; restoring disturbed areas with native species where appropriate; and performing post-project monitoring and control of exotic species.</p>
Cultural and Tribal Resources Protection		
BMP CR-1	Required Cultural and Tribal Resource Protection	<p>MRCD shall identify culturally sensitive areas at or near PCP activity sites during initial planning to ensure cultural resource sites and sensitive areas can be avoided through project design. Once a project has been selected, a preliminary design is developed that includes project boundaries, access, and equipment required for implementation. Potential impacts on cultural resources shall be evaluated in cooperation with FIGR. Site visits shall occur, as requested by FIGR, to identify potential impacts and avoidance and protection measures that will become part of the project description and permit requirements.</p>

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
Construction-period Impact Avoidance Requirements		
BMP CP-1	Require Adherence to Design Plans and Construction BMPs	MRCDD shall ensure that the projects are implemented according to the design plans and that BMPs are properly installed and maintained during construction activities.
BMP CP-2	Requirements to Protect Air and Water Quality during Construction, Staging, and Stockpiling of Materials	<p>MRCDD shall require the following to protect water quality during construction, staging, and stockpiling of materials:</p> <ol style="list-style-type: none"> 1. Ensure that all debris, sediment, rubbish, vegetation, or other construction-related materials shall be placed as shown on the project plans where they cannot enter jurisdictional waters or wetlands. No materials, including petroleum products, chemicals, silt, fine soils, or substances to the function of a watercourse and water quality, shall be allowed to pass into, or be placed where it can pass into, stream channels. Upon completion of work, the construction contractor shall be responsible to remove and dispose of all construction-related materials, debris, and sediments in an appropriate landfill or as shown on project plans. 2. Ensure the use or storage of petroleum-powered equipment is accomplished in a manner to prevent the potential release of petroleum materials into sensitive areas. The following precautionary measures shall be followed: <ul style="list-style-type: none"> o All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Vehicles and equipment must be inspected and approved by the inspector before use. Fueling shall take place outside of the riparian corridor. o If needed, a contained area located at least 50 feet from a watercourse shall be designated for equipment storage, short-term maintenance, and refueling. If possible, these activities shall not take place on the project site. o Vehicles shall be inspected for leaks daily and repaired immediately. o Leaks, drips, and other spills shall be cleaned up immediately to avoid soil or groundwater contamination. o Major vehicle maintenance and washing shall be done off site. o All spent fluids, including motor oil, radiator coolant, or other fluids, and used vehicle batteries shall be collected, stored, and recycled as hazardous waste off site. o Dry cleanup methods (i.e., absorbent materials, cat litter, and/or rags) shall be available on site. o Spilled dry materials shall be cleaned up immediately. o When possible, work shall be performed from the top of bank of a watercourse or pond. o Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires heavy equipment to travel on a rocky or cobbled substrate, a rubber tire-loader/backhoe is the preferred vehicle; only after this option has been determined infeasible or less environmentally protective shall use of tracked vehicles be considered. o Heavy equipment shall not be used in a flowing stream, creek, or ponded area, except to cross a stream or pond to access the work site. Heavy equipment shall not enter a flowing stream, creek, or ponded area without authorization from environmental regulators. o The amount of time heavy equipment is stationed, working, or traveling within the creek bed shall be minimized. o When heavy equipment is used, woody debris and vegetation on the banks and in the channel shall not be disturbed, wherever feasible. 3. Site preparation techniques shall be employed to minimize generation and transport of airborne particulate matter, such as wetting disturbed areas or covering storage piles adequately.

Table 3-3. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		4. Limit construction emissions by reducing idling of diesel construction vehicles to no more than 5 minutes per California Code of Regulations §2449(d)(3) and using lower-emission vehicles to the maximum extent feasible.
BMP CP-3	Requirements for Erosion Control and Sediment Detention during Construction and Maintenance Activities	<p>MRCD shall require the following erosion and sediment control measures to avoid or minimize erosion and impacts on water quality during project construction and maintenance activities:</p> <ol style="list-style-type: none"> 1. All disturbed areas shall be restored to pre-construction or better conditions unless other requirements are prescribed by project regulators. Erosion and sediment control measures shall be installed upon completion of grading and shall be in place prior to the onset of rain at all locations where the likelihood of erosion or sediment input exists as determined by MRCD. Measures shall include a combination of permanent native vegetation (e.g., live planting, native seed casting, or hydroseeding), weed-free mulch, rock, and biotechnical treatments (e.g., filter strip, water and sediment control basins, weed-free straw bales). If required to reduce erosion or to control sedimentation, temporary filter-fabric fencing, biodegradable fiber rolls, weed-free straw bales, or other runoff diversions shall be utilized to keep sediment from flowing into an adjacent waterbody. After vegetation is sufficiently mature to provide erosion control, these measures shall be removed. MRCD shall determine if the additional erosion control requirements are needed and when they can be removed. 2. Any collected sediment shall be disposed of away from the collection site and stabilized to ensure that no sediment-laden runoff enters jurisdictional waters or wetlands. 3. Post-construction erosion control, sediment control, and water quality protection measures shall be inspected regularly by MRCD staff or a designee to ensure they are functioning properly.
BMP CP-4	Measures to Protect Aesthetic Values and Sensitive Biological Resources during Implementation	<p>To avoid adverse impacts on aesthetic values and sensitive biological resources, MRCD shall:</p> <ol style="list-style-type: none"> 1. Limit construction activities to daylight hours. 2. Avoid creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Any new light sources shall meet Marin County requirements. External light fixtures shall be mounted at low elevations to preserve the nightscape and natural surroundings of the area, and to prevent glare that may be visible from off-site locations and adjacent residences. Site lighting that is visible from adjacent properties, public roadways, and from other neighborhoods shall be indirect or incorporate full shield cut-offs.
BMP CP-5	Ensure Emergency Access is Adequate	MRCD shall ensure that adequate access for emergency vehicles is maintained at all work sites. This may require placement of plates over open trenches during pipeline installation or other means to provide emergency access.
BMP CP-6	Limit Construction Hours	In urban areas or areas near property lines or where noise may otherwise be a concern, MRCD shall limit use of heavy equipment or other noise-producing activities at construction sites from 7 a.m. to 6 p.m., Monday through Friday, and from 9 a.m. to 5 p.m. on Saturdays. No work on Sundays or holidays will be allowed. Heavy construction operation can occur before or after these hours with authorization from Marin County or from cities within the PCP Program Area. These determinations will occur on a site-by-site and project-by-project basis. In remote, rural areas, where impacts on surrounding landowners and residents in the vicinity are unlikely, work may occur outside of these hours. Non-noise producing activities may occur outside the operational hours limitations for heavy equipment.

3.4 Activities not Included in the PCP

The following types of projects *are not authorized* under the programmatic approvals of the PCP:

- Projects by private landowners not working with Marin RCD or its partners;
- Projects that do not meet the limitations on project size or cannot fulfill the environmental protection measures established herein or required by site-specific permits; and
- Projects of any type other than those identified in the ten project categories and 44 practice standards covered in the Program.

4 Initial Study (IS)

The PCP is intended to provide a catalyst for high-quality resource protection and restoration projects on both public and private properties throughout western and northeastern Marin County while still ensuring the integrity of the resource-protection mandates contained in CEQA. The PCP Program Area encompasses seven watersheds: greater Tomales Bay⁶, Stemple Creek-Estero de San Antonio, Marin County portions of the Estero Americano, Novato Creek, Miller Creek, San Antonio Creek, and the creeks in the northern portion of western PRNS that flow directly to the Pacific Ocean; see Figure 1. The 44 conservation practices are grouped into ten categories and include land management actions to address water quality, sedimentation, and erosion from rural roads, stream crossings, vegetation, and facility operations, as well as resource management activities for waterways, alternative water sources, erosion and sediment control, and aquatic habitat restoration.

Environmental resource-specific potential adverse impacts and mitigation measures to reduce impacts to a less-than-significant level are analyzed in the following *Initial Study*. Mitigation measures have been developed to reduce potential impacts to less-than-significant levels. Mitigation measures can be found in the impacts analysis for each resource area and are identified by a unique identification system based on the impact being addressed. For example, **Mitigation Measure (MM) BIO-1d, Protect Listed Salmonids**, is presented in the Biological Resources discussion Section 4.4.

⁶ The Tomales Bay watershed includes the subwatersheds of Lagunitas Creek, San Geronimo Valley, Marin County portions of Walker Creek, Inverness, and the direct eastern and western drainages into Tomales Bay

4.1 Aesthetics

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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Program Area is located in western and northeastern Marin County, an area with high aesthetic values, numerous scenic vistas, and relatively few sources of light except within urban settings. As required by **BMP AS-1**, landforms, structural materials, water elements, and plant materials will be designed to visually and functionally complement their surroundings; and designs will indicate where excavated material and cut slopes are to be shaped to blend with the natural topography. **BMP CP-4** limits construction activities to daytime hours and requires Marin RCD to ensure no new source of light or glare that would affect day or nighttime views occurs during project activities. **BMP VM-1** sets areal limitations on disturbance of vegetation. For each PCP project, no more than 0.10 acres of native trees, shrubs, and woody perennials may be removed from riparian areas, and no more than 0.25 acres of vegetation may be removed from a streambank or stream channel in an area that contains a mix of native and invasive species. Outside of riparian areas and other sensitive habitats, native vegetation may be removed only if replanting with natives is completed at the same site.

a, c) Have a substantial adverse effect on a scenic vista or degrade the visual character of the site or surrounding areas: Less-than-significant Impact

There are many scenic vistas and scenic areas throughout the PCP Program Area. Short-term impacts on scenic vistas and the visual character of work sites and surrounding areas may occur during project construction from the presence of construction equipment and disturbed ground. However, construction activities will be temporary and short-term. Disturbed areas will be immediately planted with native vegetation and grasses following construction as required by **BMP VM-1**. In the long term, implementation of the PCP restoration and conservation projects may improve aesthetic values by enhancing and restoring native vegetation along riparian corridors and wetlands, as well as in upland areas. The short-term nature of project construction and the required revegetation of disturbed areas will result in less than significant impacts on the visual character of the areas surrounding PCP project areas.

b) Damage scenic resources within a designated or undesignated Scenic Highway: Less-than-significant with Mitigation

Highway 1 and sections of Highway 101 meet the requirements of a State Scenic Highway, and Highway 37 is designated as an “unconstructed state highway eligible for Scenic Designation,” though currently no formally designated State Scenic Highways or National Scenic Byways are present in Marin County (Caltrans 2011; MCCDA 2007b).

PCP practices could be implemented near any of the three currently undesignated scenic highways in Marin County. Although no practices will be installed inside the Caltrans right-of-ways adjacent to the highways, practices could be visible along the roadways. Many of the practices may include construction activities that will be temporarily visible from the roadway; however, such activities will be short-term. Views from the highway may include construction equipment, construction materials, and construction workers. Temporary view of construction activities will not damage scenic resources along these highways, and the impact will be less-than-significant.

Installation of hedgerows and windbreaks may occur along farms and ranches adjacent to scenic highways. As the vegetation in the hedgerows and windbreaks matures, views along the scenic highways could be partially obstructed depending on the distance from the highway, the height of the plantings, the topography of the areas, and the orientation of the hedgerow or windbreak relative to the highway. The result could alter the views and change the visual character of the area, and the impact could be significant.

Implementation of Mitigation Measure AES-1 will reduce impacts on scenic resources to less-than-significant levels by designing and implementing PCP practices according to the results of a site-specific scenic resources evaluation. The visual assessment will be used to identify locations where a PCP practice can and cannot be installed based on scenic resources. The site-specific scenic resource evaluation may indicate that a PCP practice cannot be installed at a particular location without a significant impact to scenic resources in the area. In this case, the PCP practice will not be installed. In other cases, the visual assessment may dictate the maximum allowable height, and tree and hedgerow species selection will be used to ensure allowable heights are not exceeded.

Mitigation Measure AES-1, Provide Site-specific Planning to Maintain Vistas on Scenic Highways.

MRCD shall conduct a site-specific visual resources assessment and prepare a planting plan for implementation of hedgerow and windbreak practices on properties, or portions of a property, adjacent to and visible from a scenic highway. The assessment shall determine whether the planned plantings have the potential to obstruct or damage scenic vistas. If obstruction or damage is possible, the assessment will provide line of sight for views and maximum height of vegetation to protect the view. A planting plan will be prepared specifying what plant species will be used to meet the criteria generated in the assessment. Plantings shall not occur where project designs cannot eliminate impacts to scenic resources.

d) Create light or glare that would degrade day or nighttime views: Less-than-significant Impact

In accordance with **BMP CP-4**, project work will be carried out during the day and will avoid creation of a new source of substantial light or glare. Implementation of the requirements in **BMP CP-4** will prevent degradation of nighttime views, and the impact will be less than significant.

4.2 Agriculture and Forestry Resources

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause re-zoning of, forest land (as defined in PRC §12220(g)), timberland (PRC §4526), or timberland zoned Timberland Production (Government Code §51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment that, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Marin County encompasses 828 square miles, a total of 529,920 acres. Marin's farms and ranches have been a part of its diverse landscape since European settlers arrived in the mid-1800s. The USDA's Census of Agriculture reported 323 farms covering 170,876 acres in Marin County in 2012, up 27% from 255 farms covering 133,275 acres in 2007. Livestock and dairy products have been the foundation of the agricultural economy, but diversified farms also produce vegetables, fruits, wine grapes, flowers, nursery crops, wool, hay, honey, herbs, and forage crops. Livestock products (e.g., milk, beef, sheep, poultry, and eggs) comprise 91% of the agricultural goods sold, and crops total 9% (USDA 2012). Specialty products, such as organic vegetables, grass-fed meats, olive oil, and farmstead cheese, now supplement traditional farm income, and oysters, mussels, and clams are also being produced by the aquaculture industry.

The California Department of Conservation (DOC) categorizes farmland to assess its relative importance. Important farmland categories represent the agricultural lands most suitable for cultivating crops; they include Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance. Prime Farmlands are lands with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. The other farmland categories include lands that are important for growing agricultural crops in California. Grazing lands are properties with at least 40 acres on which the existing vegetation is suited to the grazing of livestock. The first three categories (Prime, Statewide, and Unique Farmlands) are considered "important farmland" and also meet the definition of agricultural land under CEQA (PRC Section 21060.1).

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance ... to non-agricultural use: No Impact

According to the DOC, Marin County has no Prime Farmlands. Other types of farmland in Marin County and in the Program Area are shown in Table 4.2-1.

Table 4.2-1. Farmland Types in Marin County and the PCP Area

Agriculture Type	Marin County (Acres)	Program Area (Acres)	Percent in Program
Grazing Land	88806	86897	98
Farmland of Local Importance	63345	60626	96
Farmland of Statewide Importance	141	99	70
Unique Farmland	280	272	97
All Farmlands	152573	147895	97

Farmland categorization data from DOC 2014 GIS data.

The majority of farmlands and important farmlands in Marin County are in the Program Area.

A fundamental goal of both the PCP and of Marin RCD and its partners is to support agricultural sustainability. The activities included in the PCP were selected to protect agricultural lands from erosion and to improve conditions where soil erosion is already occurring. For example, projects designed to upgrade or decommission roadways will not only reduce erosion from concentrated runoff, but also allow lands to be placed back into production for grazing and other agricultural uses. Operations and manure management practices will be used to increase productivity and sustainability, as well as to comply with regulatory directives to protect water quality and sensitive resources. Implementation of the PCP will not result in a change in important farmland status or conversion of farmlands to other uses; therefore, there will be no impact.

b) Conflict with existing zoning for agricultural use or a Williamson Act Contract: No Impact

According to the 2016 Land Conservation ("Williamson") Act (LCA) Status Report (DOC 2016), Tulare, Marin, and Calaveras counties led the state in enrollment increases in 2015. Marin ranked second in increased acreage from 108 new acres in 2014 to 3,391 new acres in 2015. The total enrollment in Marin County in 2015 was 102,718 acres.

As discussed in a) above, the PCP is fully compatible with agricultural uses, and implementation of the practices will neither adversely impact agricultural values nor result in a substantial alteration in the current or planned land uses in the Program Area or a reduction in the acres devoted to agriculture. Implementation of the PCP will not result in cancellation of a Williamson Act contract or conflict with zoning for agricultural use. Therefore, there will be no impact.

c-d) Conflict with existing zoning for, or cause rezoning of, forest land or timberland, or cause loss of forest: No Impact

Forest land, as defined by PRC §12220(g), is land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Timberland, as defined by PRC §4526, 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 a commercial species used to produce lumber and other forest products. Government Code §51104(g) defines a timberland production zone as an area which has been zoned pursuant to §51112 and §51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses.

The PCP Program Area primarily consists of non-forested rural land and open pasture and does not contain any lands designated as timberland production zones. However, there are pockets of land scattered throughout the Program Area that meet the definitions for forest land and timberland. While PCP activities could take place within areas considered forest land or timberland, the Program is designed to comply with existing land use policies and will not conflict with existing zoning designations for those lands.

In addition, the PCP will not cause any reduction of existing forest or result in the conversion of forest land to non-forest use. Trees may be removed as part of Windbreak and Shelterbelt Establishment (380), however **BMP DC-1** requires that vegetation disturbance be minimized to the fullest possible extent while achieving project objectives. **BMP VM-1** reiterates that vegetation removal will be minimized, and sets area limits for vegetation removal in riparian areas. All vegetation removed during implementation of the PCP, whether in riparian areas or not, must be replaced with native vegetation.

The Program allows removal of up to 5 acres of non-native riparian vegetation, so a stand of trees could be removed if it were composed of non-native species (e.g., a eucalyptus grove). The area would then need to be replanted with native tree species. Specifically, timberland is designated where existing native resources provide substantial amounts of timber. Therefore, removal of timber trees or conversion of timberland would not be part of the PCP. Therefore, there will be no impact on forest or timberlands.

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: Less-than-significant Impact

Much of the Program Area is characterized as farmland of local importance or grazing land. No parcel or agricultural operation will be converted from its current agricultural use as a result of the PCP. Where restoration projects stabilize streambanks by laying back the bank and planting riparian vegetation, some small amounts of agricultural and grazing land may be converted to riparian forest. The restoration of the area will not result in an overall conversion of the land to non-agricultural uses, and the impact will be less than significant.

4.3 Air Quality

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Marin County falls within the Bay Area Air Quality Management District (BAAQMD). Air quality in California is regulated under three mechanisms depending on the type of effect:

- **Small Local Effects** – Small, local effects, such as noxious odors, are evaluated as part of CEQA and under nuisance laws in some jurisdictions.
- **Criteria Pollutants** – Chemicals with potential basin-wide effects are regulated under the federal Clean Air Act (CAA) in two groups: 1) toxic air contaminants with immediate, acute toxicity effects and 2) criteria pollutants that are common chemicals with long-term health effects. Acutely toxic chemicals are problematic at any concentration; however, the effect of criteria contaminants depends on the amount of exposure over time. Accordingly, the U.S. Environmental Protection Agency (EPA) sets limits on maximum atmospheric concentration for each pollutant. The State of California is required to use these limits but may also set higher standards when the California Air Resources Board (CARB) determines that tighter limits would protect human health.
- **Greenhouse Gases** – Chemicals that cause changes in earth's temperature and energy regulation, known as GHGs, are regulated at the State level and by regional planning. GHGs are assessed in Section 4.7.

For the PCP, most of the program activities will be beneficial to, or will not affect, air quality once installed. The Program is based upon 44 NRCS practices. The NRCS has evaluated these practices, and identified those that have a long-term benefit for air quality or GHGs (NRCS 2012, 2017a, 2017b). In addition, five northern Bay Area RCDs (Marin, Sonoma, Gold Ridge, Mendocino, and Napa) have quantified GHG emissions and sequestration from practices they are using so as to identify those with net GHG benefits. Table 4.3-1 shows Program practices distinguishing those already assessed as beneficial.

Table 4.3-1. Program Conservation Practices identified by NRCS and/or the North Bay RCDs as beneficial for air quality or greenhouse gas emissions.

Program Activity	NRCS Practices	Beneficial For:
Alternative Livestock Water Supply	Pumping Plant (533)	Air Quality
	Livestock Pipeline (516)	--
	Spring Development (574)	--
	Watering Facility (614)	--
	Underground Outlet (620)	--
Aquatic Habitat Improvement	Pond Restoration (378[R])	--
	Stream Habitat Improvement (395)	--
	Aquatic Organism Passage (396)	--
	Streambank Protection (580)	--
	Channel Bed Stabilization (584)	--
Grassed Waterway	Filter Strip (393)	GHGs
	Grassed Waterway (412)	GHGs
Manure Management	Waste Storage Facility (313)	Air Quality
	Composting Facility (317)	Air Quality
	Waste Treatment (629)	Air Quality
	Waste Transfer (634)	Air Quality
	Waste Separation Facility (632)	Both
Operations Management	Mulching (484)	Both
	Heavy Use Area Protection (561)	Air Quality
	Residue and Tillage Management/ No-Till (329)	Both
	Roof and Covers (367)	Both
	Nutrient Management (590)	Both
	Fence (382)	--
	Roof Runoff Structure (558)	--
	Access Road (560)	--
Road Upgrades and Decommissioning	Trails and Walkways (575)	--
	Structure for Water Control (587)	--
	Road Closure and Treatment (654)	--
Sediment Basin	Sediment Basin (350)	--
Stream Crossing	Stream Crossing (578)	--
Upland and Riparian Vegetation Management and Planting	Prescribed Grazing (528)	Both
	Conservation Cover (327)	Both
	Critical Area Planting (342)	Both
	Windbreak/ Shelterbelt Establishment (380)	Both

Table 4.3-1. Program Conservation Practices identified by NRCS and/or the North Bay RCDs as beneficial for air quality or greenhouse gas emissions.

Program Activity	NRCS Practices	Beneficial For:
	Silvopasture (381)	Both
	Hedgerow Planting (422)	Both
	Forage & Biomass Planting (512)	Both
	Range Planting (550)	Both
	Tree/Shrub Establishment (612)	Both
	Riparian Herbaceous Cover (390)	GHGs
	Riparian Forest Buffer (391)	GHGs
	Vegetative Barrier (601)	GHGs
Waterway Stabilization	Grade Stabilization Structure (410)	--
	Lined Waterway/Outlet (468)	--

Most agricultural processes produce GHGs and other air contaminants from the same sources (soil disturbance, animal waste, and combustion engines in vehicles, farm equipment, and generators). Therefore, practices assessed as beneficial for either are counted for this analysis as beneficial for both. Beneficial practices generally involve soil stabilization that reduces particulate matter, plantings that help sequester carbon and remove other contaminants through plant/soil capture, and reduction of engine use that reduces burning of fossil fuels. Manure Management practices are identified as beneficial for air quality. They are also beneficial for GHGs as they promote addition of carbon to the soil and methane capture.

Small Local Effects

Air pollutants can be locally problematic when they occur at high densities or when the source is close to a sensitive receptor. Most of the Program activities will be beneficial to, or not affect, air quality once installed. Construction emissions will not be concentrated near sensitive receptors in rural areas because sensitive receptors are spread widely by the large parcel size required by agricultural and open space zoning (MCCDA 2007). In urban areas, projects that require use of heavy equipment may occur in areas where fossil-fuel burning vehicles already occur fairly densely, and the additional contribution of either vehicle emissions or fugitive dust from construction, when these occur near a sensitive receptor, can be locally problematic.

Methane, a toxic air pollutant, is generated from decaying animal waste, among other things. The ranches and farms where PCP activities will occur may already raise animals, and the Program will not change the number of animals raised. As a result, though the Program does include alterations to how the manure and decomposition processes are managed, the amount of manure being produced will not change. Program activities will help concentrate and beneficially reuse the methane by burning it to create additional electricity, reducing local contributions of methane emitted from individual ranches and farms.

Criteria Pollutants

A region's success in promoting good air quality is measured by comparing the concentration of pollutants in the atmosphere to the known safe level set as a State or federal standard. Together ozone, carbon monoxide, nitrogen oxides, sulfur oxides, particulate matter as PM_{2.5} and PM₁₀⁷, and lead comprise a set of "Criteria Pollutants" identified in the CAA. Except for lead, these pollutants are common and widespread. The most serious health concerns are the result of ozone and particulate matter (EPA 2010). In the project area, maintaining criteria pollutant levels below federal standards is enforced by BAAQMD. When an area is at or below the regulatory standard, it is said to be "Attainment" for that pollutant. Table 4.3-2 below provides the attainment status the Bay Area.

Table 4.3-2. Air Quality Standards and Bay Area Air Quality Management District Attainment Status

Pollutant	Averaging Time	California Concentration Standard	California Attainment Status	National Concentration Standard	National Attainment Status
Ozone	8 Hours	0.070 ppm (137µg/m ³)	N	0.070 ppm (137 µg/m ³)	N
Carbon Monoxide	8 Hours	9 ppm (10 mg/m ³)	A	9 ppm (10 mg/m ³)	A
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m ³)	A	0.100 ppm (188 µg/m ³)	U
Sulfur Dioxide	24 Hour	0.04 ppm (105µg/m ³)	A	0.070 ppm (196 µg/m ³)	A
Particulate Matter – Coarse (PM10) ¹	24 Hours	50 µg/m ³	N	150 µg/m ³	U
Particulate Matter - Fine (PM2.5)	Annual Arithmetic Mean	12 µg/m ³	N	12 µg/m ³	N
Lead	California 30-day Average/ US Calendar Quarter	1.5 µg/m ³	A	1.5 µg/m ³	A
Sulfates ²	24 Hours	25 µg/m ³	A	No standard	Not Applicable
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	U	No standard	Not Applicable
Vinyl Chloride	24 Hours	0.01 ppm (26 µg/m ³)	No Information available		Not Applicable
Visibility-reducing Particles	8 Hour (10:00 to 18:00 PST)	0.23 extinction /km	U	No standard	Not Applicable

⁷ Particulate matter is measured as particles less than 10 microns wide (PM10) and particles less than 2.5 microns wide (PM2.5).

A = attainment; N = non-attainment; U = unclassified (monitoring not done in the area); U/A = unclassified/attainment. Information reflects designations as of October 2017.

Although the Bay Area, as a whole, is not attaining targets for ozone and particulate matter, these pollutants tend to be concentrated at the points of highest emission in urban areas and along major freeways, as well as downwind areas. Marin County is in non-attainment for PM_{2.5} and marginally outside attainment for 8-hour ozone. These measurements are taken in San Rafael, which is an urban area and includes the main through-route in the County, Highway 101. It is likely that most of the PCP Program area has good air quality because the predominant air flow is off the Pacific Ocean. BAAQMD does not supply direct testing in the Novato project area, however, that area has more open space than the San Rafael area and more urbanization than west Marin, so air quality is likely intermediate (National Park Service 2001. Strosnider et al. 2017).

Program practices are rated as actively beneficial to air quality, as shown in Table 4-3.1, above. These practices will assist in clean air over time. The remaining practices do not generate ongoing operational emissions.

Construction equipment typically produces carbon monoxide, nitrogen oxides, and sulfur oxides; these chemicals in turn produce ozone. Construction equipment also emits particulate matter, although the majority of coarse particulate matter emitted from construction is a result of creating dust.

a) Conflict with or obstruct the implementation of any air quality plan: No Impact

The Program Area is within the jurisdiction of the BAAQMD. Because the Bay Area met the national standard for coarse particulate matter (PM₁₀), although not the state standard, no implementation plan is required or produced. The 2000 Clean Air Plan identifies 14 measures to reduce ozone, none of which apply to small-scale construction projects included in the PCP Program.

b, c) Violate any Air Quality Standard or Result in Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Region is in Non-Attainment: Less-than-significant Impact

The Bay Area is nonattainment for both ozone and PM₁₀ and attainment for carbon monoxide and nitrogen dioxide, as shown in Table 4.3-2 (BAAQMD 2018). Marin County air quality, shown in Table 4.3-3, is below air quality limits for all criteria pollutants. The west Marin County area is likely to have cleaner air than east Marin because the predominant air flow is off the ocean and because west Marin has less vehicle traffic than east Marin.

Table 4.3-3. Existing Marin County Air Quality (measured in San Rafael)

Criteria Pollutant	National Attainment Standard	California Attainment Standard	Bay Area Status	San Rafael Maximum	San Rafael Annual (or 3-year) Average
Ozone (1 hour-ppb)	---	90	N	85	---
Ozone (8 hour-ppb)	70	75	N	69	50

Table 4.3-3. Existing Marin County Air Quality (measured in San Rafael)

Criteria Pollutant	National Attainment Standard	California Attainment Standard	Bay Area Status	San Rafael Maximum	San Rafael Annual (or 3-year) Average
Carbon Monoxide (1 hour-ppm)	35	20	A	1.8	---
Carbon Monoxide (8 hour-ppm)	9	9	A	1.1	---
Nitrogen Dioxide (1 hour-ppb)	100/53	180/30	A	56	13
Coarse Particulate Matter as PM ₁₀ (24-hour-µg/m ³)	150	50/20	N	41	18.6

Each project will generate limited emissions from construction. There will be up to 30 projects a year. PCP projects will produce small amounts of PM₁₀, which is non-attainment under State standards. Coarse particulate matter may be composed of particles of soot, dust, smoke, fumes, and aerosols in either solid or liquid form. For this project, sources of PM₁₀ are diesel fumes and air-borne dust.

Construction activities will generate fugitive dust, primarily due to grading, vehicle exhaust, and vehicles traveling on paved and unpaved surfaces. Dust emissions associated with implementation of PCP practices will not violate an air quality standard because their characteristics, which include:

- Small size;
- Short duration of construction;
- Remote nature of most project locations;
- Soil excavation from a site is generally not stockpiled but reused nearby (e.g., as fill to repair gully erosion);
- Exposed soil will not be left unprotected; and
- Exposed sites will be planted immediately with species from an approved plant list, or other approved erosion control techniques will be put in place.

After implementation, many of the Program practices will improve air quality. Of the 44 practices in the program, 25 are previously identified as actively reducing air pollution and/or GHG emissions. In addition to the practices known to improve air quality and GHGs, as shown in Table 4.3-1, several other practices will probably also be beneficial for air quality and reduce GHGs based upon the nature of the activity:

- Trails and Walkways and Access Road both reduce erosion, including wind erosion, reducing particulate matter for improved air quality;
- Stream Habitat Improvement and Streambank Protection both involve substantial planting of woody species which sequester carbon; and
- Fence, while it does not improve air quality in and of itself is often used to allow natural regeneration of riparian areas, which leads to improved carbon sequestration.

Potential effects were evaluated using CARB's recommended model (CalEEMod) to generate estimated project emissions; emissions calculations are shown in Appendix A. This analysis evaluated construction

emissions from practices not previously identified as beneficial for air quality, even if the practice logically seems beneficial as described above. The size calculation assumes that all 30 projects will be constructed at the largest size permitted with no mitigation or beneficial practices to determine the highest emissions possible for the year. However, the estimate is higher than would occur because beneficial projects will occur and the benefits are not included in the emissions calculations. Table 4.3-4 shows the estimated emissions from all 30 projects, compared to the BAAQMD suggested threshold of significance for construction for an individual project (BAAQMD 2017). The BAAQMD thresholds are advisory only and have no power of regulation, but they are based upon thorough analysis of sustainable emissions levels in the San Francisco Bay Area, so they were used to determine significance in this document.

Table 4.3-4. Program Emissions and BAAQMD Recommended Thresholds of Significance

	ROG	NOx	CO	SO ₂	Fugitive PM ₁₀	Exhaust PM ₁₀	PM ₁₀ Total	Fugitive PM _{2.5}	Exhaust PM _{2.5}	PM _{2.5} Total
Estimated Construction Emissions – 1 Year of Program Projects										
2018, tons/year	0.12	1.11	0.77	<0.01	0.11	0.06	0.18	0.03	0.06	0.09
2019, tons/year	0.02	0.28	0.14	<0.01	0.03	0.01	0.04	<0.01	0.01	0.01
Annual Total, tons/year	0.14	1.39	0.91	<0.01	0.14	0.08	0.22	0.03	0.07	0.10
Average peak daily emissions, lbs/day*	1.7	17.4	11.4	<0.01	1.7	1.0	2.7	0.0	0.9	1.3
BAAQMD recommended daily construction threshold, lbs/day	54	54	--	--	--	--	82	--	--	54

Since the Program emissions, estimated conservatively high, are less than the BAAQMD project thresholds, the Program will have a less-than-significant impact on air quality.

Additionally, BAAQMD notes that the largest PM₁₀ concentrations occur in winter, and result from a combination of more fuel wood burning, higher conversion of nitrogen oxides into particulate matter in winter weather conditions, and increased build-up of pollutants near ground level because of winter air flow patterns (BAAQMD 2000). Because Program construction is limited to the dry season in summer, emissions will be generated at a non-peak time. This, in combination with best management used to keep air-borne dust to a minimum per **BMP CP-2**, which requires wetting disturbed areas and covering storage piles, and the small scale of the construction, will keep the Program's PM₁₀ emissions less than significant.

The Bay Area is designated as marginal nonattainment for ozone, which means that, as a whole, the Bay Area is close to achieving air quality standards. In Marin County, standards are already being met, and, as described above, west Marin is likely to be even lower. Unlike PM₁₀, ozone forms more in summer when nitrogen oxides, carbon monoxide, and volatile organic compounds (collectively known as ozone

precursors) react with sunlight. For small, isolated construction projects occurring in clean air, there is unlikely to be any significant concentration of ozone formed.

d) Expose sensitive receptors to substantial pollutant concentrations: Less-than-significant with Mitigation

The project will not generate pollution concentrations that could cause acute issues for sensitive receptors. However, construction that includes the following elements could affect sensitive receptors in the area:

Involves substantial soil disturbance in an urban area or extensive driving on dirt roads,

1. Is located in the Marin City-Centered Corridor, where moderate levels of air quality impairment already exist, and
2. Is near (within 1,000 feet) to sensitive receptors, such as hospitals, schools, or residences, and produces substantial levels of diesel emissions and/or fugitive dust,

Such emissions are subject to the "State Nuisance Law" (Health & Safety Code (H&SC) § 41700), which prohibits the "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public..."

To prevent such annoyance, construction projects within the City-Centered Corridor that will disturb the ground over a large area and are near a sensitive receptor will employ **Mitigation AQ-1** to ensure that the projects do not cause substantive airborne particulate matter.

Mitigation AQ-1, Control Diesel Emissions and Dust during Construction

MRCD shall ensure that PCP projects include site preparation techniques that minimize airborne particulate matter generation in areas where a PCP activity occurs at an urbanized location on the Highway 101 corridor within 1,000 feet of a sensitive receptor. Measures may include (but would not be limited to) requirements to apply water to disturbed areas and covering storage piles adequately to prevent dust.

e) Create objectionable odors affecting a substantial number of people: Less-than-significant Impact

The projects will not create objectionable odors. Objectionable odors can be associated with concentrated manure and waste water ponds; however, all the measures pertaining to agricultural waste management included in the Program will tend to reduce the odors associated with existing facilities and practices.

Construction equipment may generate odors during project implementation. When projects occur on private land, well away from public access, it is extremely unlikely that construction odors will be noticed by anyone not associated with the project. Since the Program projects are relatively small and short to implement, they will not cause a significant amount of additional odor compared to the construction and traffic already occurring.

4.4 Biological Resources

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 the California Department of Fish and Wildlife or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Implementation of the Program may result in temporary and minor impacts on biological resources. Program activities that have potential to result in short-term impacts with potential effect on biological resources include soil excavation, grading, preparation of the ground for seeding and mulching, grade and stream stabilization, channel excavation, construction of earthen embankments, placement of fill, vegetation removal, and burial, trampling, or crushing of vegetation from equipment and foot traffic.

On a long-term basis the Program would provide improved aquatic, riparian, and upland habitat and decreased sedimentation in waterbodies to benefit fish, amphibians, reptiles, resident and migratory birds, and other species. For example, the channel bed stabilization practice would stabilize downcutting channel beds and increase the number of deep pools that aquatic species, including salmonids, require to survive and thrive. Practices that enhance riparian vegetation and development of habitat values would provide shelter from predators and breeding, rearing, foraging, and basking sites for special-status species known to occur in the Program Area's watersheds.

Erosion control and treatment of runoff before it reaches waterways would improve the quantity and quality of freshwater input into creeks, streams, and ponds. Removal and control of nonnative plant species would reduce the extent to which exotics invade habitat and displace native flora. The net biological benefits that would result from implementation and maintenance of the conservation practices for species include high quality aquatic, riparian, and upland habitat values; reduced habitat fragmentation and increased connectivity; maintaining or increasing species populations; and buffering sensitive areas.

a) Adverse impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status 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 with Mitigation

The biological evaluation of the PCP Program Area identifies the presence of potential habitat for special-status plant and wildlife species, including nesting birds covered under the Migratory Bird Treaty Act (MBTA) and critical habitat for salmonids and California red-legged frogs. Information about special-status species and habitat types within the Program Area was obtained from the following sources, and the results are shown in the table below:

- California Natural Diversity Database (CNDDDB 2017);
- California Wildlife Habitat Relationships (CDFW 2017);
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS 2017);
- National Marine Fisheries Service;
- U.S. Fish and Wildlife Services (USFWS 2017) online database for federal threatened and endangered species; and
- Marin Countywide Plan (MCCDA 2007b).

Table 4.4-1, Special-status Plants with Potential to Occur in the Marin PCP Program Area, includes a list of special-status plant species that have the potential to occur in the PCP Program Area. Other special-status plant species are present in the PCP Program Area; however, habitats for these special-status plants are excluded from inclusion in the PCP Program and are, therefore, not evaluated for potential impacts.

Table 4.4-1. Special-status Plants with Potential to Occur in the Marin PCP Program Area

					Potentially Present and included in the PCP						
Common Name	Botanical Name	Federal Listing Status	California Listing Status	CNPS Rare Plant Rank	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
golden larkspur	<i>Delphinium luteum</i>	E	R	1B.1	x	x	x				
Baker's larkspur	<i>Delphinium bakeri</i>	E	E	1B.1							
Contra Costa goldfields	<i>Lasthenia conjugens</i>	E	—	1B.1			x				
Sonoma alopecurus	<i>Alopecurus aequalis</i> var. <i>sonomensis</i>	E	—	1B.1	x						x
two-fork clover	<i>Trifolium amoenum</i>	E	—	1B.1	x	x	x				x
Pitkin marsh lily	<i>Lilium pardalinum</i> ssp. <i>pitkinense</i>	E	E	1B.1	x	x		x			x
robust spineflower	<i>Chorizanthe robusta</i> var. <i>robusta</i>	E		1B.1	x						x
Santa Cruz tarplant	<i>Holocarpha macradenia</i>	T	E	1B.1	x						
Marin western flax	<i>Hesperolinon congestum</i>	T	T	1B.1	x			x	x		
North Coast semaphore grass	<i>Pleuropogon hooverianus</i>	—	T	1B.1	x					x	
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	—	R	1B.1	x						
Baker's navarretia	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	—	—	1B.1				x			
blue coast gilia	<i>Gilia capitata</i> ssp. <i>chamissonis</i>	—	—	1B.1	x						x
California beaked-rush	<i>Rhynchospora californica</i>	—	—	1B.1	x						x
coast lily	<i>Lilium maritimum</i>	—	—	1B.1	x						x
Kellogg's horkelia	<i>Horkelia cuneata</i> var. <i>sericea</i>	—	—	1B.1							x
Marin checker lily	<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	—	—	1B.1	x						x
Point Reyes rein orchid	<i>Piperia elegans</i> ssp.	—	—	1B.1							x

Table 4.4-1. Special-status Plants with Potential to Occur in the Marin PCP Program Area

					Potentially Present and included in the PCP						
Common Name	Botanical Name	Federal Listing Status	California Listing Status	CNPS Rare Plant Rank	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
	<i>decurtata</i>										
Raiche's red ribbons	<i>Clarkia concinna</i> ssp. <i>Raichei</i>	—	—	1B.1	x						
rose leptosiphon	<i>Leptosiphon rosaceus</i>	—	—	1B.1	x	x					x
Mason's ceanothus	<i>Ceanothus masonii</i>	—	R	1B.2	x						
bent-flowered fiddleneck	<i>Amsinckia lunaris</i>	—	—	1B.2	x				x		
Blasdale's bent grass	<i>Agrostis blasdalei</i>	—	—	1B.2	x	x					x
bluff wallflower	<i>Erysimum concinnum</i>	—	—	1B.2	x						x
coastal bluff morning-glory	<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	—	—	1B.2	x						x
coastal marsh milk-vetch	<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	—	—	1B.2	x						x
coastal triquetrella	<i>Triquetrella californica</i>	—	—	1B.2	x	x					
congested-headed hayfield tarplant	<i>Hemizonia congesta</i> ssp. <i>congesta</i>	—	—	1B.2	x	x	x	x	x		
fragrant fritillary	<i>Fritillaria liliacea</i>	—	—	1B.2	x			x			x
Franciscan thistle	<i>Cirsium andrewsii</i>	—	—	1B.2	x	x					x
Marin County navarretia	<i>Navarretia rosulata</i>	—	—	1B.2	x						
Marin manzanita	<i>Arctostaphylos virgata</i>	—	—	1B.2	x						x
marsh microseris	<i>Microseris paludosa</i>	—	—	1B.2	x						x
Mt. Tamalpais bristly jewelflower	<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i>	—	—	1B.2	x			x	x		
Napa false indigo	<i>Amorpha californica</i> var. <i>napensis</i>	—	—	1B.2	x			x		x	
North Coast phacelia	<i>Phacelia insularis</i> var.	—	—	1B.2	x						x

Table 4.4-1. Special-status Plants with Potential to Occur in the Marin PCP Program Area

					Potentially Present and included in the PCP						
Common Name	Botanical Name	Federal Listing Status	California Listing Status	CNPS Rare Plant Rank	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
	<i>continentis</i>										
northern curly-leaved monardella	<i>Monardella sinuata</i> ssp. <i>nigrescens</i>	—	—	1B.2							x
perennial goldfields	<i>Lasthenia californica</i> ssp. <i>macrantha</i>	—	—	1B.2	x						x
Point Reyes checkerbloom	<i>Sidalcea calycosa</i> ssp. <i>Rhizomata</i>	—	—	1B.2	x		x				x
Point Reyes horkelia	<i>Horkelia marinensis</i>	—	—	1B.2	x		x				x
purple-stemmed checkerbloom	<i>Sidalcea malviflora</i> ssp. <i>purpurea</i>	—	—	1B.2	x	x					x
San Francisco Bay spineflower	<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	—	—	1B.2	x						
San Francisco owl's-clover	<i>Triphysaria floribunda</i>	—	—	1B.2	x	x	x				x
Santa Cruz microseris	<i>Stebbinsoseris decipiens</i>	—	—	1B.2	x						
short-leaved evax	<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	—	—	1B.2	x	x					x
supple daisy	<i>Erigeron supplex</i>	—	—	1B.2							x
swamp harebell	<i>Campanula californica</i>	—	—	1B.2	x						x
Tamalpais lessingia	<i>Lessingia micradenia</i> var. <i>micradenia</i>	—	—	1B.2	x						
thin-lobed horkelia	<i>Horkelia tenuiloba</i>	—	—	1B.2	x						
western leatherwood	<i>Dirca occidentalis</i>	—	—	1B.2	x						x
woolly-headed spineflower	<i>Chorizanthe cuspidata</i> var. <i>villosa</i>	—	—	1B.2	x		x				x
Koch's cord moss	<i>Entosthodon kochii</i>	—	—	1B.3	x						
Mt. Vision ceanothus	<i>Ceanothus gloriosus</i> var. <i>porrectus</i>	—	—	1B.3	x						x

Table 4.4-1. Special-status Plants with Potential to Occur in the Marin PCP Program Area

					Potentially Present and included in the PCP						
Common Name	Botanical Name	Federal Listing Status	California Listing Status	CNPS Rare Plant Rank	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
Tamalpais oak	<i>Quercus parvula</i> var. <i>tamalpaisensis</i>	—	—	1B.3	x						
Bolander's water-hemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	—	—	2B.1	x						x
seaside bittercress	<i>Cardamine angulata</i>	—	—	2B.1	x						
Thurber's reed grass	<i>Calamagrostis crassiglumis</i>	—	—	2B.1	x						x
whiteworm lichen	<i>Thamnolia vermicularis</i>	—	—	2B.1	x	x					
bristle-stalked sedge	<i>Carex leptalea</i>	—	—	2B.2	x						x
Lyngbye's sedge	<i>Carex lyngbyei</i>	—	—	2B.2	x						
Nicasio ceanothus	<i>Ceanothus decornutus</i>			1B.2	x						
common arrowhead	<i>Sagittaria sanfordii</i>	—	—	1B.2	x						
water star-grass	<i>Heteranthera dubia</i>	—	—	2B.2	x						

E: endangered T: threatened R: rare C: candidate CT: candidate as threatened D: delisted FP: fully protected SSC: species of special concern WL: watch list

1A: plants presumed extirpated in CA and either rare or extinct elsewhere

1B.1: seriously threatened in CA (over 80% of occurrences threatened/high degree and immediacy of threat)

1B.2: moderately threatened in CA (20-80% of occurrences threatened/moderate degree and immediacy of threat)

1B.3: not very threatened in CA (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

2A: plants presumed extirpated in CA but more common elsewhere

2B: RTE plants in CA but more common elsewhere (includes 2B.1, 2B.2, 2B.3)

Special-status Plants

Special-status plants are those listed as endangered or threatened by USFWS or listed as endangered, threatened, a species-of-special concern, or rare by the State and CDFW. USFWS provides an online service that lists special-status plants and wildlife species for Marin County. CDFW maintains a similar system known as the CNDDDB that provides information regarding the locations where special-status species have been observed. CNPS also has an inventory of rare and endangered plants with a ranking system to categorize the degrees of concern for each plant in its inventory. In summary, plants are ranked by CNPS as follows:

- Rank 1A: Plants presumed extinct in California;
- Rank 1B: Plants that are rare, threatened, or endangered in California and elsewhere;
- Rank 2: Plants that are rare, threatened, or endangered in California but more common elsewhere;
- Rank 3: Plants about which more information is needed; and
- Rank 4: Plants of limited distribution.

Plant communities throughout Marin County include oak woodlands, chaparral, mixed evergreen forests, riparian, wetland, riverine, native and nonnative grasslands, and ruderal areas. A total of 103 special-status plant species from federal, State, and CNPS databases are recorded in the watersheds throughout the PCP Program Area; see Appendix A for a complete list. Federally and State-listed species commonly associated with serpentine soils, freshwater and brackish marshes, coastal chaparral, and native grasslands. As noted in the Project Description Section 2.1.1, Natural Communities, the PCP excludes projects in coastal estuaries, baylands, tidally influenced wetlands and other waters, vernal pools, dune habitat, and serpentine grasslands. As such, special-status plants found in these habitats would not be impacted.

The PCP would be implemented on rural and agricultural properties within plant communities not specifically excluded from the Program, including communities that could support special-status plant species. Individual project sites could be located in highly disturbed areas, in areas routinely maintained by mowing or clearing, in grazed areas, or in areas with undisturbed native vegetation that could support special-status plant species.

The Project Description includes mandatory environmental protection measures designed to avoid potential impacts. The measures focus on project planning and design and project location selection considerations. **BMP DC-1, Requirements to Minimize Area of Disturbance** requires that special attention be given to minimizing the disturbance area to avoid impacts on sensitive resources. **BMP BR-1, Assessment during Project Planning** requires that a qualified biologist perform a review of the proposed project area to identify sensitive biological resources and to identify required resource protection needs. **BMP VM-1, Project Areal Limits on Vegetation Management** requires minimized disturbance areas and limits the number and size of native vegetation that can be removed at each project site as discussed in the Project Description.

Avoidance of habitat known to support special-status plant species and implementation of the mandatory protection measures listed above reduce, but do not eliminate, potential impacts on special-status plant species. If a PCP project is selected, designed, and implemented in a location with the potential to support a special-status plant species, the impact could be significant and mitigation measures would be needed to reduce the potential impact.

As required in **BMP BR-1**, Marin RCD staff with expertise in sensitive habitats and special-status species would determine whether sensitive habitats are potentially present within or near the disturbance area and permanent footprint of new facilities for each proposed PCP activity. If habitat for State or federally listed or CNPS Rank 1B, 2, or 3 plants is not identified during the surveys, no further evaluation for potential impacts on special-status plants will be completed. If PCP projects are constructed in or near occupied or potentially occupied habitat for special-status plants, impacts could occur, and the impacts could be significant.

Implementation of **Mitigation Measure BIO-1a** would reduce potential impacts on special-status plants to less-than-significant levels by requiring preconstruction surveys prior to work in applicable habitats to determine whether special-status plant species are present at or near construction areas and by requiring measures to avoid loss of those species or to compensate for losses.

Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats
MRCD shall avoid loss of State and federally listed or special-status plants.

MRCD shall avoid loss of State and federally listed or proposed plant species; State candidates for listing; CNPS List 1B species; CNPS List 2 and 3 species; and occupied or critical habitat for these species to the extent feasible. Where avoidance of individuals or habitat is infeasible, MRCD shall compensate for loss of State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1, 2, and 3 plants as required by USFWS or CDFW.

All protocol-level surveys shall be coordinated with the appropriate responsible agencies (i.e., USFWS and/or CDFW).

- Where indicated by the MRCD's initial site review, reconnaissance-level surveys shall be performed by a qualified biologist to determine whether suitable habitat for special-status plants is present within the project area. If habitat for listed or CNPS Ranks 1-3 plants is not identified during surveys, no further mitigation for impacts on target species is necessary under this measure.
- If suitable habitat is identified, focused surveys shall be performed to determine presence or absence of target species wherever habitats for these species will be impacted. Any special-status species found will be documented. The suitable habitat shall be avoided through project design, where feasible, and a buffer zone of 50 feet shall be established around State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1 and 2 plants to prevent entry and disturbance during work activities. A qualified biologist shall designate the buffer zone if the zone shall be less than 50 feet, and the buffer zone distance shall be based on

the target species and proposed work. The buffer zone shall be clearly demarcated with construction fencing and avoided by all construction personnel and equipment.

- If suitable habitat cannot be avoided, project-specific protection measures shall be developed with concurrence by USFWS or CDFW. The following are examples of measures that may be required:
 - Listed or List 1B and Rank 2 plants within the project footprint may need to be transplanted to a mitigation site approved by CDFW or USFWS. Seed from plants unavoidably impacted may need to be collected and preserved for planting on an approved mitigation site.
 - Where construction activities unavoidably affect listed or Rank 1B plant species, pipeline corridor widths may need to be limited to a maximum 5 feet through plant habitat to minimize habitat impacts.
 - Acquisition and preservation of at least an equal area and quality of habitat that is lost.
- Any herbicide application to treat noxious non-native weeds shall ensure that no native plants are affected.
- No fertilizers or irrigation shall be used within the buffer zone around a special-status plant population.

Special-status Wildlife

Special-status wildlife are those species listed as endangered or threatened by USFWS or NOAA Fisheries and wildlife that are listed as endangered, threatened, a species-of-special concern, or rare by the State and CDFW. USFWS and CDFW provide databases for wildlife similar to those described for plants in the section above.

Evaluation of lands within the PCP Program Area identified the presence of potential habitat for special-status wildlife species. These species include fish and other aquatic species, reptiles, amphibians, mammals, and birds. Special-status wildlife species from the federal and State databases and NOAA Fisheries websites were reviewed for wildlife in all the watersheds included in the PCP Program Area. Table 4.4-2 summarizes the special-status wildlife species that have the potential to occur.

The species below are known to be present within the overall Program Area; however, potential impacts are not evaluated herein because they occur in habitats that are specifically excluded from the Program; see Section 2.1.1.

- | | |
|-------------------------|-----------------------------------|
| • Tidewater goby | • San Pablo song sparrow |
| • Long-fin smelt | • Salt marsh common yellow throat |
| • Western snowy plover | • Salt marsh harvest mouse |
| • Clapper rail | • Point Reyes mountain beaver |
| • California black rail | |

Table 4.4-2 Special-status Wildlife with Potential to Occur in the Marin PCP Program Area

					Potentially Present in the Watershed						
Common Name	Scientific Names	Federal Listing Status	California Listing Status	CDFW Status	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
Aquatic Species											
chinook - Sacramento ESU ⁸	<i>Oncorhynchus tshawytscha</i>	E	E					x			
coho salmon - central California coast ESU	<i>Oncorhynchus kisutch</i>	E	E		x						x
riffle sculpin	<i>Cottus gulosus</i>			SSC	x				x		x
steelhead - central California coast DPS ⁹	<i>Oncorhynchus mykiss</i>	T	—		x	x	x	x	x		x
Tomales roach	<i>Lavinia symmetricus</i>	—	—	SSC	x						
Pacific lamprey	<i>Entosphenus tridentatus</i>			SSC	x						x
river lamprey	<i>Lampetra ayresii</i>			SSC	x						x
California freshwater shrimp	<i>Syncaris pacifica</i>	E	E		x	x					
California giant salamander	<i>Dicamptodon ensatus</i>	—	—	SSC	x				x		x
California tiger salamander	<i>Ambystoma californiense</i>					x					
California red-legged frog	<i>Rana draytonii</i>	T	—	SSC	x	x	x			x	x
coast range newt	<i>Taricha torosa ssp. torosa</i>			SSC	x						x
foothill yellow-legged frog	<i>Rana boylei</i>										
western pond turtle	<i>Actinemys marmorata</i>	—	—	SSC	x	x		x		x	

⁸ ESU – Evolutionarily Significant Unit

⁹ DPS – Distinct Population Segment

Table 4.4-2 Special-status Wildlife with Potential to Occur in the Marin PCP Program Area

					Potentially Present in the Watershed						
Common Name	Scientific Names	Federal Listing Status	California Listing Status	CDFW Status	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
Butterflies and Birds											
Myrtle's silverspot butterfly	<i>Speyeria zerene myrtleae</i>	E	—		x	x	x				x
San Bruno elfin butterfly	<i>Callophrys mossii bayensis</i>	E	—		x	x					
northern spotted owl	<i>Strix occidentalis caurina</i>	T	T	SSC	x			x	x	x	x
American peregrine falcon	<i>Falco peregrinus anatum</i>	D	D	FP	x	x					x
Swainson's hawk	<i>Buteo swainsoni</i>	—	T							x	
black swift	<i>Cypseloides niger</i>	—	—	SSC	x						x
brant	<i>Branta bernicla</i>			SSC	x						x
burrowing owl	<i>Athene cunicularia ssp. hypugaea</i>	—	—	SSC					x		x
ferruginous hawk	<i>Buteo regalis</i>			SSC	x				x		x
grasshopper sparrow	<i>Ammodramus savannarum</i>			SSC	x	x	x	x	x	x	x
northern harrier	<i>Circus cyaneus</i>	—	—	SSC							x
olive-sided flycatcher	<i>Contopus cooperi</i>			SSC	x	x	x	x	x	x	x
purple martin	<i>Progne subis</i>			SSC	x	x	x				
tricolored blackbird	<i>Agelaius tricolor</i>	—	—	SSC	x	x	x				x
tufted puffin	<i>Fratercula cirrhata</i>	—	—	SSC							x
yellow warbler	<i>Setophaga petechia</i>	—	—	SSC	x						
Cooper's hawk	<i>Accipiter cooperii</i>			WL	x	x	x	x	x	x	x
merlin	<i>Falco columbarius</i>			WL	x	x	x	x	x	x	x
osprey	<i>Pandion haliaetus</i>	—	—	WL	x						

Table 4.4-2 Special-status Wildlife with Potential to Occur in the Marin PCP Program Area

					Potentially Present in the Watershed						
Common Name	Scientific Names	Federal Listing Status	California Listing Status	CDFW Status	Greater Tomales Bay	Stemple Creek	Estero Americano	Novato Creek	Miller Creek	San Antonio Creek	Point Reyes
sharp-shinned hawk	<i>Accipter striatus</i>			WL	x	x	x	x	x	x	x
white-tailed kite	<i>Elanus leucurus</i>	—	—	FP				x			
Mammals											
Townsend's big-eared bat	<i>Plecotus townsendii pallescens</i>	—	CT	SSC	x			x		x	x
pallid bat	<i>Antrozous pallidus</i>	—	—	SSC	x			x	x	x	x
western red bat	<i>Lasiurus blossevillii</i>	—	—	SSC	x						
American badger	<i>Taxidea taxus</i>	—	—	SSC	x					x	x

Note: Species data from the California Natural Diversity Database, retrieved October 2017. Habitat associations for animals are from the California Wildlife Habitat Relationship Database. Abbreviations used in the tables: E-endangered, T-threatened, R-rare, FP-State of California fully-protected species, SSC- California species of special concern, D – Delisted, WL – Watch List.

Fish, Invertebrates, Amphibians, and Reptiles

The precise locations of the PCP activities will be determined during Marin RCD's project selection process; however, because the practices would be constructed on rural properties and along stream corridors, they could be located in areas that have habitat for special-status wildlife. These species include California freshwater shrimp, California giant salamander, California red-legged frog, foothill yellow-legged frog, western pond turtle, chinook - Sacramento ESU, coho salmon - central California coast ESU, steelhead - central California coast DPS, and Tomales roach.

The PCP includes several BMPs that are required as part of all PCP practices to avoid impacts on biological resources. The BMPs are presented in the Project Description under Section 3.3 and include such requirements as the need for a site-specific evaluation of all impact areas to determine whether any natural resources (e.g., sensitive habitat types, special-status species habitat) are present and to identify additional site evaluation requirements based on the site characteristics and the proposed PCP activity. The measures also include time restrictions to avoid impacts on biological resources.

BMP DC-1, Requirements to Minimize Area of Disturbance mandates that projects not exceed the minimum area required to accomplish project objectives and that removal of trees and other vegetation that provide shade and other habitat elements fish and aquatic species be avoided where feasible. **BMP DC-2, Requirements to Protect and Avoid Disturbance of Aquatic Environments** stipulates that aquatic environments must be protected and avoided where possible. **BMP DC-3, Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality** requires that projects be designed to be consistent with industry standards, to avoid impacts on water quality, and to provide sufficient capacity to accommodate anticipated flows. **BMP BR-1, Temporal Limitations and Requirements to Protect Special-species during Construction, Vegetation Management and Other Maintenance Activities** specifies work time limitations and mandates that work in and around streams that support anadromous fish populations or California freshwater shrimp cannot begin until June 15 and will be completed by October 15 to avoid impacts. Although practices designed to avoid impacts on special-status species will be applied to all projects, impacts on special-status invertebrates, amphibians, reptiles, and fish could still occur during implementation depending on the location of the project and the type of land practice proposed. The impacts could be significant.

As discussed in the Project Description, it is possible that practices will be constructed in riparian and aquatic areas that support habitat for the species listed above. Road improvements, road decommissioning, and stream crossing projects will be designed to reduce concentrated stormwater runoff, to reduce erosion, and to improve aquatic and riparian habitat. Many of the road improvements will occur in sensitive habitats and could affect special-status species. PCP activities associated with stream habitat improvement and in-channel stabilization will occur in areas that support sensitive habitats, and construction-related impacts on species and habitat could result in significant impacts.

Aquatic habitat improvements and waterway stabilization will occur in sensitive habitats. These activities may include pond restoration, stream habitat improvement, channel bed stabilization, aquatic organism passage, streambank protection, and gully stabilization. Construction of these activities will

ultimately improve aquatic habitat conditions; however, construction activities could temporarily affect aquatic species and their habitat as a result of disturbance to channel banks and disturbance of habitat used for shelter, spawning, and foraging. Although the impacts will be temporary, they could be significant.

Vegetation management activities would include removal of invasive riparian plants and establishment of native vegetation. Mechanical methods and herbicides could be used in locations that support habitat for special-status species. The impact could be significant.

Alternative livestock water supply and manure management activities could include installation of pipelines and these pipelines could require crossing streams and riparian areas that support special-status aquatic species. Pipeline installation will require vegetation removal and trenching in upland areas and potentially through the riparian corridor and across a stream channel. Creek crossings would require temporary disturbance to the bed and banks of the channel and could have a significant impact on special-status species. Pipelines would also require construction of a stable outlet, which may be constructed in sensitive habitat areas. Depending on the pipeline location, the need for pipelines to cross a channel, and the location of the pipeline outlet, impacts on special-status species may occur in habitats across the program area. The impacts could be significant.

Nutrient management, including fertilizer and manure application practices, could adversely affect water quality and negatively impact aquatic species and species habitat if sediments and nutrients enter waterways. Impacts on water quality and aquatic species could occur if land application of manure occurs during the rainy season or when soils are saturated and runoff to surface water occurs. Impacts could also occur if manure is placed on erosion-prone areas or on steep slopes with no buffers between the application site and a surface waterbody. If nutrients and manure are applied at rates that exceed plant uptake and the excess runs off, impacts on aquatic habitats could occur. Impacts from nutrient inputs could be significant.

Manure management activities are designed to protect water quality. However, the design and placement of composting facilities could adversely impact water quality and aquatic habitat. **BMP WQ-1, Measures to Ensure Compliance with Water Quality Standards** will be implemented as part of all projects. Adherence to the standards will reduce the impacts on aquatic resources to less-than-significant levels by protecting animal confinement and manure storage areas from stormwater runoff and by placement of the facilities away from watercourses.

Agricultural operations, manure management facilities, and upland and riparian vegetation management activities include practices to protect water quality and stabilize soil. These activities will occur away from areas that support aquatic species habitat. Impacts on aquatic species from implementation of agricultural operations, manure management facilities, and vegetation management activities will be less than significant.

Implementation of **Mitigation Measure BIO-1b through BIO-1i** will reduce impacts on special-status fish, invertebrates, amphibians, and reptiles to less-than-significant levels by requiring preconstruction surveys by a qualified biologist prior to work in applicable habitats to determine whether special-status

species are present at or near activity sites. These mitigation measures also provide measures to avoid impact on species, as well as a minimum level of compensation for loss of habitat for special-status wildlife species. Where required, a qualified and permitted biologist will relocate listed wildlife to areas that have been predetermined to provide suitable habitat.

Mitigation Measure BIO-1b, Protect Water Quality for Aquatic Habitats

MRCD shall protect water quality in aquatic habitats through implementation of the following measures during operations and manure management activities:

- Erosion control plans shall be required for fertilizer and manure application on slopes greater than 10%.
- The collection, treatment, storage, or application of manure or process water shall not:
 - Degrade surface water or groundwater,
 - Contaminate or pollute surface water or groundwater, or
 - Create a condition of nuisance (as defined by the California Water Code section 13050).

This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.

- Fertilizer and manure application that could cause or threaten to cause pollution that reduces water quality and impacts aquatic species shall be prohibited.
- Manure and wastewater discharges to land shall be conducted during non-rainy or non-saturated conditions and must not result in runoff to surface waters and must infiltrate completely within 72 hours after application.
- Land application areas that receive dry manure and/or process water shall be managed to minimize erosion.
- The timing of nutrient application shall correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity.
- Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand.
- Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback, or an alternative conservation practice or field-specific condition is installed that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback.
- Composting and waste separation facilities shall be set back at least 100 feet from the nearest surface water body and/or the nearest water supply well. A lesser setback distance may be allowed by the Regional Water Board if it can be demonstrated that the groundwater, geologic, topographic, and well construction conditions at the site are

adequate to protect water quality as described in the SWRCB Compost General Order, 2015 or as revised.

Mitigation Measure BIO-1c, Avoid Listed Special-status Wildlife Species

MRCD shall avoid loss of habitat or individuals of federally and State-listed species, to the extent feasible. Where avoidance of individuals or habitat is infeasible given the location of the PCP practice, MRCD shall ensure that a qualified biologist oversees implementation of the following measures. The qualified biologist shall obtain approval from CDFW, USFWS, and NOAA Fisheries, as needed, to capture, handle, and release all species described in this mitigation measure. The qualified biologist shall have all the necessary permits and experience as determined by the regulatory agencies to work with the target fish and wildlife species. This shall include a current CDFW Scientific Collecting Permit and USFWS Recovery Permits, as needed, and field experience identifying the target species and their habitats and capturing and relocating species.

Preconstruction Surveys for Biological Resources and Species Relocations

The project biologist shall assess the likelihood for sensitive biological resources to be present in the project area and perform a preconstruction survey(s) immediately prior to the onset of construction activities (on the day preceding work, ahead of the construction crew, or during the appropriate window for the target species), depending on the nature of the work and the target species. The focus of the preconstruction surveys shall include identifying the presence of target species and suitable relocation sites. With approval from the regulatory agencies, all fish and wildlife species shall be relocated outside of the area of impact in habitats suitable for the target species. A complete record of all fish and wildlife species observed during the preconstruction survey(s) and relocation process shall be kept by the project biologist and provided to CDFW, USFWS, NOAA Fisheries, and other regulatory agencies as required.

Preconstruction Training and Biological Oversight Measures during Construction, Preconstruction Crew Training Program

The project biologist shall provide a preconstruction training session for construction personnel about the potential presence of sensitive biological resources within the Work Area. Topics will include how to identify life history characteristics and habitat requirements for target special-status species, measures to avoid impacts, project boundaries, penalties for non-compliance, and biological conditions outlined in the project's permits and CEQA-required BMPs. All attendees shall be given handouts to assist with the identification of target species and with protection measures summarized. Personnel who miss the first training session or are hired later in the season shall attend a make-up session before participating in on-the-ground activities. All attendees shall be required to sign an attendance sign-up sheet that will be maintained for the duration of the project.

Wildlife Exclusion

For project areas located within habitats with known presence of special-status species or critical wildlife corridors, temporary wildlife exclusion shall be installed around the project perimeter. Exclusion fencing shall be highly visible, and installation shall be overseen by the project biologist.

Openings shall be restricted to areas of construction site access. The purpose of the temporary fencing is to preclude animals from entering the Work Area and prevent debris and workers from entering adjacent habitats.

Biological Monitoring during Construction Activities

On-going biological oversight shall occur as needed during construction to ensure that biological resources are not being adversely impacted by construction activities. Projects that require relocation of special-status fish and wildlife species shall be visited at least weekly by the project biologist following completion of the relocation activities and exclusion fencing installation. The project biologist shall also train a biological monitor from the construction crew to check the site daily for special-status species and report back to the project biologist on adherence to the biological resource protection measures. If a special-status species enters the Work Area, the construction crew supervisor or biological monitor shall contact the project biologist or designee for further guidance. Special-status species shall not be captured or handled by the supervisor or field crew unless directed by the project biologist or regulatory agency personnel.

Mitigation Measure BIO-1d, Protect Listed Salmonids

MRCD shall ensure that the following protection measures for listed salmonids are implemented for PCP practices in streams that support salmonid habitat:

General Conditions for Work in Salmonid Habitat

- The general work period for listed salmonids is June 15 through October 31 annually. Work outside this timeframe must be authorized by NOAA Fisheries.
- If water is present in the construction area at the time of construction, the project biologist shall prepare a project-specific aquatic species protection and dewatering plan and submit it to regulators for approval.
- Immediately prior to the beginning of construction work, the project biologist shall determine if any vertebrate aquatic species are present in the project vicinity. The assessment of presence shall follow protocols described in the CDFW California Salmonid Stream Habitat Restoration Manual (Florsi et al. 1998) and shall utilize visual streambank and underwater observations and seine net surveys. The entire project area shall be assessed, including all pools, riffles, and runs, as well as upstream and downstream of the site.
- If no aquatic species are detected following the preconstruction assessment, capture and relocation measures shall not be implemented. However, the project biologist shall survey the site periodically and be available on-call during the construction process to ensure no aquatic species have moved into the construction area. If listed salmonids are observed after construction commences, the project biologist shall have the authority to halt work until appropriate protection measures are taken.
- Salmonids shall be relocated in accordance with Procedures for Relocating Fish and Other Aquatic Species below and protected in accordance with the Corps Biological Opinion for Permitting of Fisheries Restoration Project within the Geographic Boundaries of the NOAA Fisheries' Santa Rosa, California, Field Office (NOAA Fisheries 2016) or as updated.

- As described in the NOAA Fisheries Biological Opinion (2016) for work that might impact listed salmonids, upslope disturbance may not exceed one acre for staging. Native trees with defects (e.g., large snags greater than 16 inches diameter at breast height [DBH] and 20 feet high, cavities, leaning toward stream channel), nests, late seral characteristics, or trees greater than 48 inches DBH will be retained. In limited cases, removal will be permitted if trees or snags occur in the way of providing fish passage. No removal will occur without approval from the NOAA Restoration Center. Downed trees or logs greater than 24 inches DBH and ten feet long will be retained or used for in-stream habitat improvement.
- Riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in streams occupied by listed salmonids. Vegetation that does not provide shade or shelter for fish may be trimmed or removed, subject to measures stipulated in the project permits. The amount disturbed shall be the minimum necessary to complete the project.
- Severely trimmed or removed vegetation shall be replaced as required by regulatory agencies. Replacement can occur on site or elsewhere within the watershed where these species historically occurred and where the likelihood of reestablishing populations is greatest. Restoration shall be accomplished using native vegetation.
- If unforeseen circumstances arise in project implementation that may lead to adverse impacts on steelhead, coho salmon, Chinook salmon, or their habitat, the project biologist shall have the authority to immediately halt work activities until measures for avoiding adverse effects are in place.

Temporary Stream Diversion and Dewatering in Salmonid Streams

- In salmonid-bearing streams, water shall be diverted into a cofferdam and around the work site by a gravity-fed diversion pipe when possible; however, if the slope is not adequate, a pump may be required. Pumps shall be screened in accordance with *Juvenile Fish Screen Criteria for Pump Intakes developed by NOAA Fisheries* (1996) and shall consist of 1/8-inch screen mesh. The pump shall be placed in a large basin with holes to allow water to be drawn into the pump. Both the outside of the basin and the pump shall be screened with 1/8-inch mesh to ensure aquatic species do not get sucked into the pumps.
- Optimum placement for a cofferdam is in a pool tail out or glide, leaving 2/3 or 3/4 of the pool volume upstream of the cofferdam for aquatic habitat. Cofferdams located at riffle crests are typically not advisable as water tends to flow subsurface, and the dam and backwater head it creates push water through the gravel crest at a faster rate. If the cofferdam is located at a riffle crest, an excavated sump is usually required directly downstream.
- An exclusion screen shall be placed immediately upstream of the inlet and downstream of the outlet of the diversion pipe. Appropriate materials for the exclusion screen include 3/16-inch Vexar, hardware cloth, and similar materials. The exclusion screen shall be of adequate height and securely fastened to the stream bottom, stakes, and both banks to prevent a breach if surface flow increases (e.g., due to rain or water backing up behind the cofferdam). The screen may also be reinforced with welded wire. The diversion pipe can be left open, without a screen, if the exclusion screens are completely secure, and the habitat units immediately up-

and downstream of the inlet and outlet pipes have been cleared of all vertebrate aquatic species.

- The project biologist shall be on site during dewatering, stream diversion, and removal or decommissioning of the temporary diversion facilities, and as needed at other times to protect fish, other aquatic species, and water quality during construction activities.

Procedures for Relocating Fish and Other Aquatic Species

- If fish and other vertebrate species (e.g., frogs, salamanders) are present within the project area that requires dewatering, fish and other aquatic species shall be relocated up- or downstream prior to construction by the project biologist. Species shall be encouraged to move down from the upstream end of the site with the aid of weighted seines operated by the project biologist with assistants as needed or other industry approved techniques. D-frame nets shall be used for aquatic invertebrates (i.e., freshwater shrimp). Once they have been guided to the downstream end of the work area, barrier seines/fencing shall be placed across the creek at both the up- and downstream ends to prevent re-entry.
- Once the barriers are in place and aquatic species have been encouraged downstream, cofferdams or similar water diversion structures shall be constructed immediately downstream of the upstream barrier and immediately upstream of the downstream barrier. When the cofferdams are in place and the construction area is sealed off, the biologist shall make his/her best effort to relocate aquatic species remaining within the work site as the water surface elevation drops.
- Aquatic species shall be relocated to suitable habitat up- or downstream of the construction area. Release sites shall contain suitable cover and foraging habitat and natural barriers present that are likely to preclude species from traveling back upstream or downstream into the work area.
- Electrofishing may be used as an alternative fish capture method in accordance with *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act* (NOAA Fisheries 2000). If electrofishing is utilized, the project biologist overseeing the aquatic species relocation shall have the appropriate training and experience.
- Throughout project construction, the project biologist shall make weekly visits to the site to ensure that no fish or other aquatic species are being impacted by construction activities. If fish and other aquatic species are observed in the work area after construction commences, work shall be stopped and appropriate actions taken to remove the species to a safe location.

Mitigation Measure BIO-1e, Protect California Freshwater Shrimp

MRCDD shall ensure that the following protection measures are implemented for practices in California freshwater shrimp habitat:

- For all projects where work will occur within the stream channel or banks in a watershed occupied by California freshwater shrimp, the project biologist shall survey all areas within and adjacent to streams to ensure shrimp are not present within the work site or 300 feet downstream. The project biologist shall prepare a project-specific aquatic species protection

and dewatering plan and submit it to regulators for approval if dewatering and shrimp relocation is deemed necessary. See *Procedures for Relocating Fish and Aquatic Vertebrate Species* in **Mitigation Measure BIO-1c, Protect Listed Salmonids**.

- No activities shall be conducted in channels with flowing or standing water within potential California freshwater shrimp habitat without site-specific permits from USFWS and CDFW. If required, an agency-approved biologist shall monitor all construction activity within 300 feet of California freshwater shrimp habitat and have the authority to halt work if adverse impacts may occur.
- No rock structures or bank stabilization measures shall be constructed in channel bottoms that may interfere with California freshwater shrimp migration between in-channel pools.
- Overhanging banks and riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in a stream occupied by California freshwater shrimp. Riparian vegetation that does not provide cover or foraging areas for shrimp may be trimmed or removed. The amount disturbed shall be restricted to the minimum necessary to complete the project.
- Projects shall not disturb existing shrimp habitat where ever feasible. No permanent loss of habitat shall occur as a result of any PCP practices.
- All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall assist in the development and provide oversight for all habitat restoration activities.

Mitigation Measure BIO-1f, Protect California Tiger Salamander

MRCD shall ensure that the following protection measures for California tiger salamander (CTS) are implemented for PCP practices in or near CTS habitat:

- For all projects in areas of suitable/potential habitat within the Santa Rosa Plain and west Petaluma, a formal CTS site assessment of habitats potentially suitable for use by CTS for breeding, aestivation, and migration and a determination of a site's proximity to current CTS occurrences shall be completed. If the project falls within the potential range of CTS and suitable habitat is present, Sonoma County, CDFW, and USFWS shall be consulted to determine if focused surveys or formal consultation is warranted. Potential habitat for CTS is defined as land designated by the Santa Rosa Plain Conservation Strategy Map, as revised by USFWS on April 17, 2007, or any subsequent prevailing documents as requiring mitigation for impacts on salamanders. Potential habitat is also identified outside the Santa Rosa Plain, including areas in west Petaluma.
- Mitigation for impacts on CTS habitat shall be as stipulated in the Santa Rosa Plain Conservation Strategy (USFWS 2005) or any subsequent guidance adopted by USFWS. Such documents include the Draft Recovery Plan for the Santa Rosa Plain (USFWS 2014) and Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS 2007) or as updated. Mitigation lands shall be located within the

watershed where the impact occurs. A conservation easement shall be placed on the mitigation site to preserve the site in perpetuity as wildlife habitat, or as guided by USFWS.

- Minimization measures contained in Section 5.2 (Minimization Measures) of the Santa Rosa Plain Conservation Strategy or any subsequent guidance adopted by the USFWS shall be implemented during work within areas where CTS may occur.
- Initial ground disturbance during construction activities in CTS habitat shall be limited to the dry season (June through October) when salamanders are not moving between terrestrial habitat and aquatic breeding habitat.
- All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall oversee all restoration activities.

Mitigation Measure BIO-1g, Protect California Red-legged Frog

MRCD shall ensure that the following protection measures for California red-legged frog (CRLF) are implemented for PCP practices in or near CRLF habitat:

- Projects within potential CRLF habitat shall be designed to minimize disturbance to vegetation near or in permanent and seasonal pools of streams, marshes, ponds, or shorelines with extensive emergent or weedy vegetation.
- If a project site occurs in potential CRLF habitat, the project biologist shall conduct a preconstruction survey of all aquatic areas and immediately adjacent uplands with suitable vegetation cover that is potential habitat for CRLF no more than 48 hours before the start of construction activities. The biologist shall look for individual frogs, evaluate the likelihood of usage, and determine if additional biological monitoring is needed during construction to ensure that individuals present shall be removed or avoided.
- The project biologist shall monitor initial ground-disturbing activities within 300 feet of CRLF habitat and shall have the authority to halt work activities that may adversely affect CRLF until they no longer occupy the project area. Relocation of CRLF shall be performed only by individuals approved in advance by CDFW and USFWS.
- If suitable CRLF breeding habitat is present, project activities shall occur between July 1 and October 15 to avoid impacts on breeding CRLF or egg masses.

Mitigation Measure BIO-1h, Protect Foothill Yellow-legged Frog

MRCD shall ensure that the following protection measures for foothill yellow-legged frog are implemented for PCP practices in or near its habitat:

- A preconstruction survey shall occur prior to beginning work within stream channels with water present. The survey shall be conducted within 24 hours prior to the start of construction activities. If found, the project biologist shall move foothill yellow-legged frogs to a safe location outside of the project area, temporary exclusionary fencing shall be installed, as appropriate, and ongoing monitoring shall occur during construction to ensure that no frogs have reentered the site.

- If potential habitat for the frog is identified and cannot be avoided, construction activities shall be scheduled so that they do not interfere with the reproductive cycles of the foothill yellow-legged frog by restricting work in the riparian zone to the period from June 15 to October 15. Work periods shall be timed to avoid the breeding season for the frogs, as well as the majority of the incubation period of frog eggs.
- For vegetation maintenance activities where breeding and foraging areas for foothill yellow-legged frogs have been identified, these areas shall be demarcated by the project biologist and avoided by maintenance crews.

Mitigation Measure BIO-1i, Protect Northern Western Pond Turtle

MRCD shall ensure that the following protection measures for northern western pond turtles are implemented for PCP practices in or near its habitat:

- A preconstruction survey for adult northern western pond turtles and nest sites shall occur prior to beginning work for all projects within or near streams and other permanent water bodies. Any adults found within the work area shall be relocated to suitable off-site habitat. Nest sites discovered during the preconstruction survey or anytime during construction shall be avoided until vacated, as determined by the project biologist. Ongoing monitoring shall occur during construction to ensure no turtles have moved back into the area. Temporary exclusionary fencing shall be installed around the site if the project biologist determines it necessary.

Special-status Birds, Migratory Birds, and Raptors

Trees and shrubs in the program area provide potential habitat for special-status bird species, including northern spotted owl, American peregrine falcon, Swainson's hawk, black swift, white-tailed kite, burrowing owl, northern harrier, tricolored blackbird, tufted puffin, yellow warbler, and osprey, as well as nesting raptors and migratory birds. Construction of the program activities could result in tree removal or trimming, which could result in impacts on nesting special-status birds if present in and near the work area for individual activities. Construction noise could also disturb nesting birds in trees near construction sites. Potential impacts on special-status and migratory bird nests 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 nesting special-status and migratory birds could be significant.

Implementation of **Mitigation Measures BIO-1j and k** will mitigate potential impacts on nesting birds and northern spotted owls to less-than-significant levels by requiring preconstruction surveys by a qualified biologist to determine if nesting birds or northern spotted owls are present at or near project sites and by identifying exclusionary zones around the nests or delaying work until the breeding season is over or nesting is complete.

Mitigation Measure BIO-1j, Protect Nesting Birds during Construction

MRCD shall ensure that the following protection measures for nesting birds are implemented for PCP activities:

- Preconstruction breeding bird surveys shall be completed for projects with construction activities occurring from March 15 through August 15 for special-status birds, migratory birds, and raptors. Preconstruction surveys shall occur in all locations identified by a qualified biologist. The surveys shall be conducted within two weeks prior to initiation of vegetation clearing, tree removal and trimming, or other construction activities. If the biologist finds no active nesting or breeding activity, work can proceed without restrictions, except in areas with suitable habitat for bank swallows.
- If active raptor or owl nests are identified within 100 feet of the construction area or active nests of other special-status birds (e.g., passerines, woodpeckers, hummingbirds, etc.) are identified within 50 feet of the construction area, a qualified biologist shall determine whether or not construction activities may impact the active nest or disrupt reproductive behavior. If a qualified biologist determines 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 project biologist determines that construction activities would likely disrupt breeding or nesting activities, a no-disturbance buffer shall be placed around the nesting location. The buffer shall include the active nest or breeding areas plus a 50-foot buffer for small songbirds and a 100-foot buffer for larger birds (e.g., owls, raptors). Construction activities in the no-disturbance buffers shall be avoided until the nests have been vacated.
- If the site is left unattended for more than one week following the initial surveys, additional surveys shall be completed. Ongoing construction monitoring shall occur to ensure no nesting activity is disturbed. If State and/or federally listed birds are found breeding within the area, activities shall be halted, and consultation with the CDFW and USFWS shall occur and agency recommendations shall be implemented.

Mitigation Measure BIO-1k, Protect Northern Spotted Owl

MRCD shall ensure that the following protection measures for breeding northern spotted owls are implemented for PCP activities:

- Breeding northern spotted owls shall be protected in accordance with the **Mitigation Measure BIO-1j, Protect Nesting Birds during Construction**. Protection shall include focused breeding owl surveys for projects occurring from March 1 through August 31 in areas of suitable forested and woodland habitat and within 1 mile of a documented owl occurrence (USFWS 2011).
- If active nests are identified within 0.5 miles of the work area of any noise-producing PCP activity, no work shall occur between March 1 and August 31 or until nesting completion has been verified by the project biologist.
- If the absence of nesting owls cannot be verified, the species shall be assumed to be present and either: 1) the work shall be performed after August 31, or 2) sound reduction measures

shall be implemented in consultation with the project biologist, CDFW, and USFWS to ensure activities do not significantly raise noise above ambient levels.

- No trees or understory vegetation shall be removed within 500 feet of a documented active breeding location for northern spotted owls (either through previously confirmed sightings or project-specific verification by the project biologist).
- For projects proposed during the non-breeding season in suitable habitat, construction activities shall be overseen by the project biologist to ensure roosting and foraging birds are not being impacted. No nighttime work activities shall be allowed.

Special-status Bats

Trees, bridges, and culverts in the PCP Program Area could provide potential habitat for special-status bat species, including pallid, Townsend's big-eared, and western bats. The pallid and western bats are listed as a species of special concern by CDFW. Townsend's big-eared bat is a California threatened species. These bats can be found in a wide variety of habitats that may be present in the program area: forest and woodlands, riparian forests, mixed forests, grasslands, prairies, and agricultural land. Impacts on bats could result from removal or trimming of trees and removal of bridges and large culverts. Potential impacts on special-status bats could be significant.

Implementation of **Mitigation Measure BIO-1I** will reduce impacts on special-status bat species to less-than-significant levels by requiring preconstruction surveys and avoidance of disturbance to roosting bats.

Mitigation Measure BIO-1I, Protect Special-status Bats

MRCD shall ensure that the following protection measures for bats are implemented for PCP practices:

- The project biologist shall survey for bats in all habitats with trees greater than 6 inches DBH and at sites with bridge crossings or other man-made structures capable of supporting roosting bats prior to any disturbance. If occupied roosting habitat is identified, disturbance shall not be allowed until the roost is abandoned, unoccupied, and/or CDFW has been consulted and recommendations implemented.
- For all tree removal, trees shall be taken down in a two-step process – limb removal on day one shall be followed by bole removal on day two. This approach will allow bats an opportunity to move out of the area prior to completing removal of the trees. No trees supporting special-status bats shall be removed without prior consultation with CDFW.
- If work is postponed or interrupted for more than two weeks from the date of the initial bat survey, the preconstruction survey shall be repeated.
- Construction shall be limited to daylight hours to avoid interference with the foraging abilities of bats.

Special-status Butterflies

Special-status butterfly species, including the Myrtle's silverspot butterfly and the San Bruno elfin butterfly, are known to inhabit areas where PCP activities could be implemented. These butterflies

utilize grassland and pasture lands and rock outcrops in coastal scrub or coastal woodland for habitat. Myrtle's silverspots utilize sand dune habitat where a suitable violet host plant occurs. The PCP does not include projects in the coastal sand dune areas; therefore, impacts will not occur in those locations. However, both species may use habitat in the grasslands and scrub habitat within the Program Area, and impacts on these species could be significant if they are present during construction activities.

Critical habitat elements for the Myrtle's silverspot butterfly species are the presence of ants, *Viola adunca*, and nectar sources for adults, including western pennyroyal, gumweed, seaside daisy, and yellow sand verbenas. The historic range of the species reached from Año Nuevo to the Russian River. Only four populations remain, three of which are in the PCP Program Area.

San Bruno elfin butterflies are dependent on the presence of their host plant, broadleaf stonecrop, and on healthy ant populations. There are six known populations remaining, two of which occur in the Program Area.

Implementation of **Mitigation Measure BIO-1m** will reduce impacts on special-status butterflies through identification and protection of host plants during construction activities.

Mitigation Measure BIO-1m, Protect Special-status Butterflies

MRCD shall ensure that the following protection measures for butterflies are implemented for PCP practices that occur in or near suitable grassland habitat:

- Reconnaissance-level surveys shall be performed by the project biologist to determine whether suitable habitat for Myrtle's silverspot or San Bruno elfin butterflies is present in the project area. If larval host or nectar plants for listed butterflies are present, and the target species is documented within the project vicinity, the project biologist shall perform a survey to determine presence or absence utilizing widely accepted scientific protocols.
- If suitable habitat for listed butterflies is present, project work shall be carried out with minimum soil compaction and disturbance. Wherever possible, work shall be performed with hand tools. No herbicides or fertilizers shall be used in habitat that supports special-status butterflies.
- Host plants for listed butterflies, including broadleaf stonecrop and *Viola adunca*, shall be protected with a clearly demarcated 20-foot buffer zone.

American Badger

The American badger is listed as a State species of special concern by CDFW. Construction of PCP activities could impact this species if burrows are encountered and damaged during ground-disturbing activities. American badger burrows may be located in grasslands and low-growing vegetation habitats throughout the PCP Program Area. Impacts on this species could be significant.

Implementation of Mitigation Measure BIO-1n will reduce impacts on badger burrows to less-than-significant levels by requiring preconstruction surveys and implementation of buffers to protect burrows during construction activities.

Mitigation Measure BIO-1n, Protect American Badger

MRCD shall ensure that the following protection measures for American badgers are implemented for PCP activities:

- For all projects requiring disturbance to open grasslands or low-growing vegetation habitats, a preconstruction survey for American badger shall occur prior to beginning work. If any badgers are documented within the project area or within 500 feet of it, buffer zones shall be established and maintained until the badgers have vacated the area. No work shall occur within the buffer zone until the area is cleared by the project biologist. Additional protection measures may be required and shall be developed in consultation with CDFW; they may include larger buffer zones or relocations, as appropriate.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community: Less-than-significant with Mitigation

The Program Area supports numerous riparian and other sensitive natural communities including coastal estuaries, salt marshes and mudflats, coastal brackish marsh, coastal and valley freshwater marsh, vernal pools, dune and beach habitat, native grasslands, and riparian habitat. A number of these habitats are excluded from the PCP because they have been determined to be particularly sensitive and inappropriate for programmatic CEQA review. As identified in Section 2.1.1, coastal estuaries, salt marshes and mudflats, all tidally influenced wetlands and waters, vernal pools, dune and beach habitat, and serpentine grassland are excluded from the PCP.

PCP practices could be implemented throughout Marin County and would range in size depending on the individual practice and site conditions; however, restoration of riparian habitats is central to the purpose of the Program. Practices that enhance riparian habitat and vegetation include critical area planting, pipeline installation, fish stream improvement, streambank protection, and stream channel stabilization. These conservation and restoration practices will improve both the quantity and quality of riparian habitat by stabilizing eroding soils, preventing cattle from grazing in riparian areas, and managing sources of erosion that can occur in riparian areas.

The conservation practices are designed to avoid and/or minimize disturbance to riparian areas. Best management practices included in the Project Description include **BMP VM-1, Project Areal Limitations on Vegetation Management**, which requires PCP activities to meet a series of design constraints to limit vegetation removal and to minimize the size of the activity's footprint in riparian areas. The key requirements for riparian vegetation management from BMP VM-1 include the following:

1. Disturbance of native trees, shrubs, and woody perennials or removal of trees from riparian areas, including streambanks or stream channels, shall be avoided where possible and minimized where avoidance is not feasible.
2. No more than 0.10 acre of native riparian trees, shrubs, or woody perennials shall be removed from a stream area for a single project.
3. Where the area contains a mix of native and invasive species, no more than 0.25 acre of vegetation shall be removed from a streambank or stream channel.

4. If the area is exclusively non-native species, up to five acres of riparian vegetation may be removed.

Although the overall objective of the PCP Program is to enhance water quality and improve riparian habitat conditions throughout the Program Area, some practices could result in the loss of riparian habitat and could adversely affect other sensitive natural communities. Project activities could occur around the base of native trees, and could result in damage or loss of these trees. The impact to riparian habitat, sensitive natural communities, and native trees could be significant. Implementation of **Mitigation Measure BIO-2a** will reduce impacts on these sensitive natural communities by conducting surveys needed to avoid impacting where feasible and by requiring replanting of impacted areas using local cultivars where avoidance is not possible. Implementation of **Mitigation Measure BIO-2b** requires implementation of root protection around native trees to avoid root damage during construction and provides guidelines for trimming and foliage removal.

Mitigation Measure BIO-2a, Compensate for Loss of Riparian Habitat and Other Sensitive Natural Communities

MRCD shall require the following actions to compensate for loss of riparian habitat and other sensitive natural communities during PCP activities:

- If vegetation in habitats identified by a qualified biologist as sensitive or native riparian trees over four inches DBH are removed, they shall be replaced by native species appropriate to the site. Outside of riparian areas and other sensitive habitats, if trees over six inches DBH are cut, they shall be replaced by native species appropriate to the site.
- If needed, an irrigation system shall be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials shall be removed.
- Revegetation success criteria shall be based on permit requirements and individual site conditions. MRCD shall conduct revegetation monitoring and replanting as required in the permits.

Mitigation Measure BIO-2b, Avoid Work in or Compensate for Impacts on Native Tree Root Protection Zone

MRCD shall require the following tree root protection measures are implemented during PCP activities to avoid or compensate for loss of sensitive trees and plant communities and to protect wildlife habitat during vegetation removal:

- Because native trees are susceptible to disturbance from grading and compaction, especially within the root crown area referred to as the Root Protection Zone (RPZ), work within the RPZ shall be avoided wherever possible, and no work shall occur within the RPZ when soils are wet. The RPZ is defined as 1.5 times the dripline radius measured from the tree trunk and extending approximately three feet below the soil surface. The outer extent of the RPZ shall be clearly demarcated with exclusionary fencing to keep construction vehicles and activities away from tree roots.
- If work must occur within the RPZ, all tree trunks shall be wrapped up to eight feet high or the height of the equipment working in the area. Protection materials may include wood boards

or heavy-duty rubber matting. Trench plates or heavy mulch shall be installed when heavy equipment is working within the RPZ. All roots larger than one inch shall be cut with a clean, sharp saw. No more than 20% of live foliage shall be pruned in one year.

- A qualified arborist or biologist shall guide subsurface activities, including grading and trenching operations, as needed, to protect roots of native trees.

PCP practices may be implemented in coastal terrace prairie or northern maritime chaparral, and the impact could be significant. Implementation of **Mitigation Measure BIO-2c** will reduce impacts on these sensitive natural communities by conducting surveys needed to avoid impacting where feasible and by requiring replanting of impacted areas using local cultivars.

Mitigation Measure BIO-2c, Protect Coastal Terrace Prairie and Northern Maritime Chaparral

MRCDD shall ensure that the following protection measures for coastal terrace prairie and northern maritime chaparral are implemented when PCP practices occur in sensitive habitats:

- Prior to project design, the site will be surveyed by a qualified botanist to establish the presence of any special-status plants. If such plants are found, the project will be designed to avoid them.
- No herbicides will be used in coastal terrace prairie or northern maritime chaparral.
- Areas disturbed by construction will be replanted with local cultivars of native species.

c) Have a substantial adverse effect on wetlands: Less-than-significant with Mitigation

One of the long-term beneficial effects of the Program is improvement of wetlands in the watersheds. Work under the PCP will be authorized under the federal Clean Water Act (CWA) by the U.S. Army Corps of Engineers through Nationwide Permit (NWP) NWP 13 (Bank Stabilization), NWP 27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities), and/or NWP 33 (Temporary Construction, Access and Dewatering).

The conservation practices can be used to restore natural wetland functions, to stabilize erodible soils to prevent soil accumulation in wetlands, to collect sediments before they enter waterways and wetlands, and to provide watering areas for livestock away from sensitive habitats. Only projects that result in a net environmental benefit are included in this Program. On-site assessments as described in Section 3.1.2 will result in the identification of avoidance measures or design conditions to avoid impacts on wetlands where feasible. BMPs to protect wetlands include **BMP DC-2, Requirements to Protect and Avoid Disturbance in Aquatic Habitats** and **BMP DC-3, Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality**; both include requirements to minimize or avoid wetland impacts. Short-term impacts on wetlands could occur from activities such as soil excavation or grading, preparation of the ground for seeding and mulching, grade and stream stabilization, channel excavation, construction of earthen embankments, placement of fill, vegetation removal, and burial, trampling, or crushing of vegetation from equipment and foot traffic.

Temporary impacts to wetlands resulting from implementation of PCP practices could be significant if the impacts affect the overall wetland function by eliminating conditions for wetlands to continue functioning after project completion. Potential impacts from the temporary disturbance of wetlands could be significant. Tidally influenced wetlands and waters and vernal pools will be unaffected by the PCP, since activities in these areas are specifically prohibited.

Implementation of **Mitigation Measure BIO-3** requires that all temporarily disturbed wetlands be restored to pre-construction conditions or better, including restoration of the wetland hydraulic conditions to ensure the wetland persists following restoration. Restoration of the wetlands to pre-construction conditions will reduce the impacts to less than significant levels.

Mitigation Measure BIO-3, Protect Wetlands

MRCD shall ensure that wetlands impacted by construction activities are returned to their pre-construction conditions or better immediately following completion of the project using the following methods or other means that result in properly functioning wetlands:

- Conduct a wetlands survey for areas that would be permanently or temporarily disturbed to confirm the location, extent, and regulatory status of wetlands and water features within the PCP practice area. Sites that are entirely paved, compacted, or maintained as landscaped areas are not subject to this requirement.
- If work is required in wetlands, disturbance and compaction shall be minimized by strict use of a single identified access route to the work area and by minimizing the work area to the smallest needed to construct the project.
- If access through a wetland is necessary, steel plates or other soil and vegetation protection measures shall be placed across the wetland and construction vehicles shall use the plates for access. Low ground pressure, rubber-tired equipment may be used in lieu of protective plates. The area under the plates shall be seeded with native wetland vegetation after the plates are removed to restore the site.
- Permanent fill of wetlands shall be avoided.

d) Interfere with movement of native or migratory fish or wildlife: Less-than-significant

The Program is designed to improve habitat for migrating fish, specifically steelhead, coho salmon, and Chinook salmon. By reducing the contribution of sediment to the waterways, improving aquatic and riparian habitat, and removing fish passage barriers, the Program will have an overall net benefit to movement of native and migratory fish. To avoid temporary impacts on salmonid migration, construction that requires dewatering or temporarily reduces up and downstream connectivity will not occur during important movement windows as described in **BMP BR-3, Temporal Limitations and Requirements to Protect Special-status Species during Construction**.

BMP DC-2, Requirements to Protect and Avoid Disturbance of Aquatic Environments specifies that projects will be designed to protect fish and other aquatic organisms and avoid impairing wildlife movement. BMP DC-3, Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality describes requirements for culvert design and

implementation to avoid creation of fish passage issues and to meet minimum flow passage requirements.

Construction of alternative livestock water supply and composting facilities could adversely affect movement of native or migratory wildlife if the facilities are placed in a known migration corridor.

Composting facilities and other facilities constructed under the Program will be placed at least 100 feet from the nearest surface water body. Placement of the facilities away from riparian corridors will minimize interference of migration along these corridors as detailed in **BMP DC-5, Placement of Composting and other Constructed Facilities**.

e) Conflict with local policies or ordinances: Less-than-Significant

There are many local policies and ordinances within the PCP Program Area that pertain to biological resources. Relevant plans include the Marin County Local Coastal Plan, the Marin Countywide Plan, and the National Park Service General Plan. The policies within the plans require conservation of wetlands and waterways so that there is no net loss of wetlands, preservation of significant vegetation and trees, and specific measures for construction in and adjacent to sensitive habitats, such as stream channels.

Implementation of the PCP practices could result in short-term conflict with applicable County policies protecting biological resources, as identified in the previous impact discussions regarding special-status species, riparian vegetation, and wetlands. However, the BMPs and mitigation measures identified in the impacts analysis above will ensure that PCP practices comply with these policies and ordinances, and the impact will be less than significant.

f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan: No Impact

USFWS recently released a Final Habitat Conservation Plan San Francisco Bay Area for Pacific Gas & Electric (PG&E) an Endangered Species Act Section 10(a)(1)(B) incidental take permit for the company's Bay Area Habitat Conservation Plan Operations and Maintenance (HCP). The HCP includes strategies to avoid, minimize, and offset potential direct, indirect, and cumulative effects of PG&E's operations, maintenance, and minor new construction activities on 32 federally listed species, including activities within the PCP Program Area. Activities associated with the PCP are not included in the HCP; and therefore, will not conflict with PG&E's HCP.

No other habitat conservation plans or natural community conservation plans are in place in the program area.

4.5 Cultural Resources

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in CCR §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CCR §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The information summarizing the cultural resources of Marin County in this section is summarized from the Marin Countywide Plan Update 2007 Final Environmental Impact Report (EIR) (MCCDA 2007a).

Paleontology is the study of forms of life existing in prehistoric or geologic times, as represented by the fossils of plants, animals, and other organisms. Paleontological remains in Marin County include plants, invertebrates, and vertebrates ranging in age from approximately 140 million years to less than 8,000 years before the present. These remains have been primarily recovered from the Pleistocene, Pliocene, Holocene, and Miocene geologic time periods.

Archaeology is the study of past human cultures through the systematic recovery of material remains such as buildings, tools, and pottery. In Marin County, archaeological research generally involves study of the Native American inhabitants of the land from roughly 8,000 years ago until the arrival of American, Spanish, and Mexican settlers in the early 1800s.

For thousands of years, Marin County was home to the Coast Miwok Native Americans, who settled primarily along the County's shorelines, bays, streams, and lagoons. More than 600 village sites have been uncovered and identified in the Coast Miwok territory, more than 100 of which have been discovered on the Point Reyes Peninsula. The Coast Miwok are now organized as part of the FIGR (see discussion in Tribal Resources Section 4.17) and the civilization's rich legacy continues to this day.

Historic resources, as distinguished from archaeological resources, include antiques, buildings, structures, and sites generally from the last two centuries, during the period of Mexican, Spanish, and American settlement of Marin County. Historic resources can be found throughout the County and include an array of sites that are designated on local, State, and national historical lists.

Given this long history, paleontological, archaeological, and historical sites can be found throughout the PCP Program Area. In addition to prehistoric habitation by Native Americans, rural areas in the Program Area contain many historic ranches, small towns, and settlements.

**a-c) Cause a substantial adverse change to historical, archaeological, or paleontological resources:
Less-than-significant with Mitigation**

The policies of Marin RCD and its partners ensure that the effects of conservation and restoration activities on historical, archaeological, or paleontological resources are considered in the earliest planning stages and that cultural resource protection is accomplished as efficiently as possible through identification, examination, consideration, and avoidance of potential impacts. **BMP CR-1** requires the Marin RCD to identify and avoid known cultural resources during project design. The BMP also requires coordination with FIGR following preliminary designs. Site visits will occur, as requested by FIGR, to identify potential impacts and avoidance and mitigation measures that will become part of the project description and permit requirements.

Even with careful planning and avoidance of known cultural resources sites, there is a chance that a previously undiscovered cultural or historical site could be impacted during construction activities, and the impact could be significant. Implementation of **Mitigation Measures CUL-1, CUL-2, and CUL-3** will reduce impacts on historical, archaeological, and paleontological resources to less-than-significant levels by providing standard practices for the protection of cultural resources that are that are discovered during Program activities.

Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources

When a literature and archival records search identifies potential historic resources within or near the project area during pre-project review or when historic materials are encountered during work activities, MRCD shall require the following:

- If potentially historic resources or buildings older than 45 years are located within 100 feet of the project area, a qualified historian or archaeologist shall be retained to perform an evaluation of the potential historic resource and determine whether the project would impact the resource. If the resource is determined to qualify as historic under CEQA Guidelines §15064.5(a), and the PCP practice would impair the resource, such impacts on the resource shall be avoided. The PCP practice shall be designed and constructed to avoid impairment of the historic resources. Measures to protect historic resources may include, for example, temporary protective barriers, construction worker training, movement of the facility or practice site, and landscape screening.
- Should the historic resource survey identify significant resources that cannot be avoided, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* shall be followed. A qualified historic preservation professional shall be retained to develop a treatment plan. Such professionals may include architects, architectural historians, historians, historic engineers, archaeologists, and others who have experience in working with historic structures. Mitigation measures recommended by the qualified historic preservation professional shall be implemented. These measures could include, but not necessarily be limited to:
 - Avoidance of significant historic resources;
 - Graphic documentation (photographs, drawings, etc.); and
 - Restoration, stabilization, repair, and reconstruction.

- MRCD and its partners shall hold a pre-construction meeting to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic materials.
- If subsurface historic materials are encountered during construction activities, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified historian/archaeologist. Project personnel shall not collect historic materials. If the historian/archaeologist determines that the find qualifies as a unique historic resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either modifying the project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

Mitigation Measure CUL-2, Identify and Avoid or Minimize Impacts on Archaeological Resources

When a literature and archival records search identifies potential archaeological resources within or near the project area during pre-project review or when archaeological materials are encountered during work activities, MRCD shall require the following:

- A qualified archaeologist shall be retained to perform an evaluation of the potential resource. If the resource is determined to qualify as an archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), and project construction would adversely affect the resource, such impacts shall be avoided. The PCP practice shall be designed, constructed, and operated to avoid material impairment of the resource. Measures may include temporary protective barriers, construction worker training, or movement of the project itself.
- A pre-construction meeting shall be held to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Prehistoric resources may include chert or obsidian flakes, projectile points, mortars, and pestles; dark friable soil containing shell and bone dietary debris; heat-affected rock; or human burials.
- If previously unknown archaeological materials are encountered during construction, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified archaeologist. Project personnel shall not collect cultural materials. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either project modification to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

Mitigation Measure CUL-3, Avoid or Document Paleontological Resources

If a paleontological resource is discovered during construction, MRCD shall require the following:

All ground-disturbing activities within 50 feet of the find shall be temporarily halted but may be diverted to areas beyond 50 feet from the discovery and continue working. MRCD shall notify a qualified paleontologist who will document the discovery, evaluate the potential resource, and assess the nature and significance of the find. Based on scientific value or uniqueness, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the material. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.

d) Disturb any human remains: Less-Than-Significant with Mitigation

No work will occur in areas of known human remains; however, previously undiscovered human remains could be disturbed during construction of PCP activities. In the event of inadvertent discovery during construction, as required by **Mitigation Measure CUL-4**, all work will stop in the immediate vicinity of the discovered remains. The County Coroner and a qualified archaeologist will be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission (NAHC) will be contacted by the Coroner so that a Most Likely Descendant can be designated. Work will cease until the Most Likely Descendant has time to propose a mutually acceptable disposition for the remains to the landowner. Use of **Mitigation Measure CUL-4** will reduce potential impacts to a less-than-significant level in the unlikely event that previously unknown human remains are encountered during project activities.

Mitigation Measure CUL-4, Procedures for Inadvertent Discovery of Human Remains

Should human remains be encountered during PCP activities, MRCD shall require the following:

The treatment of any human remains and associated or unassociated funerary objects discovered during soil-disturbing activities shall comply with applicable State laws. If human graves are encountered, MRCD shall ensure that all work stops in the vicinity and the Marin County Coroner is notified. A qualified archaeologist shall evaluate the remains. If human remains are of Native American origin, the Coroner shall notify NAHC within 24 hours of identification, pursuant to Public Resources Code (PRC) §5097.98. NAHC would appoint a Most Likely Descendant. A qualified archaeologist, MRCD, and the Most Likely Descendant shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines §15064.5[d]). The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters. If the Most Likely Descendant and the other parties cannot not agree on the reburial method, MRCD shall follow PRC §5097.98(b), which states that “the landowner or his or her authorized representative shall reinter the human remains and items associated with Native

American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.”

4.6 Geology and Soils

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Marin County has diverse geology because it sits on the boundary between the North American and Pacific Plates. The plates rub together as they move in opposite directions, with the Pacific Plate rotating/moving toward the northwest and the North American Plate moving toward the southeast in relation to each other. As the plates grind, stick, and slip, they cause many earthquakes and fault lines. Major plate boundary fault lines in the San Francisco Bay Area, running parallel with the plate boundary in the San Andreas Fault Zone, are the Rodgers Creek Fault/Hayward, Calaveras, and San Andreas Faults. Many smaller faults surround and diverge from the major faults (USGS 2016).

The main line San Andreas Fault runs through west Marin County, entering at Bolinas Lagoon in the south and exiting at Tomales Bay to the north. Thus, the entire Point Reyes Peninsula is moving north relative to the rest of Marin. This has led to very diverse topography, rock structures, and soils. Most of the County is a Francisco Complex mélangé created when land at the plate boundary gets highly compressed, portions of one plate scrape onto the other, and formations from many sources are

partially drawn down in a subduction zone under massive heat and pressure, then churned back to the surface. The County is therefore a mix of volcanic rock from the sea floor, including outcroppings where visitors can see pillow basalt, sedimentary rocks laid down as both ocean floor and land layers, and metamorphic rocks including the serpentine with garnets visible at Ring Mountain.

a-i –a-iv, c, d) Expose People or Structures to Potential Substantial Adverse Effects, including Risk of Loss, Injury, or Death Involving Fault Rupture, Strong Ground Shaking, and Seismic-Related Ground Failure – Less than Significant Impact

The PCP Program is designed to prevent erosion and sedimentation on rural lands, agricultural lands, and riparian areas and to decrease sedimentation to downstream locations. Buildings and large structures are not a component of the PCP.

Conservation practices that are part of the PCP include conditions, limitations, and protection measures that guide design of the practices. These conditions and limitations are discussed in the Project Description and are included in the requirements for each PCP practice. Marin RCD staff and the PCP Technical Advisory Committee will assess the risk of slope failure, liquefaction, or geologic hazards when planning each project by reviewing landslide and geology maps during project planning to assess what the optimal solution will be for a particular site. The site-specific information about the physical factors on site will be used in project selection and design.

The main line of the San Andreas Fault runs through the western Marin, and smaller faults are distributed throughout the Program Area; however, the Program will not create structures that add to the hazards of a rupture along the fault line.

In the event of a serious rupture on the San Andreas Fault, the Program Area is expected to undergo strong to very violent shaking intensity (ABAG 2018). Installation of small-scale erosion control and water management structures, plantings, restoration, and minor grading or road improvements will not change the local impacts of the shaking.

However, pipelines installed as part of the Program may be susceptible to the effects of rupture, strong ground shaking, and seismic-related ground failure. As discussed in the Project Description, project planners and designers will assess the site-specific characteristics of the project area and design projects and select materials based on the need to withstand rupture hazards and strong seismic ground shaking where necessary. The design elements will account for the specific site conditions, and the impacts from rupture of an earthquake fault or strong ground shaking would be less than significant.

Although most of the Program Area has very low liquefaction potential, there are limited areas with moderate potential. The risk of slope failure, liquefaction, or structural failure is addressed during the planning process. NRCS produces the Soil Survey of Marin County and specializes in soil science interpretations. NRCS engineers consider soil physical factors when selecting and designing conservation measures. The planning process and policies of the Marin RCD, NRCS, and/or PRNS require all projects to be evaluated for soil hazards and designed appropriately. PCP activities will be designed to account for

potential ground failure and liquefaction. None of the projects will increase the potential for ground failure in an area.

The Program Area has significant portions categorized as “many landslides” (ABAG 2018). As described in iii) above, the project selection and planning process takes soil hazard conditions into consideration. In no case will project activities exacerbate these situations, and in some cases the area may be more stable versus slides than before the project. The critical planting area and streambank protection practices will tend to stabilize the earth against minor movement by increasing the depth and density of major root systems, but will likely have no effect on major slides or slides in motion because of a strong earthquake.

b) Result in substantial soil erosion or loss of topsoil: Less than significant

Projects to be implemented under the PCP have the stated purpose of reducing or eliminating soil erosion. Soil conservation practices covered by this program have been determined by the Marin RCD, NRCS, and/or PRNS to have a net environmental benefit observable in the first year after construction. Thus, any contributions of sediments from construction are offset within the first year by the functioning of the conservation practice.

The conservation projects will be designed to reduce overall erosion and improve water quality; however, construction activities would result in temporary soil erosion from disturbed sites. Erosion and sedimentation control measures will be used during construction to prevent soil loss and polluted runoff. Best management practices, including **BMP DC-1, BMP DC-3, BMP CP-2, BMP CP-3, and BMP WQ-1**, will be utilized during construction to prevent soil loss and polluted runoff. For example, when implementing or maintaining a critical area planting above the high water line, a filter fabric fence, fiber rolls, and/or hay bales shall be utilized, if needed, to keep sediment from flowing into the adjacent waterbody. Implementation of the BMPs will reduce impacts to less-than-significant levels.

e) Have soils incapable of adequately supporting the use of septic tanks ... where sewers are not available for the disposal of waste water: No Impact

Projects to be implemented under the PCP Program have the stated purpose of reducing or eliminating soil erosion. Many of the agricultural properties in the project do not have sewer connections, and there may be parcels that have insufficient permeability for septic systems. Existing ranch and farm houses manage permitting of septic systems with the Marin County Building Department. New or expanded residences and changes in human septic systems are not a part of the Program. Manure management activities may include building composting pads, manure/liquid separators, and dairy flush to scrape systems that will reduce the amount of liquid waste. The activity also includes practices to safely move and store such wastes prior to beneficial reuse or appropriate disposal. No infiltration is planned, so project sites will not require permeable soils. PCP practices do not involve septic systems; therefore, there will be no impact.

4.7 Greenhouse Gas Emissions

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Greenhouse gases (GHGs) trap heat in the atmosphere, causing an increase in average global temperatures and other climate changes including alterations to temperature ranges, wind patterns, storm distribution and intensity, and total rainfall. These changes affect habitat conditions, species survivorship, food supply, water reliability, economic stability, and human safety; larger effects are anticipated moving forward. The most common GHGs, and the ones most affected by the PCP Program include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Other potent GHGs are important but not likely to be generated or sequestered by Program activities.

Generally, GHGs are measured by the amount of change they make in atmospheric heat retention (forcing) compared to the most common GHG – carbon dioxide equivalent (CO₂E). This is expressed as Global Warming Potential (GWP) and is a combination of the amount of energy they capture and the amount of time they remain in the atmosphere. Over a 100-year period, methane and nitrous oxide have CO₂E of 28-36 and 265-298 respectively (EPA 2018), so each is capable of causing much more damage than carbon dioxide when they occur in similar quantities.

California government at all levels is moving to reduce GHGs. There are two areas of focus for reducing the amount of GHGs in the atmosphere: cutting emissions and increasing sequestration (the process by which atmospheric GHGs are incorporated into non-mobile forms such as trees and soil). As discussed in the Air Quality section, the PCP is focused on improving agricultural sustainability through improved water quality, habitat protection and restoration, and reduced GHGs. More than half the activities in the PCP actively promote carbon sequestration or reduce GHGs, as described in the Project Description and Section 4.3, Air Quality.

a) Generate greenhouse gas emissions that may have a significant impact on the environment: No impact

Program activities have the potential to affect GHG emissions in three main ways:

- Emissions from equipment used to install Program practices can increase atmospheric GHG concentrations;
- Carbon sequestration from vegetation planting, enhancement, and active soil carbon farming can sequester CO₂ and decrease GHG concentrations; and
- Capture and burning of methane (CH₄) can turn a high GWP chemical into a much lower GWP chemical, CO₂, and decrease GHG concentrations.

The Program will generate small levels of GHG emissions from construction equipment during construction of up to 30 projects per year. Construction emissions were estimated using CalEEMod Version 2016.3.2 using the largest project sizes in each PCP practice category. Construction could generate up to 119 Metric Tons (MT) CO₂E. This estimate does not include Operations Management and Manure Management activities. The practices that compose these activities have been characterized by NRCS as carbon beneficial because they reduce or actively remove GHGs.

PCP projects will involve changes in vegetation from direct planting and fencing riparian areas to allow riparian vegetation regrowth. Projects that relocate an access road or trail out of the riparian zone will also allow regrowth of multi-story riparian vegetation. The estimated annual planting, averaged from the areas Marin RCD planted per year between from 2012 to 2014 (MRCD 2015), and expanded riparian corridor vegetation, will sequester approximately 1,545 MT CO₂E. The sequestration total also does not include willow plantings in creek restorations and bank stabilization, active soil carbon sequestration from rangeland management, or the GHG reductions achieved by manure management, methane capture and burning, and methane reuse for clean power being implemented on an increasing number of ranches. Therefore, the amount of sequestration as a result of the PCP will likely be higher.

The estimates used to assess GHGs in the document are approximate and do not take into account the individual species of trees that will be planted or the exact specifications or numbers of future projects. However, the estimates are conservative – overestimating the amount of GHGs produced from PCP construction activities and underestimating the amount sequestered through planting, manure management, and methane capture. Overall, the amount of GHGs sequestered by the Program will be substantially larger than the amount produced, so there is no impact from GHG emissions.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions: No Impact

Pertinent GHG regulations and guidance for the Program Area come from the State of California, BAAQMD, Marin County, and the City of Novato.

Since 1988, California has enacted 28 pieces of climate change legislation. The ones with the most applicability to Program activities are:

- Greenhouse Gas Inventories and Registries (AB 4420 – 1988, SB 1771 – 2000, SB 527 – 2001, AB 1493 – 2002, SB 812 -2002, AB 1803 – 2006) – These laws set up the inventory and registration processes allowing appropriate GHG accounting and setting the foundation for Cap-and-Trade. Marin RCD does not need to take any action to comply, but information generated under these laws helps with Program planning.
- The Global Warming Solutions Act (AB 32 – 2006) – AB 32 addresses total GHG emissions across the state and throughout the different sectors of California’s economy. Most subsequent legislation involves ways to meet the AB 32 goals. Reduced-carbon farming and ranching practices are part of the implementation of the law. CARB has been tasked with developing a plan for implementation of AB 32. This plan is called the Scoping Plan. The Plan was first

approved in 2008, and the First Update to the Plan was approved in 2014. The Scoping Plan is described below.

- CEQA and Climate Change (SB 97 – 2007) – 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. This evaluation is compliant with the law.
- Forest Resources and Carbon Sequestration (AB 1504 – 2011) – The bill requires certain agencies to review their forest and rangeland regulations to meet the AB 32 reduction goals. Marin RCD doesn't need to take action, but may be affected by resulting regulatory changes.
- Greenhouse Gas Reduction Fund in the Budget (AB 1532 – 2012) – Requires funds generated by carbon emissions limits to be used to fund GHG reduction. Although this requires no action by Marin RCD, it may be a potential source of funding for some Program elements.
- Short-Lived Climate Pollutants (SB 605 – 2014, SB 1383 – 2016) – These laws require CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants including reducing methane emissions by 40% below 2013 levels by 2030. CARB, in consultation with the State Department of Food and Agriculture (DFA), must adopt regulations to reduce methane emissions from livestock manure management operations and dairy manure management operations to take effect on or after January 1, 2024, which is within the 10-year life of the PCP. Until the draft regulations are circulated for public review, it will not be possible to fully assess what Marin RCD must do to comply; however, the manure management practices being implemented as part of the Program likely provide an early start on compliance.
- California Emissions Targets for 2030 (SB 32 – 2016, AB – 197) – Together these two laws provide emissions reductions targets for 2030 and direct CARB to develop the second update to the Scoping Plan. The Second Update, providing a path to meet 2030 targets, was approved in 2017, and is now in effect. The Scoping Plan is discussed below.
- Cap-and-Trade Extension (AB 398 – 2017) – AB 398 extends and improves the Cap and Trade Program. Although no action is required by Marin RCD, it is another potential funding source.

The California Scoping Plan - The Scoping Plan is the comprehensive strategy to reduce California's GHG emissions through every sector of the economy. If jurisdictions worldwide would enact similar plans, we could avoid the worst effects of climate change. The Plan has four goals for agricultural, natural, and working lands:

- Protect and enhance California's natural and working lands to become a net carbon sink over the long-term;
- Develop and implement the Natural and Working Lands Implementation Plan;
- Measure and monitor progress; and

- Improve manure management, boost soil health, generate renewable power, electrify operations, utilize waste biomass, and increase water, fertilizer, and energy use efficiency to reduce super pollutants (methane).

No part of the Program will conflict with these measures. Many components of the PCP Program are actively implementing the Plan for carbon sequestration, renewable energy, and water conservation.

The Marin Countywide Plan, updated in 2007, Natural Systems and Agriculture Element Goal Air-4 addresses the mitigation of GHG emissions. Implementation program Air-4.d calls for establishing a program to reduce emissions from agricultural operations. The PCP will not interfere with the ability of ranchers and farmers to comply with this County implementation measure. The program will actively promote compliance with Measures Air-4.j, Acquire and Restore Natural Resource Systems, Air-4.k, Encourage Planting of Trees, and Air-4.l, Preserve Agricultural Lands.

The Marin County Climate Action Plan (CAP), 2015 Update, provides actions to reduce GHG emissions in the unincorporated areas to meet the AB 32 2050 target of 80% below 1990 emissions levels. In 2012, emissions from Marin County's unincorporated areas were approximately 477,000 MT CO₂E (Marin County 2015). Of this, 23% came from agriculture, although the CAP acknowledges that agriculture largely occurs in the unincorporated areas. Agriculture accounted for only 6% of Marin County emissions including the cities.

Seven of the strategies in the CAP apply to Program activities, with the Program actively promoting six of them:

- Zero Waste by 2025 (composting, mulching, and beneficial reuse)
- Water Conservation (water conservation practices)
- Increase Pump Efficiency (new pumps and pipelines for lower-energy water transport)
- Reduce Wastewater Generation (practices to capture and infiltrate runoff, as well as capture and use roof water)
- Methane Capture and Energy Generation at Dairies (manure management and methane use)
- Carbon Farming (practices to reduce tillage, increase soil nutrients by mulching and manure application, and deepen the soil on ranch lands)

The CAP also calls for the promotion of locally grown foods and products. The PCP will not help or interfere with this.

Novato's existing General Plan was approved in 1996. It addresses air quality, but does not address GHGs or climate change. In 2009, the City adopted a GHG reduction target of 40% by 2035. The City is in the middle of a General Plan Update, which will also serve as the City's CAP. The Draft General Plan 2035 Update identifies five main policies for GHG reduction: green building, efficient land use and transportation, waste reduction, water conservation, and enhancing sequestration in natural systems. The Plan also calls for adaptation measures for climate change impacts including sea level rise. The PCP actively helps to address Novato's goals related to preserving, enhancing, and restoring natural areas including waterways and riparian corridors, maintaining clean air, and energy and water conservation. The Plan also requires construction vehicles to limit idling time and an increase in worker ridesharing.

These measures are included in the PCP as part of **BMP CP-2** – actions to reduce air and water quality impacts from construction.

Actions proposed in the PCP will not hinder any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. There will be no impact on existing plans or regulations.

4.8 Hazards and Hazardous Materials

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5, and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land-use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Program will work with three kinds of hazardous materials:

- Gasoline, oil, diesel, and other fluids associated with vehicle use, including cars and construction equipment.
- Herbicides used in limited quantities to control invasive plant species.
- Hazardous gas generated by anaerobic digestion of organic wastes, particularly manure.

a, b) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions:
Less-than-significant with Mitigation

Construction activities could include the use of hazardous materials such as fuels, lubricants, and solvents. Routine transport of hazardous materials to and from the PCP project sites during construction could result in an incremental increase in the potential for accidents. However, both the State of California and Marin County have policies and laws that relate to the storage, transport, use, and

disposal of hazardous materials. The California Department of Transportation (Caltrans) and the California Highway Patrol (CHP) regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Regulations and criteria for the disposal of hazardous materials mandate disposal at an appropriate landfill. California Occupational Safety Health Administration (Cal-OSHA) also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees.

Use of vehicle fuels and minor use of herbicides are common practices with well-developed best management practices to avoid impacts on water quality, sensitive species, and human health. The Program incorporates **BMP CP-2** that addresses the materials and equipment used during construction. It has restrictions on construction, staging, and stockpiling during construction, use and maintenance of construction equipment, and construction site management to keep hazardous materials away from waterways, limit the amount of hazardous materials present, and reduce the risk of accidental spills. It also contains measures to address an accidental spill of hazardous materials including having appropriate spill management equipment on site during construction.

Use of herbicides for PCP Program vegetation management activities could lead to potential for an accidental release of hazardous or toxic materials if materials are handled incorrectly. Implementation of **Mitigation Measure HAZ-1** will reduce impacts to a less-than-significant level through the use of standard, well-developed methods for safe handling of herbicides.

Mitigation Measure HAZ-1, Ensure Safe Use of Herbicides

MRCD shall ensure that the following measures are used to protect resources during application of herbicides:

- Limit herbicide use to application to control established stands of noxious species or the invasion of exotics into restoration plantings.
- Where it is necessary to use herbicides, application shall be compliant with the California Department of Pesticide Use regulations in accordance with Material Safety Data Sheets, the Marin County Agriculture Commission's Weed Management Plan, manufacturer's instructions, and/or the guidance of a registered pesticide advisor.
- Timing of herbicide use shall be determined in consultation with a qualified biologist.
- In riparian environments, an herbicide without a surfactant that is registered for use in an aquatic environment and on target vegetation shall be utilized. No broadcast spraying shall occur. Great care shall be taken to avoid contact with native species.
- A safety and record-keeping plan shall be developed prior to herbicide use. The plan shall include telephone numbers and addresses of emergency treatment centers and the telephone number for the nearest poison control center. Records shall be maintained for two years after herbicide application.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school: Less than significant with Mitigation

Anaerobic digestion of manure creates biogas. The biogas generated in the Program will be used for generation of power by burning methane, creating the combined bonuses of turning a higher warming potential GHG (methane) into a lower warming potential gas (carbon dioxide) as described in the GHG analysis. Anaerobic digestion does not create a hazard to the environment or the public, however, the methane generated poses both explosion hazards and asphyxiation hazards for ranch workers. Cal-OSHA has regulations that address worker safety. Specifically, Title 8, §5157 - Permit-Required Confined Spaces identifies permit-required confined spaces and provides procedures necessary to protect workers that must enter such spaces. Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or
- (4) Contains any other recognized serious safety or health hazard.

Businesses with 10 employees or fewer are exempt from OSHA's injury and incident reporting as well as programmed inspections by OSHA employees. Certain employers are expressly not covered by OSHA, meaning none of the rules apply to these businesses. That includes self-employed people, farms that employ only immediate family members, and people who employ others for domestic services such as cleaning and child care.

For exempt businesses, there is a potential risk to workers from methane and nitrogen gases when the operators are not informed about safety procedures. When assisting an exempt business or ranch to establish anaerobic digesters, the Marin RCD shall implement **Mitigation HAZ-2** to make sure they have the needed information to protect themselves.

There are ranches in close proximity to schools within the Program Area, so any of the hazardous materials that occur within the program could occur within ¼ mile of a school. The measures to avoid and mitigate hazards from hazardous materials, **BMP CP-2**, **Mitigation HAZ-1**, and **Mitigation HAZ-2** will limit hazardous materials to project areas and the potential hazards at project sites to less than significant as described for each measure.

Mitigation Measure HAZ-2: Provide Information for Safe Practices with Anaerobic Digesters

MRCD shall provide the project operators with information on asphyxiation and explosion hazards from working with methane and nitrogen gases, including procedures to ensure worker safety.

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5: Less-than-significant with Mitigation

There are 21 identified sites on the California Department of Toxic Substances Control (DTSC) Section 65962.5 list in the Program Area. Most of these have been evaluated and required no action or have been cleaned up and require no further action. There is still one site at Drakes Bay that is under investigation. The site at Drake's Bay is partially located in the bay itself on Chimney Rock and in the Pacific Ocean. The land portion of the facility is now part of PRNS. The land has public trails that are currently and safely in use. There are two potential sites with undetonated explosives, one within historic gun turrets and one within Drake's Bay. These potential explosives are still under investigation by DTSC. (Envirostor 2018)

There are also two old military sites under investigation on what was once Hamilton Air Force Base, and several Novato sites, including Hamilton, that are in active clean-up. These sites are not on open space or agricultural land, and sites that are under active investigation and clean-up are not eligible for regular grading activities, so none of the sites will be part of any Program activities until all clean-up is accomplished.

In addition to the above sites, the California Environmental Protection Agency (CalEPA) identifies the Gambonini mercury mine as a Section 65962.5 site. This site has experienced substantial erosion that is carrying mercury contamination downstream into Tomales Bay and is a substantial environmental hazard. CalEPA is working with the landowners to remediate the site. The Marin RCD may choose to be involved in this clean up, but it will occur as an individual action outside of the PCP.

Implementation of **Mitigation Measure HAZ-3** will require site-specific preconstruction assessments to identify hazardous material sites and, if present, the project will be moved to an uncontaminated location or a site health and safety plan to protect construction workers and the environment will be prepared. With implementation of the mitigation measure, the PCP Program's potential impact related to hazardous materials will be reduced to a less-than-significant level.

Mitigation Measure HAZ-3, Avoid Release of Contaminated Soils, On-site Hazardous Materials Management

MRCD shall ensure that the following measures are used to avoid release of contaminated soils and to manage hazardous materials on site:

- During project planning, MRCD shall determine whether a known hazardous material site is located within 200 feet of a PCP practice if the work would require excavation, trenching, or drilling. If the practice is located near a hazardous site, MRCD shall require the property owner or manager to move the project to a location greater than 200 feet away from the contaminated site or require the property owner or manager to implement control measures to protect human health and the environment during construction, including, but not limited to, the following:
 - Prepare and implement a site-specific health and safety plan in accordance with federal Occupational Safety and Health Administration (OSHA) and Cal-OSHA regulations to address worker health and safety issues during construction. The

health and safety plan shall identify the potentially present chemicals, health and safety hazards associated with those chemicals, and all required measures to protect construction workers from exposure to harmful levels of any chemicals identified at the site. The health and safety plan shall also specify the method for handling and disposal of both chemical products and hazardous materials used in construction and contaminated soil, should any be encountered during construction.

e, f) 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, or a private airstrip: No Impact

The Marin County Airport (Gross Field) is located just north of Novato and east of Highway 101. Gross Field has a Comprehensive Airport Land Use Plan (Marin County Planning Department 1991). This Comprehensive Airport Land Use Plan defines the area around the airport within which noise, airspace, or safety factors may affect land-use compatibility. PCP practices may be constructed within airport compatibility boundaries. However, the PCP does not include construction of facilities that would be incompatible with the airport-related height limitations or noise restrictions. Therefore, there will be no new potential hazards to people residing or working within two miles of an airport.

g) Impair or Interfere with an Adopted Emergency Response/Evacuation Plan: No Impact

Although the location for individual projects in the PCP Program Area is unknown, the size and nature of the individual practices will not require the closure of public roadways. Construction activities will not impair the use of evacuation routes or evacuation sites within Marin County. Therefore, there will be no impact on emergency response or evacuation plans

h) Increase exposure of people or structures to a significant risk from fires: Less-than-significant with Mitigation

According to California Department of Forestry and Fire Protection (CalFire) mapping, properties within the PCP Program area are designated as very high fire hazard severity zone (CalFire 2007). In the event that a PCP practice is constructed within an area designated as a very high fire hazard severity zone, the potential for impacts from wildland fires during construction could be significant.

Use of **Mitigation HAZ-2** would reduce fire risk by ensuring that workers have appropriate fire equipment when working with methane and know how to work with it safely. **Mitigation HAZ-4** requires the management of construction sites to reduce risk of wildland fires. Taken together these two mitigation measures address the program elements that might increase fire risk. Implementation of these measures will reduce the impact to less-than-significant.

Mitigation Measure HAZ-4, Reduce Wildland Fire Hazards during PCP Activities

MRCD shall ensure that the following measures are used to reduce wildland fire hazards during construction and maintenance activities:

- Remove dry, combustible vegetation from the construction site with specific focus on the staging areas for heavy equipment prior to construction activities.

- Grass and other vegetation less than 18 inches in height shall be maintained where necessary to stabilize the soil and prevent erosion.
- Vehicles shall not park in areas where exhaust systems can contact combustible materials.
- Fire extinguishers and fire suppression tools shall be available on the site when working in high fire hazard areas.

4.9 Hydrology and Water Quality

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The Marin Countywide Plan (MCCDA 2007b) envisions a 21st century in which residents and visitors enjoy clean air and water; watershed functions, such as infiltration, stream-flow capacity, and riparian vegetation, are improved; and stream corridors, marshlands, and other natural wetlands are restored. Two of the three major goals contained in the Water Resources section of Natural Systems & Agriculture Element of the Countywide Plan are directly related to the goals of the PCP:

GOAL WR-1: Healthy Watersheds. Achieve and maintain proper ecological functioning, including sediment transport, groundwater recharge and filtration, biological processes, and natural flood mitigation, while ensuring high-quality water.

GOAL WR-2: Clean Water. Ensure that surface and groundwater supplies are sufficiently unpolluted to support local natural communities, the health of the human population, and the viability of agriculture and other commercial uses.

GOAL WR-3: Adequate Water for Wildlife and Humans. Ensure that the available supply of surface and groundwater is used responsibly, so that the needs of both wildlife and human populations are met.

The purpose of the PCP is to assist landowners in the planning and implementation of projects that promote each of these goals. The conservation practices selected for inclusion in the PCP are specifically designed to restore healthy, resilient watersheds, to address the sources of erosion and sediment input to waterways, and to minimize polluted runoff. Aquatic habitat improvement activities will include maintaining in-stream flows; restoring floodplain connectivity; ensuring up- and downstream aquatic passage; and providing in-stream habitat elements, such as large wood, spawning gravels, and pool and riffle habitat. Road upgrades and decommissioning will reduce erosion, and improved stream crossings will eliminate disturbances that result in turbidity. Operations and manure management practices, as well as upland, riparian, and waterway vegetation plantings, will improve infiltration and reduce polluted runoff. Upland erosion control and waterway stabilization measures; sediment basins; and development of alternative sources of water for livestock and exclusionary fencing to protect springs, wetlands, and waterways will improve water quality.

Most of the Program Area is located within the jurisdiction of the San Francisco Bay RWQCB, although Stemple Creek and the Estero Americano are regulated by the North Coast RWQCB. Both have adopted Basin Plans that establish goals and requirements to comply with federal and State water quality laws. Addressing both point source and nonpoint-source pollution are particular priorities in the PCP Program Area, and the San Francisco Bay RWQCB's focus for non-point source pollution management measures includes: 1) controlling runoff from confined animal facilities, 2) controlling runoff from grazing operations, and 3) controlling hydro-modification both from agriculture and urban development. Controlling non-point source pollution impacts is tied to Total Maximum Daily Load (TMDL) implementation activities pursuant to §303(d) of the federal CWA, which requires states to identify water bodies that do not meet water quality standards. TMDLs examine the relevant water quality issues, identify sources of pollutants, and specify actions to create solutions.

The San Francisco Bay RWQCB adopted a TMDL for pathogens in the greater Tomales Bay watershed. The purpose of this TMDL is to assess the sources of pathogens that are causing water quality impairment in Tomales Bay and its tributaries, and to identify appropriate control measures that will lead to the attainment of the water quality standards set for the Bay and its tributaries. Many of the activities authorized by the PCP provide tools to assist landowners and operators to utilize grazing management practices to fully comply with those requirements, including operations and manure management, exclusionary fencing, vegetated buffer strips, stabilized livestock crossings, off-stream water sources, and rotational grazing on a site-by-site basis as part of dairy farm and ranch planning.

**a, f) Violate any water quality standards or waste discharge requirements or degrade water quality:
Less-than-significant with Mitigation**

Aquatic habitat improvement activities will include maintaining in-stream flows; restoring floodplain connectivity; ensuring up- and downstream aquatic passage; and providing in-stream habitat elements, such as large wood, spawning gravels, and pool and riffle habitat. Road upgrades and decommissioning will reduce erosion, and improved stream crossings will eliminate disturbances that result in turbidity. Operations and manure management practices, as well as upland, riparian, and waterway vegetation plantings, will improve infiltration and reduce polluted runoff. Upland erosion control and waterway stabilization measures; sediment basins; and development of alternative sources of water for livestock and exclusionary fencing to protect springs, wetlands, and waterways will improve water quality. The PCP is designed to improve water quality in areas where it is currently degraded or has the potential to degrade in the future.

The Program includes criteria that the design, implementation, and maintenance of the practices will be specific to the hydrologic conditions of the watersheds that are part of the Program Area as described in the Project Description Section 3.1. Integral to the PCP are the best management practices and erosion control measures that are required during construction and the permanent erosion control measures designed to avoid adverse impacts on adjacent watercourses, hydrology, and water quality. BMPs are presented in Table 3-3 in Section 3.3 of the Project Description.

BMP DC-1 requires Marin RCD to ensure that special attention is given to maintaining or improving conditions to identify water quality protection needs during individual PCP project planning. Each project must meet the following required design standards to avoid water quality impacts:

1. Ground and vegetation disturbance must be limited to the Work Area, which is defined as anywhere subject to disturbance from access, staging, vegetation management, grading, and other human activities.
2. Removal of trees and other vegetation that reduce erosion and runoff will be avoided.
3. Soil disturbance will not exceed the minimum area necessary to complete the project.
4. Erosion control and sediment detention measures will be incorporated into project design and implemented upon completion of grading.

BMP DC-3 contains specific design considerations for roads, culverts, and stream crossings to protect water quality and drainage patterns. Roads and trails must be designed to avoid runoff directly into a stream or other waterbody. Access roads may be relocated only to provide a setback from a stream corridor or to plant riparian vegetation as part of a restoration project, and relocated segments will be constructed to follow natural contours and be sited on low slopes to minimize disturbance of drainage patterns. An energy dissipater is required at the outlet of any water bar, cross drain, or culvert in areas where roadway drainage may cause erosion and sedimentation; otherwise, outlets will be directed to well-vegetated locations. Crossings will be designed with sufficient capacity to convey the design flow and transported materials without altering the stream flow characteristics and will be protected so that flood flows safely bypass without damaging the crossing or eroding the streambanks.

BMP DC-4 prohibits placement of livestock watering facilities in erosion-prone locations, **BMP DC-5** requires composting and other constructed facilities to be placed at least 100 feet from a riparian corridor, and **BMP DC-6** requires a 100-foot setback from water supply wells at confined animal

facilities. **BMP BR-2 #7** dictates a minimum of 30 days curing time or application of an agency-approved sealant if concrete is used that may come into contact with standing or flowing water. **BMP VM-1** contains areal limitations on vegetation management and removal, including limits on vegetation removal from streambanks.

BMPs CP-1 through CP-3 include measures required for safe staging and stockpiling of materials, and guidance for use of on-site erosion control and sediment retention to ensure that construction or maintenance activities do not result in degradation of water quality.

BMP WQ-1 requires that activities authorized by the PCP adhere to State and federal water quality standards and the programmatic federal CWA §401 Conditions or Waste Discharge Requirements. To ensure water quality standards are met, **BMP WQ-1** prohibits discharges that cause or contribute to a violation of a water quality standard or water quality objective, and prohibits discharges of material into a stream or watercourse that could impact water quality.

In addition to the NRCS practice-specific design standards, work within the PCP will conform to the standards required by State and federal regulatory agencies as described in Section 3.1 of the Project Description. For example, projects will utilize methodologies from CDFW's *California Salmonid Stream Habitat Restoration Manual* (CDFW 2010) or other approved design standards to assess hydrology and hydraulics in the design of stream habitat improvements, channel bed stabilization, fish passage, and streambank protection. Road improvements will be modeled on the *Handbook for Forest, Ranch, and Rural Roads* (PWA 2015) and Publication 8262 *Rural Roads: A Construction and Maintenance Guide for California Landowners* (ANR University of California 2007).

As discussed above, BMPs will require Marin RCD to identify key areas to avoid when designing a project as a means to protect water quality, such as water supply wells and riparian areas. They also provide standards for Marin RCD to achieve during project design and implementation, including minimizing ground disturbance and vegetation removal and requiring revegetation and protection of soils vulnerable to erosion and runoff. Nonetheless even with implementation of the required design and construction BMPs, water quality impacts could occur at some locations during implementation of some PCP practices and the impact could be significant.

Alternative livestock water supply and manure management activities could include installation of pipelines, and these pipelines could require crossing streams and riparian areas. Pipeline installation will require vegetation removal and trenching in upland areas and potentially through the riparian corridor and across a stream channel. Construction activities in these locations could result in impacts to water quality depending on the construction method. The impacts to water quality could be significant.

Nutrient management, including fertilizer and manure application practices, could adversely affect water quality if sediments and nutrients enter waterways. Impacts on water quality could occur if land application of manure occurs during the rainy season or when soils are saturated and runoff to surface water occurs. Impacts could also occur if manure is placed on erosion-prone areas or on steep slopes with no buffers between the application site and a surface waterbody. If nutrients and manure are

applied at rates that exceed plant uptake and the excess runs off, impacts on water quality could occur. Impacts from nutrient inputs could be significant.

Implementation of **Mitigation Measure BIO-1b** will reduce impacts to less-than-significant levels, because it provides specific protections for water quality in aquatic habitats including erosion control plans for fertilizer and manure application on slopes greater than 10%; prohibitions for the collection, treatment, storage, or application of manure or process water to avoid degraded surface water or groundwater, contaminated or polluted surface water or groundwater, or creation of any condition of nuisance (as defined by the California Water Code section 13050).

To ensure project areas are properly stabilized after soil disturbance, **Mitigation Measure HYD-1** below contains planting requirements and success criteria to mitigate impacts from soil disturbance and vegetation removal; **Mitigation Measure HYD-2** provides measures to protect water quality using erosion control and stormwater detention during grading and other disturbance in a stream, waterway, or other sensitive habitat; and **Mitigation Measure HYD-3** includes requirements for application of manure or manure-laden debris to land as fertilizer to address potential adverse effects on surface water or groundwater. Use of **Mitigation Measures HYD-1, HYD-2, and HYD-3** will ensure impacts are reduced to less-than-significant levels.

Mitigation Measure HYD-1, Protect Water Quality – Planting and Revegetation after Soil Disturbance

MRCD shall require the following to protect water quality through planting and revegetation after soil disturbance:

- Revegetation shall occur as soon as possible after disturbance using live native plantings, native seed casting, or hydroseeding, preferably prior to the onset of rain. When timing does not coincide with suitable planting windows for permanent vegetation, a temporary cover (e.g., weed-free mulch or weed-free straw) shall be used to protect soil until permanent vegetation can be established. Non-invasive, non-persistent grass species (e.g., barley grass, sterile wheat) may be used in limited instances in conjunction with native species to provide fast-establishing, temporary cover for erosion control.
- Soil exposed during construction and soil above rock riprap shall be revegetated using native seed casting or by hydroseeding. In general, interstitial spaces between rocks shall be planted with riparian vegetation such as willows rather than hydroseeded.
- To the extent feasible, all plants disturbed by project activities shall be replaced with a species palette similar to that of the removed vegetation or with species that are appropriate to the site conditions and are native to the project watershed. Otherwise, plants shall be sourced from Marin County or southern Sonoma County; plants from more distant sources shall require pre-approval by the project biologist. Native plant species with high wildlife and/or pollinator values shall be used to the extent feasible.
- Soil amendments are typically not needed for establishment of native vegetation in intact native soils. If soils have been disturbed and require additional organic matter or nutrients to support native plants, limited organic, weed-free amendments may be used to help

establish restoration vegetation. Organic fertilizers may be used only above the normal high water mark of any adjacent waterways. If fertilizers are to be used around a listed plant, MRCD shall consult with a qualified biologist or range scientists to establish a buffer zone. No chemical fertilizers are allowed under the PCP.

Mitigation Measure HYD-2, Protect Water Quality – Erosion Control and Stormwater Detention during Grading and Other Disturbance in a Stream, Waterway, or Other Sensitive Habitat

When a project involves grading or work within or adjacent to a stream, waterway, or other sensitive habitat, MRCD shall require the following measures to avoid or minimize erosion and impacts on water quality:

- Prepare and implement a spill prevention and clean-up plan, Stormwater Pollution Prevention Plan, or similar document. The plan shall address polluted runoff and spill prevention policies, erosion control materials required to be available on site in case of rain or a spill (e.g., straw bales, silt fencing), clean-up and reporting procedures, and locations of refueling and minor maintenance areas.
- Schedule grading and other earth-disturbing activities during the dry season, generally June 1 through October 31. Exceptions may be made in cases such as catastrophic failure due to a large storm or other event that causes water quality or public safety concerns.
- Schedule vegetation removal to minimize impacts on water quality:
 - August 15–October 15 is preferred to allow prompt replanting with natives in time to take advantage of cool, wet winter weather for establishment.
 - October 16–February 14 is preferred for removal of invasive perennials (e.g., broom, Himalayan blackberry, fennel); however, ground-disturbing work shall only proceed if no rain is predicted for 48 hours and the erosion control BMPs discussed below are in place following removal.
 - February 1–August 15 is limited to vegetation removal that can take place if bird nesting surveys are completed.
- Ensure erosion control and sediment detention measures are available on site at all times and are in place at all locations where the likelihood of sediment input exists prior to the onset of rain in order to detain sediment-laden water on site and minimize fine sediment and sediment/water slurry input to flowing water. Sediment collected in the structures shall be disposed of away from the collection site in an upland area where it cannot enter a waterway. When requested by project regulators, MRCD staff or a qualified designee shall inspect in-stream habitat and performance of erosion and sediment control devices at least once each day during construction to ensure the devices are functioning properly.
- If rain occurs while materials are temporarily stockpiled, cover with plastic that is secured in place to ensure the piles are protected from rain and wind. Silt fencing or wattles shall be installed on contour around all stockpile locations.

- Prohibit discharge of water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters, except as described in Mitigation BIO-1g.

Mitigation Measure HYD-3, Protect Water Quality – Measures for Application of Manure or Manure-laden Debris to Land as Fertilizer

If manure or manure-laden debris is applied to land as fertilizer, MRCD shall require the following measures to prevent discharges to surface and groundwater and adverse impacts on water quality:

- The collection, treatment, storage, or application of manure or process water shall not:
 - Degrade surface water or groundwater,
 - Contaminate or pollute surface water or groundwater, or
 - Create a condition of nuisance (as defined by the California Water Code section 13050).

This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.

- The application of manure and/or wastewater shall not violate any applicable local, State, or federal laws or regulations or contribute to an exceedance of any applicable water quality objective in the Basin Plan or of any applicable State or federal water quality criteria.
- Manure and wastewater discharges to land shall be conducted during non-rainy, or non-saturated conditions, must not result in runoff to surface waters, and must infiltrate completely within 72 hours after application.
- Land application areas that receive dry manure or process water shall be managed to minimize erosion.
- The timing of nutrient application must correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity.
- Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand.
- Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback; or an alternative conservation practice or field-specific condition shall be in place that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback.

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge: Less-than-significant Impact

Implementation of the PCP will not substantially deplete groundwater supplies or interfere with groundwater recharge. Some conservation and restoration activities, such as installation of grade

stabilization structures, in-stream and channel restoration, streambank stabilization, improved road stream crossings, and water control structures, may require use of a temporary dewatering structure that would result in minor, short-term changes in the course and direction of surface water movement. However, the structure would be removed after construction and should have no adverse effect on groundwater supply or recharge. Further, many of the practices, such as upland, riparian, and waterway plantings, mulching, lined and grassed waterways, and sediment detention basins, will slow stormwater runoff, thus enhancing groundwater recharge. Impacts will be less than significant.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site: Less-than-significant Impact

In addition to the specific design considerations for roads, culverts, and stream crossings to protect water quality and drainage patterns required by **BMP DC-2**, many of the practices in the PCP (e.g., access road, animal trail and walkway, critical area planting, filter strip, grade stabilization structure, grassed waterway, lined waterway, sediment basin, underground outlet, water and sediment control basin) are designed to alter stormwater in ways that reduce erosion and silt-laden runoff. The grade stabilization structure practice involves reduction of stream velocity above and below the structure. Grassed waterways, lined waterways, and water and sediment control basins will slow and redirect stormwater to reduce erosion and increase upland deposition of silt. Sediment basins directly capture silt before it can enter waterways. Underground outlets will be used to direct concentrated runoff away from vulnerable areas and manage it to reduce erosion potential.

Many of the practices are designed to directly control erosion (e.g., streambank protection, stream channel stabilization). Some (e.g., pipeline, spring development) reduce erosion by redirecting animal use away from riparian areas. Others (e.g., fish passage, fish stream improvement, structure for water control) are largely concerned with in-stream habitat; however, their installation generally is designed in such a way as to avoid or minimize existing in-stream erosion issues. Any potential short-term impacts resulting from construction disturbance will be avoided by use of construction best management practices and temporal limits on construction as described in Section 3.3 in the Project Description. Impacts will be less than significant.

d) Alter drainage patterns in a way that could increase flooding: Less-than-significant Impact

Rainfall and irrigation runoff and downstream flooding will be reduced as a result of implementation and maintenance of the conservation practices, which will be designed to reduce runoff to the natural background level that would have occurred on the property prior to development of agricultural operations or impervious surfaces. These design objectives are achieved either through improved infiltration or through detention of peak flows. Infiltration is improved by increased vegetative cover of bare soils (e.g., upland, riparian, and waterway plantings, filter strips, grassed waterways) and improved soil management (e.g., mulching and manure management activities, such as composting).

Work along watercourses covered by the PCP will involve use of biotechnical streambank protection. These practices increase the roughness of streambanks, thereby slowing the rate of discharge into downstream watercourses. Localized flooding associated with slower discharge would be avoided by

increasing the cross-sectional area of the channel or providing for a flood flow terrace as part of the design. Stream channel stabilization that involves sediment removal will increase the capacity of the channel, thereby reducing localized flooding. Impacts will be less than significant.

e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff: Less-than-significant Impact

Projects implemented under the PCP will not contribute water to a storm drain system or result in polluted runoff. Many of the practices are designed to treat polluted runoff on-site (e.g., operations and manure management, upland, riparian and waterway vegetation and planting, waterway stabilization, alternative livestock water supply, water/sediment control basins, and aquatic habitat improvement). Projects will be designed to allow water to flow into stable areas, such as grassy or lined swales, structures for water control (i.e., culverts), roadside ditches, and underground outlets. They will decrease rather than increase the amount of runoff. Impacts will be less than significant.

g) Housing in the floodplain: No Impact

No housing construction is authorized as part of the PCP. Work in floodplains will be limited to practices that improve riparian functions and values. There will be no impact.

h) Placement of structures in the 100-year flood hazard area that would impede or redirect flood flows: Less-than-significant Impact

Implementation of the PCP will involve placement of vegetative or rock structures designed to stabilize erosion in 100-year flood hazard areas. Most of these structures run parallel to watercourses and, therefore, do not pose a risk for redirecting flows. In addition, structures for water control, such as culverts, may be installed as part of the Program. These structures will replace existing facilities and will usually be larger, allowing more passage of flood flows. Sediment control basins may also be placed within the 100-year floodplain, although they will not be on the mainstem of creeks. The sediment control basin practice can be used to reduce concentrated off-site flow and associated erosion by metering out runoff following large storm events. Placement of structures that would impede flood flows is not authorized by the PCP. Impacts will be less than significant.

i) Increase hazards from inundation by seiche, tsunami, or mudflow: No Impact.

The conservation and restoration projects of the PCP do not pose a threat of causing inundation by seiche, tsunami, or mudflow, or being inundated. There will be no impact.

j) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam: Less-than-significant Impact

Maintenance of existing agricultural ponds, most of which are impounded by small earthen dams, is included in the PCP. Allowable activities will include repair of emergency spillways, installation of alternative pipe outlets to improve water flow, and removal of built-up silt to restore the pond's original storage capacity. Excavated material will be securely compacted onto the pond berm or placed in an

upland area, or, with approval of the Marin RCD project manager, it will be legally disposed of off site. These restoration and maintenance activities will not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Impacts will be less than significant.

4.10 Land Use and Planning

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Land use, population, and housing are addressed in Section 4.1 of the Marin Countywide Plan Update 2007 Final EIR (MCCDA 2007a), which provides the following information regarding land use in Marin County: Only 21% of the County is made up of developed or potentially developable land; the remainder is park lands (27%), agriculture and privately owned open space (26%), water areas (14%), watershed lands owned or operated by Marin Municipal Water District and the Novato Municipal District (6%), Marin County Open Space (3%), and tidelands, marshland, and mudflats (3%). The PCP Program Area encompasses the western and northeastern portions of Marin County and individual projects will be located primarily in rural and agricultural areas. The Program is designed to comply with the policies and regulations governing existing land uses within the Program Area.

a) Divide a community: No Impact

As described in the Project Description, the PCP consists of an array of practices designed to improve water quality, enhance wildlife habitat, and support sustainable agriculture in Marin County. PCP projects will occur primarily in rural, agricultural areas and PCP activities will not be large enough to physically divide an established community. Therefore, there will be no impact.

b) Conflict with applicable land use plans, policies, or regulations: Less-than-significant

As noted above, the PCP will be implemented primarily on rural, agricultural land for conservation purposes; implementation of the Program will not conflict with or alter any existing land uses, as it is designed to work within those existing land uses. The suite of PCP practices can be implemented within all the land-use designations on the properties in the Program Area, although some habitat restoration activities may require a zoning variance with setback requirements for work in the riparian corridor. Therefore, implementation individual projects in the PCP will have less-than-significant impacts related to potential conflicts with land use.

c) Conflict with applicable habitat conservation plans: No Impact

USFWS recently released a Final Habitat Conservation Plan San Francisco Bay Area for Pacific Gas & Electric (PG&E), an Endangered Species Act Section 10(a)(1)(B) incidental take permit for the company's Bay Area Habitat Conservation Plan Operations and Maintenance (HCP). The HCP includes strategies to

avoid, minimize, and offset potential direct, indirect, and cumulative effects of PG&E's operations, maintenance, and minor new construction activities on 32 federally listed species, including activities within the PCP area. Activities associated with the PCP are not included in the HCP; and therefore, will not conflict with PG&E's HCP.

No other habitat conservation plans or natural community conservation plans are in place in the program area. Therefore, there will be no impact.

4.11 Mineral Resources

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Mineral resources are discussed in Section 4.7 of the Marin Countywide Plan Update 2007 Final EIR (MCCDA 2007a). The DOC Division of Mines and Geology has designated eight sites in the County as having significant mineral resources:

1. Ring Mountain, Tiburon
2. Novato Conglomerate, Black Point
3. Novato Conglomerate, Black Pont
4. Franciscan Complex Sandstone, San Pedro Hill
5. Sonoma Volcanics Andesite, Burdell Mountain
6. Franciscan Complex, Borello Quarry
7. Franciscan Complex Serpentinite, Ghilotti Quarry
8. Sonoma Volcanics Andesite, Burdell Mountain Open Space Preserve

In addition, the State designates four permitted mineral resource sites in the County at the Nicasio, Lawson's Landing, Martinoni, and Redwood Landfill quarries.

a-b) Result in loss of mineral resources: No Impact

The PCP does not authorize mineral recovery and implementation of the activities included in the Program will not result in changes to mineral extraction practices or availability, or to the presence or availability of minerals within any portion of the Program Area. Therefore, there will be no impact.

4.12 Noise

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Expose people to or generate excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Marin Countywide Plan (MCCDA 2007b) states, “Vehicle traffic is the primary source of noise in Marin County, with the highest noise levels occurring along major roadways. Other significant local noise sources include aircraft, trains, mining activity, and construction.” Most of the Program Area is in rural west Marin, but it also extends to the Highway 101 corridor in north Marin, so ambient noise levels in the Program Area vary widely, from a day-night average noise level of 62 decibels (dB) on Highway 1 near Pt. Reyes Station to levels as high as 76 dB near major roadways such as Highway 101, California State Route 37, and Sir Francis Drake Boulevard (MCCDA 2007b).

a, c) Expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies or result in a change in the ambient noise levels: Less-than-significant

Most of the noise generated by Program Activities will be noise from construction during project implementation. Noise is regulated by the local jurisdiction. The Program Area is largely in unincorporated Marin County, but also includes Novato and part of San Rafael, so different standards apply to construction noise in the different areas.

The Countywide Plan establishes policy NO-1.3, to regulate Noise Generating Activities to minimize noise exposure to neighboring properties, open space, and wildlife habitat from construction-related activities and other sources. In accordance with Policy NO-1.3, to prevent loud and unnecessary noises, Marin County Code §6.70.030 (5) (Ordinance 3431) prohibits construction activities outside the construction window of Monday – Friday, 7 am to 6 pm, and Saturday, 9 am to 5 pm, for projects with

permits issued by the Community Development Agency. Loud construction-related equipment (e.g., backhoes, generators, jackhammers) may only be operated Monday – Friday, 8 am to 5 pm. Exceptions can be made for several causes including construction projects of a public agency and minor jobs with minimal/no noise impacts on surrounding properties.

Novato does not have construction-specific noise limits, but general nuisance noise is addressed in Novato Municipal Code §14-13.1, which prohibits raucous and nerve-racking noise between the hours of 10:00 p.m. and 6:00 a.m. The code includes an exemption for poultry and/or livestock in an agriculturally zoned area.

San Rafael has enacted a noise ordinance that limits temporary, nuisance noise from construction: Code §8.13.050 specifies construction timing limits of Monday to Friday, 7:00 a.m. to 6:00 p.m., and Saturday, 9:00 a.m. to 6:00 p.m. Even during these hours, construction noise must not exceed 90 dB at the property boundary.

The Program does not include activities that would create long-term changes to the ambient noise. Temporary noise may occur during project implementation using noise-generating construction equipment. In agricultural areas, temporary noise levels in the project vicinity will not exceed existing noise generated by common agricultural management. Many ranchers currently use earthmoving equipment to retrieve eroded soil, smooth eroded landscape features, and conduct routine agricultural cultivation. In addition, work on large, agricultural parcels will often occur far enough from a parcel boundary that noise will have attenuated before it reaches a neighbor.

Some activities, such as aquatic habitat improvements, could occur in more urban areas, on smaller parcels, or near a parcel boundary. Marin County and cities within the Program Area have regulations to manage noise and limit noise producing activities to daylight hours. **BMP CP-6** limits construction timeframes for all construction activities to the time between 7:00 a.m. and 6:00 p.m. Monday through Friday and from 9:00 a.m. to 5 p.m. on Saturday s. No heavy equipment use or construction activities will occur on Sundays or holidays. Marin RCD may work with the County or with cities within the Program Area to work outside these limits. These requests will be made on a site-by-site and project-by-project basis and will only be requested when needed to complete a project and only where noise impacts will not occur.

b) Expose people to or generate excessive groundborne vibration or groundborne noise levels: No Impact

None of the activities planned for the PCP will produce excessive groundborne vibration. Many ranchers use earthmoving equipment in daily operations, and there is currently no impact from groundborne vibration. The PCP Program will use the same type of equipment; therefore, there will be no impact.

d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project: Less-than-significant impact with Mitigation

There may be a slight temporary increase in ambient noise levels in the project vicinity during project implementation. Construction sound comes mostly from the heavy equipment, such as tractors and loaders, particularly when they are backing up. Heavy equipment varies by type and manufacturer, but a

loud tractor may produce 84 decibels (dB) at 50 feet (FHWA 2017). As a rule of thumb, sound tends to drop by 5 dB every time the distance is doubled, so a tractor would meet conditionally acceptable noise levels (CWP 2007) for agricultural areas at 400 feet, and normally acceptable levels at 1,600 feet, from project activities.

Other than earth-moving equipment, one of the loudest sounds on ranch lands is aggregated cattle, which can cumulatively generate a sound exposure level of 79 dB at 50 feet (Weeks 2009). To avoid moving cattle aggregation areas to problematic areas, **BMP DC-4** will be used to site watering facilities away from sensitive receptors. If it is not possible to implement **BMP DC-4**, then **Mitigation NOI-2** will be used to limit the project effects to less-than-significant levels by providing noise reduction screening or installing a sound wall to reduce noise at sensitive receptors. .

Mitigation Measure NOI-1, Reduce Noise from Watering Facility near Sensitive Receptors

MRCD shall ensure that watering facilities installed within 800 feet of a sensitive receptor are implemented with at least one of the following noise reduction measures:

- Plant a noise barrier between the watering facility and the sensitive receptor per Practice 601 – Vegetative Barrier.
- Install a noise adsorbing wall of waterproof materials, such as foam, between the watering facility and the sensitive receptor.

e-f) In the vicinity of a public or private airstrip, expose people residing in the project area to excessive noise: No Impact

Marin County has a public airport at Gness Field, located in the east of Highway 101 just south of Mt. Burdell, and a private airport located at 400 Smith Ranch Road in San Rafael. Neither airfield is in the PCP Program Area. Although PCP practices may be constructed within two miles of an airport, the Program does not include measures that would increase noise or expose people residing or working near the project area to excessive noise levels.

4.13 Population and Housing

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial amounts of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c) Induce population growth, displace housing, or displace people: No Impact

PCP projects will occur primarily in rural, agricultural areas in western and northeastern Marin County. The practices may include road improvements; however, implementation will not result in roads for future development. PCP projects are designed to promote habitat restoration and agricultural sustainability, and to improve water quality by reducing erosion and sedimentation. The PCP will not directly or indirectly induce population growth and will not displace people or housing. Therefore, there will be no impact.

4.14 Public Services

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:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-e) Create adverse physical effects from increased need for government services: No Impact

The activities in the PCP do not include any actions that would trigger the need to expand or alter government facilities. The Program will be implemented on rural, agricultural lands for conservation purposes. No new housing, schools, parks, or other public structures are proposed and PCP practices will not create the need for additional services. The Program will have no effect on Marin County's ability to meet acceptable public service ratios, response times, or other performance objectives.

4.15 Recreation

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Of the approximately 260,000 acres in the Program Area, 81,000, a third, are zoned as open space, public facilities, or recreation (Marin GIS). Hiking, cycling, bird watching, fishing, kayaking, and other boating are frequent. In addition, the Program Area has a good deal of tourism because of its natural beauty. The Program Area includes PRNS, portions of the Golden Gate National Recreation Area, and smaller local, regional, and state parks. Program activities may occur on these public lands as well as on private lands.

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities that would result in accelerated deterioration: No Impact

The PCP will not increase the use of any recreational facility. The Program goals are to improve habitat conditions for fish and wildlife and to improve water quality. These actions will not bring more recreational users to the area, and therefore, will not result in accelerated deterioration of the facilities.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment: Less-than-significant Impact

The PCP does not include new construction or expansion of recreational facilities. The Trails and Walkways practice is implemented on existing trails to make them more durable and less subject to erosion, but will not be used to construct new trails except for routing sections of existing trails away from sensitive resources as part of environmental restoration and protection. When implemented on a recreational trail, the practice will help protect recreational facilities and surrounding natural resources. Likewise, the Stream Crossing practice could be implemented on a recreational trail. Program practices are designed to reduce existing adverse impacts on water quality and wildlife habitat. Implementation of the **BMP CP-2 and CP-3** include measures to protect water quality during implementation of all ground-disturbing construction activities, including ones associated with recreational trails. Implementation of these measures will reduce potential impacts on the environment to less-than-significant levels.

4.16 Transportation/Traffic

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Conflict with a plan, addressing the performance of the circulation system, including transit, roadways, bicycle lanes and pedestrian paths?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a change in air traffic patterns that result in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Highway 101 serves as Marin County's main transportation corridor. It is a multi-lane freeway that runs north-south on the eastern side of the County from the Sonoma County line to the Golden Gate Bridge and San Francisco. Highway 1, a two-lane, north-south route, is located to the west along the Pacific Ocean and the shores of Tomales Bay. The San Rafael-Richmond Bridge, Highway 580, provides access to the East Bay, and State Route 37 leads east around the northern edge of San Pablo Bay from Novato. Roads in the Program Area are generally two lanes located in rural and rural residential areas. Per the Marin Countywide Plan (MCCDA 2007b), most roads in the Program Area are operating at acceptable service levels, defined as Level A for most west county roads and levels B-E in the City-centered corridor. Vehicle miles traveled are relatively high for the rural areas within the Program Area. The rural locations require residents to travel to work and shopping areas. Slightly less than 4% of the vehicle miles traveled through Marin County are in congested conditions, which reflects the rural nature of the area (Vital Signs 2018).

There is limited public transportation in the Program Area other than within cities, such as Novato, although Golden Gate Transit provides bus connections between communities in the east County as far to the west as Fairfax and Lucas Valley, and service to Sonoma County, the East Bay, and San Francisco; and the Sonoma-Marín Area Rail Transit ("SMART Train") has service along the Highway 101 corridor between the Sonoma County Airport and the San Rafael Transit Center.

a,b) Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for

performance of a circulation system or conflict with an applicable management program for designated roads or highways: No Impact

Construction of the Program activities will require access to the site by construction workers. Construction access may include delivery and removal of large equipment (excavator, bull dozer, materials delivery vehicles) to and from the site. These deliveries are subject to Caltrans and Marin County requirements for roadway use, including delivery times, weight capacities, and speeds. The short-term use of local roadways will be compliance with rules governing such use and will not conflict with any plans or policies that establish roadway performance.

During construction, there will be some additional traffic from construction worker commutes and construction equipment; however, the small-scale of projects authorized by the PCP will not employ large number of workers or generate additional traffic to alter the existing traffic loads. When complete, the PCP projects will have no effect on traffic. Short-term impacts will be less than significant.

c) Result in a change in air traffic patterns: No Impact

The Marin County Airport, known as Gness Field, is located just north of Novato and east of Highway 101 and is operated by the County's Department of Public Works. However, it is in baylands that are specifically excluded from the PCP Program Area. Construction of large structures is not included in the PCP, and implementation of PCP projects will have no impact on air traffic.

d) Substantially increase hazards due to a design feature: No Impact

The PCP does not include any design or construction activities on roadways in Marin County and will not result in incompatible uses. The PCP may include slight modifications to ranch or farm roads to improve water quality. These minor changes will not increase hazards.

e) Result in inadequate emergency access: Less-than-significant Impact

Implementation of PCP projects will not result in inadequate emergency access. As described in item d) above, most Program work will occur well off of public roads. **BMP CP-5** requires that Marin RCD ensure adequate access for emergency vehicles is maintained at all work sites allowing access to, and where necessary around, work sites. With utilization of **BMP CP-5**, impacts will be less than significant.

f) Conflict with adopted policies or programs supporting alternative transportation: No impact

Implementation of PCP projects will not conflict with any adopted policies or programs supporting alternative transportation. The Program does not include or allow any transportation system alterations. There will be no impact.

4.17 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Marin County has been home to the Coast Miwok Indians for thousands of years. The Coast Miwok Indians are part of the FIGR, which represents both the Coast Miwok and the Southern Pomo. The archaeological legacy of the Coast Miwok can be found in sites throughout the county, and historic preservation is considered crucial to maintaining the county's identity, character, and links to the past. The Coast Miwok have a rich cultural heritage that includes, among other things, basketry, dances and ceremonies, and a complex and intricate language.

Pursuant to PRC §21080.3.1 and CEQA Guidelines §15064.5, Marin RCD staff began consultation with FIGR, the California Native American Tribe that is traditionally and culturally affiliated with the proposed Program Area. Representatives of Marin RCD met with FIGR in July 2016 to discuss Marin RCD's intention to revise and expand the PCP and to discuss a potential process for the review of proposed projects by FIGR staff as a means to identify areas of tribal concern.

a-b) Result in substantial adverse change in a tribal cultural resource listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources: Less-than-significant with Mitigation

As defined in PRC §21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources.

Individual PCP projects will be selected as described in Section 3.1.2 in the Project Description. Many projects will be located within existing ranches and dairies; however, some may be constructed in less disturbed areas along streams. Although the majority of PCP projects will be located within actively managed areas with existing infrastructure, some could be located in areas that contain previously unknown buried or surface tribal cultural resource artifacts. Ground-disturbing construction activities associated with PCP projects (e.g., grading, trenching) could disturb tribal cultural resources if the resources are located in the construction area and if construction activities reach a depth where

subsurface artifacts are located. Therefore, the potential impact on tribal resources is considered potentially significant if a resource is present and disturbed during construction.

Mitigation Measure TCR-1 will be implemented to reduce potential impact from construction of PCP projects. Implementation of this mitigation measure will require consultation with FIGR to discuss site sensitivity and potential to find tribal cultural resources in the disturbance area for individual projects. MRCD will use information provided by FIGR to develop a project that avoids or preserves resources and to develop protocol for treatment of resources should they be discovered during implementation of a PCP activity. Therefore, the potential impact on tribal cultural resources will be less-than-significant with mitigation.

Mitigation Measure TCR-1, Identify and Protect Tribal Resources

MRCD shall consult with representatives from interested tribes following the MRCD Board of Directors' selection of PCP projects, to identify known Tribal resources within the disturbance area for individual PCP project implementation. If the review of PCP projects identifies that a project may cause substantial adverse change to a tribal cultural resource then MRCD shall avoid or minimize adverse impacts in one of the following ways or as directed by FIGR:

- Not move forward with implementation of the PCP activity.
- Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context.
- Treatment of the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - Protecting the cultural character and integrity of the resource.
 - Protecting the traditional use of the resource.
 - Protecting the confidentiality of the resource.

4.18 Utilities and Service Systems

Would the project:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

PCP activities will be concentrated in rural, agricultural areas and will not involve in-building new water or wastewater systems. PCP practices will not involve public utilities or public service systems.

a, b, e) Exceed wastewater treatment requirements or require construction of new facilities or expansion of existing facilities for water or wastewater: No Impact

Work on projects authorized by the PCP will not involve additional flows to wastewater treatment facilities and will not require any additional capacity of water systems or expansion of sources. There will be some water used during construction and for the establishment-period of plantings, but these will be a small portion of existing water uses on each property and will not require any expansion of existing sources. Therefore, there will be no impact.

c) Require construction or expansion of storm drains: No Impact

PCP activities are designed to alter and improve hydrologic flows by improving channel configuration, increasing riparian vegetation to retain and slow stormwater, and detaining or rerouting stormwater to reduce erosion and runoff. Stormwater management features may include outsloping roadways to reduce concentrated runoff and creation of grassy swales to slow and infiltrate runoff. Installation of roofs, gutters, and down spouts will be designed to divert runoff from composting and manure storage areas and away from actively eroding locations. Water from roofs and gutters may connect directly to existing drain pipes on individual properties or allowed to discharge into a stable upland area. The existing storm drains on properties throughout the PCP Program Area will not be enlarged or expanded as part of the PCP, because the amount of additional runoff from new roofs can be accommodated by

the existing drainage infrastructure on site. Therefore, there will be no impact from construction of new or expanded storm drains.

d) Require expansion of water entitlements: No Impact

The PCP will not require any change in public water systems or water entitlements. Program practices include maintenance of existing ponds and piping of water from springs to upland areas where it will be available in troughs to keep cattle out of the creeks and wetlands to improve water quality. However, the Program does not allow the construction of new ponds and no new or extension of existing water rights will be required. Therefore, no expansion of water entitlements is required, and there will be no impact.

f, g) Be served by a landfill with sufficient capacity and comply with solid waste regulations: No Impact

PCP projects may include construction activities such as site excavation, grading, and vegetation clearing. Excavated soils will be used as backfill, used as fill elsewhere on the project site, or hauled off-site for recycling or disposal as required by County regulations. However, the amount of material disposal required for implementation of individual PCP practices will be minimal, and most soil disposal will occur on-site. There are a number of landfills in the region that have capacity to accept waste material. Solid waste generated from PCP practices will not exceed landfill capacity, and the Program will have no effect on solid waste regulations. Therefore, there will be no impact.

4.19 Mandatory Findings of Significance

Would the project have:	Potentially Significant Impact	Less-than-significant with Mitigation	Less-than-significant Impact	No Impact
a) Potential to 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) 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 projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Potentially degrade the environment, substantially reduce fish or wildlife habitat or population levels or plant or animal communities, or eliminate important examples of history or prehistory: Less-than-significant Impact

With implementation of the mitigation measures, the PCP will not degrade the quality of the environment, substantially reduce 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) Result in cumulatively considerable adverse impacts: Less-than-significant Impact

Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines §15355). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. With implementation of the mitigation measures, the PCP will not have significant cumulative effects even when considered in the light of other past, present, and future projects; implementation of the activities in the PCP will result in beneficial cumulative changes in the environment. For example, measures are included to address erosion problems over the long term, to manage and prevent the spread of invasive species, and to improve wildlife habitat values in the Program Area that will result in cumulative benefits to water quality and biological diversity.

This IS/Proposed MND utilizes the "plan" approach, per CEQA Guidelines §15130(d), to determine if the PCP as a whole will make a considerable contribution to a significant cumulative impact. Cumulative impacts have been identified using the summary of impacts in the Marin Countywide Plan EIR (MCCDA 2007a), which identified significant cumulative impacts related to transportation, air quality, noise, biological resources, geology, agriculture, public services, and visual resources. Each of these cumulative impacts is summarized in more detail below.

Aesthetic/Visual Resources Impacts

Significant impacts associated with cumulative light pollution and nighttime sky impacts were identified in the Countywide Plan EIR. As described in Section 4.3, the PCP will have a less-than-significant impacts relative to the creation of new sources of substantial light, because the use of outdoor lighting will require screening to avoid degradation of nighttime views. The PCP includes **BMP CP-4**, which requires implementation of screening measures to prevent creation of new nighttime light sources that may degrade nighttime views. With implementation of BMP CP-4, the PCP's contribution to cumulative impacts related to degradation of nighttime views will not be cumulatively considerable (*less than significant*).

Agriculture Impacts

Significant and unavoidable agricultural impacts were identified in the Countywide Plan EIR related to the conversion of lands to non-agricultural uses. Because implementation of the PCP will not result in project-specific impacts related to agriculture or forest resources, implementation of the Program will not result in cumulative impacts to these resources.

Air Quality Impacts

Significant and unavoidable air quality impacts were identified in the Countywide Plan EIR related to a projected increase in vehicle miles traveled that would grow at a faster rate than population, as well as greater exposure of new sensitive receptors to unhealthy levels of diesel particulate matter, although the latter would be mitigated to a less-than-significant level through the establishment of buffer zones from potential sources of odors and toxic materials. The PCP does not include increases in traffic, except for some temporary construction-related vehicles, and therefore, the air quality impacts will not be cumulatively considerable (*less than significant*).

Biological Resources Impacts

The Countywide Plan EIR includes mitigation to reduce potential impacts on special-status species and the loss of sensitive natural communities to less than cumulatively considerable. However, significant impacts on biological resources were identified as a result of conversion, fragmentation, and obstruction of connectivity of natural communities and wildlife habitat. With implementation of **Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats; Mitigation Measure BIO-1b, Protect Water Quality for Aquatic Habitats; Mitigation Measure BIO-1c, Avoid Listed Special-status Wildlife Species; Mitigation Measure BIO-1d, Protect Listed Salmonids; Mitigation Measure BIO-1e, Protect California Freshwater Shrimp; Mitigation Measure BIO-1f, Protect California Tiger Salamander; Mitigation Measure BIO-1g, Protect California Red-legged Frog; Mitigation Measure BIO-1h, Protect Foothill Yellow-legged Frog; Mitigation Measure BIO-1j, Protect Nesting Birds during Construction; Mitigation Measure BIO-1k, Protect Northern Spotted Owl; Mitigation Measure BIO-1l, Protect Special-status Bats; Mitigation Measure BIO-1m, Protect Special-status Butterflies; and Mitigation Measure BIO-1n, Protect American Badger**, listed species and sensitive biological resources will be identified through preconstruction surveys and protected during construction. Therefore, the PCP as a whole will not contribute to cumulative impacts on special-status species.

Projects implemented in the PCP may result in impacts to native trees and the temporary loss of riparian habitat. **Mitigation Measure BIO-2a, Compensate for Loss of Riparian Habitat and Other Sensitive**

Natural Communities, requires compensation for the loss of riparian vegetation through revegetation; and **Mitigation Measure BIO-2b, Avoid Work in or Compensate for Impacts on Native Tree Root Protection Zone**, requires that all projects near native trees include tree root protection zones to prevent damage to trees in and adjacent to PCP project areas. Therefore, the PCP will not contribute to the cumulative loss of riparian habitat or native trees.

Cultural Resources Impacts

The Countywide Plan EIR did not identify any significant and unavoidable cumulative impacts on cultural resources. Implementation of the PCP will not contribute to impacts to cultural resources identified in the Countywide Plan. Implementation of **Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources; Mitigation Measure CUL-2, Identify and Avoid or Minimize Impacts on Archaeological Resources; Mitigation Measure CUL-3, Avoid or Document Paleontological Resources; and Mitigation Measure CUL-4, Procedures for Inadvertent Discovery of Human Remains**, require protection of cultural resources through identification of known resources in the area for all PCP projects prior to construction, and through a process to protect resources if found during construction. Therefore, the PCP as a whole would not contribute to cumulative impacts on cultural resources.

Geology and Soils Impacts

The Countywide Plan EIR found that implementation would reduce exposure to some geologic hazards through increased public awareness, facilitated preparedness, and updated hazard-related information. However, potential cumulative impacts would remain significant regarding geologic impacts, including surface fault rupture, seismic ground shaking, seismic-related ground failure, landsliding, and tsunamis and seiches. No geologic impacts were identified for the PCP; therefore, the Program will not contribute to any significant cumulative impacts.

Hazards and Hazardous Materials Impacts

The Countywide Plan EIR identified significant and unavoidable cumulative impacts due to potential release of hazardous materials in its Public Services discussion. The PCP includes requirements that each project comply with the existing and future laws and regulations governing hazardous materials. As a result, there will be no significant cumulative impact associated with increased hazards relative to the use, transport, or disposal of hazardous materials and the impact will be less than significant.

Noise Impacts

Although overall increases in noise were found to be less-than-considerable with mitigation, significant and unavoidable impacts from construction noise were identified in the Countywide Plan EIR. The PCP includes requirements, including **BMP CP-6**, that each project comply with the existing and future noise ordinances throughout the Program Area. As a result, there will be no significant cumulative impact associated with construction noise, and the impact will be less than significant.

Transportation Impacts

Significant and unavoidable transportation impacts were identified in the Countywide Plan EIR related to unacceptable levels of service along major highways and other roads in the County. The PCP will not contribute to congestion identified in the Countywide Plan EIR. The levels of service standards regulate long-term impacts due to future development and do not apply to temporary, construction-related

traffic. As discussed in the Project Description, the size of PCP projects will be small and require a minimal number of vehicles to construct. Most projects will not change operations on the properties involved and will not affect traffic levels. Therefore, the Program as a whole will not contribute to the County's cumulative traffic impact.

c) Cause substantial adverse effects on human beings, either directly or indirectly: Less-than-significant Impact

With implementation of the mitigation measures, the PCP will not have substantial adverse effects on human beings, either directly or indirectly.

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7 Acronyms

BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CAA	Clean Air Act
CalEPA	California Environmental Protection Agency
CalFire	California Department of Forestry and Fire Protection
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CH ₄	methane
CHP	California Highway Patrol
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO ₂	carbon dioxide
CO ₂ E	carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	Clean Water Act
dB	decibels
dbh	diameter at breast height
DFA	California Department of Food and Agriculture
DOC	California Department of Conservation
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FIGR	Federated Indians of Graton Rancheria
GHG	Greenhouse Gas
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
IS	Initial Study
LCA	Land Conservation (Williamson) Act

MALT	Marin Agricultural Land Trust
Marin RCD, MRCD	Marin Resource Conservation District
MBTA	Migratory Bird Treaty Act
MCP	Marin Carbon Project
MM	Mitigation Measure
MMWD	Marin Municipal Water District
MND	Mitigated Negative Declaration
MT	Metric tons
N ₂ O	nitrous oxide
NAHC	Native American Heritage Commission
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA Marine Fisheries Service
NO _x	nitrous oxides
NPS	National Park Service
NRCS	USDA Natural Resources Conservation Service
OSHA	Occupational Safety and Health Administration
PCP or the Program	Permit Coordination Program
PM _{2.5}	Particulate matter less than 2.5 microns wide
PM ₁₀	Particulate matter less than 10 microns wide
ppb	parts per billion
ppm	parts per million
PRC	Public Resources Code
PRNS or the Seashore	Point Reyes National Seashore
ROG	reactive organic gases
RPZ	Root protection zone
RTE	rare, threatened, and endangered species
RWQCB	Regional Water Quality Control Board
RZMP	Riparian Zone Monitoring Plan
STRAW	Students and Teachers Restoring a Watershed
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
UCCE	University of California Cooperative Extension
USDA	US Department of Agriculture
USFWS	U.S. Fish & Wildlife Service

Appendix A. Air Quality and GHG Calculations

Appendix B. Biological Resources

MARIN RESOURCE CONSERVATION DISTRICT

MITIGATED NEGATIVE DECLARATION

FOR

MARIN PERMIT COORDINATION PROGRAM

STATE CLEARINGHOUSE NUMBER: 2018032048

June 2018

Prepared for:

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Appendices

Appendix A. Mitigation Monitoring and Reporting Program for Marin PCP MND

Mitigated Negative Declaration

Marin Resource Conservation District

Marin Permit Coordination Program

Project Title

Marin Resource Conservation District (RCD) Marin Permit Coordination Program (PCP or Program)

Lead Agency Name and Address

Marin Resource Conservation District
Post Office Box 1146 / 80 Fourth Street Suite 202
Point Reyes Station, CA 94956

Lead Agency Contact

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Project Location

The PCP area is located in Marin County, California, which lies due north of San Francisco. The Program Area covers rural and riparian areas within the following watersheds: the greater Tomales Bay watershed, which includes Lagunitas Creek, San Geronimo Valley, Marin County portions of Walker Creek, Inverness, and the direct eastern and western drainages into Tomales Bay; Stemple Creek-Estero de San Antonio; Marin County portions of the Estero Americano watershed; Novato, Miller, and San Antonio Creek watersheds; and the creeks in the northern portion of western Point Reyes National Seashore that flow directly to the Pacific Ocean.

Though they may be present in the above Program Area, several natural communities and special-status species are *excluded* from the PCP because they have been determined to be particularly sensitive and inappropriate for programmatic environmental review. Work that occurs within or affects the natural communities and species listed below would require traditional, project-specific environmental review.

Excluded Natural Communities:

Coastal estuaries,
Salt marshes and mudflats,
Tidally influenced wetlands and waters,
Vernal pools,
Dune or beach habitat, and
Serpentine grasslands.

Excluded Species and Habitats:

Tidewater goby,
Salt marsh harvest mouse,
Clapper rail, California black rail,
Point Reyes mountain beaver, and
Baker's and yellow larkspur critical habitat.

Marin RCD Marin Permit Coordination Program

Marin RCD's PCP was initially adopted in 2004 to provide California Environmental Quality Act (CEQA) coverage for restoration projects that benefit water quality and wildlife habitat within the boundaries of

specified watersheds in Marin County. The Program was created to incentivize environmentally beneficial restoration projects on private lands by reducing the cost and timeframe of the environmental compliance process. Since 2004, Marin RCD and its partners have utilized the PCP to help landowners and managers plan, permit, fund, implement, monitor, and maintain projects that promote healthy, viable land management practices. Restoration projects that qualify for the program must meet the requirements, including specific volume and dimension limitations, set forth in the Program's CEQA document.

The current version of the program being considered in this Mitigated Negative Declaration (MND) expands the program borders to encompass three new watersheds (Miller, Novato, and San Antonio creeks); increases the number of conservation practices from 17 to 44 so as to incorporate new practices that assist with vegetation management and promote carbon-beneficial projects; and extends the lifetime of the program from five to ten years, with the program expected to begin in 2018 and continue through the fall of 2027.

As noted above, Marin RCD has identified 44 NRCS Conservation Practice Standards, grouped into ten categories, for inclusion in the PCP. These practices include land management actions to address water quality, sedimentation, and erosion from rural roads, stream crossings, vegetation, and facility operations, as well as resource management activities for waterways, climate change adaptation, soil health, alternative water sources for livestock, erosion and sediment control, and aquatic habitat restoration. Projects included in the PCP are small-scale and will have a net-positive environmental benefit.

Projects proposed for inclusion in the PCP are initially vetted by a Technical Advisory Committee and ultimately selected by the Marin RCD Board of Directors. The estimated number of individual projects to be implemented is up to 30 per year for an estimated maximum total of 300 for the life of the Program. Marin RCD implements the PCP in partnership with the Natural Resources Conservation Service (NRCS), Point Reyes National Seashore (Seashore), Point Blue Conservation Science's Students and Teachers Restoring a Watershed (STRAW), and the Marin Agricultural Land Trust (MALT). Additional implementation partners may be identified during the life of the program.

Findings

Project impacts would be mitigated to less-than-significant levels through implementation of mitigation measures and avoidance measures or through compliance with existing County Municipal Code requirements. With the recommended mitigation measures, no significant adverse effects to the environment are expected from the project. The project would not have a detrimental effect upon either short-term or long-term environmental goals. This project would not have impacts which are individually limited but cumulatively considerable. This project would not have environmental impacts which will cause substantial adverse effects upon human beings, either directly or indirectly.

Initial Study

An Initial Study/Proposed MND was prepared for the PCP and sent to the State Clearinghouse and interested agencies on March 19, 2018, for a 30-day public review period.

Responses to Comments on the Initial Study

Marin RCD received two comment letters during the comment period: University of California Cooperative Extension and Point Reyes National Seashore. The Marin RCD must consider the comments received during the comment period prior to adopting a Mitigated Negative Declaration. Responses to the comments received are included below. The comments resulted in minor modifications to mitigation measures, but did not result in changes to the analysis and no new mitigations were required. No significant impacts were identified.

Location of Documents

Copies of the document are available for review at the Marin RCD office located at 80 Fourth Street, Suite 202, Point Reyes Station, CA 94956. The document is also available online at: <https://www.marinrcd.org/pcp/>.

Environmental Protection Measures, General Program Measures, and Mitigation Measures

The following Environmental Protection Measures, General Program Measures, and Mitigation Measures have been added to the PCP, have been agreed to by the Marin RCD, and have been found to reduce potentially significant impacts of the PCP to less-than-significant levels. A Mitigation Monitoring and Reporting Program has been developed and is included as Appendix A.

The following Environmental Protection Measures, in the form of Required Best Management Practices as shown in Table 1, were developed for the PCP to require a minimum level of impact avoidance and minimization for all PCP projects. The Protection Measures are mandatory, and therefore, they are incorporated into all phases of all projects from planning and design through implementation, monitoring, maintenance, and reporting. The environmental protection measures focus on project planning to avoid impacts through placement and design of individual PCP projects.

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
Design Considerations		
BMP DC-1	Requirements to Minimize Area of Disturbance	MRCD shall ensure that special attention is given to minimizing the area of disturbance during project planning and design by requiring the following: 1. Ground and vegetation disturbance shall not exceed the minimum area necessary to complete the project and shall be limited to the Work Area, which is defined as anywhere subject to disturbance from access, staging, vegetation management, grading, and other human activities. Removal of trees and other vegetation that provide shade and other habitat elements for fish and wildlife, reduce erosion and runoff, or add to the visual quality of the area shall be avoided to the extent feasible while achieving the project objectives; selective pruning is allowed for safety purposes. See BMP VM-1 below for areal limitations on vegetation removal. 2. Site-specific design plans shall show the maximum extent of grading and

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		<p>shall include requirements to protect sensitive environmental resources during construction and on-going maintenance activities.</p> <ol style="list-style-type: none"> 3. Erosion and sediment control measures shall be incorporated into project design and implemented upon completion of grading. 4. Project plans shall include measures to restore all disturbed areas to pre-construction or better conditions unless project regulators determine that other measures should be implemented.
BMP DC-2	Requirements to Protect and Avoid Disturbance of Aquatic Environments	<p>MRCD shall ensure that special attention is given during project planning and design to protect aquatic habitat by requiring the following:</p> <ol style="list-style-type: none"> 1. Avoid impacts in aquatic environments where feasible; if avoidance is not possible, minimize disturbance to areas necessary to achieve individual project objectives. 2. Aquatic habitat improvement project designs shall employ current engineering and scientific standards (e.g., the <i>California Salmonid Stream Habitat Restoration Manual</i> [CDFW 2010]). 3. Aquatic organism passage concerns (e.g., velocity, depth, slope, air entrainment, screening, swimming and leaping performance for target species) shall be addressed during design to avoid creation of potential passage issues. 4. Stabilization structures utilized to improve habitat shall not impede or prevent passage of fish and other aquatic organisms or impair wildlife connectivity or movement. 5. Important fish and wildlife habitat elements, such as woody cover or wetlands, shall be avoided or protected if possible when siting practices.
BMP DC-3	Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality	<p>During project design, MRCD shall ensure that:</p> <ol style="list-style-type: none"> 1. Road improvements shall be modeled on the <i>Handbook for Forest, Ranch, and Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining and Closing Wildland Roads</i> by Weaver, Weppner, & Hagens (PWA 2015) and Publication 8262 <i>Rural Roads: A Construction and Maintenance Guide for California Landowners</i> (University of California ANR 2007) or the most current industry standard at the time of project planning. 2. Culverts installed in anadromous fish streams shall be consistent with CDFW's <i>Culvert Criteria for Fish Passage Revised May 2002</i> and NOAA Fisheries' Southwest Region's <i>Guidelines for Salmonid Passage at Stream Crossings</i> (2001a) or the most current industry standard at the time of project planning. 3. Culverts shall be designed to minimize habitat fragmentation and barriers to aquatic movement. Channel-spanning bridges, bottomless arch culverts with natural streambed substrates, or other fish-friendly solutions shall be required in salmonid streams to allow passage for fish and other aquatic organisms. 4. All crossings shall be designed to pass low and high flows. The design and location of crossings shall provide passage for as many different aquatic species and age classes as possible. 5. In-stream crossings shall not be designed for placement within 300 feet of known spawning or breeding areas of listed species. 6. Access roads shall be relocated only to provide a setback from a stream corridor or wetland area or in order to plant riparian vegetation as part of a stream corridor restoration project or other natural resource protection or enhancement purposes. A biologist shall determine the appropriate setback distance to protect riparian and stream resources. Relocated roadway segments shall be constructed to follow natural contours and shall be sited on low slopes to minimize disturbance of drainage patterns. 7. Roads and trails shall be designed to avoid runoff directly into a stream or waterbody. An energy dissipater shall be installed at the outlet of any water

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		bar, cross drain, or culvert in areas where roadway drainage may cause erosion and sedimentation; otherwise, outlets shall be directed to well-vegetated locations.
		8. Site-specific land-use operations shall be assessed to consolidate and minimize the number of crossings needed.
		9. Crossings shall be designed with sufficient capacity to convey the design flow and transported materials without altering the stream flow characteristics. They shall be protected so that flood flows safely bypass without damaging the crossing or eroding the streambanks.
		10. Crossings shall be sized to accommodate the intended traffic without damage to livestock, people, or vehicles.
BMP DC-4	Considerations for Placement of Livestock Watering Facilities	<p>MRCD shall ensure that installation of watering facilities will not adversely affect sensitive resources by requiring the following:</p> <ol style="list-style-type: none"> 1. An 800-foot buffer in urban areas and a 1,600-foot buffer in rural areas shall be established from neighboring schools, residences, hospitals, and other sensitive noise receptors. 2. Watering facilities shall not be sited in areas prone to erosion or in sensitive habitat, except where such addition would improve conditions.
BMP DC-5	Placement of Composting and other Constructed Facilities	MRCD shall ensure that placement of composting and other constructed facilities will not block or otherwise inhibit use of a known wildlife migration corridor. Facilities shall be placed at least 100 feet from a riparian corridor.
BMP DC-6	Setback from Water Supply Wells at Waste Storage Facilities	For newly constructed waste storage facilities, MRCD shall ensure that a setback of 100 feet is established between any water supply wells and animal waste storage facilities unless a more stringent setback standard is adopted by a regulatory agency with jurisdiction over the project, at which time, the more stringent setback shall be required.
Aesthetic Considerations		
BMP AS-1	Required Aesthetic Design Considerations	<p>To avoid adverse impacts on aesthetic resources, MRCD shall design projects in the following manner:</p> <ol style="list-style-type: none"> 1. Structural materials, water elements, and plant materials shall be designed to visually and functionally complement their surroundings. 2. Designs shall indicate how and where excavated material and cut slopes will be shaped to blend with the natural topography.
Biological Resources Protection		
BMP BR-1	Required Biological Assessment during Project Planning	<p>To avoid or minimize adverse impacts on sensitive biological resources, MRCD shall ensure that site planning includes the following initial site evaluation:</p> <ol style="list-style-type: none"> 1. A qualified biologist shall perform a literature review of each proposed project site to identify potential habitat for sensitive biological communities and special-status species. If an area of possible concern is identified in or near a project site, the area must be further evaluated by a qualified biologist as presented in Mitigation BIO-1c.
BMP BR-2	Avoid Creation of Population "Sinks"	MRCD shall ensure that, if wildlife habitat benefits are incorporated into a project design, care shall be taken to avoid creating small isolated zones that could become population "sinks" (i.e., where wildlife that are attracted to an area experience loss due to predation or other issues, such as seasonal drying out of ponds).
BMP BR-3	Temporal Limitations and Requirements to Protect Special-species during Construction, Vegetation Management and Other Maintenance Activities	<p>MRCD shall ensure that the following limitations are placed on project implementation timing to avoid or minimize adverse impacts on sensitive biological resources:</p> <ol style="list-style-type: none"> 1. Wildlife usage in the vicinity shall be taken into consideration for project timing. In general, in-stream and riparian activities shall be implemented in the period between June 1 and Oct. 31, unless project-specific recommendations from regulators or the project biologist suggest an alternative work window to avoid impacts on special-status species. Work that would disturb waterways or sensitive riparian habitats outside the June through October timeframe must be approved in advance by project

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		regulators.
		2. Work in and around streams that support anadromous fish populations or California freshwater shrimp shall not begin until June 15 and shall be completed by Oct. 15. Work prior to June 15 or beyond Oct. 15 may be authorized on a site-specific basis with approval from project regulators.
		3. Planting may occur after Oct. 31 if potential for vegetation success is improved due to favorable environmental conditions; planting above the ordinary high water line may occur at any time of the year.
		4. Work in and around areas that may support bird nesting shall be performed before March 15 or after August 15. See Mitigation BIO-j for requirements if activities are performed during bird nesting season (March 15 to August 15).
		5. Vegetative treatments shall be conducted during periods of the year when weed species are most vulnerable and shall promote restoration of the native or desired plant communities.
Water Quality Protection		
BMP WQ-1	Measures to Ensure Compliance with Water Quality Standards	<p>To avoid adverse impacts on water quality, MRCD shall ensure that:</p> <ol style="list-style-type: none"> 1. Discharge of storm water from a facility or activity that causes or contributes to the violation of water quality standards or water quality objectives is prohibited. 2. Creation of a condition of pollution, contamination, or nuisance, as these terms are defined in California Water Code Section 13050(d), is prohibited. 3. Discharge of soil, bark, slash, sawdust, or other organic and earthen material from any construction or associated activity of whatever nature into any stream or watercourse in quantities deleterious to fish, wildlife, or other beneficial use is prohibited. 4. Placing or disposal of soil, silt, bark, slash, sawdust, or other organic material from any construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in quantities that could be deleterious to fish, wildlife, or other beneficial uses is prohibited. 5. Discharge of decant water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters is prohibited, except as authorized by regulatory agencies. 6. Maintenance activities that result in the direct or indirect discharge of waste, to surface waters or surface water drainage courses are prohibited unless authorized by separate permit action. 7. Sediment removal may not occur in a flowing stream or standing water. 8. If used, concrete shall be allowed to cure for a minimum of 30 days before being allowed to interface with a waterway, or it shall be coated with an agency-approved sealant. If sealant is used, water shall be excluded from the site until the sealant is dry.
Vegetation Management		
BMP VM-1	Project Areal Limitations on Vegetation Management	<p>MRCD shall ensure that the following areal limits on vegetation management are implemented during project planning and design:</p> <ol style="list-style-type: none"> 1. Disturbance of native trees, shrubs, and woody perennials or removal of trees from riparian areas, including streambanks or stream channels, shall be avoided where possible and minimized where avoidance is not feasible. 2. Ground-disturbing work shall occur above summer low-flow water levels unless a regulator-approved dewatering system is in place. Dewatering requirements are addressed in Mitigation BIO-1d. 3. Removal of native trees and shrubs will be minimized and will only occur when necessary to meet project objectives. 4. No more than 0.10 acre of native riparian trees, shrubs, or woody perennials shall be removed from a stream area for a single project. 5. Where the area contains a mix of native and invasive species, no more than 0.25 acre of vegetation shall be removed from a streambank or stream

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		channel.
		6. Outside of riparian areas and other sensitive habitats, native vegetation may be removed only if replanting with native vegetation is completed at or near the site.
		7. If the area is exclusively non-native species, up to five (5) acres of riparian vegetation may be removed.
BMP VM-2	Requirements for Invasive and Noxious Plant Species Control	MRCD shall ensure that the spread or introduction of invasive plant species and other noxious weeds is avoided to the maximum extent possible by protecting areas with established native vegetation; implementing preventative measures, such as use of certified weed-free materials and inspection and cleaning of all equipment before entering or exiting sites during construction; restoring disturbed areas with native species where appropriate; and performing post-project monitoring and control of exotic species.
Cultural and Tribal Resources Protection		
BMP CR-1	Required Cultural and Tribal Resource Protection	MRCD shall identify culturally sensitive areas at or near PCP activity sites during initial planning to ensure cultural resource sites and sensitive areas can be avoided through project design. Once a project has been selected, a preliminary design is developed that includes project boundaries, access, and equipment required for implementation. Potential impacts on cultural resources shall be evaluated in cooperation with FIGR. Site visits shall occur, as requested by FIGR, to identify potential impacts and avoidance and protection measures that will become part of the project description and permit requirements.
Construction-period Impact Avoidance Requirements		
BMP CP-1	Require Adherence to Design Plans and Construction BMPs	MRCD shall ensure that the projects are implemented according to the design plans and that BMPs are properly installed and maintained during construction activities.
BMP CP-2	Requirements to Protect Air and Water Quality during Construction, Staging, and Stockpiling of Materials	<p>MRCD shall require the following to protect water quality during construction, staging, and stockpiling of materials:</p> <ol style="list-style-type: none"> 1. Ensure that all debris, sediment, rubbish, vegetation, or other construction-related materials shall be placed as shown on the project plans where they cannot enter jurisdictional waters or wetlands. No materials, including petroleum products, chemicals, silt, fine soils, or substances to the function of a watercourse and water quality, shall be allowed to pass into, or be placed where it can pass into, stream channels. Upon completion of work, the construction contractor shall be responsible to remove and dispose of all construction-related materials, debris, and sediments in an appropriate landfill or as shown on project plans. 2. Ensure the use or storage of petroleum-powered equipment is accomplished in a manner to prevent the potential release of petroleum materials into sensitive areas. The following precautionary measures shall be followed: <ul style="list-style-type: none"> o All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Vehicles and equipment must be inspected and approved by the inspector before use. Fueling shall take place outside of the riparian corridor. o If needed, a contained area located at least 50 feet from a watercourse shall be designated for equipment storage, short-term maintenance, and refueling. If possible, these activities shall not take place on the project site. o Vehicles shall be inspected for leaks daily and repaired immediately. o Leaks, drips, and other spills shall be cleaned up immediately to avoid soil or groundwater contamination. o Major vehicle maintenance and washing shall be done off site. o All spent fluids, including motor oil, radiator coolant, or other fluids, and used vehicle batteries shall be collected, stored, and recycled as hazardous waste off site.

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		<ul style="list-style-type: none"> ○ Dry cleanup methods (i.e., absorbent materials, cat litter, and/or rags) shall be available on site. ○ Spilled dry materials shall be cleaned up immediately. ○ When possible, work shall be performed from the top of bank of a watercourse or pond. ○ Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires heavy equipment to travel on a rocky or cobbled substrate, a rubber tire-loader/backhoe is the preferred vehicle; only after this option has been determined infeasible or less environmentally protective shall use of tracked vehicles be considered. ○ Heavy equipment shall not be used in a flowing stream, creek, or ponded area, except to cross a stream or pond to access the work site. Heavy equipment shall not enter a flowing stream, creek, or ponded area without authorization from environmental regulators. ○ The amount of time heavy equipment is stationed, working, or traveling within the creek bed shall be minimized. ○ When heavy equipment is used, woody debris and vegetation on the banks and in the channel shall not be disturbed, wherever feasible. <p>3. Site preparation techniques shall be employed to minimize generation and transport of airborne particulate matter, such as wetting disturbed areas or covering storage piles adequately.</p> <p>4. Limit construction emissions by reducing idling of diesel construction vehicles to no more than 5 minutes per California Code of Regulations §2449(d)(3) and using lower-emission vehicles to the maximum extent feasible.</p>
BMP CP-3	Requirements for Erosion Control and Sediment Detention during Construction and Maintenance Activities	<p>MRCD shall require the following erosion and sediment control measures to avoid or minimize erosion and impacts on water quality during project construction and maintenance activities:</p> <ol style="list-style-type: none"> 1. All disturbed areas shall be restored to pre-construction or better conditions unless other requirements are prescribed by project regulators. Erosion and sediment control measures shall be installed upon completion of grading and shall be in place prior to the onset of rain at all locations where the likelihood of erosion or sediment input exists as determined by MRCD. Measures shall include a combination of permanent native vegetation (e.g., live planting, native seed casting, or hydroseeding), weed-free mulch, rock, and biotechnical treatments (e.g., filter strip, water and sediment control basins, weed-free straw bales). If required to reduce erosion or to control sedimentation, temporary filter-fabric fencing, biodegradable fiber rolls, weed-free straw bales, or other runoff diversions shall be utilized to keep sediment from flowing into an adjacent waterbody. After vegetation is sufficiently mature to provide erosion control, these measures shall be removed. MRCD shall determine if the additional erosion control requirements are needed and when they can be removed. 2. Any collected sediment shall be disposed of away from the collection site and stabilized to ensure that no sediment-laden runoff enters jurisdictional waters or wetlands. 3. Post-construction erosion control, sediment control, and water quality protection measures shall be inspected regularly by MRCD staff or a designee to ensure they are functioning properly.
BMP CP-4	Measures to Protect Aesthetic Values and Sensitive Biological Resources during Implementation	<p>To avoid adverse impacts on aesthetic values and sensitive biological resources, MRCD shall:</p> <ol style="list-style-type: none"> 1. Limit construction activities to daylight hours. 2. Avoid creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Any new light sources shall meet Marin County requirements. External light fixtures shall be

Table 1. Required Best Management Practices (BMPs) for PCP Activities

BMP ID	Name	BMP Description
		mounted at low elevations to preserve the nightscape and natural surroundings of the area, and to prevent glare that may be visible from off-site locations and adjacent residences. Site lighting that is visible from adjacent properties, public roadways, and from other neighborhoods shall be indirect or incorporate full shield cut-offs.
BMP CP-5	Ensure Emergency Access is Adequate	MRCD shall ensure that adequate access for emergency vehicles is maintained at all work sites. This may require placement of plates over open trenches during pipeline installation or other means to provide emergency access.
BMP CP-6	Limit Construction Hours	In urban areas or areas near property lines or where noise may otherwise be a concern, MRCD shall limit use of heavy equipment or other noise-producing activities at construction sites from 7 a.m. to 6 p.m., Monday through Friday, and from 9 a.m. to 5 p.m. on Saturdays. No work on Sundays or holidays will be allowed. Heavy construction operation can occur before or after these hours with authorization from Marin County or from cities within the PCP Program Area. These determinations will occur on a site-by-site and project-by-project basis. In remote, rural areas, where impacts on surrounding landowners and residents in the vicinity are unlikely, work may occur outside of these hours. Non-noise producing activities may occur outside the operational hours limitations for heavy equipment.

Mitigation Measures

The mitigation measures are included in the Program to reduce potential significant impacts associated with implementation of the activities. Mitigations include specific actions needed to reduce impacts on visual resources; plant and wildlife resources; riparian and wetland resources; and historic, cultural and tribal resources. Mitigation measures describing the safe use of herbicides, fire protection measures, and hazardous materials handling are also included. BMPs and mitigation measures are included in the PCP Mitigation, Monitoring, and Reporting Program (MMRP) (Appendix A). The MMRP incorporates any mitigation language changes resulting from public comments.

Mitigation Measure AES-1, Provide Site-specific Planning to Maintain Vistas on Scenic Highways

MRCD shall conduct a site-specific visual resources assessment and prepare a planting plan for implementation of hedgerow and windbreak practices on properties, or portions of a property, adjacent to and visible from a scenic highway. The assessment shall determine whether the planned plantings have the potential to obstruct or damage scenic vistas. If obstruction or damage is possible, the assessment will provide line of sight for views and maximum height of vegetation to protect the view. A planting plan will be prepared specifying what plant species will be used to meet the criteria generated in the assessment. Plantings shall not occur where project designs cannot eliminate impacts to scenic resources.

Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats

MRCD shall avoid loss of State and federally listed or special-status plants.

MRCD shall avoid loss of State and federally listed or proposed plant species; State candidates for listing; CNPS List 1B species; CNPS List 2 and 3 species; and occupied or critical habitat for these species to the extent feasible. Where avoidance of individuals or habitat is infeasible, MRCD shall

compensate for loss of State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1, 2, and 3 plants as required by USFWS or CDFW.

All protocol-level surveys shall be coordinated with the appropriate responsible agencies (i.e., USFWS and/or CDFW).

- Where indicated by the MRCD's initial site review, reconnaissance-level surveys shall be performed by a qualified biologist to determine whether suitable habitat for special-status plants is present within the project area. If habitat for listed or CNPS Ranks 1-3 plants is not identified during surveys, no further mitigation for impacts on target species is necessary under this measure.
- If suitable habitat is identified, focused surveys shall be performed to determine presence or absence of target species wherever habitats for these species will be impacted. Any special-status species found will be documented. The suitable habitat shall be avoided through project design, where feasible, and a buffer zone of 50 feet shall be established around State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1 and 2 plants to prevent entry and disturbance during work activities. A qualified biologist shall designate the buffer zone if the zone shall be less than 50 feet, and the buffer zone distance shall be based on the target species and proposed work. The buffer zone shall be clearly demarcated with construction fencing and avoided by all construction personnel and equipment.
- If suitable habitat cannot be avoided, project-specific protection measures shall be developed with concurrence by USFWS or CDFW. The following are examples of measures that may be required:
 - Listed or List 1B and Rank 2 plants within the project footprint may need to be transplanted to a mitigation site approved by CDFW or USFWS. Seed from plants unavoidably impacted may need to be collected and preserved for planting on an approved mitigation site.
 - Where construction activities unavoidably affect listed or Rank 1B plant species, pipeline corridor widths may need to be limited to a maximum 5 feet through plant habitat to minimize habitat impacts.
 - Acquisition and preservation of at least an equal area and quality of habitat that is lost.
- Any herbicide application to treat noxious non-native weeds shall ensure that no native plants are affected.
- No fertilizers or irrigation shall be used within the buffer zone around a special-status plant population.

Mitigation Measure BIO-1b, Protect Water Quality for Aquatic Habitats

MRCD shall protect water quality in aquatic habitats through implementation of the following measures during operations and manure management activities:

- Erosion control plans shall be required for fertilizer and manure application on slopes greater than 10%. This requirement does not pertain to the application of compost or mulch for the purposes of erosion control on slopes greater than 10%.
- The collection, treatment, storage, or application of manure or process water shall not:
 - Degrade surface water or groundwater,
 - Contaminate or pollute surface water or groundwater, or
 - Create a condition of nuisance (as defined by the California Water Code section 13050).

This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.

- Fertilizer and manure application that could cause or threaten to cause pollution that reduces water quality and impacts aquatic species shall be prohibited.
- Manure and wastewater discharges to land shall be conducted during non-rainy or non-saturated conditions and must not result in runoff to surface waters and must infiltrate completely within 72 hours after application.
- Land application areas that receive dry manure and/or process water shall be managed to minimize erosion.
- The timing of nutrient application shall correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity.
- Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand.
- Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback, or an alternative conservation practice or field-specific condition is installed that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback.
- Composting and waste separation facilities shall be set back at least 100 feet from the nearest surface water body and/or the nearest water supply well. A lesser setback distance may be allowed by the Regional Water Board if it can be demonstrated that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality as described in the SWRCB Compost General Order, 2015 or as revised.

Mitigation Measure BIO-1c, Avoid Listed Special-status Wildlife Species

MRCD shall avoid loss of habitat or individuals of federally and State-listed species, to the extent feasible. Where avoidance of individuals or habitat is infeasible given the location of the PCP practice, MRCD shall ensure that a qualified biologist oversees implementation of the following measures. The qualified biologist shall obtain approval from CDFW, USFWS, and NOAA Fisheries, as needed, to capture, handle, and release all species described in this mitigation measure. The qualified biologist shall have all the necessary permits and experience as determined by the

regulatory agencies to work with the target fish and wildlife species. This shall include a current CDFW Scientific Collecting Permit and USFWS Recovery Permits, as needed and field experience identifying the target species and their habitats and capturing and relocating species.

Preconstruction Surveys for Biological Resources and Species Relocations

The project biologist shall assess the likelihood for sensitive biological resources to be present in the project area and perform a preconstruction survey(s) immediately prior to the onset of construction activities (on the day preceding work, ahead of the construction crew, or during the appropriate window for the target species), depending on the nature of the work and the target species. The focus of the preconstruction surveys shall include identifying the presence of target species and suitable relocation sites. With approval from the regulatory agencies, all fish and wildlife species shall be relocated outside of the area of impact in habitats suitable for the target species. A complete record of all fish and wildlife species observed during the preconstruction survey(s) and relocation process shall be kept by the project biologist and provided to CDFW, USFWS, NOAA Fisheries, and other regulatory agencies as required.

Preconstruction Training and Biological Oversight Measures during Construction, Preconstruction Crew Training Program

The project biologist shall provide a preconstruction training session for construction personnel about the potential presence of sensitive biological resources within the Work Area. Topics will include how to identify life history characteristics and habitat requirements for target special-status species, measures to avoid impacts, project boundaries, penalties for non-compliance, and biological conditions outlined in the project's permits and CEQA-required BMPs. All attendees shall be given handouts to assist with the identification of target species and with protection measures summarized. Personnel who miss the first training session or are hired later in the season shall attend a make-up session before participating in on-the-ground activities. All attendees shall be required to sign an attendance sign-up sheet that will be maintained for the duration of the project.

Wildlife Exclusion

For project areas located within habitats with known presence of special-status species or critical wildlife corridors, temporary wildlife exclusion shall be installed around the project perimeter. Exclusion fencing shall be highly visible, and installation shall be overseen by the project biologist. Openings shall be restricted to areas of construction site access. The purpose of the temporary fencing is to preclude animals from entering the Work Area and prevent debris and workers from entering adjacent habitats.

Biological Monitoring during Construction Activities

On-going biological oversight shall occur as needed during construction to ensure that biological resources are not being adversely impacted by construction activities. Projects that require relocation of special-status fish and wildlife species shall be visited at least weekly by the project biologist following completion of the relocation activities and exclusion fencing installation. The project biologist shall also train a biological monitor from the construction crew to check the site

daily for special-status species and report back to the project biologist on adherence to the biological resource protection measures. If a special-status species enters the Work Area, the construction crew supervisor or biological monitor shall contact the project biologist or designee for further guidance. Special-status species shall not be captured or handled by the supervisor or field crew unless directed by the project biologist or regulatory agency personnel.

Mitigation Measure BIO-1d, Protect Listed Salmonids

MRCDD shall ensure that the following protection measures for listed salmonids are implemented for PCP practices in streams that support salmonid habitat:

General Conditions for Work in Salmonid Habitat

- The general work period for listed salmonids is June 15 through October 31 annually. Work outside this timeframe must be authorized by NOAA Fisheries.
- If water is present in the construction area at the time of construction, the project biologist shall prepare a project-specific aquatic species protection and dewatering plan and submit it to regulators for approval.
- Immediately prior to the beginning of construction work, the project biologist shall determine if any vertebrate aquatic species are present in the project vicinity. The assessment of presence shall follow protocols described in the CDFW California Salmonid Stream Habitat Restoration Manual (Florsi et al. 1998) and shall utilize visual streambank and underwater observations and seine net surveys. The entire project area shall be assessed, including all pools, riffles, and runs, as well as upstream and downstream of the site.
- If no aquatic species are detected following the preconstruction assessment, capture and relocation measures shall not be implemented. However, the project biologist shall survey the site periodically and be available on-call during the construction process to ensure no aquatic species have moved into the construction area. If listed salmonids are observed after construction commences, the project biologist shall have the authority to halt work until appropriate protection measures are taken.
- Salmonids shall be relocated in accordance with Procedures for Relocating Fish and Other Aquatic Species below and protected in accordance with the Corps Biological Opinion for Permitting of Fisheries Restoration Project within the Geographic Boundaries of the NOAA Fisheries' Santa Rosa, California, Field Office (NOAA Fisheries 2016) or as updated.
- As described in the NOAA Fisheries Biological Opinion (2016) for work that might impact listed salmonids, upslope disturbance may not exceed one acre for staging. Native trees with defects (e.g., large snags greater than 16 inches diameter at breast height [DBH] and 20 feet high, cavities, leaning toward stream channel), nests, late seral characteristics, or trees greater than 48 inches DBH will be retained. In limited cases, removal will be permitted if trees or snags occur in the way of providing fish passage. No removal will occur without approval from the NOAA Restoration Center. Downed trees or logs greater than 24 inches DBH and ten feet long will be retained or used for in-stream habitat improvement.
- Riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in streams occupied by listed salmonids. Vegetation that does not

provide shade or shelter for fish may be trimmed or removed, subject to measures stipulated in the project permits. The amount disturbed shall be the minimum necessary to complete the project.

- Severely trimmed or removed vegetation shall be replaced as required by regulatory agencies. Replacement can occur on site or elsewhere within the watershed where these species historically occurred and where the likelihood of reestablishing populations is greatest. Restoration shall be accomplished using native vegetation.
- If unforeseen circumstances arise in project implementation that may lead to adverse impacts on steelhead, coho salmon, Chinook salmon, or their habitat, the project biologist shall have the authority to immediately halt work activities until measures for avoiding adverse effects are in place.

Temporary Stream Diversion and Dewatering in Salmonid Streams

- In salmonid-bearing streams, water shall be diverted into a cofferdam and around the work site by a gravity-fed diversion pipe when possible; however, if the slope is not adequate, a pump may be required. Pumps shall be screened in accordance with *Juvenile Fish Screen Criteria for Pump Intakes developed by NOAA Fisheries* (1996) and shall consist of 1/8-inch screen mesh. The pump shall be placed in a large basin with holes to allow water to be drawn into the pump. Both the outside of the basin and the pump shall be screened with 1/8-inch mesh to ensure aquatic species do not get sucked into the pumps.
- Optimum placement for a cofferdam is in a pool tail out or glide, leaving 2/3 or 3/4 of the pool volume upstream of the cofferdam for aquatic habitat. Cofferdams located at riffle crests are typically not advisable as water tends to flow subsurface, and the dam and backwater head it creates push water through the gravel crest at a faster rate. If the cofferdam is located at a riffle crest, an excavated sump is usually required directly downstream.
- An exclusion screen shall be placed immediately upstream of the inlet and downstream of the outlet of the diversion pipe. Appropriate materials for the exclusion screen include 3/16-inch Vexar, hardware cloth, and similar materials. The exclusion screen shall be of adequate height and securely fastened to the stream bottom, stakes, and both banks to prevent a breach if surface flow increases (e.g., due to rain or water backing up behind the cofferdam). The screen may also be reinforced with welded wire. The diversion pipe can be left open, without a screen, if the exclusion screens are completely secure, and the habitat units immediately up- and downstream of the inlet and outlet pipes have been cleared of all vertebrate aquatic species.
- The project biologist shall be on site during dewatering, stream diversion, and removal or decommissioning of the temporary diversion facilities, and as needed at other times to protect fish, other aquatic species, and water quality during construction activities.

Procedures for Relocating Fish and Other Aquatic Species

- If fish and other vertebrate species (e.g., frogs, salamanders) are present within the project area that requires dewatering, fish and other aquatic species shall be relocated up- or downstream prior to construction by the project biologist. Species shall be encouraged to

move down from the upstream end of the site with the aid of weighted seines operated by the project biologist with assistants as needed or other industry approved techniques. D-frame nets shall be used for aquatic invertebrates (i.e., freshwater shrimp). Once they have been guided to the downstream end of the work area, barrier seines/fencing shall be placed across the creek at both the up- and downstream ends to prevent re-entry.

- Once the barriers are in place and aquatic species have been encouraged downstream, cofferdams or similar water diversion structures shall be constructed immediately downstream of the upstream barrier and immediately upstream of the downstream barrier. When the cofferdams are in place and the construction area is sealed off, the biologist shall make his/her best effort to relocate aquatic species remaining within the work site as the water surface elevation drops.
- Aquatic species shall be relocated to suitable habitat up- or downstream of the construction area. Release sites shall contain suitable cover and foraging habitat and natural barriers present that are likely to preclude species from traveling back upstream or downstream into the work area.
- Electrofishing may be used as an alternative fish capture method in accordance with *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act* (NOAA Fisheries 2000). If electrofishing is utilized, the project biologist overseeing the aquatic species relocation shall have the appropriate training and experience.
- Throughout project construction, the project biologist shall make weekly visits to the site to ensure that no fish or other aquatic species are being impacted by construction activities. If fish and other aquatic species are observed in the work area after construction commences, work shall be stopped and appropriate actions taken to remove the species to a safe location.

Mitigation Measure BIO-1e, Protect California Freshwater Shrimp

MRCD shall ensure that the following protection measures are implemented for practices in California freshwater shrimp habitat:

- For all projects where work will occur within the stream channel or banks in a watershed occupied by California freshwater shrimp, the project biologist shall survey all areas within and adjacent to streams to ensure shrimp are not present within the work site or 300 feet downstream. The project biologist shall prepare a project-specific aquatic species protection and dewatering plan and submit it to regulators for approval if dewatering and shrimp relocation is deemed necessary. See *Procedures for Relocating Fish and Aquatic Vertebrate Species* in **Mitigation Measure BIO-1c, Protect Listed Salmonids**.
- No activities shall be conducted in channels with flowing or standing water within potential California freshwater shrimp habitat without site-specific permits from USFWS and CDFW. If required, an agency-approved biologist shall monitor all construction activity within 300 feet of California freshwater shrimp habitat and have the authority to halt work if adverse impacts may occur.
- No rock structures or bank stabilization measures shall be constructed in channel bottoms that may interfere with California freshwater shrimp migration between in-channel pools.

- Overhanging banks and riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in a stream occupied by California freshwater shrimp. Riparian vegetation that does not provide cover or foraging areas for shrimp may be trimmed or removed. The amount disturbed shall be restricted to the minimum necessary to complete the project.
- Projects shall not disturb existing shrimp habitat where ever feasible. No permanent loss of habitat shall occur as a result of any PCP practices.
- All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall assist in the development and provide oversight for all habitat restoration activities.

Mitigation Measure BIO-1f, Protect California Tiger Salamander

MRCD shall ensure that the following protection measures for California tiger salamander (CTS) are implemented for PCP practices in or near CTS habitat:

- For all projects in areas of suitable/potential habitat within the Santa Rosa Plain and west Petaluma, a formal CTS site assessment of habitats potentially suitable for use by CTS for breeding, aestivation, and migration and a determination of a site's proximity to current CTS occurrences shall be completed. If the project falls within the potential range of CTS and suitable habitat is present, Sonoma County, CDFW, and USFWS shall be consulted to determine if focused surveys or formal consultation is warranted. Potential habitat for CTS is defined as land designated by the Santa Rosa Plain Conservation Strategy Map, as revised by USFWS on April 17, 2007, or any subsequent prevailing documents as requiring mitigation for impacts on salamanders. Potential habitat is also identified outside the Santa Rosa Plain, including areas in west Petaluma.
- Mitigation for impacts on CTS habitat shall be as stipulated in the Santa Rosa Plain Conservation Strategy (USFWS 2005) or any subsequent guidance adopted by USFWS. Such documents include the Draft Recovery Plan for the Santa Rosa Plain (USFWS 2014) and Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS 2007) or as updated. Mitigation lands shall be located within the watershed where the impact occurs. A conservation easement shall be placed on the mitigation site to preserve the site in perpetuity as wildlife habitat, or as guided by USFWS.
- Minimization measures contained in Section 5.2 (Minimization Measures) of the Santa Rosa Plain Conservation Strategy or any subsequent guidance adopted by the USFWS shall be implemented during work within areas where CTS may occur.
- Initial ground disturbance during construction activities in CTS habitat shall be limited to the dry season (June through October) when salamanders are not moving between terrestrial habitat and aquatic breeding habitat.
- All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall oversee all restoration activities.

Mitigation Measure BIO-1g, Protect California Red-legged Frog

MRCD shall ensure that the following protection measures for California red-legged frog (CRLF) are implemented for PCP practices in or near CRLF habitat:

- Projects within potential CRLF habitat shall be designed to minimize disturbance to vegetation near or in permanent and seasonal pools of streams, marshes, ponds, or shorelines with extensive emergent or weedy vegetation.
- If a project site occurs in potential CRLF habitat, the project biologist shall conduct a preconstruction survey of all aquatic areas and immediately adjacent uplands with suitable vegetation cover that is potential habitat for CRLF no more than 48 hours before the start of construction activities. The biologist shall look for individual frogs, evaluate the likelihood of usage, and determine if additional biological monitoring is needed during construction to ensure that individuals present shall be removed or avoided.
- The project biologist shall monitor initial ground-disturbing activities within 300 feet of CRLF habitat and shall have the authority to halt work activities that may adversely affect CRLF until they no longer occupy the project area. Relocation of CRLF shall be performed only by individuals approved in advance by CDFW and USFWS.
- If suitable CRLF breeding habitat is present, project activities shall occur between July 1 and October 15 to avoid impacts on breeding CRLF or egg masses.

Mitigation Measure BIO-1h, Protect Foothill Yellow-legged Frog

MRCD shall ensure that the following protection measures for foothill yellow-legged frog are implemented for PCP practices in or near its habitat:

- A preconstruction survey shall occur prior to beginning work within stream channels with water present. The survey shall be conducted within 24 hours prior to the start of construction activities. If found, the project biologist shall move foothill yellow-legged frogs to a safe location outside of the project area, temporary exclusionary fencing shall be installed, as appropriate, and ongoing monitoring shall occur during construction to ensure that no frogs have reentered the site.
- If potential habitat for the frog is identified and cannot be avoided, construction activities shall be scheduled so that they do not interfere with the reproductive cycles of the foothill yellow-legged frog by restricting work in the riparian zone to the period from June 15 to October 15. Work periods shall be timed to avoid the breeding season for the frogs, as well as the majority of the incubation period of frog eggs.
- For vegetation maintenance activities where breeding and foraging areas for foothill yellow-legged frogs have been identified, these areas shall be demarcated by the project biologist and avoided by maintenance crews.

Mitigation Measure BIO-1i, Protect Northern Western Pond Turtle

MRCD shall ensure that the following protection measures for northern western pond turtles are implemented for PCP practices in or near its habitat:

- A preconstruction survey for adult northern western pond turtles and nest sites shall occur prior to beginning work for all projects within or near streams and other permanent water bodies. Any adults found within the work area shall be relocated to suitable off-site habitat. Nest sites discovered during the preconstruction survey or anytime during construction shall be avoided until vacated, as determined by the project biologist. Ongoing monitoring shall occur during construction to ensure no turtles have moved back into the area. Temporary exclusionary fencing shall be installed around the site if the project biologist determines it necessary.

Mitigation Measure BIO-1j, Protect Nesting Birds during Construction

MRCD shall ensure that the following protection measures for nesting birds are implemented for PCP activities:

- Preconstruction breeding bird surveys shall be completed for projects with construction activities occurring from March 15 through August 15 for special-status birds, migratory birds, and raptors. Preconstruction surveys shall occur in all locations identified by a qualified biologist. The surveys shall be conducted within two weeks prior to initiation of vegetation clearing, tree removal and trimming, or other construction activities. If the biologist finds no active nesting or breeding activity, work can proceed without restrictions, except in areas with suitable habitat for bank swallows.
- If active raptor or owl nests are identified within 100 feet of the construction area or active nests of other special-status birds (e.g., passerines, woodpeckers, hummingbirds, etc.) are identified within 50 feet of the construction area, a qualified biologist shall determine whether or not construction activities may impact the active nest or disrupt reproductive behavior. If a qualified biologist determines 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 project biologist determines that construction activities would likely disrupt breeding or nesting activities, a no-disturbance buffer shall be placed around the nesting location. The buffer shall include the active nest or breeding areas plus a 50-foot buffer for small songbirds and a 100-foot buffer for larger birds (e.g., owls, raptors). Construction activities in the no-disturbance buffers shall be avoided until the nests have been vacated.
- If the site is left unattended for more than one week following the initial surveys, additional surveys shall be completed. Ongoing construction monitoring shall occur to ensure no nesting activity is disturbed. If State and/or federally listed birds are found breeding within the area, activities shall be halted, and consultation with the CDFW and USFWS shall occur and agency recommendations shall be implemented.

Mitigation Measure BIO-1k, Protect Northern Spotted Owl

MRCD shall ensure that the following protection measures for breeding northern spotted owls are implemented for PCP activities:

- Breeding northern spotted owls shall be protected in accordance with the **Mitigation Measure BIO-1j, Protect Nesting Birds during Construction**. Protection shall include focused breeding owl surveys for projects occurring from March 1 through August 31 in areas of suitable forested and woodland habitat and within 1 mile of a documented owl occurrence (USFWS 2011).
- If active nests are identified within 0.5 miles of the work area of any noise-producing PCP activity, no work shall occur between March 1 and August 31 or until nesting completion has been verified by the project biologist.
- If the absence of nesting owls cannot be verified, the species shall be assumed to be present and either: 1) the work shall be performed after August 31, or 2) sound reduction measures shall be implemented in consultation with the project biologist, CDFW, and USFWS to ensure activities do not significantly raise noise above ambient levels.
- No trees or understory vegetation shall be removed within 500 feet of a documented active breeding location for northern spotted owls (either through previously confirmed sightings or project-specific verification by the project biologist).
- For projects proposed during the non-breeding season in suitable habitat, construction activities shall be overseen by the project biologist to ensure roosting and foraging birds are not being impacted. No nighttime work activities shall be allowed.

Mitigation Measure BIO-1l, Protect Special-status Bats

MRCD shall ensure that the following protection measures for bats are implemented for PCP practices:

- The project biologist shall survey for bats in all habitats with trees greater than 6 inches DBH and at sites with bridge crossings or other man-made structures capable of supporting roosting bats prior to any disturbance. If occupied roosting habitat is identified, disturbance shall not be allowed until the roost is abandoned, unoccupied, and/or CDFW has been consulted and recommendations implemented.
- For all tree removal, trees shall be taken down in a two-step process – limb removal on day one shall be followed by bole removal on day two. This approach will allow bats an opportunity to move out of the area prior to completing removal of the trees. No trees supporting special-status bats shall be removed without prior consultation with CDFW.
- If work is postponed or interrupted for more than two weeks from the date of the initial bat survey, the preconstruction survey shall be repeated.
- Construction shall be limited to daylight hours to avoid interference with the foraging abilities of bats.

Mitigation Measure BIO-1m, Protect Special-status Butterflies

MRCD shall ensure that the following protection measures for butterflies are implemented for PCP practices that occur in or near suitable grassland habitat:

- Reconnaissance-level surveys shall be performed by the project biologist to determine whether suitable habitat for Myrtle's silverspot or San Bruno elfin butterflies is present in the project area. If larval host or nectar plants for listed butterflies are present, and the target species is documented within the project vicinity, the project biologist shall perform a survey to determine presence or absence utilizing widely accepted scientific protocols.
- If suitable habitat for listed butterflies is present, project work shall be carried out with minimum soil compaction and disturbance. Wherever possible, work shall be performed with hand tools. No herbicides or fertilizers shall be used in habitat that supports special-status butterflies.
- Host plants for listed butterflies, including broadleaf stonecrop and *Viola adunca*, shall be protected with a clearly demarcated 20-foot buffer zone.

Mitigation Measure BIO-1n, Protect American Badger

MRCD shall ensure that the following protection measures for American badgers are implemented for PCP activities:

- For all projects requiring disturbance to open grasslands or low-growing vegetation habitats, a preconstruction survey for American badger shall occur prior to beginning work. If any badgers are documented within the project area or within 500 feet of it, buffer zones shall be established and maintained until the badgers have vacated the area. No work shall occur within the buffer zone until the area is cleared by the project biologist. Additional protection measures may be required and shall be developed in consultation with CDFW; they may include larger buffer zones or relocations, as appropriate.

Mitigation Measure BIO-2a, Compensate for Loss of Riparian Habitat and Other Sensitive Natural Communities

MRCD shall require the following actions to compensate for loss of riparian habitat and other sensitive natural communities during PCP activities:

- If vegetation in habitats identified by a qualified biologist as sensitive or native riparian trees over four inches DBH are removed, they shall be replaced by native species appropriate to the site. Outside of riparian areas and other sensitive habitats, if trees over six inches DBH are cut, they shall be replaced by native species appropriate to the site.
- If needed, an irrigation system shall be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials shall be removed.
- Revegetation success criteria shall be based on permit requirements and individual site conditions. MRCD shall conduct revegetation monitoring and replanting as required in the permits.

- No new facilities associated with any manure management practices shall be located in areas that support riparian habitat or in a sensitive natural community.

Mitigation Measure BIO-2b, Avoid Work in or Compensate for Impacts on Native Tree Root Protection Zone

MRCD shall require the following tree root protection measures are implemented during PCP activities to avoid or compensate for loss of sensitive trees and plant communities and to protect wildlife habitat during vegetation removal:

- Because native trees are susceptible to disturbance from grading and compaction, especially within the root crown area referred to as the Root Protection Zone (RPZ), work within the RPZ shall be avoided wherever possible, and no work shall occur within the RPZ when soils are wet. The RPZ is defined as 1.5 times the dripline radius measured from the tree trunk and extending approximately three feet below the soil surface. The outer extent of the RPZ shall be clearly demarcated with exclusionary fencing to keep construction vehicles and activities away from tree roots.
- If work must occur within the RPZ, all tree trunks shall be wrapped up to eight feet high or the height of the equipment working in the area. Protection materials may include wood boards or heavy-duty rubber matting. Trench plates or heavy mulch shall be installed when heavy equipment is working within the RPZ. All roots larger than one inch shall be cut with a clean, sharp saw. No more than 20% of live foliage shall be pruned in one year.
- A qualified arborist or biologist shall guide subsurface activities, including grading and trenching operations, as needed, to protect roots of native trees.

Mitigation Measure BIO-2c, Protect Coastal Terrace Prairie and Northern Maritime Chaparral

MRCD shall ensure that the following protection measures for coastal terrace prairie and northern maritime chaparral are implemented when PCP practices occur in sensitive habitats:

- Prior to project design, the site will be surveyed by a qualified botanist to establish the presence of any special-status plants. If such plants are found, the project will be designed to avoid them.
- No herbicides will be used in coastal terrace prairie or northern maritime chaparral.
- Areas disturbed by construction will be replanted with local cultivars of native species.

Mitigation Measure BIO-3, Protect Wetlands

MRCD shall ensure that wetlands impacted by construction activities are returned to their pre-construction conditions or better immediately following completion of the project using the following methods or other means that result in properly functioning wetlands:

- Conduct a wetlands survey for areas that would be permanently or temporarily disturbed to confirm the location, extent, and regulatory status of wetlands and water features within the PCP practice area. Sites that are entirely paved, compacted, or maintained as landscaped areas are not subject to this requirement.

- If work is required in wetlands, disturbance and compaction shall be minimized by strict use of a single identified access route to the work area and by minimizing the work area to the smallest needed to construct the project.
- If access through a wetland is necessary, steel plates or other soil and vegetation protection measures shall be placed across the wetland and construction vehicles shall use the plates for access. Low ground pressure, rubber-tired equipment may be used in lieu of protective plates. The area under the plates shall be seeded with native wetland vegetation after the plates are removed to restore the site.
- Permanent fill of wetlands shall be avoided.

Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources

When a literature and archival records search identifies potential historic resources within or near the project area during pre-project review or when historic materials are encountered during work activities, MRCD shall require the following:

- If potentially historic resources or buildings older than 45 years are located within 100 feet of the project area, a qualified historian or archaeologist shall be retained to perform an evaluation of the potential historic resource and determine whether the project would impact the resource. If the resource is determined to qualify as historic under CEQA Guidelines §15064.5(a), and the PCP practice would impair the resource, such impacts on the resource shall be avoided. The PCP practice shall be designed and constructed to avoid impairment of the historic resources. Measures to protect historic resources may include, for example, temporary protective barriers, construction worker training, movement of the facility or practice site, and landscape screening.
- Should the historic resource survey identify significant resources that cannot be avoided, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* shall be followed. A qualified historic preservation professional shall be retained to develop a treatment plan. Such professionals may include architects, architectural historians, historians, historic engineers, archaeologists, and others who have experience in working with historic structures. Mitigation measures recommended by the qualified historic preservation professional shall be implemented. These measures could include, but not necessarily be limited to:
 - Avoidance of significant historic resources;
 - Graphic documentation (photographs, drawings, etc.); and
 - Restoration, stabilization, repair, and reconstruction.
- MRCD and its partners shall hold a pre-construction meeting to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic materials.
- If subsurface historic materials are encountered during construction activities, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified historian/archaeologist. Project personnel shall not collect historic materials. If the historian/archaeologist determines that the find qualifies as a unique historic resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the

immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either modifying the project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

Mitigation Measure CUL-2, Identify and Avoid or Minimize Impacts on Archaeological Resources

When a literature and archival records search identifies potential archaeological resources within or near the project area during pre-project review or when archaeological materials are encountered during work activities, MRCD shall require the following:

- A qualified archaeologist shall be retained to perform an evaluation of the potential resource. If the resource is determined to qualify as an archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), and project construction would adversely affect the resource, such impacts shall be avoided. The PCP practice shall be designed, constructed, and operated to avoid material impairment of the resource. Measures may include temporary protective barriers, construction worker training, or movement of the project itself.
- A pre-construction meeting shall be held to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Prehistoric resources may include chert or obsidian flakes, projectile points, mortars, and pestles; dark friable soil containing shell and bone dietary debris; heat-affected rock; or human burials.
- If previously unknown archaeological materials are encountered during construction, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified archaeologist. Project personnel shall not collect cultural materials. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either project modification to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.

Mitigation Measure CUL-3, Avoid or Document Paleontological Resources

If a paleontological resource is discovered during construction, MRCD shall require the following:

All ground-disturbing activities within 50 feet of the find shall be temporarily halted but may be diverted to areas beyond 50 feet from the discovery and continue working. MRCD shall notify a qualified paleontologist who will document the discovery, evaluate the potential resource, and assess the nature and significance of the find. Based on scientific value or uniqueness, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the material. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.

Mitigation Measure CUL-4, Procedures for Inadvertent Discovery of Human Remains

Should human remains be encountered during PCP activities, MRCD shall require the following:

The treatment of any human remains and associated or unassociated funerary objects discovered during soil-disturbing activities shall comply with applicable State laws. If human graves are encountered, MRCD shall ensure that all work stops in the vicinity and the Marin County Coroner is notified. A qualified archaeologist shall evaluate the remains. If human remains are of Native American origin, the Coroner shall notify NAHC within 24 hours of identification, pursuant to Public Resources Code (PRC) §5097.98. NAHC would appoint a Most Likely Descendant. A qualified archaeologist, MRCD, and the Most Likely Descendant shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines §15064.5[d]). The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters. If the Most Likely Descendant and the other parties cannot not agree on the reburial method, MRCD shall follow PRC §5097.98(b), which states that “the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.”

Mitigation Measure HAZ-1, Ensure Safe Use of Herbicides

MRCD shall ensure that the following measures are used to protect resources during application of herbicides:

- Limit herbicide use to application to control established stands of noxious species or the invasion of exotics into restoration plantings.
- Where it is necessary to use herbicides, application shall be compliant with the California Department of Pesticide Use regulations in accordance with Material Safety Data Sheets, the Marin County Agriculture Commission’s Weed Management Plan, manufacturer’s instructions, and/or the guidance of a registered pesticide advisor.
- Timing of herbicide use shall be determined in consultation with a qualified biologist.
- In riparian environments, an herbicide without a surfactant that is registered for use in an aquatic environment and on target vegetation shall be utilized. No broadcast spraying shall occur. Great care shall be taken to avoid contact with native species.
- A safety and record-keeping plan shall be developed prior to herbicide use. The plan shall include telephone numbers and addresses of emergency treatment centers and the telephone number for the nearest poison control center. Records shall be maintained for two years after herbicide application.

Mitigation Measure HAZ-2: Provide Information for Safe Practices with Anaerobic Digesters

MRCD shall provide the project operators with information on asphyxiation and explosion hazards from working with methane and nitrogen gases, including procedures to ensure worker safety.

Mitigation Measure HAZ-3, Avoid Release of Contaminated Soils, On-site Hazardous Materials Management

MRCD shall ensure that the following measures are used to avoid release of contaminated soils and to manage hazardous materials on site:

- During project planning, MRCD shall determine whether a known hazardous material site is located within 200 feet of a PCP practice if the work would require excavation, trenching, or drilling. If the practice is located near a hazardous site, MRCD shall require the property owner or manager to move the project to a location greater than 200 feet away from the contaminated site or require the property owner or manager to implement control measures to protect human health and the environment during construction, including, but not limited to, the following:
 - Prepare and implement a site-specific health and safety plan in accordance with federal Occupational Safety and Health Administration (OSHA) and Cal-OSHA regulations to address worker health and safety issues during construction. The health and safety plan shall identify the potentially present chemicals, health and safety hazards associated with those chemicals, and all required measures to protect construction workers from exposure to harmful levels of any chemicals identified at the site. The health and safety plan shall also specify the method for handling and disposal of both chemical products and hazardous materials used in construction and contaminated soil, should any be encountered during construction.

Mitigation Measure HAZ-4, Reduce Wildland Fire Hazards during PCP Activities

MRCD shall ensure that the following measures are used to reduce wildland fire hazards during construction and maintenance activities:

- Remove dry, combustible vegetation from the construction site with specific focus on the staging areas for heavy equipment prior to construction activities.
- Grass and other vegetation less than 18 inches in height shall be maintained where necessary to stabilize the soil and prevent erosion.
- Vehicles shall not park in areas where exhaust systems can contact combustible materials.
- Fire extinguishers and fire suppression tools shall be available on the site when working in high fire hazard areas.

Mitigation Measure HYD-1, Protect Water Quality – Planting and Revegetation after Soil Disturbance

MRCD shall require the following to protect water quality through planting and revegetation after soil disturbance:

- Revegetation shall occur as soon as possible after disturbance using live native plantings, native seed casting, or hydroseeding, preferably prior to the onset of rain. When timing does not coincide with suitable planting windows for permanent vegetation, a temporary cover (e.g., weed-free mulch or weed-free straw) shall be used to protect soil until permanent vegetation can be established. Non-invasive, non-persistent grass species (e.g., barley grass, sterile wheat) may be used in limited instances in conjunction with native species to provide fast-establishing, temporary cover for erosion control.

- Soil exposed during construction and soil above rock riprap shall be revegetated using native seed casting or by hydroseeding. In general, interstitial spaces between rocks shall be planted with riparian vegetation such as willows rather than hydroseeded.
- To the extent feasible, all plants disturbed by project activities shall be replaced with a species palette similar to that of the removed vegetation or with species that are appropriate to the site conditions and are native to the project watershed. Otherwise, plants shall be sourced from Marin County or southern Sonoma County; plants from more distant sources shall require pre-approval by the project biologist. Native plant species with high wildlife and/or pollinator values shall be used to the extent feasible.
- Soil amendments are typically not needed for establishment of native vegetation in intact native soils. If soils have been disturbed and require additional organic matter or nutrients to support native plants, limited organic, weed-free amendments may be used to help establish restoration vegetation. Organic fertilizers may be used only above the normal high water mark of any adjacent waterways. If fertilizers are to be used around a listed plant, MRCD shall consult with a qualified biologist or range scientists to establish a buffer zone. No chemical fertilizers are allowed under the PCP.

Mitigation Measure HYD-2, Protect Water Quality – Erosion Control and Stormwater Detention during Grading and Other Disturbance in a Stream, Waterway, or Other Sensitive Habitat

When a project involves grading or work within or adjacent to a stream, waterway, or other sensitive habitat, MRCD shall require the following measures to avoid or minimize erosion and impacts on water quality:

- Prepare and implement a spill prevention and clean-up plan, Stormwater Pollution Prevention Plan, or similar document. The plan shall address polluted runoff and spill prevention policies, erosion control materials required to be available on site in case of rain or a spill (e.g., straw bales, silt fencing), clean-up and reporting procedures, and locations of refueling and minor maintenance areas.
- Schedule grading and other earth-disturbing activities during the dry season, generally June 1 through October 31. Exceptions may be made in cases such as catastrophic failure due to a large storm or other event that causes water quality or public safety concerns.
- Schedule vegetation removal to minimize impacts on water quality:
 - August 15–October 15 is preferred to allow prompt replanting with natives in time to take advantage of cool, wet winter weather for establishment.
 - October 16–February 14 is preferred for removal of invasive perennials (e.g., broom, Himalayan blackberry, fennel); however, ground-disturbing work shall only proceed if no rain is predicted for 48 hours and the erosion control BMPs discussed below are in place following removal.
 - February 1–August 15 is limited to vegetation removal that can take place if bird nesting surveys are completed.
- Ensure erosion control and sediment detention measures are available on site at all times and are in place at all locations where the likelihood of sediment input exists prior to the onset of

rain in order to detain sediment-laden water on site and minimize fine sediment and sediment/water slurry input to flowing water. Sediment collected in the structures shall be disposed of away from the collection site in an upland area where it cannot enter a waterway. When requested by project regulators, MRCD staff or a qualified designee shall inspect in-stream habitat and performance of erosion and sediment control devices at least once each day during construction to ensure the devices are functioning properly.

- If rain occurs while materials are temporarily stockpiled, cover with plastic that is secured in place to ensure the piles are protected from rain and wind. Silt fencing or wattles shall be installed on contour around all stockpile locations.
- Prohibit discharge of water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters, except as described in Mitigation BIO-1g.

Mitigation Measure HYD-3, Protect Water Quality – Measures for Application of Manure or Manure-laden Debris to Land as Fertilizer

If manure or manure-laden debris is applied to land as fertilizer, MRCD shall require the following measures to prevent discharges to surface and groundwater and adverse impacts on water quality:

- The collection, treatment, storage, or application of manure or process water shall not:
 - Degrade surface water or groundwater,
 - Contaminate or pollute surface water or groundwater, or
 - Create a condition of nuisance (as defined by the California Water Code section 13050).

This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.

- The application of manure and/or wastewater shall not violate any applicable local, State, or federal laws or regulations or contribute to an exceedance of any applicable water quality objective in the Basin Plan or of any applicable State or federal water quality criteria.
- Manure and wastewater discharges to land shall be conducted during non-rainy, or non-saturated conditions, must not result in runoff to surface waters, and must infiltrate completely within 72 hours after application.
- Land application areas that receive dry manure or process water shall be managed to minimize erosion.
- The timing of nutrient application must correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity.
- Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand.

- Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback; or an alternative conservation practice or field-specific condition shall be in place that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback.

Mitigation Measure NOI-1, Reduce Noise from Watering Facility near Sensitive Receptors

MRCD shall ensure that watering facilities installed within 800 feet of a sensitive receptor are implemented with at least one of the following noise reduction measures:

- Plant a noise barrier between the watering facility and the sensitive receptor per Practice 601 – Vegetative Barrier.
- Install a noise adsorbing wall of waterproof materials, such as foam, between the watering facility and the sensitive receptor.

Mitigation Measure TCR-1, Identify and Protect Tribal Resources

MRCD shall consult with representatives from interested tribes following the MRCD Board of Directors' selection of PCP projects, to identify known Tribal resources within the disturbance area for individual PCP project implementation. If the review of PCP projects identifies that a project may cause substantial adverse change to a tribal cultural resource then MRCD shall avoid or minimize adverse impacts in one of the following ways or as directed by FIGR:

- Not move forward with implementation of the PCP activity.
- Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context.
- Treatment of the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - Protecting the cultural character and integrity of the resource.
 - Protecting the traditional use of the resource.
 - Protecting the confidentiality of the resource.

Response to Agency Comments

Marin RCD received two comment letters during the comment period. The comment letters are provided on the following pages. Comments have been assigned numbers for clarity and ease of reference. Marin RCD's responses to the comments follow each letter. Revisions to the Draft Initial Study/Proposed MND in response to the comment letters are shown in ~~strikeout~~ and underline text.

Comment Letter 1: University of California Cooperative Extension, Vince Trotter

Comment 1-1

Could the Manure Management activity include establishing roads/trails out to more distant pastures to ensure access even during inclement weather (as part of increasing time-on-pasture)? The Alternative Manure Management Program (AMMP) includes new roadway or trail construction for these purposes. (pg. 28)

Comment 1-2

Could the Manure Management activity include manure drying via solar or forced air evaporation and the necessary facilities? (p. 28)

Comment 1-3

Could the Manure Management activity include conversion from freestall barn to compost pack barn (another AMMP practice)? (p.28)

Comment 1-4

Would the Manure Management activity extend to cover an independently operating compost operation? (i.e. an operation which has no manure of its own but composts manures from *other* sites? (p. 28)

Comment 1-5

Is MRCD expected to apply for and secure all additional permits? (Creek Permit, Use Permit, Coastal Permit, Grading Permit, Building Permit, etc.?) (p. 31)

Comment 1-6

Where does the 25,000 cubic yards volume come from for Composting Facility and what does it mean? Does 25,000 CY represent max volume of feedstocks at any one time (peak loading)? Or is it max annual throughput of finished compost? (p.43)

Comment 1-7

Are there limits on the excavation required to put in a compost pad or settling basin, and no limits on the size of these facilities? (p. 43)

Response to Comment Letter 1: UC Cooperative Extension

Response to Comment 1-1

The commenter asks if the Manure Management activity could include establishing roads/trails out to more distant pastures to ensure access even during inclement weather (as part of increasing time-on-pasture) because the Alternative Manure Management Program (AMMP) includes new roadway or trail construction for these purposes. The PCP does not authorize the construction of new roads except in the case that a segment of road is being constructed in order to reroute the road away from a sensitive resource. A project that includes extending new roads into distant pastures would not be eligible for inclusion in the PCP.

Response to Comment 1-2

The commenter asks if the Manure Management activity could include manure drying via solar or forced air evaporation and the necessary facilities to support such activities. The practices under the Manure Management activity category could potentially include manure drying via solar or forced air evaporation, depending on the specific nature of the project and whether it meets all of the criteria set forth in the PCP CEQA document.

Response to Comment 1-3

The commenter asks if the Manure Management activity could include conversion from freestall barn to compost pack barn. The practices under the Manure Management activity category could potentially include the conversion of a freestall barn to a compost pack barn, depending on the specific nature of the project and whether it meets all of the criteria set forth in the PCP CEQA document.

Response to Comment 1-4

The commenter asks if the Composting Facility Practice (317) could extend to cover an independently operating compost operation (i.e. an operation which has no manure of its own but composts manures from *other* sites). The Composting Facility practice (317) would be applicable to an independently operating compost operation, so long as the operation met all the requirements set forth in the PCP CEQA document.

Response to Comment 1-5

The commenter asks if Marin RCD would be responsible for securing all permits for projects within the PCP. Marin RCD or its PCP partners would be ultimately responsible for acquisition of all necessary permits. It may also be possible for PCP partners to use the Mitigated Negative Declaration to meet CEQA obligations for permitting purposes. PCP partners would be required to implement all best management practices and necessary mitigation measures.

Response to Comment 1-6

The commenter asks where the cubic yard volume came from in the definition of the Composting Facility practice. The 25,000 cubic yard volume limitation for the Composting Facility practice is based on the limits for Tier I composting operations delineated in the State Water Resources Control Board

General Waste Discharge Requirements for Composting Operations, August 4, 2015. As described in the Order, each composting facility must receive, process, and store less than 25,000 cubic yards of a combination of allowable feedstocks, compost (active, curing, and final product), additives and amendments on site at any given time. Such facilities are determined to be less likely to degrade water quality than facilities that exceed this volume limitation.

Response to Comment 1-7

The commenter asks if there are limits on the excavation required to put in a compost pad or settling basin, and if there are limits on the size of these facilities. There are no proposed size limitations in terms of disturbance area or maximum soil disturbance for composting facilities. Projects must meet all the requirements set forth in the PCP CEQA document and MMRP, specifically the siting and setback requirements. If the requirements are met, the project can be authorized under the PCP.

Comment Letter 2: Point Reyes National Seashore

Comment 2-1

Nutrient Management & Manure Management not “Potentially Significant Impact” to Greenhouse Gas Emissions? Does significant include beneficial effects?

Comment 2-2

Figure 3, p. 10: does not indicate Anadromous Fish Presence for Lagunitas/Olema Creek and tributaries (Cheda Creek, Devil’s Gulch, John West Fork Creek).

Comment 2-3

Figure 14, p. 26: Home Ranch Creek portion not indicated for steelhead but noted to contain steelhead in the text.

Comment 2-4

Text suggestion: NPS lands. The PRNS watershed includes lands permitted for grazing as well as lands in the Phillip Burton Wilderness.

Comment 2-5

Table 3-1: road/culvert: need more flexibility on culvert repair and replacement to keep contaminants out of waterways, especially in high use areas/corrals

Comment 2-6

Table 3-1: road/culvert: need ability to add rock to armor parts of road for winter use or erosion reduction

Comment 2-7

Table 3-1: stream crossing: add NRCS practice for Structure for Water Control (587)

Comment 2-8

Table 3-1: operations management: description may limit use of listed practices "while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops ". Soil disturbing activities would likely be necessary for placing heavy use protection (bed prep/ resurfacing).

Comment 2-9

Table 3-1: operation management: add grassed waterway and structure for water control as those would likely be needed for rerouting water and nutrients as described.

Comment 2-10

P. 33: Park ranchers are lessees not landowner. Applies to subsequent sections as well.

Comment 2-11

P. 33: Monitoring will occur at least semi-annually...until the site is determined to be stable" What happens if it doesn't stabilize? Who determines 'stable' has been achieved? Is there a cutoff for how long monitoring can occur?

Comment 2-12

P. 35: Access Road. We have struggled with how to fit work on cattle runs into NRCS practices when they are rocked or armored like a road. Could this be addressed here or called out under Trails and Walkways?

Comment 2-13

P. 35/36: Structure for Water Control - construction of culverts should also be allowed under high use areas, such as corrals, ranch headquarters etc. Not just associated with roadwork. Describe here or under Heavy Use Area Protection?

Comment 2-14

P. 36: culvert size limit of 200 ft would give more flexibility.

Comment 2-15

P. 37: is the 100' maximum refer to the cross-channel length from top of bank (TOB) to TOB? In the case of crossings associated with roads, the road would technically begin at TOB?

Comment 2-16

P. 43: Why 25,000 CY for composting facility?

Comment 2-17

Insert language prohibiting the use of invasive species for all practices in Section 3.2.5 Upland and Riparian Vegetation Management and Planting and Section 3.2.6 Waterway Vegetation and Planting. Reference BMP VM-2.

Comment 2-18

P. 45: concerned about the deep-rooted perennial species that have been recommended by NRCS in the past that have been major invaders in rangelands, e.g. *Phalaris* sp. Recommend adding a paragraph similar to the riparian herbaceous cover practice that references local native stock and maintaining native diversity.

Comment 2-19

P. 54: livestock pipeline across channels: is the 50' limited to the TOB to TOB? In some areas we have assessed having elevated pipeline over ephemeral or seasonal drainages would be longer than 50 ft.

Comment 2-20

P. 58: is there a known agency approved sealant for concrete? The 30 day limit on curing may be challenging given the timing limitation from MBTA and onset of rains. Construction window for us is generally August 15 to October 15, but delays often happen.

Comment 2-21

Section 3.3: Suggest removing “MRCD shall” from BMP statements as there are multiple partners.

Comment 2-22

Section 3.3: BMP DC – does not have header – design considerations? Place BMP headers in alphabetical order?

Comment 2-23

Section 3.3: BMP DC-4 – minimum distance from wetland/riparian?

Comment 2-24

Section 3.3: BMP BR-1 – is literature review the correct term here?

Comment 2-25

Section 3.3: BMP WQ-1: how does this fit into a SWPPP required through SWRCB?

Comment 2-26

Section 3.3: BMP VM-2 – Refine requirements. The statement “such as use of certified weed free materials and inspection and cleaning of all equipment..” implies they are suggested but not required. List all requirements under the BMP, similar to BMP CP-2.

Comment 2-27

P. 89: “Any herbicide application to treat noxious non-native weeds shall ensure that no native plants are affected.” Is this feasible? Listed or CNPS Rank species only? Minimize impact to native plant species?

Comment 2-28

P. 94: Potential impact of manure management on grassland habitat? Native plant species?

Comment 2-29

P. 136: address spring (re-)development?

Response to Comment Letter 2: Point Reyes National Seashore

Response to Comment 2-1

The commenter asks if the CEQA determination page identifies beneficial greenhouse gas emissions. The Proposed CEQA Determination in Section 1.3 summarizes the impacts analysis presented in the Initial Study (Section 4). “Potentially Significant Impacts” refer to project activities that may have an adverse effect on an environmental resource. Though the project may provide net benefits to greenhouse gas emissions, it will not have a potentially significant adverse impact on such emissions (as described in Section 4.7). As a result, a “Potentially Significant Impact” is not listed for greenhouse gas emissions on the Proposed CEQA Determination. No changes are required to address this comment.

Response to Comment 2-2

The commenter correctly notes that Figure 3 does not identify anadromous fish presence for Lagunitas/Olema Creek and tributaries (Cheda Creek, Devil’s Gulch, John West Fork Creek). Figure 3 was taken directly from the Marin County website (www.marinwatersheds.org). However, text provided on pages 11 and 12 for fish and wildlife in the greater Tomales Bay watershed identifies anadromy in the Lagunitas Creek watershed, including tributaries. The impacts analysis presented in the document evaluates impacts based on anadromous fish presence in the watershed. No changes are required to address this comment.

Response to Comment 2-3

The commenter correctly notes that anadromous fish presence in Home Ranch Creek is not identified on Figure 14. The text on page 24 identifies presence of steelhead populations. Impact analyses were based on the presence of steelhead in the channel. No changes are required to address this comment.

Response to Comment 2-4

The commenter requests the addition of allowable grazing in the Phillip Burton Wilderness. Text on page 26 is revised as follows to address the comment:

Land Use in PRNS Watershed

All of the land within PRNS is owned by NPS. The most widely spread land use is open space. Agricultural operations continue on the historical ranches, many of which are in long-term leases with former owners, and the primary uses are livestock grazing and grazing operations with interspersed agricultural residences and farm facilities. The PRNS watershed includes lands permitted for grazing as well as lands in the Phillip Burton Wilderness.

Response to Comment 2-5

The commenter identifies the need to provide more flexibility on culvert repair and replacement to keep contaminants out of waterways, especially in high use areas and corrals. Section 3.2.1 describes the allowable practices for Road Upgrades and Decommissioning in greater detail, including the repair and replacement of culverts. The comment does not provide specific requests for added flexibility. No changes are required to address the comment.

Response to Comment 2-6

The comment states that the ability to add rock to armor parts of a road for winter use or to reduce erosion is needed. The Access Road (560) practice is designed to stabilize roadways to protect water quality and to provide access for equipment and other vehicles used for agricultural and resource management activities. The practice is intended to make improvements to existing roads used for moving livestock, produce, or equipment and may include surface grading to effectively drain water. The NRCS practice includes roadway surfacing, and treatment should be based on traffic needs, soil, climate, erosion control, or dust control. The practice does not specifically exclude rock as an appropriate roadway surface where needed; however, preference is given to outsloping, water-breaks, water-bars, diversions, and broad-based dips for low-intensity use forest, ranch, or similar road types. To address the comment, the MRCD has revised the document as follows:

Access Road (560)

An access road is a fixed route for equipment and other vehicles used for agricultural and resource management activities. Access roads range from single-purpose, seasonal roads designed for low speed and rough driving conditions to all-purpose, all-weather roads. This practice is intended to make improvements to existing roads used for moving livestock, produce, or equipment and may include surface grading to effectively drain water. Water bars and rolling dips may be installed along roadways to redirect water off the road before it can concentrate and lead to erosion of the road surface or gully \ formation. Roadside ditches may be added, removed, or modified to improve water conveyance. Segments of access roads may receive surface treatment if required by traffic needs, soil-type, climate, and erosion control. The type of treatment, if needed, will depend on local conditions, available materials, and existing road base. Roadway surfacing may be used in conjunction with installation of roadway drainage features.

No additional changes to the document are needed to address this comment.

Response to Comment 2-7

The comment requests that MRCD include the Structure for Water Control practice (587) in the PCP. The practice is already included as part of road upgrades and decommissioning in Section 3.2.1 beginning on page 35. The practice can be used in conjunction with the Stream Crossing practice (578); therefore, no changes are needed to address the comment.

Response to Comment 2-8

The comment states that language in Table 3-1 Marin PCP Activities and Practices may limit use of listed practices because the description of the suite of operation management practices states that agricultural management practices to protect water quality should limit ground-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops.

The commenter is correct. The language could be construed as limiting the use of other listed practices, specifically the Heavy Use Area Protection Practice (561) which is described in detail in Section 3.2.3. The description focuses on the measures needed to protect and improve water quality by providing a

stable, non-eroding surface in areas frequently used by animals, people, or vehicles. The language in Table 3.1 (page 27) has been amended as follows:

Table 3-1. Marin PCP Activities and Practices

Activity	Description	Associated NRCS Practices
Operations Management	Agricultural management practices to protect water quality, such as the amount (rate), source, orientation, collection, placement, and timing of plant nutrients, residue, and amendments on the soil surface year-round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops, mulch, fence, till, protect eroding surfaces, or other means to protect eroding surfaces. Other practices address vegetation management with grazing and browsing animals and provide measures to control the movement of animals, people, and vehicles.	Nutrient Management (590), Residue and Tillage Management/ No-Till (329), Fence (382), Mulching (484), Heavy Use Area Protection (561), Roof and Covers (367), Roof Runoff Structure (558)

Response to Comment 2-9

The comment requests adding the Grassed Waterway and Structure and Water Control practices to the Operations Management practices category. The 44 NRCS practices included in the PCP are grouped into 10 overall activity categories. Each practice is placed into the activity category to which it is considered most applicable for the purposes of the PCP; however individual practices may promote the objectives of several categories. To prevent confusion and duplication, practices are only listed under one activity category even if they could apply to several categories. Practices from different categories may be selected for use on individual projects to achieve protection and improvement goals.

Response to Comment 2-10

The comment states that Park ranchers are leasees, not landowners. The comment is correct and the following changes are made on page 33 to clarify:

Procedure to Address Noncompliance with Program or Permit Conditions

If a landowner or leasee does not carry out work in compliance with project design standards and specifications, including the permit conditions, Marin RCD, NRCS, MALT, or PRNS will notify the landowner or leasee and work directly with him/her to resolve the problem. If the landowner still fails to conform, Marin RCD, NRCS, MALT, or PRNS will notify the landowner or leasee that his/her activities are inconsistent with the standards and specifications contained in their contracts and that the landowner's actions are no longer covered by the PCP's programmatic and individual permits and agreements. The landowner or leasee will then be responsible for obtaining environmental review and individual permits from the appropriate regulatory agencies and may be held liable for any violations by regulators.

The following change is made to the language on page 33 and 34.

3.1.4 Operation and Maintenance for PCP Projects

The NRCS Conservation Practice Standards also provide guidelines for operation and maintenance of each practice. The operations and maintenance plan will provide a schedule and methods to maintain design capacity, stability, and vegetative cover during the establishment period. Inspections will be conducted to determine if implemented actions are providing improvements as planned. Monitoring will occur at least semi-annually and after significant rain or high-wind events until the site is determined to be stable. It will include evaluation of both geomorphic stability and vegetative success if plantings are part of the installation. Monitoring responsibilities will be shared by Marin RCD and the individual landowner or will be shared by PCP partners and leasees, and will be outlined in Landowner/Leasee Authorization Agreements for each specific project.

Response to Comment 2-11

The comment asks questions about monitoring requirements associated with the operations and maintenance plan. There is no set cut-off for how long monitoring can occur for projects undertaken as part of the PCP. The operations and maintenance plan associated with each project will identify the monitoring needs for each project, and the plan will include permit conditions as applicable. If a project site fails to stabilize, measures will be implemented in response to monitoring to stabilize the site and ensure the success of the project. Marin RCD and the PCP partners are ultimately responsible for determining whether a site has stabilized. No changes to the document are required to further address the comment.

Response to Comment 2-12

The commenter asks whether work to stabilize cattle runs fits within the Access Road practice or the Trails and Walkways practice. Work on rocked or armored cattle runs is covered under the Trails and Walkways practice (575) on page 35. No changes to the document are proposed.

Response to Comment 2-13

The commenter notes that construction of culverts should be allowed as part of addressing issues in high use areas. Several of the 44 NRCS practices authorized under the PCP may be implemented as part of any given individual project. A project to improve a corral may utilize both Heavy Use Area and Structure for Water Control practices, or any other applicable practice within the PCP program. No changes are required to address the comment.

Response to Comment 2-14

The commenter states that allowing culverts up to 200 feet long would give more flexibility. In order to qualify for programmatic CEQA coverage, projects approved as part of the PCP must be small-scale and provide a net environmental benefit. As a result, the dimensions of project components included within the PCP are limited.

Response to Comment 2-15

The commenter asks if the 100-foot maximum stream crossing is from top of bank to top-of-bank. The 100-foot maximum refers to the total length of the structure or crossing. Bridges authorized by the PCP must span the entire length of the channel from top-of-bank to top-of-bank and must not exceed 100 feet in length. For crossings associated with roads, how the length is measured depends on the type of crossing but, with the exception of culverts, it would typically be top-of-bank to top-of-bank.

Response to Comment 2-16

The 25,000 cubic yard volume limitation for the Composting Facility practice is based on the limits for Tier I composting operations delineated in the State Water Resources Control Board *General Waste Discharge Requirements for Composting Operations*, August 4, 2015.

Response to Comment 2-17

The commenter requests the inclusion of language prohibiting the use of invasive species for all practices in Section 3.2.5 Upland and Riparian Vegetation Management and Planting and Section 3.2.6 Waterway Vegetation and Planting. Marin RCD agrees to add language to the PCP regarding the use of native plantings. The following paragraph on page 44, Section 3.2.5, has been amended as shown:

The practices allow management of vegetation with grazing and browsing animals and support establishment of adapted perennial or self-sustaining vegetation, such as grasses, forbs, legumes, shrubs, and trees. Herbicides and other biological treatments (e.g., grazing) may be used to control or eliminate invasive, noxious, or toxic infestations. When herbicides are used, written guidance for herbicide use will include acceptable treatment references for containment and management or control of target species; evaluation and interpretation of herbicide risks associated with selected treatments; acceptable dates or plant growth stage at application to best effect control and discourage re-invasion; any special measures, timing, or other factors (e.g., protection of non-target species and soil texture and organic matter content) that must be considered to ensure the safest, most effective application of the herbicide; and reference to product label instructions. Biological treatment plans for upland and riparian vegetation management will provide references for containment and management or control of target species; kind of grazing animals to be used; timing, frequency, duration, and intensity of grazing or browsing; desired degree of grazing or browsing use for effective control of target species; maximum allowable degree of use on desirable non-target species; and precautions or requirements associated with the selected treatments. Vegetation management activities may include minor grading or digging to remove roots and prepare the area for planting. When conducting plantings as a component of the following practices, only native species will be used. No project that involves planting or otherwise contributing to the spread of invasive species will be authorized by the PCP.

Additionally, the following paragraph on page 49, Section 3.2.6, has been amended as shown:

Waterway vegetation and plantings are used in areas where added water conveyance capacity and vegetative protection are needed to prevent erosion and improve runoff water quality through infiltration that removes sediment, other suspended solids, and dissolved contaminants in runoff. The PCP waterway vegetation and plantings activity includes two practices: Grassed Waterway and Filter Strip. All plantings authorized under these practices will utilize native species appropriate to the area. Installation of waterway vegetation and plantings will often require grading and use of equipment.

Response to Comment 2-18

The comment expresses concern that deep-rooted perennial species that were previously planted in rangelands have become major invaders in some rangelands. Marin RCD agrees to the following language additions under *Range Planting (550)* on page 45, Section 3.2.5:

Range Planting (550)

Range planting involves the establishment of adapted vegetation on grazing land. The practice applies to rangeland, native or naturalized pastures, grazed forest, or other suitable areas where the principal method of vegetation management is grazing. Range planting is commonly used where existing stands of vegetation are inadequate for natural reseeding to occur and can be used to increase carbon sequestration. Plantings commonly include grasses, forbs, legumes, shrubs, and trees that are selected based on site-specific characteristics, erosion control and water quality improvement goals, wildlife values, carbon sequestration goals, and other management objectives. Deep-rooted perennial species are commonly used to increase soil carbon storage; however, use of deep-rooted perennials will be limited to those species that do not aggressively invade rangelands. All plantings authorized under this practice will utilize native species appropriate to the area and use of *Phalaris sp.* will be limited.

Plant selection will focus on native perennial plants that are adapted to site and hydrologic conditions and provide the structural and functional diversity preferred by fish and wildlife likely to benefit from the implementation of the practice. In areas where native seeds and propagules are present, passive regeneration may be used in lieu of planting; however, planting will be required if no native seed bank is present.

Response to Comment 2-19

The commenter asks if the livestock pipeline across channels is limited to 50 feet bank-to-bank. The 50 feet limitation is the width of the area impacted upstream and downstream of the crossing; it does not refer to the length of the crossing. It is included as a limitation to reduce the area of disturbed to install the livestock pipeline. No changes are needed to address the comment.

Response to Comment 2-20

The comment notes that a 30-day curing time for concrete may be challenging to attain given tight construction windows. The California Department of Fish and Wildlife requires that concrete cure for 30

days before the concrete comes in contact with water to protect aquatic species. The Department allows use of concrete sealant to hasten cure times. The Marin RCD or one of the project partners will be responsible for approving the sealant used for concrete. There are several sealants that agencies will approve. No changes are needed to address the comment.

Response to Comment 2-21

The commenter requests that “MRCD shall” be removed from BMP statements. While partner agencies may help implement the Program and oversee individual projects, Marin RCD, as the CEQA lead agency, is ultimately responsible for implementation of the provisions and requirements of the Program as outlined in the CEQA document.

Response to Comment 2-22

The comment states that DC is not defined and that BMPs should be listed in alphabetical order. The headers for the BMP categories, including the Design Consideration BMPs, are shown in the row immediately above each BMP category. Marin RCD does not feel that placing the measures in alphabetical order is necessary. The measures are listed in order of timing in the design, planning, and implementation process. No changes are needed to address the comment.

Response to Comment 2-23

The commenter asks about the minimum distance for livestock watering facility placement from a wetland or riparian area. Marin RCD has added a requirement for placement of livestock watering facilities in response to the comment as show for Table 3-1, page 60.

BMP ID	Name	BMP Description
BMP DC-4	Considerations for Placement of Livestock Watering Facilities	MRCD shall ensure that installation of watering facilities will not adversely affect sensitive resources by requiring the following: 1. An 800-foot buffer in urban areas and a 1,600-foot buffer in rural areas shall be established from neighboring schools, residences, hospitals, and other sensitive noise receptors. 2. Watering facilities shall not be sited in areas prone to erosion or in sensitive habitat, except where such addition would improve conditions. 3. <u>Watering facilities shall not be located within 100 feet from a riparian corridor or wetland.</u>

Response to Comment 2-24

The commenter questions whether “literature review” is correctly used in BMP BR-1. The process by which a qualified biologist reviews relevant data, surveys, and studies to assess the biological resources potentially present within a project area is typically referred to as a “literature review.” The term is correctly used in the BMP language.

Response to Comment 2-25

The comment asks how the measures in BMP WQ-1 fit into a Stormwater Pollution Prevention Plan (SWPPP) required through the SWRCB. Generally, a SWPPP is required when a construction activity results in land disturbance of one acre or more. The requirements of BMP WQ-1 apply to all projects undertaken as a part of the PCP. Projects that also require a Stormwater Pollution Prevention Plan will be subject to requirements above and beyond those presented in BMP WQ-1.

Response to Comment 2-26

The commenter suggests that BMP VM-2 be reworded to require use of certified weed free straw and to expand the list of requirements similar to the list presented in BMP CP-2. The BMP requires that the spread or introduction of invasive plant species and other noxious weeds not occur. There are a number of ways to accomplish this requirement and the BMP lists some preventative measures.

The language for BMP VM-2 on page 62 has been revised as follows:

MRCD shall ensure that the spread or introduction of invasive plant species and other noxious weeds is avoided to the maximum extent possible by protecting areas with established native vegetation; implementing preventative measures appropriate for the individual project, such as including the use of certified weed-free materials and inspection and cleaning of all equipment before entering or exiting sites during construction; restoring disturbed areas with native species where appropriate; and performing post-project monitoring and control of exotic species.

Response to Comment 2-27

The commenter asks if it is feasible to avoid impacts on native plants from use of herbicides. Marin RCD's experience indicates that impacts on listed plants can be avoided and native plants can be protected while using herbicides. Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats is revised as follows on page 89 to clarify:

- If suitable habitat cannot be avoided, project-specific protection measures shall be developed with concurrence by USFWS or CDFW. The following are examples of measures that may be required:
 - Listed or List 1B and Rank 2 plants within the project footprint may need to be transplanted to a mitigation site approved by CDFW or USFWS. Seed from plants unavoidably impacted may need to be collected and preserved for planting on an approved mitigation site.
 - Where construction activities unavoidably affect listed or Rank 1B plant species, pipeline corridor widths may need to be limited to a maximum 5 feet through plant habitat to minimize habitat impacts.
 - Acquisition and preservation of at least an equal area and quality of habitat that is lost.

- Any herbicide application to treat noxious non-native weeds shall ensure that special status plants are not affected and non-native plants are protected to the maximum extent feasible.

Response to Comment 2-28

The commenter wants to know the impact of manure management on grassland habitat and native plant species. The PCP would be implemented on rural and agricultural properties within plant communities not specifically excluded from the Program, including communities that could support special-status plant species. Individual project sites could be located in highly disturbed areas, in areas routinely maintained by mowing or clearing, in grazed areas, or in areas with undisturbed native vegetation that could support special-status plant species. However, to protect native grasslands and potential special-status species within them, manure management activities would not occur on native grassland habitat.

Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats, requires that the loss of State and federally listed or special-status plants be avoided. The measure requires site surveys to identify if any species or their habitat is present at the site. If an individual or potential suitable habitat is identified, the project would be sited to avoid the impact. The measure also requires buffer areas be included between a new facility and plant species that are federally listed or proposed for listing. The following text is added to Mitigation Measure BIO 1a on page 89 to specifically address manure management activities:

- Where construction activities unavoidably affect listed or Rank 1B plant species, pipeline corridor widths may need to be limited to a maximum 5 feet through plant habitat to minimize habitat impacts.
- Acquisition and preservation of at least an equal area and quality of habitat that is lost.
- Any herbicide application to treat noxious non-native weeds shall ensure that no native plants are affected.
- No fertilizers or irrigation shall be used within the buffer zone around a special-status plant population.
- No new facilities associated with any manure management practices shall be sited in areas that support State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1 and 2 plants. All buffers needed to protect plants and habitats shall be implemented.

Mitigation Measure BIO-2a, Compensate for Loss of Riparian Habitat and Other Sensitive Natural Communities, requires protection of sensitive communities. The following text is added to Mitigation Measure BIO 1a on page 89 to specifically address manure management activities:

- If vegetation in habitats identified by a qualified biologist as sensitive or native riparian trees over four inches DBH are removed, they shall be replaced by native species appropriate to the site. Outside of riparian areas and other sensitive habitats, if trees over six inches DBH are cut, they shall be replaced by native species appropriate to the site.

- If needed, an irrigation system shall be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials shall be removed.
- Revegetation success criteria shall be based on permit requirements and individual site conditions. MRCD shall conduct revegetation monitoring and replanting as required in the permits.
- No new facilities associated with any manure management practices shall be located in areas that support riparian habitat or in a sensitive natural community.

Response to Comment 2-29

The commenter requests that spring development and redevelopment be more fully evaluated in the hydrology section.

The Draft IS/Proposed MND evaluated impacts of spring development and redevelopment (Spring Development #574); however, the following analysis is provided. No new impacts or increased severity of any impacts resulted from the additional analysis provided below.

Most of the springs in the PCP area emerge from low gradient wetlands and are often indistinct or multiple sources seeping from shallow, unconfined aquifers. Others emerge from confined or unconfined aquifers on a hillslope, often with distinct or multiple sources. Many of the existing springs in the PCP area are impacted from grazing/trampling by livestock, and many support invasive plant species. Development and redevelopment of springs will be designed to improve the distribution of water and to make water available for livestock and wildlife while protecting water quality and biological resources in the area. The purpose of the practice is to convey water from the spring to a watering facility that is placed in an upland area, away from sensitive biological, riparian, and wetland resources. Placement will be designed to keep livestock out of streams and other surface waters where water quality is a concern. Spring development and redevelopment is expected to improve water quality by supplying livestock watering facilities outside sensitive areas.

Water use from the spring is not expected to increase from the amount currently used and the time of year that use occurs is not expected to change. The watering facility will be sized to provide livestock and/or wildlife with drinking water to meet daily needs. The practice is not intended to increase water use beyond the amounts currently used or amounts needed for livestock. There will be less-than-significant impacts on groundwater supplies as previously stated in the Draft IS/Proposed MND.

Development or redevelopment of a spring is subject to the site evaluation process described in the project description, best management practices, and mitigation measures to protect biological resources, water quality, and cultural resources.

Appendix A

MARIN RESOURCE CONSERVATION DISTRICT
MITIGATION MONITORING AND REPORTING PROGRAM
FOR
MARIN PERMIT COORDINATION PROGRAM
MITIGATED NEGATIVE DECLARATION
STATE CLEARINGHOUSE NUMBER: 2018032048

June 2018

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Appendix A

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Appendix A

Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
Best Management Practices (BMPs)				
<p><i>BMP DC-1 Requirements to Minimize Area of Disturbance</i> Marin Resource Conservation District (MRCD) shall ensure that special attention is given to minimizing the area of disturbance during project planning and design by requiring the following:</p> <ol style="list-style-type: none"> 1. Ground and vegetation disturbance shall not exceed the minimum area necessary to complete the project and shall be limited to the Work Area, which is defined as anywhere subject to disturbance from access, staging, vegetation management, grading, and other human activities. Removal of trees and other vegetation that provide shade and other habitat elements for fish and wildlife, reduce erosion and runoff, or add to the visual quality of the area shall be avoided to the extent feasible while achieving the project objectives; selective pruning is allowed for safety purposes. See BMP VM-1 below for areal limitations on vegetation removal. 2. Site-specific design plans shall show the maximum extent of grading and shall include requirements to protect sensitive environmental resources during construction and on-going maintenance activities. 3. Erosion and sediment control measures shall be incorporated into project design and implemented upon completion of grading. 4. Project plans shall include measures to restore all disturbed areas to pre-construction or better conditions unless project regulators determine that other measures should be implemented. 	Verify that BMPs are implemented during project planning and design to minimize area of disturbance	MRCD or Permit Coordination Program (PCP) Partners	During project planning and design	MRCD or PCP Partners
<p><i>BMP DC-2 Requirements to Protects and Avoid Disturbance of Aquatic Environments</i> MRCD shall ensure that special attention is given during project planning and design to protect aquatic habitat by requiring the following:</p> <ol style="list-style-type: none"> 1. Avoid impacts in aquatic environments where feasible; if avoidance is not possible, minimize disturbance to areas necessary to achieve individual project objectives. 	Verify that BMPs are implemented during project planning and design to protect aquatic environments	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners

¹ All measures should be implemented on an ongoing basis unless otherwise indicated

Appendix A

Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>2. Aquatic habitat improvement project designs shall employ current engineering and scientific standards (e.g., the <i>California Salmonid Stream Habitat Restoration Manual</i> [CDFW 2010]).</p> <p>3. Aquatic organism passage concerns (e.g., velocity, depth, slope, air entrainment, screening, swimming and leaping performance for target species) shall be addressed during design to avoid creation of potential passage issues.</p> <p>4. Stabilization structures utilized to improve habitat shall not impede or prevent passage of fish and other aquatic organisms or impair wildlife connectivity or movement.</p> <p>5. Important fish and wildlife habitat elements, such as woody cover or wetlands, shall be avoided or protected if possible when siting practices.</p>				
<p>BMP DC-3 Required Design Considerations for Roads, Culverts, and Stream Crossings to Protect Sensitive Biological Resources and Water Quality</p> <p>During project design, MRCD shall ensure that:</p> <p>1. Road improvements shall be modeled on the <i>Handbook for Forest, Ranch, and Rural Roads: A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining and Closing Wildland Roads</i> by Weaver, Weppner, & Hagens (PWA 2015) and Publication 8262 <i>Rural Roads: A Construction and Maintenance Guide for California Landowners</i> (University of California ANR 2007) or the most current industry standard at the time of project planning.</p> <p>2. Culverts installed in anadromous fish streams shall be consistent with the California Department of Fish and Wildlife's (CDFW's) <i>Culvert Criteria for Fish Passage Revised May 2002</i> and the National Oceanic and Atmospheric Administration – National Marine Fisheries Service's (NOAA Fisheries') <i>Southwest Region's Guidelines for Salmonid Passage at Stream Crossings</i> (2001a) or the most current industry standard at the time of project planning.</p> <p>3. Culverts shall be designed to minimize habitat fragmentation and barriers to aquatic movement. Channel-spanning bridges,</p>	<p>Verify that BMPs are implemented during project planning and design for roads, culverts, and stream crossings</p>	<p>MRCD or PCP Partners</p>	<p>During project planning and design</p>	<p>MRCD or PCP Partners</p>

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<p>bottomless arch culverts with natural streambed substrates, or other fish-friendly solutions shall be required in salmonid streams to allow passage for fish and other aquatic organisms.</p> <p>4. All crossings shall be designed to pass low and high flows. The design and location of crossings shall provide passage for as many different aquatic species and age classes as possible.</p> <p>5. In-stream crossings shall not be designed for placement within 300 feet of known spawning or breeding areas of listed species.</p> <p>6. Access roads shall be relocated only to provide a setback from a stream corridor or wetland area or in order to plant riparian vegetation as part of a stream corridor restoration project or other natural resource protection or enhancement purposes. A biologist shall determine the appropriate setback distance to protect riparian and stream resources. Relocated roadway segments shall be constructed to follow natural contours and shall be sited on low slopes to minimize disturbance of drainage patterns.</p> <p>7. Roads and trails shall be designed to avoid runoff directly into a stream or waterbody. An energy dissipater shall be installed at the outlet of any water bar, cross drain, or culvert in areas where roadway drainage may cause erosion and sedimentation; otherwise, outlets shall be directed to well-vegetated locations.</p> <p>8. Site-specific land-use operations shall be assessed to consolidate and minimize the number of crossings needed.</p> <p>9. Crossings shall be designed with sufficient capacity to convey the design flow and transported materials without altering the stream flow characteristics. They shall be protected so that flood flows safely bypass without damaging the crossing or eroding the streambanks.</p> <p>10. Crossings shall be sized to accommodate the intended traffic without damage to livestock, people, or vehicles.</p>				
<p><i>BMP DC-4 Considerations for Placement of Livestock Watering Facilities</i></p> <p>MRCD shall ensure that installation of watering facilities will not adversely affect sensitive resources by requiring the following:</p>	<p>Verify that BMPs are implemented during project planning and design for livestock</p>	<p>MRCD or PCP Partners</p>	<p>During project planning and design</p>	<p>MRCD or PCP Partners</p>

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<ol style="list-style-type: none"> 1. An 800-foot buffer in urban areas and a 1,600-foot buffer in rural areas shall be established from neighboring schools, residences, hospitals, and other sensitive noise receptors. 2. Watering facilities shall not be sited in areas prone to erosion or in sensitive habitat, except where such addition would improve conditions. 3. Watering facilities shall not be located within 100 feet from a riparian corridor or wetland. 	watering facilities			
<i>BMP DC-5 Placement of Composting and other Constructed Facilities</i> MRCD shall ensure that placement of composting and other constructed facilities will not block or otherwise inhibit use of a known wildlife migration corridor. Facilities shall be placed at least 100 feet from a riparian corridor.	Verify that BMPs are implemented during project planning and design for composting and facility construction	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners
<i>BMP DC-6 Setback from Water Supply Wells at Waste Storage Facilities</i> For newly constructed waste storage facilities, MRCD shall ensure that a setback of 100 feet is established between any water supply wells and animal waste storage facilities unless a more stringent setback standard is adopted by a regulatory agency with jurisdiction over the project, at which time, the more stringent setback shall be required.	Verify that BMPs are implemented during project planning and design for waste storage facilities	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners Marin County
<i>BMP AS-1 Required Aesthetic Design Considerations</i> To avoid adverse impacts on aesthetic resources, MRCD shall design projects in the following manner: <ol style="list-style-type: none"> 1. Structural materials, water elements, and plant materials shall be designed to visually and functionally complement their surroundings. 2. Designs shall indicate how and where excavated material and cut slopes will be shaped to blend with the natural topography. 	Verify that BMPs are implemented during project planning and design to protect aesthetic resources	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners
<i>BMP BR-1 Required Biological Assessment during Project Planning</i> To avoid or minimize adverse impacts on sensitive biological resources, MRCD shall ensure that site planning includes the following initial site evaluation: <ol style="list-style-type: none"> 1. A qualified biologist shall perform a literature review of each proposed project site to identify potential habitat for sensitive 	Verify that biological resources are assessed during project planning	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners

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biological communities and special-status species. If an area of possible concern is identified in or near a project site, the area must be further evaluated by a qualified biologist as presented in Mitigation BIO-1c.				
<i>BMP BR-2 Avoid Creation of Population “Sinks”</i> MRCD shall ensure that, if wildlife habitat benefits are incorporated into a project design, care shall be taken to avoid creating small isolated zones that could become population “sinks” (i.e., where wildlife that are attracted to an area experience loss due to predation or other issues, such as seasonal drying out of ponds).	Verify that project designs do not create isolated zones that can become population sinks	MRCD or PCP Partners	During project planning	MRCD or PCP Partners
<i>BMP BR-3 Temporal Limitations and Requirements to Protect Special-status Species during Construction, Vegetation Management and other Maintenance Activities</i> MRCD shall ensure that the following limitations are placed on project implementation timing to avoid or minimize adverse impacts on sensitive biological resources: <ol style="list-style-type: none"> Wildlife usage in the vicinity shall be taken into consideration for project timing. In general, in-stream and riparian activities shall be implemented in the period between June 1 and Oct. 31, unless project-specific recommendations from regulators or the project biologist suggest an alternative work window to avoid impacts on special-status species. Work that would disturb waterways or sensitive riparian habitats outside the June through October timeframe must be approved in advance by project regulators. Work in and around streams that support anadromous fish populations or California freshwater shrimp shall not begin until June 15 and shall be completed by Oct. 15. Work prior to June 15 or beyond Oct. 15 may be authorized on a site-specific basis with approval from project regulators. Planting may occur after Oct. 31 if potential for vegetation success is improved due to favorable environmental conditions; planting above the ordinary high water line may occur at any time of the year. Work in and around areas that may support bird nesting shall be 	Verify that project implementation is timed to avoid or minimize adverse impacts on sensitive biological resources	MRCD or PCP Partners	During project planning and implementation	MRCD or PCP Partners California Department of Fish and Wildlife U.S. Fish and Wildlife Service

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<p>performed before March 15 or after August 15. See Mitigation BIO-j for requirements if activities are performed during bird nesting season (March 15 to August 15).</p> <p>5. Vegetative treatments shall be conducted during periods of the year when weed species are most vulnerable and shall promote restoration of the native or desired plant communities.</p>				
<p>BMP WQ-1 Measures to Ensure Compliance with Water Quality Standards</p> <p>To avoid adverse impacts on water quality, MRCD shall ensure that:</p> <ol style="list-style-type: none"> 1. Discharge of storm water from a facility or activity that causes or contributes to the violation of water quality standards or water quality objectives is prohibited. 2. Creation of a condition of pollution, contamination, or nuisance, as these terms are defined in California Water Code Section 13050(d), is prohibited. 3. Discharge of soil, bark, slash, sawdust, or other organic and earthen material from any construction or associated activity of whatever nature into any stream or watercourse in quantities deleterious to fish, wildlife, or other beneficial use is prohibited. 4. Placing or disposal of soil, silt, bark, slash, sawdust, or other organic material from any construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in quantities that could be deleterious to fish, wildlife, or other beneficial uses is prohibited. 5. Discharge of decant water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters is prohibited, except as authorized by regulatory agencies. 6. Maintenance activities that result in the direct or indirect discharge of waste, to surface waters or surface water drainage courses are prohibited unless authorized by separate permit action. 7. Sediment removal may not occur in a flowing stream or standing water. 8. If used, concrete shall be allowed to cure for a minimum of 30 days 	Verify that BMPs are implemented to protect water quality	MRCD or PCP Partners	During project planning, implementation, and maintenance	<p>MRCD or PCP Partners</p> <p>Marin County</p> <p>SF Bay or North Coast Regional Water Quality Control Board</p>

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before being allowed to interface with a waterway, or it shall be coated with an agency-approved sealant. If sealant is used, water shall be excluded from the site until the sealant is dry.				
<p><i>BMP VM-1 Project Areal Limitations on Vegetation Management</i></p> <p>MRCD shall ensure that the following areal limits on vegetation management are implemented during project planning and design:</p> <ol style="list-style-type: none"> 1. Disturbance of native trees, shrubs, and woody perennials or removal of trees from riparian areas, including streambanks or stream channels, shall be avoided where possible and minimized where avoidance is not feasible. 2. Ground-disturbing work shall occur above summer low-flow water levels unless a regulator-approved dewatering system is in place. Dewatering requirements are addressed in Mitigation BIO-1d. 3. Removal of native trees and shrubs will be minimized and will only occur when necessary to meet project objectives. 4. No more than 0.10 acre of native riparian trees, shrubs, or woody perennials shall be removed from a stream area for a single project. 5. Where the area contains a mix of native and invasive species, no more than 0.25 acre of vegetation shall be removed from a streambank or stream channel. 6. Outside of riparian areas and other sensitive habitats, native vegetation may be removed only if replanting with native vegetation is completed at or near the site. 7. If the area is exclusively non-native species, up to five (5) acres of riparian vegetation may be removed. 	Verify that BMPs are implemented to limit the extent of disturbance to native vegetation	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners
<p><i>BMP VM-2 Requirements for Invasive and Noxious Plant Species Control</i></p> <p>MRCD shall ensure that the spread or introduction of invasive plant species and other noxious weeds is avoided to the maximum extent possible by protecting areas with established native vegetation; implementing preventative measures appropriate for the individual project, including the use of certified weed-free materials and inspection and cleaning of all equipment before entering or exiting sites during construction; restoring disturbed areas with native species</p>	Verify that BMPs are implemented to control the introduction and spread of invasive plant species and other noxious weeds	MRCD or PCP Partners	During project implementation	MRCD or PCP Partners

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where appropriate; and performing post-project monitoring and control of exotic species.				
<i>BMP CR-1 Required Cultural and Tribal Resource Protection</i> MRCD shall identify culturally sensitive areas at or near PCP activity sites during initial planning to ensure cultural resource sites and sensitive areas can be avoided through project design. Once a project has been selected, a preliminary design is developed that includes project boundaries, access, and equipment required for implementation. Potential impacts on cultural resources shall be evaluated in cooperation with the Federated Indians of Graton Rancheria (FIGR). Site visits shall occur, as requested by FIGR, to identify potential impacts and avoidance and protection measures that will become part of the project description and permit requirements.	Verify that impacts to cultural resources are avoided through project design and coordination	MRCD or PCP Partners	During project planning and design	MRCD or PCP Partners California State Parks - State Historic Preservation Officer (SHPO)
<i>BMP CP-1 Require Adherence to Design Plans and Construction BMPs</i> MRCD shall ensure that the projects are implemented according to the design plans and that BMPs are properly installed and maintained during construction activities.	Verify that project construction occurs in adherence to design plans and with proper use of BMPs	MRCD or PCP Partners	During project implementation and construction	MRCD or PCP Partners
<i>BMP CP-2 Requirements to Protect Air and Water Quality during Construction, Staging, and Stockpiling of Materials</i> MRCD shall require the following to protect water quality during construction, staging, and stockpiling of materials: 1. Ensure that all debris, sediment, rubbish, vegetation, or other construction-related materials shall be placed as shown on the project plans where they cannot enter jurisdictional waters or wetlands. No materials, including petroleum products, chemicals, silt, fine soils, or substances to the function of a watercourse and water quality, shall be allowed to pass into, or be placed where it can pass into, stream channels. Upon completion of work, the construction contractor shall be responsible to remove and dispose of all construction-related materials, debris, and sediments in an appropriate landfill or as shown on project plans. 2. Ensure the use or storage of petroleum-powered equipment is accomplished in a manner to prevent the potential release of	Verify that BMPs are implemented to protect air and water quality during construction activities	MRCD or PCP Partners	During project implementation and construction	MRCD or PCP Partners Marin County SF Bay or North Coast Regional Water Quality Control Board

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<p>petroleum materials into sensitive areas. The following precautionary measures shall be followed:</p> <ul style="list-style-type: none"> ○ All vehicles and equipment on the site must not leak any type of hazardous materials such as oil, hydraulic fluid, or fuel. Vehicles and equipment must be inspected and approved by the inspector before use. Fueling shall take place outside of the riparian corridor. ○ If needed, a contained area located at least 50 feet from a watercourse shall be designated for equipment storage, short-term maintenance, and refueling. If possible, these activities shall not take place on the project site. ○ Vehicles shall be inspected for leaks daily and repaired immediately. ○ Leaks, drips, and other spills shall be cleaned up immediately to avoid soil or groundwater contamination. ○ Major vehicle maintenance and washing shall be done off site. ○ All spent fluids, including motor oil, radiator coolant, or other fluids, and used vehicle batteries shall be collected, stored, and recycled as hazardous waste off site. ○ Dry cleanup methods (i.e., absorbent materials, cat litter, and/or rags) shall be available on site. ○ Spilled dry materials shall be cleaned up immediately. ○ When possible, work shall be performed from the top of bank of a watercourse or pond. ○ Use of heavy equipment shall be avoided in a channel bottom with rocky or cobbled substrate. If access to the work site requires heavy equipment to travel on a rocky or cobbled substrate, a rubber tire-loader/backhoe is the preferred vehicle; only after this option has been determined infeasible or less environmentally protective shall use of tracked vehicles be considered. ○ Heavy equipment shall not be used in a flowing stream, creek, or ponded area, except to cross a stream or pond to access the work site. Heavy equipment shall not enter a flowing stream, 				

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<p>creek, or ponded area without authorization from environmental regulators.</p> <ul style="list-style-type: none"> ○ The amount of time heavy equipment is stationed, working, or traveling within the creek bed shall be minimized. ○ When heavy equipment is used, woody debris and vegetation on the banks and in the channel shall not be disturbed, wherever feasible. <p>3. Site preparation techniques shall be employed to minimize generation and transport of airborne particulate matter, such as wetting disturbed areas or covering storage piles adequately.</p> <p>4. Limit construction emissions by reducing idling of diesel construction vehicles to no more than 5 minutes per California Code of Regulations §2449(d)(3) and using lower-emission vehicles to the maximum extent feasible.</p>				
<p><i>BMP CP-3 Requirements for Erosion Control and Sediment Detention during Construction and Maintenance Activities</i></p> <p>MRCD shall require the following erosion and sediment control measures to avoid or minimize erosion and impacts on water quality during project construction and maintenance activities:</p> <p>1. All disturbed areas shall be restored to pre-construction or better conditions unless other requirements are prescribed by project regulators. Erosion and sediment control measures shall be installed upon completion of grading and shall be in place prior to the onset of rain at all locations where the likelihood of erosion or sediment input exists as determined by MRCD. Measures shall include a combination of permanent native vegetation (e.g., live planting, native seed casting, or hydroseeding), weed-free mulch, rock, and biotechnical treatments (e.g., filter strip, water and sediment control basins, weed-free straw bales). If required to reduce erosion or to control sedimentation, temporary filter-fabric fencing, biodegradable fiber rolls, weed-free straw bales, or other runoff diversions shall be utilized to keep sediment from flowing into an adjacent waterbody. After vegetation is sufficiently mature</p>	<p>Verify that BMPs are implemented to avoid or minimize erosion and sedimentation</p>	<p>MRCD or PCP Partners</p>	<p>During project implementation, construction, and maintenance</p>	<p>MRCD or PCP Partners</p> <p>Marin County</p> <p>SF Bay or North Coast Regional Water Quality Control Board</p>

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<p>to provide erosion control, these measures shall be removed. MRCD shall determine if the additional erosion control requirements are needed and when they can be removed.</p> <p>2. Any collected sediment shall be disposed of away from the collection site and stabilized to ensure that no sediment-laden runoff enters jurisdictional waters or wetlands.</p> <p>3. Post-construction erosion control, sediment control, and water quality protection measures shall be inspected regularly by MRCD staff or a designee to ensure they are functioning properly.</p>				
<p><i>BMP CP-4 Measures to Protect Aesthetic Values and Sensitive Biological Resources during Implementation</i></p> <p>To avoid adverse impacts on aesthetic values and sensitive biological resources, MRCD shall:</p> <p>1. Limit construction activities to daylight hours.</p> <p>2. Avoid creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Any new light sources shall meet Marin County requirements. External light fixtures shall be mounted at low elevations to preserve the nightscape and natural surroundings of the area, and to prevent glare that may be visible from off-site locations and adjacent residences. Site lighting that is visible from adjacent properties, public roadways, and from other neighborhoods shall be indirect or incorporate full shield cut-offs.</p>	Verify that BMPs are implemented to avoid adverse impacts on aesthetic values during construction	MRCD or PCP Partners	Project implementation and construction	MRCD or PCP Partners Marin County
<p><i>BMP CP-5 Ensure Emergency Access is Adequate</i></p> <p>MRCD shall ensure that adequate access for emergency vehicles is maintained at all work sites. This may require placement of plates over open trenches during pipeline installation or other means to provide emergency access.</p>	Verify adequate emergency access at all construction sites	MRCD or PCP Partners	Project implementation and construction	MRCD or PCP Partners
<p><i>BMP CP-6 Limit Construction Hours</i></p> <p>In urban areas or areas near property lines or where noise may otherwise be a concern, MRCD shall limit use of heavy equipment or other noise-producing activities at construction sites from 7 a.m. to 6 p.m., Monday through Friday, and from 9 a.m. to 5 p.m. on Saturdays. No work on Sundays or holidays will be allowed. Heavy construction</p>	Verify that construction occurs during set hours to avoid noise impacts	MRCD or PCP Partners	Project implementation and construction	MRCD or PCP Partners Marin County

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operation can occur before or after these hours with authorization from Marin County or from cities within the PCP Program Area. These determinations will occur on a site-by-site and project-by-project basis. In remote, rural areas, where impacts on surrounding landowners and residents in the vicinity are unlikely, work may occur outside of these hours. Non-noise producing activities may occur outside the operational hours limitations for heavy equipment.				
Mitigation Measures				
<i>Mitigation Measure AES-1, Provide Site-specific Planning to Maintain Vistas on Scenic Highways</i> MRCD shall conduct a site-specific visual resources assessment and prepare a planting plan for implementation of hedgerow and windbreak practices on properties, or portions of a property, adjacent to and visible from a scenic highway. The assessment shall determine whether the planned plantings have the potential to obstruct or damage scenic vistas. If obstruction or damage is possible, the assessment will provide line of sight for views and maximum height of vegetation to protect the view. A planting plan will be prepared specifying what plant species will be used to meet the criteria generated in the assessment. Plantings shall not occur where project designs cannot eliminate impacts to scenic resources.	Verify that a site-specific visual resources assessment and planting plan are conducted for implementation of hedgerows and windbreaks on areas visible from a scenic highway	MRCD or PCP Partners	During project planning and prior to ground-disturbing or vegetation management activities	MRCD or PCP Partners Marin County Caltrans
<i>Mitigation Measure BIO-1a, Avoid Loss of Listed or CNPS Rank 1B, 2, or 3 Plants and their Habitats</i> MRCD shall avoid loss of State and federally listed or special-status plants. MRCD shall avoid loss of State and federally listed or proposed plant species; State candidates for listing; California Native Plant Society (CNPS) List 1B species; CNPS List 2 and 3 species; and occupied or critical habitat for these species to the extent feasible. Where avoidance of individuals or habitat is infeasible, MRCD shall compensate for loss of State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1, 2, and 3 plants as required by the U.S. Fish and Wildlife Service (USFWS) or CDFW.	Verify surveys for special-status plant habitat and special-status plants were conducted by a qualified biologist and project specific protection measures are implemented Verify herbicides are used correctly and avoid adverse impacts to	MRCD or PCP Partners	Plant and habitat protection – prior to and during ground-disturbing or vegetation management activities Herbicide use – ongoing	MRCD or PCP Partners California Department of Fish and Wildlife US Fish and Wildlife Service

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<p>All protocol-level surveys shall be coordinated with the appropriate responsible agencies (i.e., USFWS and/or CDFW).</p> <ul style="list-style-type: none"> Where indicated by the MRCD's initial site review, reconnaissance-level surveys shall be performed by a qualified biologist to determine whether suitable habitat for special-status plants is present within the project area. If habitat for listed or CNPS Ranks 1-3 plants is not identified during surveys, no further mitigation for impacts on target species is necessary under this measure. If suitable habitat is identified, focused surveys shall be performed to determine presence or absence of target species wherever habitats for these species will be impacted. Any special-status species found will be documented. The suitable habitat shall be avoided through project design, where feasible, and a buffer zone of 50 feet shall be established around State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1 and 2 plants to prevent entry and disturbance during work activities. A qualified biologist shall designate the buffer zone if the zone shall be less than 50 feet, and the buffer zone distance shall be based on the target species and proposed work. The buffer zone shall be clearly demarcated with construction fencing and avoided by all construction personnel and equipment. If suitable habitat cannot be avoided, project-specific protection measures shall be developed with concurrence by USFWS or CDFW. The following are examples of measures that may be required: <ul style="list-style-type: none"> Listed or List 1B and Rank 2 plants within the project footprint may need to be transplanted to a mitigation site approved by CDFW or USFWS. Seed from plants unavoidably impacted may need to be collected and preserved for planting on an approved mitigation site. Where construction activities unavoidably affect listed or Rank 1B plant species, pipeline corridor widths may need to be limited to a maximum 5 feet through plant habitat to minimize habitat impacts. 	native plants			

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<ul style="list-style-type: none"> ○ Acquisition and preservation of at least an equal area and quality of habitat that is lost. • Any herbicide application to treat noxious non-native weeds shall ensure that special status plants are not affected and native plants are protected to the maximum extent feasible. • No fertilizers or irrigation shall be used within the buffer zone around a special-status plant population. • No new facilities associated with any manure management practices shall be sited in areas that support State and federally listed or proposed plant species, candidates for listing, and CNPS Rank 1 and 2 plants. All buffers needed to protect plants and habitats shall be implemented. 				
<p>Mitigation Measure BIO-1b, Protect Water Quality for Aquatic Habitats</p> <p>MRCD shall protect water quality in aquatic habitats through implementation of the following measures during operations and manure management activities:</p> <ul style="list-style-type: none"> • Erosion control plans shall be required for fertilizer and manure application on slopes greater than 10%. This requirement does not pertain to the application of compost or mulch for the purposes of erosion control on slopes greater than 10%. • The collection, treatment, storage, or application of manure or process water shall not: <ul style="list-style-type: none"> ○ Degrade surface water or groundwater, ○ Contaminate or pollute surface water or groundwater, or ○ Create a condition of nuisance (as defined by the California Water Code section 13050). <p>This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.</p> <ul style="list-style-type: none"> • Fertilizer and manure application that could cause or threaten to cause pollution that reduces water quality and impacts aquatic 	<p>Verify that operations and manure management activities are setback from waterbodies and adhere to requirements designed to minimize erosion and protect water quality.</p>	<p>MRCD or PCP Partners</p>	<p>Ongoing</p>	<p>MRCD or PCP Partners</p> <p>SF Bay or North Coast Regional Water Quality Control Board</p> <p>California Department of Fish and Wildlife</p> <p>NOAA Fisheries</p>

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<p>species shall be prohibited.</p> <ul style="list-style-type: none"> • Manure and wastewater discharges to land shall be conducted during non-rainy or non-saturated conditions and must not result in runoff to surface waters and must infiltrate completely within 72 hours after application. • Land application areas that receive dry manure and/or process water shall be managed to minimize erosion. • The timing of nutrient application shall correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity. • Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand. • Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback, or an alternative conservation practice or field-specific condition is installed that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback. • Composting and waste separation facilities shall be set back at least 100 feet from the nearest surface water body and/or the nearest water supply well. A lesser setback distance may be allowed by the Regional Water Board if it can be demonstrated that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality as 				

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described in the SWRCB Compost General Order, 2015 or as revised.				
<p><i>Mitigation Measure BIO-1c, Avoid Listed Special-status Wildlife Species</i></p> <p>MRCD shall avoid loss of habitat or individuals of federally and State-listed species, to the extent feasible. Where avoidance of individuals or habitat is infeasible given the location of the PCP practice, MRCD shall ensure that a qualified biologist oversees implementation of the following measures. The qualified biologist shall obtain approval from CDFW, USFWS, and NOAA Fisheries, as needed, to capture, handle, and release all species described in this mitigation measure. The qualified biologist shall have all the necessary permits and experience as determined by the regulatory agencies to work with the target fish and wildlife species. This shall include a current CDFW Scientific Collecting Permit and USFWS Recovery Permits, as needed, and field experience identifying the target species and their habitats and capturing and relocating species.</p> <p><i>Preconstruction Surveys for Biological Resources and Species Relocations</i></p> <p>The project biologist shall assess the likelihood for sensitive biological resources to be present in the project area and perform a preconstruction survey(s) immediately prior to the onset of construction activities (on the day preceding work, ahead of the construction crew, or during the appropriate window for the target species), depending on the nature of the work and the target species. The focus of the preconstruction surveys shall include identifying the presence of target species and suitable relocation sites. With approval from the regulatory agencies, all fish and wildlife species shall be relocated outside of the area of impact in habitats suitable for the target species. A complete record of all fish and wildlife species observed during the preconstruction survey(s) and relocation process</p>	Verify that projects avoid listed wildlife species and associated habitats through preconstruction surveys and training, wildlife exclusion during construction, and biological monitoring of construction activities	MRCD or PCP Partners	Immediately prior to and during ground-disturbing activities, construction, and implementation	<p>MRCD or PCP Partners</p> <p>California Department of Fish and Wildlife</p> <p>US Fish and Wildlife Service</p>

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<p>shall be kept by the project biologist and provided to CDFW, USFWS, NOAA Fisheries, and other regulatory agencies as required.</p> <p><i>Preconstruction Training and Biological Oversight Measures during Construction, Preconstruction Crew Training Program</i></p> <p>The project biologist shall provide a preconstruction training session for construction personnel about the potential presence of sensitive biological resources within the Work Area. Topics will include how to identify life history characteristics and habitat requirements for target special-status species, measures to avoid impacts, project boundaries, penalties for non-compliance, and biological conditions outlined in the project's permits and CEQA-required BMPs. All attendees shall be given handouts to assist with the identification of target species and with protection measures summarized. Personnel who miss the first training session or are hired later in the season shall attend a make-up session before participating in on-the-ground activities. All attendees shall be required to sign an attendance sign-up sheet that will be maintained for the duration of the project.</p> <p><i>Wildlife Exclusion</i></p> <p>For project areas located within habitats with known presence of special-status species or critical wildlife corridors, temporary wildlife exclusion shall be installed around the project perimeter. Exclusion fencing shall be highly visible, and installation shall be overseen by the project biologist. Openings shall be restricted to areas of construction site access. The purpose of the temporary fencing is to preclude animals from entering the Work Area and prevent debris and workers from entering adjacent habitats.</p> <p><i>Biological Monitoring during Construction Activities</i></p> <p>On-going biological oversight shall occur as needed during construction</p>				

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<p>to ensure that biological resources are not being adversely impacted by construction activities. Projects that require relocation of special-status fish and wildlife species shall be visited at least weekly by the project biologist following completion of the relocation activities and exclusion fencing installation. The project biologist shall also train a biological monitor from the construction crew to check the site daily for special-status species and report back to the project biologist on adherence to the biological resource protection measures. If a special-status species enters the Work Area, the construction crew supervisor or biological monitor shall contact the project biologist or designee for further guidance. Special-status species shall not be captured or handled by the supervisor or field crew unless directed by the project biologist or regulatory agency personnel.</p>				
<p>Mitigation Measure BIO-1d, Protect Listed Salmonids MRCD shall ensure that the following protection measures for listed salmonids are implemented for PCP practices in streams that support salmonid habitat:</p> <p><i>General Conditions for Work in Salmonid Habitat</i></p> <ul style="list-style-type: none"> • The general work period for listed salmonids is June 15 through October 31 annually. Work outside this timeframe must be authorized by NOAA Fisheries. • If water is present in the construction area at the time of construction, the project biologist shall prepare a project-specific aquatic species protection and dewatering plan and submit it to regulators for approval. • Immediately prior to the beginning of construction work, the project biologist shall determine if any vertebrate aquatic species are present in the project vicinity. The assessment of presence shall follow protocols described in the CDFW California Salmonid Stream Habitat Restoration Manual (Florsi et al. 1998) and shall utilize visual streambank and underwater observations and seine net surveys. The entire project area shall be assessed, including all pools, riffles, and runs, as well as upstream and downstream of the 	<p>Verify that protection measures for listed salmonids are implemented for project activities in streams that support salmonid habitat, including general conditions for work, requirements for any temporary stream diversion or dewatering, and procedures for relocating fish.</p>	<p>MRCD or PCP Partners</p>	<p>During project implementation and construction</p>	<p>MRCD or PCP Partners NOAA Fisheries California Department of Fish and Wildlife</p>

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<p>site.</p> <ul style="list-style-type: none"> • If no aquatic species are detected following the preconstruction assessment, capture and relocation measures shall not be implemented. However, the project biologist shall survey the site periodically and be available on-call during the construction process to ensure no aquatic species have moved into the construction area. If listed salmonids are observed after construction commences, the project biologist shall have the authority to halt work until appropriate protection measures are taken. • Salmonids shall be relocated in accordance with Procedures for Relocating Fish and Other Aquatic Species below and protected in accordance with the Corps Biological Opinion for Permitting of Fisheries Restoration Project within the Geographic Boundaries of the NOAA Fisheries' Santa Rosa, California, Field Office (NOAA Fisheries 2016) or as updated. • As described in the NOAA Fisheries Biological Opinion (2016) for work that might impact listed salmonids, upslope disturbance may not exceed one acre for staging. Native trees with defects (e.g., large snags greater than 16 inches diameter at breast height [DBH] and 20 feet high, cavities, leaning toward stream channel), nests, late seral characteristics, or trees greater than 48 inches DBH will be retained. In limited cases, removal will be permitted if trees or snags occur in the way of providing fish passage. No removal will occur without approval from the NOAA Restoration Center. Downed trees or logs greater than 24 inches DBH and ten feet long will be retained or used for in-stream habitat improvement. • Riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in streams occupied by listed salmonids. Vegetation that does not provide shade or shelter for fish may be trimmed or removed, subject to measures stipulated in the project permits. The amount disturbed shall be the minimum necessary to complete the project. • Severely trimmed or removed vegetation shall be replaced as 				

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<p>required by regulatory agencies. Replacement can occur on site or elsewhere within the watershed where these species historically occurred and where the likelihood of reestablishing populations is greatest. Restoration shall be accomplished using native vegetation.</p> <ul style="list-style-type: none"> If unforeseen circumstances arise in project implementation that may lead to adverse impacts on steelhead, coho salmon, Chinook salmon, or their habitat, the project biologist shall have the authority to immediately halt work activities until measures for avoiding adverse effects are in place. <p><i>Temporary Stream Diversion and Dewatering in Salmonid Streams</i></p> <ul style="list-style-type: none"> In salmonid-bearing streams, water shall be diverted into a cofferdam and around the work site by a gravity-fed diversion pipe when possible; however, if the slope is not adequate, a pump may be required. Pumps shall be screened in accordance with Juvenile Fish Screen Criteria for Pump Intakes developed by NOAA Fisheries (1996) and shall consist of 1/8-inch screen mesh. The pump shall be placed in a large basin with holes to allow water to be drawn into the pump. Both the outside of the basin and the pump shall be screened with 1/8-inch mesh to ensure aquatic species do not get sucked into the pumps. Optimum placement for a cofferdam is in a pool tail out or glide, leaving 2/3 or 3/4 of the pool volume upstream of the cofferdam for aquatic habitat. Cofferdams located at riffle crests are typically not advisable as water tends to flow subsurface, and the dam and backwater head it creates push water through the gravel crest at a faster rate. If the cofferdam is located at a riffle crest, an excavated sump is usually required directly downstream. An exclusion screen shall be placed immediately upstream of the inlet and downstream of the outlet of the diversion pipe. Appropriate materials for the exclusion screen include 3/16-inch Vexar, hardware cloth, and similar materials. The exclusion screen shall be of adequate height and securely fastened to the stream 				

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<p>bottom, stakes, and both banks to prevent a breach if surface flow increases (e.g., due to rain or water backing up behind the cofferdam). The screen may also be reinforced with welded wire. The diversion pipe can be left open, without a screen, if the exclusion screens are completely secure, and the habitat units immediately up- and downstream of the inlet and outlet pipes have been cleared of all vertebrate aquatic species.</p> <ul style="list-style-type: none"> The project biologist shall be on site during dewatering, stream diversion, and removal or decommissioning of the temporary diversion facilities, and as needed at other times to protect fish, other aquatic species, and water quality during construction activities. <p><i>Procedures for Relocating Fish and Other Aquatic Species</i></p> <ul style="list-style-type: none"> If fish and other vertebrate species (e.g., frogs, salamanders) are present within the project area that requires dewatering, fish and other aquatic species shall be relocated up- or downstream prior to construction by the project biologist. Species shall be encouraged to move down from the upstream end of the site with the aid of weighted seines operated by the project biologist with assistants as needed or other industry approved techniques. D-frame nets shall be used for aquatic invertebrates (i.e., freshwater shrimp). Once they have been guided to the downstream end of the work area, barrier seines/fencing shall be placed across the creek at both the up- and downstream ends to prevent re-entry. Once the barriers are in place and aquatic species have been encouraged downstream, cofferdams or similar water diversion structures shall be constructed immediately downstream of the upstream barrier and immediately upstream of the downstream barrier. When the cofferdams are in place and the construction area is sealed off, the biologist shall make his/her best effort to relocate aquatic species remaining within the work site as the water surface elevation drops. Aquatic species shall be relocated to suitable habitat up- or 				

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<p>downstream of the construction area. Release sites shall contain suitable cover and foraging habitat and natural barriers present that are likely to preclude species from traveling back upstream or downstream into the work area.</p> <ul style="list-style-type: none"> • Electrofishing may be used as an alternative fish capture method in accordance with Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act (NOAA Fisheries 2000). If electrofishing is utilized, the project biologist overseeing the aquatic species relocation shall have the appropriate training and experience. • Throughout project construction, the project biologist shall make weekly visits to the site to ensure that no fish or other aquatic species are being impacted by construction activities. If fish and other aquatic species are observed in the work area after construction commences, work shall be stopped and appropriate actions taken to remove the species to a safe location. 				
<p>Mitigation Measure BIO-1e, Protect California Freshwater Shrimp MRCD shall ensure that the following protection measures are implemented for practices in California freshwater shrimp habitat:</p> <ul style="list-style-type: none"> • For all projects where work will occur within the stream channel or banks in a watershed occupied by California freshwater shrimp, the project biologist shall survey all areas within and adjacent to streams to ensure shrimp are not present within the work site or 300 feet downstream. The project biologist shall prepare a project-specific aquatic species protection and dewatering plan and submit it to regulators for approval if dewatering and shrimp relocation is deemed necessary. See Procedures for Relocating Fish and Aquatic Vertebrate Species in Mitigation Measure BIO-1c, Protect Listed Salmonids. • No activities shall be conducted in channels with flowing or standing water within potential California freshwater shrimp habitat without site-specific permits from USFWS and CDFW. If required, an agency-approved biologist shall monitor all construction activity within 300 feet of California freshwater 	<p>For projects that take place in California freshwater shrimp habitat, verify that protection measures are implemented to protect California freshwater shrimp and associated habitat</p>	<p>MRCD or PCP Partners</p>	<p>Immediately prior to and during project implementation and construction</p>	<p>MRCD or PCP Partners</p> <p>California Department of Fish and Wildlife</p> <p>U.S. Fish and Wildlife Service</p>

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<p>shrimp habitat and have the authority to halt work if adverse impacts may occur.</p> <ul style="list-style-type: none"> • No rock structures or bank stabilization measures shall be constructed in channel bottoms that may interfere with California freshwater shrimp migration between in-channel pools. • Overhanging banks and riparian vegetation that extends over or into the water or that has roots extending into the water shall be preserved in a stream occupied by California freshwater shrimp. Riparian vegetation that does not provide cover or foraging areas for shrimp may be trimmed or removed. The amount disturbed shall be restricted to the minimum necessary to complete the project. • Projects shall not disturb existing shrimp habitat where ever feasible. No permanent loss of habitat shall occur as a result of any PCP practices. • All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall assist in the development and provide oversight for all habitat restoration activities. 				
<p>Mitigation Measure BIO-1f, Protect California Tiger Salamander MRCD shall ensure that the following protection measures for California tiger salamander (CTS) are implemented for PCP practices in or near CTS habitat:</p> <ul style="list-style-type: none"> • For all projects in areas of suitable/potential habitat within the Santa Rosa Plain and west Petaluma, a formal CTS site assessment of habitats potentially suitable for use by CTS for breeding, aestivation, and migration and a determination of a site's proximity to current CTS occurrences shall be completed. If the project falls within the potential range of CTS and suitable habitat is present, Sonoma County, CDFW, and USFWS shall be consulted to determine if focused surveys or formal consultation is warranted. Potential habitat for CTS is defined as land designated by the Santa Rosa Plain Conservation Strategy Map, as revised by USFWS on April 17, 2007, or any subsequent prevailing documents 	<p>For all projects in areas of potential CTS habitat within the Santa Rosa Plain and west Petaluma, verify that a formal CTS site assessment is conducted and that project specific protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project implementation in suitable habitat</p>	<p>MRCD or PCP Partners</p> <p>California Department of Fish and Wildlife</p> <p>U.S. Fish and Wildlife Service</p> <p>Sonoma County</p> <p>Marin County</p>

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<p>as requiring mitigation for impacts on salamanders. Potential habitat is also identified outside the Santa Rosa Plain, including areas in west Petaluma.</p> <ul style="list-style-type: none"> • Mitigation for impacts on CTS habitat shall be as stipulated in the Santa Rosa Plain Conservation Strategy (USFWS 2005) or any subsequent guidance adopted by USFWS. Such documents include the Draft Recovery Plan for the Santa Rosa Plain (USFWS 2014) and Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects that May Affect California Tiger Salamander and Three Endangered Plant Species on the Santa Rosa Plain, California (USFWS 2007) or as updated. Mitigation lands shall be located within the watershed where the impact occurs. A conservation easement shall be placed on the mitigation site to preserve the site in perpetuity as wildlife habitat, or as guided by USFWS. • Minimization measures contained in Section 5.2 (Minimization Measures) of the Santa Rosa Plain Conservation Strategy or any subsequent guidance adopted by the USFWS shall be implemented during work within areas where CTS may occur. • Initial ground disturbance during construction activities in CTS habitat shall be limited to the dry season (June through October) when salamanders are not moving between terrestrial habitat and aquatic breeding habitat. • All temporarily impacted habitat shall be restored to pre-project conditions or better upon completion of construction activities. A qualified biologist shall oversee all restoration activities. 				
<p>Mitigation Measure BIO-1g, Protect California Red-legged Frog MRCD shall ensure that the following protection measures for California red-legged frog (CRLF) are implemented for PCP practices in or near CRLF habitat:</p> <ul style="list-style-type: none"> • Projects within potential CRLF habitat shall be designed to minimize disturbance to vegetation near or in permanent and seasonal pools of streams, marshes, ponds, or shorelines with extensive emergent or weedy vegetation. • If a project site occurs in potential CRLF habitat, the project 	<p>For projects in or near CRLF habitat, verify that designs include minimal disturbance to aquatic resources, a qualified biologist conducts a pre-construction survey and monitors initiation of ground-disturbance, and</p>	<p>MRCD or PCP Partners</p>	<p>During project design and planning; prior to and during construction and ground-disturbance</p>	<p>MRCD or PCP Partners California Department of Fish and Wildlife U.S. Fish and</p>

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<p>biologist shall conduct a preconstruction survey of all aquatic areas and immediately adjacent uplands with suitable vegetation cover that is potential habitat for CRLF no more than 48 hours before the start of construction activities. The biologist shall look for individual frogs, evaluate the likelihood of usage, and determine if additional biological monitoring is needed during construction to ensure that individuals present shall be removed or avoided.</p> <ul style="list-style-type: none"> • The project biologist shall monitor initial ground-disturbing activities within 300 feet of CRLF habitat and shall have the authority to halt work activities that may adversely affect CRLF until they no longer occupy the project area. Relocation of CRLF shall be performed only by individuals approved in advance by CDFW and USFWS. • If suitable CRLF breeding habitat is present, project activities shall occur between July 1 and October 15 to avoid impacts on breeding CRLF or egg masses. 	<p>construction within or near CRLF breeding habitat occurs between July 1 and October 15.</p>			Wildlife Service
<p>Mitigation Measure BIO-1h, Protect Foothill Yellow-legged Frog MRCD shall ensure that the following protection measures for foothill yellow-legged frog are implemented for PCP practices in or near its habitat:</p> <ul style="list-style-type: none"> • A preconstruction survey shall occur prior to beginning work within stream channels with water present. The survey shall be conducted within 24 hours prior to the start of construction activities. If found, the project biologist shall move foothill yellow-legged frogs to a safe location outside of the project area, temporary exclusionary fencing shall be installed, as appropriate, and ongoing monitoring shall occur during construction to ensure that no frogs have reentered the site. • If potential habitat for the frog is identified and cannot be avoided, construction activities shall be scheduled so that they do not interfere with the reproductive cycles of the foothill yellow-legged frog by restricting work in the riparian zone to the period from June 15 to October 15. Work periods shall be timed to avoid the breeding season for the frogs, as well as the majority of the 	<p>Verify that a qualified biologist conducts preconstruction foothill yellow-legged frog survey/monitoring and project specific protection measures are implemented</p>	MRCD or PCP Partners	During project design and planning; prior to and during construction and ground-disturbance	MRCD or PCP Partners California Department of Fish and Wildlife

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<p>incubation period of frog eggs.</p> <ul style="list-style-type: none"> For vegetation maintenance activities where breeding and foraging areas for foothill yellow-legged frogs have been identified, these areas shall be demarcated by the project biologist and avoided by maintenance crews. 				
<p>Mitigation Measure BIO-1i, Protect Northern Western Pond Turtle MRCD shall ensure that the following protection measures for northern western pond turtles are implemented for PCP practices in or near its habitat:</p> <ul style="list-style-type: none"> A preconstruction survey for adult northern western pond turtles and nest sites shall occur prior to beginning work for all projects within or near streams and other permanent water bodies. Any adults found within the work area shall be relocated to suitable off-site habitat. Nest sites discovered during the preconstruction survey or anytime during construction shall be avoided until vacated, as determined by the project biologist. Ongoing monitoring shall occur during construction to ensure no turtles have moved back into the area. Temporary exclusionary fencing shall be installed around the site if the project biologist determines it necessary. 	<p>Verify that a qualified biologist conducts preconstruction survey for adult northern western pond turtles and nest sites and protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners</p>
<p>Mitigation Measure BIO-1j, Protect Nesting Birds during Construction MRCD shall ensure that the following protection measures for nesting birds are implemented for PCP activities:</p> <ul style="list-style-type: none"> Preconstruction breeding bird surveys shall be completed for projects with construction activities occurring from March 15 through August 15 for special-status birds, migratory birds, and raptors. Preconstruction surveys shall occur in all locations identified by a qualified biologist. The surveys shall be conducted within two weeks prior to initiation of vegetation clearing, tree removal and trimming, or other construction activities. If the biologist finds no active nesting or breeding activity, work can proceed without restrictions, except in areas with suitable habitat 	<p>Verify that a qualified biologist conducts preconstruction breeding bird surveys and that protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners</p>

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<p>for bank swallows.</p> <ul style="list-style-type: none"> If active raptor or owl nests are identified within 100 feet of the construction area or active nests of other special-status birds (e.g., passerines, woodpeckers, hummingbirds, etc.) are identified within 50 feet of the construction area, a qualified biologist shall determine whether or not construction activities may impact the active nest or disrupt reproductive behavior. If a qualified biologist determines 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 project biologist determines that construction activities would likely disrupt breeding or nesting activities, a no-disturbance buffer shall be placed around the nesting location. The buffer shall include the active nest or breeding areas plus a 50-foot buffer for small songbirds and a 100-foot buffer for larger birds (e.g., owls, raptors). Construction activities in the no-disturbance buffers shall be avoided until the nests have been vacated. If the site is left unattended for more than one week following the initial surveys, additional surveys shall be completed. Ongoing construction monitoring shall occur to ensure no nesting activity is disturbed. If State and/or federally listed birds are found breeding within the area, activities shall be halted, and consultation with the CDFW and USFWS shall occur and agency recommendations shall be implemented. 				
<p>Mitigation Measure BIO-1k, Protect Northern Spotted Owl MRCD shall ensure that the following protection measures for breeding northern spotted owls are implemented for PCP activities:</p> <ul style="list-style-type: none"> Breeding northern spotted owls shall be protected in accordance with the Mitigation Measure BIO-1j, Protect Nesting Birds during Construction. Protection shall include focused breeding owl surveys for projects occurring from March 1 through August 31 in 	<p>Verify that a qualified biologist conducts preconstruction breeding owl surveys for projects implemented from March 1 through August 31 in suitable</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners US Fish and Wildlife Service</p>

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<p>areas of suitable forested and woodland habitat and within 1 mile of a documented owl occurrence (USFWS 2011).</p> <ul style="list-style-type: none"> • If active nests are identified within 0.5 miles of the work area of any noise-producing PCP activity, no work shall occur between March 1 and August 31 or until nesting completion has been verified by the project biologist. • If the absence of nesting owls cannot be verified, the species shall be assumed to be present and either: 1) the work shall be performed after August 31, or 2) sound reduction measures shall be implemented in consultation with the project biologist, CDFW, and USFWS to ensure activities do not significantly raise noise above ambient levels. • No trees or understory vegetation shall be removed within 500 feet of a documented active breeding location for northern spotted owls (either through previously confirmed sightings or project-specific verification by the project biologist). • For projects proposed during the non-breeding season in suitable habitat, construction activities shall be overseen by the project biologist to ensure roosting and foraging birds are not being impacted. No nighttime work activities shall be allowed. 	<p>habitat and that protection measures are implemented</p>			
<p>Mitigation Measure BIO-11, Protect Special-status Bats</p> <p>MRCD shall ensure that the following protection measures for bats are implemented for PCP practices:</p> <ul style="list-style-type: none"> • The project biologist shall survey for bats in all habitats with trees greater than 6 inches DBH and at sites with bridge crossings or other man-made structures capable of supporting roosting bats prior to any disturbance. If occupied roosting habitat is identified, disturbance shall not be allowed until the roost is abandoned, unoccupied, and/or CDFW has been consulted and recommendations implemented. • For all tree removal, trees shall be taken down in a two-step process – limb removal on day one shall be followed by bole removal on day two. This approach will allow bats an opportunity to move out of the area prior to completing removal of the trees. 	<p>Verify that a qualified biologist conducts preconstruction bat surveys for projects in suitable habitat and that protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners</p> <p>California Department of Fish and Wildlife</p> <p>US Fish and Wildlife Service</p>

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<p>No trees supporting special-status bats shall be removed without prior consultation with CDFW.</p> <ul style="list-style-type: none"> • If work is postponed or interrupted for more than two weeks from the date of the initial bat survey, the preconstruction survey shall be repeated. • Construction shall be limited to daylight hours to avoid interference with the foraging abilities of bats. 				
<p>Mitigation Measure BIO-1m, Protect Special-status Butterflies MRCD shall ensure that the following protection measures for butterflies are implemented for PCP practices that occur in or near suitable grassland habitat:</p> <ul style="list-style-type: none"> • Reconnaissance-level surveys shall be performed by the project biologist to determine whether suitable habitat for Myrtle's silverspot or San Bruno elfin butterflies is present in the project area. If larval host or nectar plants for listed butterflies are present, and the target species is documented within the project vicinity, the project biologist shall perform a survey to determine presence or absence utilizing widely accepted scientific protocols. • If suitable habitat for listed butterflies is present, project work shall be carried out with minimum soil compaction and disturbance. Wherever possible, work shall be performed with hand tools. No herbicides or fertilizers shall be used in habitat that supports special-status butterflies. • Host plants for listed butterflies, including broadleaf stonecrop and Viola adunca, shall be protected with a clearly demarcated 20-foot buffer zone. 	<p>Verify that a qualified biologist conducts preconstruction reconnaissance-level surveys for special-status butterfly habitat and that protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners</p>
<p>Mitigation Measure BIO-1n, Protect American Badger MRCD shall ensure that the following protection measures for American badgers are implemented for PCP activities:</p> <ul style="list-style-type: none"> • For all projects requiring disturbance to open grasslands or low-growing vegetation habitats, a preconstruction survey for American badger shall occur prior to beginning work. If any badgers are documented within the project area or within 500 feet of it, buffer zones shall be established and maintained until the 	<p>Verify that a qualified biologist conducts a preconstruction survey for American badger for projects in suitable habitat and that protection measures are implemented</p>	<p>MRCD or PCP Partners</p>	<p>Prior to and during project construction and implementation</p>	<p>MRCD or PCP Partners California Department of Fish and Wildlife</p>

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badgers have vacated the area. No work shall occur within the buffer zone until the area is cleared by the project biologist. Additional protection measures may be required and shall be developed in consultation with CDFW; they may include larger buffer zones or relocations, as appropriate.				
<p><i>Mitigation Measure BIO-2a, Compensate for Loss of Riparian Habitat and Other Sensitive Natural Communities</i></p> <p>MRCD shall require the following actions to compensate for loss of riparian habitat and other sensitive natural communities during PCP activities:</p> <ul style="list-style-type: none"> • If vegetation in habitats identified by a qualified biologist as sensitive or native riparian trees over four inches DBH are removed, they shall be replaced by native species appropriate to the site. Outside of riparian areas and other sensitive habitats, if trees over six inches DBH are cut, they shall be replaced by native species appropriate to the site. • If needed, an irrigation system shall be installed to ensure establishment of vegetation; when vegetation is sufficiently established, irrigation materials shall be removed. • Revegetation success criteria shall be based on permit requirements and individual site conditions. MRCD shall conduct revegetation monitoring and replanting as required in the permits. • No new facilities associated with any manure management practices shall be located in areas that support riparian habitat or in a sensitive natural community. 	Verify that any riparian vegetation or native riparian trees removed during project implementation are replaced by appropriate native species and that measures are implemented to ensure revegetation success	MRCD or PCP Partners	Following ground-disturbing activities and project construction when riparian vegetation is affected	MRCD or PCP Partners California Department of Fish and Wildlife

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<p><i>Mitigation Measure BIO-2b, Avoid Work in or Compensate for Impacts on Native Tree Root Protection Zone</i></p> <p>MRCD shall require the following tree root protection measures are implemented during PCP activities to avoid or compensate for loss of sensitive trees and plant communities and to protect wildlife habitat during vegetation removal:</p> <ul style="list-style-type: none"> Because native trees are susceptible to disturbance from grading and compaction, especially within the root crown area referred to as the Root Protection Zone (RPZ), work within the RPZ shall be avoided wherever possible, and no work shall occur within the RPZ when soils are wet. The RPZ is defined as 1.5 times the dripline radius measured from the tree trunk and extending approximately three feet below the soil surface. The outer extent of the RPZ shall be clearly demarcated with exclusionary fencing to keep construction vehicles and activities away from tree roots. If work must occur within the RPZ, all tree trunks shall be wrapped up to eight feet high or the height of the equipment working in the area. Protection materials may include wood boards or heavy-duty rubber matting. Trench plates or heavy mulch shall be installed when heavy equipment is working within the RPZ. All roots larger than one inch shall be cut with a clean, sharp saw. No more than 20% of live foliage shall be pruned in one year. A qualified arborist or biologist shall guide subsurface activities, including grading and trenching operations, as needed, to protect roots of native trees. 	Verify that work in the RPZ is avoided to the extent feasible and that protection measures are implemented when work does occur within the RPZ	MRCD or PCP Partners	During project design, implementation, and construction	MRCD or PCP Partners California Department of Fish and Wildlife
<p><i>Mitigation Measure BIO-2c, Protect Coastal Terrace Prairie and Northern Maritime Chaparral</i></p> <p>MRCD shall ensure that the following protection measures for coastal terrace prairie and northern maritime chaparral are implemented when PCP practices occur in sensitive habitats:</p> <ul style="list-style-type: none"> Prior to project design, the site will be surveyed by a qualified botanist to establish the presence of any special-status plants. If such plants are found, the project will be designed to avoid them. No herbicides will be used in coastal terrace prairie or northern 	For work in coastal terrace prairie and northern maritime chaparral, verify that a qualified botanist conducts surveys, that herbicides are not used, and that disturbed areas are replanted with	MRCD or PCP Partners	Prior to and during project design; during and following project construction and implementation	MRCD or PCP Partners California Department of Fish and Wildlife Marin County

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maritime chaparral. <ul style="list-style-type: none"> Areas disturbed by construction will be replanted with local cultivars of native species. 	appropriate species			
Mitigation Measure BIO-3, Protect Wetlands MRCD shall ensure that wetlands impacted by construction activities are returned to their pre-construction conditions or better immediately following completion of the project using the following methods or other means that result in properly functioning wetlands: <ul style="list-style-type: none"> Conduct a wetlands survey for areas that would be permanently or temporarily disturbed to confirm the location, extent, and regulatory status of wetlands and water features within the PCP practice area. Sites that are entirely paved, compacted, or maintained as landscaped areas are not subject to this requirement. If work is required in wetlands, disturbance and compaction shall be minimized by strict use of a single identified access route to the work area and by minimizing the work area to the smallest needed to construct the project. If access through a wetland is necessary, steel plates or other soil and vegetation protection measures shall be placed across the wetland and construction vehicles shall use the plates for access. Low ground pressure, rubber-tired equipment may be used in lieu of protective plates. The area under the plates shall be seeded with native wetland vegetation after the plates are removed to restore the site. Permanent fill of wetlands shall be avoided. 	Verify that wetland surveys are conducted and that protection measures are implemented to restore wetlands impacted by construction activities to their pre-construction conditions or better	MRCD or PCP Partners	Wetland surveys – during project design and prior to implementation Protection measures and restoration – during project implementation and construction	MRCD or PCP Partners California Department of Fish and Wildlife U.S. Army Corps of Engineers SF Bay or North Coast Regional Water Quality Control Board
Mitigation Measure CUL-1, Identify and Avoid or Minimize Impacts on Historic Resources When a literature and archival records search identifies potential historic resources within or near the project area during pre-project review or when historic materials are encountered during work activities, MRCD shall require the following: <ul style="list-style-type: none"> If potentially historic resources or buildings older than 45 years are located within 100 feet of the project area, a qualified historian or 	Conduct literature and archival records searches during pre-project review and for projects near historic resources, verify that a qualified historian or archaeologist evaluates	MRCD or PCP Partners	Review plans during design, implement protection measures during project implementation and	MRCD or PCP Partners SHPO

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>archaeologist shall be retained to perform an evaluation of the potential historic resource and determine whether the project would impact the resource. If the resource is determined to qualify as historic under CEQA Guidelines §15064.5(a), and the PCP practice would impair the resource, such impacts on the resource shall be avoided. The PCP practice shall be designed and constructed to avoid impairment of the historic resources. Measures to protect historic resources may include, for example, temporary protective barriers, construction worker training, movement of the facility or practice site, and landscape screening.</p> <ul style="list-style-type: none"> • Should the historic resource survey identify significant resources that cannot be avoided, The Secretary of the Interior's Standards for the Treatment of Historic Properties shall be followed. A qualified historic preservation professional shall be retained to develop a treatment plan. Such professionals may include architects, architectural historians, historians, historic engineers, archaeologists, and others who have experience in working with historic structures. Mitigation measures recommended by the qualified historic preservation professional shall be implemented. These measures could include, but not necessarily be limited to: <ul style="list-style-type: none"> ○ Avoidance of significant historic resources; ○ Graphic documentation (photographs, drawings, etc.); and ○ Restoration, stabilization, repair, and reconstruction. • MRCD and its partners shall hold a pre-construction meeting to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic materials. • If subsurface historic materials are encountered during construction activities, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be inspected by a qualified historian/archaeologist. Project personnel 	<p>the project and that protection measures are implemented to avoid or minimize impacts to historic resources</p>		<p>construction</p>	

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>shall not collect historic materials. If the historian/archaeologist determines that the find qualifies as a unique historic resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either modifying the project to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.</p>				
<p>Mitigation Measure CUL-2, Identify and Avoid or Minimize Impacts on Archaeological Resources</p> <p>When a literature and archival records search identifies potential archaeological resources within or near the project area during pre-project review or when archaeological materials are encountered during work activities, MRCD shall require the following:</p> <ul style="list-style-type: none"> • A qualified archaeologist shall be retained to perform an evaluation of the potential resource. If the resource is determined to qualify as an archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), and project construction would adversely affect the resource, such impacts shall be avoided. The PCP practice shall be designed, constructed, and operated to avoid material impairment of the resource. Measures may include temporary protective barriers, construction worker training, or movement of the project itself. • A pre-construction meeting shall be held to acquaint construction personnel with the possibility of encountering sensitive cultural resources. Prehistoric resources may include chert or obsidian flakes, projectile points, mortars, and pestles; dark friable soil containing shell and bone dietary debris; heat-affected rock; or human burials. • If previously unknown archaeological materials are encountered during construction, the piece of equipment or crew member that encountered the materials shall stop, and the find shall be 	<p>Conduct literature and archival records searches during pre-project review and for projects near archaeological resources, verify that a qualified archaeologist evaluates the project and resource, and that protection measures are implemented to avoid or minimize impacts to archaeological resources</p>	<p>MRCD or PCP Partners</p> <p>Native American Tribes</p>	<p>Review plans during design, implement protection measures during project implementation and construction</p>	<p>MRCD or PCP Partners</p> <p>SHPO</p>

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>inspected by a qualified archaeologist. Project personnel shall not collect cultural materials. If the archaeologist determines that the find potentially qualifies as a unique archaeological resource for the purposes of CEQA (Guidelines §15064.5[c]), all work shall be stopped in the immediate vicinity to allow the archaeologist to evaluate the find and recommend appropriate treatment. Such treatment and resolution shall include either project modification to allow the materials to be left in place or undertaking data recovery of the materials in accordance with standard archaeological methods. The preferred treatment is protection and preservation.</p>				
<p>Mitigation Measure CUL-3, Avoid or Document Paleontological Resources If a paleontological resource is discovered during construction, MRCD shall require the following:</p> <p>All ground-disturbing activities within 50 feet of the find shall be temporarily halted but may be diverted to areas beyond 50 feet from the discovery and continue working. MRCD shall notify a qualified paleontologist who will document the discovery, evaluate the potential resource, and assess the nature and significance of the find. Based on scientific value or uniqueness, the paleontologist may record the find and allow work to continue or recommend salvage and recovery of the material. The paleontologist shall make recommendations for any necessary treatment that is consistent with currently accepted scientific practices.</p>	<p>Verify that protection measures are implemented if a paleontological resource is discovered during project construction</p>	<p>MRCD or PCP Partners</p>	<p>During project construction and implementation</p>	<p>MRCD or PCP Partners SHPO</p>
<p>Mitigation Measure CUL-4, Procedures for Inadvertent Discovery of Human Remains Should human remains be encountered during PCP activities, MRCD shall require the following:</p> <p>The treatment of any human remains and associated or unassociated funerary objects discovered during soil-disturbing activities shall comply with applicable State laws. If human graves are encountered,</p>	<p>Verify that proper procedures are followed when human remains are inadvertently discovered during project activities: Report discovery of burial, human bone, or</p>	<p>MRCD or PCP Partners Native American Tribes</p>	<p>During project construction and implementation</p>	<p>MRCD or PCP Partners NAHC</p>

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>MRCD shall ensure that all work stops in the vicinity and the Marin County Coroner is notified. A qualified archaeologist shall evaluate the remains. If human remains are of Native American origin, the Coroner shall notify Native American Heritage Commission (NAHC) within 24 hours of identification, pursuant to Public Resources Code (PRC) §5097.98. NAHC would appoint a Most Likely Descendant. A qualified archaeologist, MRCD, and the Most Likely Descendant shall make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines §15064.5[d]). The agreement would take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, and final disposition of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters. If the Most Likely Descendant and the other parties cannot not agree on the reburial method, MRCD shall follow PRC §5097.98(b), which states that “the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.”</p>	<p>suspected human bone to the Marin County Coroner; monitor protection of the area until the find is identified; and have an archaeologist monitor compliance with PRC Section 5097</p>			
<p>Mitigation Measure HAZ-1, Ensure Safe Use of Herbicides MRCD shall ensure that the following measures are used to protect resources during application of herbicides:</p> <ul style="list-style-type: none"> • Limit herbicide use to application to control established stands of noxious species or the invasion of exotics into restoration plantings. • Where it is necessary to use herbicides, application shall be compliant with the California Department of Pesticide Use regulations in accordance with Material Safety Data Sheets, the Marin County Agriculture Commission’s Weed Management Plan, manufacturer’s instructions, and/or the guidance of a registered pesticide advisor. • Timing of herbicide use shall be determined in consultation with a qualified biologist. 	<p>Verify that herbicides are only used to control noxious and invasive species and that safety and protection measures are implemented during use of herbicides</p>	<p>MRCD or PCP Partners</p>	<p>During implementation of vegetation management and other project activities that require the use of herbicides</p>	<p>MRCD or PCP Partners</p>

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<ul style="list-style-type: none"> In riparian environments, an herbicide without a surfactant that is registered for use in an aquatic environment and on target vegetation shall be utilized. No broadcast spraying shall occur. Great care shall be taken to avoid contact with native species. A safety and record-keeping plan shall be developed prior to herbicide use. The plan shall include telephone numbers and addresses of emergency treatment centers and the telephone number for the nearest poison control center. Records shall be maintained for two years after herbicide application. 				
<p><i>Mitigation Measure HAZ-2: Provide Information for Safe Practices with Anaerobic Digesters</i></p> <p>MRCD shall provide the project operators with information on asphyxiation and explosion hazards from working with methane and nitrogen gases, including procedures to ensure worker safety.</p>	Verify that project operators are provided with information on safe practices for working with anaerobic digesters	MRCD or PCP Partners	Prior to any project activity that involves anaerobic digesters	MRCD or PCP Partners
<p><i>Mitigation Measure HAZ-3, Avoid Release of Contaminated Soils, On-site Hazardous Materials Management</i></p> <p>MRCD shall ensure that the following measures are used to avoid release of contaminated soils and to manage hazardous materials on site:</p> <ul style="list-style-type: none"> During project planning, MRCD shall determine whether a known hazardous material site is located within 200 feet of a PCP practice if the work would require excavation, trenching, or drilling. If the practice is located near a hazardous site, MRCD shall require the property owner or manager to move the project to a location greater than 200 feet away from the contaminated site or require the property owner or manager to implement control measures to protect human health and the environment during construction, including, but not limited to, the following: <ul style="list-style-type: none"> Prepare and implement a site-specific health and safety plan in accordance with federal Occupational Safety and Health Administration (OSHA) and Cal-OSHA regulations to address worker health and safety issues during construction. The health and safety plan shall identify the potentially present chemicals, health and safety hazards associated with those 	Verify that project activities requiring excavation, trenching, or drilling are sited away from known hazardous material sites, or that protection measures are implemented to protect human health and the environment for such activities within 200 feet of a known hazardous material site	MRCD or PCP Partners	<p>During project planning (for site location determination)</p> <p>During project construction and implementation (for protection measures)</p>	<p>MRCD or PCP Partners</p> <p>SF Bay or North Coast Regional Water Quality Control Board</p>

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chemicals, and all required measures to protect construction workers from exposure to harmful levels of any chemicals identified at the site. The health and safety plan shall also specify the method for handling and disposal of both chemical products and hazardous materials used in construction and contaminated soil, should any be encountered during construction.				
<p>Mitigation Measure HAZ-4, Reduce Wildland Fire Hazards during PCP Activities</p> <p>MRCD shall ensure that the following measures are used to reduce wildland fire hazards during construction and maintenance activities:</p> <ul style="list-style-type: none"> • Remove dry, combustible vegetation from the construction site with specific focus on the staging areas for heavy equipment prior to construction activities. • Grass and other vegetation less than 18 inches in height shall be maintained where necessary to stabilize the soil and prevent erosion. • Vehicles shall not park in areas where exhaust systems can contact combustible materials. • Fire extinguishers and fire suppression tools shall be available on the site when working in high fire hazard areas. 	Verify that protection measures are implemented to reduce wildland fire hazards	MRCD or PCP Partners	During project construction, implementation, and maintenance	MRCD or PCP Partners
<p>Mitigation Measure HYD-1, Protect Water Quality – Planting and Revegetation after Soil Disturbance</p> <p>MRCD shall require the following to protect water quality through planting and revegetation after soil disturbance:</p> <ul style="list-style-type: none"> • Revegetation shall occur as soon as possible after disturbance using live native plantings, native seed casting, or hydroseeding, preferably prior to the onset of rain. When timing does not coincide with suitable planting windows for permanent vegetation, a temporary cover (e.g., weed-free mulch or weed-free straw) shall be used to protect soil until permanent vegetation can be established. Non-invasive, non-persistent grass species (e.g., barley grass, sterile wheat) may be used in limited instances in conjunction with native species to provide fast-establishing, 	Verify that planting and revegetation is implemented after soil disturbance using best management practices	MRCD or PCP Partners	Following soil disturbance as a result of project construction and implementation	MRCD or PCP Partners SF Bay or North Coast Regional Water Quality Control Board

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>temporary cover for erosion control.</p> <ul style="list-style-type: none"> • Soil exposed during construction and soil above rock riprap shall be revegetated using native seed casting or by hydroseeding. In general, interstitial spaces between rocks shall be planted with riparian vegetation such as willows rather than hydroseeded. • To the extent feasible, all plants disturbed by project activities shall be replaced with a species palette similar to that of the removed vegetation or with species that are appropriate to the site conditions and are native to the project watershed. Otherwise, plants shall be sourced from Marin County or southern Sonoma County; plants from more distant sources shall require pre-approval by the project biologist. Native plant species with high wildlife and/or pollinator values shall be used to the extent feasible. • Soil amendments are typically not needed for establishment of native vegetation in intact native soils. If soils have been disturbed and require additional organic matter or nutrients to support native plants, limited organic, weed-free amendments may be used to help establish restoration vegetation. Organic fertilizers may be used only above the normal high water mark of any adjacent waterways. If fertilizers are to be used around a listed plant, MRCD shall consult with a qualified biologist or range scientists to establish a buffer zone. No chemical fertilizers are allowed under the PCP. 				

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<p><i>Mitigation Measure HYD-2, Protect Water Quality – Erosion Control and Stormwater Detention during Grading and Other Disturbance in a Stream, Waterway, or Other Sensitive Habitat</i></p> <p>When a project involves grading or work within or adjacent to a stream, waterway, or other sensitive habitat, MRCD shall require the following measures to avoid or minimize erosion and impacts on water quality:</p> <ul style="list-style-type: none"> • Prepare and implement a spill prevention and clean-up plan, Stormwater Pollution Prevention Plan, or similar document. The plan shall address polluted runoff and spill prevention policies, erosion control materials required to be available on site in case of rain or a spill (e.g., straw bales, silt fencing), clean-up and reporting procedures, and locations of refueling and minor maintenance areas. • Schedule grading and other earth-disturbing activities during the dry season, generally June 1 through October 31. Exceptions may be made in cases such as catastrophic failure due to a large storm or other event that causes water quality or public safety concerns. • Schedule vegetation removal to minimize impacts on water quality: <ul style="list-style-type: none"> ○ August 15-October 15 is preferred to allow prompt replanting with natives in time to take advantage of cool, wet winter weather for establishment. ○ October 16-February 14 is preferred for removal of invasive perennials (e.g., broom, Himalayan blackberry, fennel); however, ground-disturbing work shall only proceed if no rain is predicted for 48 hours and the erosion control BMPs discussed below are in place following removal. ○ February 1-August 15 is limited to vegetation removal that can take place if bird nesting surveys are completed. • Ensure erosion control and sediment detention measures are available on site at all times and are in place at all locations where the likelihood of sediment input exists prior to the onset of rain in order to detain sediment-laden water on site and minimize fine 	<p>Verify that control measures are implemented to minimize erosion and impacts on water quality during projects that involve grading or work within a stream, waterway, or sensitive habitat</p>	<p>MRCD or PCP Partners</p>	<p>During project planning, construction, and implementation</p>	<p>MRCD or PCP Partners</p>

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<p>sediment and sediment/water slurry input to flowing water. Sediment collected in the structures shall be disposed of away from the collection site in an upland area where it cannot enter a waterway. When requested by project regulators, MRCD staff or a qualified designee shall inspect in-stream habitat and performance of erosion and sediment control devices at least once each day during construction to ensure the devices are functioning properly.</p> <ul style="list-style-type: none"> • If rain occurs while materials are temporarily stockpiled, cover with plastic that is secured in place to ensure the piles are protected from rain and wind. Silt fencing or wattles shall be installed on contour around all stockpile locations. • Prohibit discharge of water from any on-site temporary sediment stockpile or storage areas or any other discharge of construction dewatering flows to surface waters, except as described in Mitigation BIO-1g. 				
<p>Mitigation Measure HYD-3, Protect Water Quality – Measures for Application of Manure or Manure-laden Debris to Land as Fertilizer</p> <p>If manure or manure-laden debris is applied to land as fertilizer, MRCD shall require the following measures to prevent discharges to surface and groundwater and adverse impacts on water quality:</p> <ul style="list-style-type: none"> • The collection, treatment, storage, or application of manure or process water shall not: <ul style="list-style-type: none"> ○ Degrade surface water or groundwater, ○ Contaminate or pollute surface water or groundwater, or ○ Create a condition of nuisance (as defined by the California Water Code section 13050). <p>This requirement applies to any degradation products or any constituents of soil mobilized by the interactions between applied materials and soil or soil biota.</p> <ul style="list-style-type: none"> • The application of manure and/or wastewater shall not violate any applicable local, State, or federal laws or regulations or contribute to an exceedance of any applicable water quality objective in the 	<p>Verify that protection measures are implemented during application of manure as fertilizer to prevent discharges to surface and groundwater and adverse impacts on water quality</p>	<p>MRCD or PCP Partners</p>	<p>During implementation of project activities that involve the application of manure or manure-laden debris to land as fertilizer</p>	<p>MRCD or PCP Partners</p>

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
<p>Basin Plan or of any applicable State or federal water quality criteria.</p> <ul style="list-style-type: none"> • Manure and wastewater discharges to land shall be conducted during non-rainy, or non-saturated conditions, must not result in runoff to surface waters, and must infiltrate completely within 72 hours after application. • Land application areas that receive dry manure or process water shall be managed to minimize erosion. • The timing of nutrient application must correspond as closely as possible with plant nutrient uptake characteristics, while considering cropping system limitations, weather and climatic conditions, and land application area accessibility. The anticipated maximum time between land application events (i.e., the storage period) shall be used to determine the needed storage capacity. • Discharges to land of solid or liquid waste shall be applied at rates that are reasonable for crop, soil, climate, special local situations, management system, and type of manure. The total nutrient loading shall not exceed the amount needed to meet crop demand. • Manure, manured bedding, and process water shall not be stored or applied within a 100-foot setback to any down-gradient surface water unless a 35-foot wide vegetated buffer or physical barrier (i.e., a berm) is substituted for the 100-foot setback; or an alternative conservation practice or field-specific condition shall be in place that provides pollutant reductions equivalent to or better than achieved by the 100-foot setback. 				
<p>Mitigation Measure NOI-1, Reduce Noise from Watering Facility near Sensitive Receptors</p> <p>MRCD shall ensure that watering facilities installed within 800 feet of a sensitive receptor are implemented with at least one of the following noise reduction measures:</p> <ul style="list-style-type: none"> • Plant a noise barrier between the watering facility and the sensitive receptor per Practice 601 – Vegetative Barrier. • Install a noise adsorbing wall of waterproof materials, such as 	Verify that measures to reduce noise are implemented for watering facilities that are installed within 800 feet of a sensitive receptor	MRCD or PCP Partners	During project construction and implementation for activities involving watering facilities within	MRCD or PCP Partners Marin County

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Mitigation Measure	Monitoring or Reporting Action	Monitoring or Reporting Entity	Timing ¹	Enforcement Entity
foam, between the watering facility and the sensitive receptor.			800 feet of a sensitive receptor	
<p><i>Mitigation Measure TCR-1, Identify and Protect Tribal Resources</i></p> <p>MRCD shall consult with representatives from interested tribes following the MRCD Board of Directors' selection of PCP projects, to identify known Tribal resources within the disturbance area for individual PCP project implementation. If the review of PCP projects identifies that a project may cause substantial adverse change to a tribal cultural resource then MRCD shall avoid or minimize adverse impacts in one of the following ways or as directed by FIGR:</p> <ul style="list-style-type: none"> • Not move forward with implementation of the PCP activity. • Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context. • Treatment of the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: <ul style="list-style-type: none"> ○ Protecting the cultural character and integrity of the resource. ○ Protecting the traditional use of the resource. ○ Protecting the confidentiality of the resource. 	Verify that interested tribal representatives are consulted following project selection, that known Tribal resources within project areas are identified, and that protection measures are implemented to avoid or minimize adverse impacts to Tribal resources	MRCD or PCP Partners Tribal Partners	Following project selection and during project planning and design	MRCD or PCP Partners



ADDENDUM TO THE INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

FOR

MARIN PERMIT COORDINATION PROGRAM COORDINATED CEQA COMPLIANCE STATE CLEARINGHOUSE NUMBER: 2018032048

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

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1 Introduction

This Addendum was prepared in accordance with the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The document serves as an Addendum to the previously adopted Mitigated Negative Declaration (MND; SCH#2018032048) for the Marin Resource Conservation District's Permit Coordination Program. The Marin Resource Conservation District was the lead agency for the environmental review.

1.1 Background and Need for the Permit Coordination Program (PCP) and Program Addendum

The Marin Permit Coordination Program (PCP or Program) is based on a model of coordinated, multi-agency regulatory review that ensures the integrity of resource-protection mandates but allows environmental compliance to be more accessible to private landowners and other agency partners than the traditional processes. The PCP is designed to provide a catalyst for high-quality resource protection and restoration projects on both public and private properties throughout western and northeastern Marin County. Marin RCD's PCP was initially adopted in 2004 to comply with the provisions of the California Environmental Quality Act (CEQA) for restoration projects that benefit water quality and wildlife habitat within the boundaries of specified watersheds in Marin County (State Clearinghouse # 2004052008). The Program was created to incentivize environmentally beneficial restoration projects on private lands by reducing the cost and timeframe of the environmental compliance process. Since 2004, Marin RCD and its partners have utilized the PCP to help landowners and managers plan, permit, implement, monitor, and maintain projects that promote healthy, viable land management practices. Restoration projects that qualify for the program must meet the requirements, including specific volume and dimension limitations, set forth in the Program's CEQA document.

Marin RCD revised the Program in 2010 and again in 2018. The Marin RCD Board adopted new Mitigated Negative Declarations with each Program revision (State Clearinghouse 2004052008 and 2018032048). The 2018 revised program expanded boundaries to encompass more watersheds; increased the number of conservation practices from 17 to 44 to incorporate new practices that assist with vegetation management and promote carbon-beneficial projects; and extended the lifetime of the program from five to ten years, with the program expected to continue through the fall of 2027.

As use of the Program continues, Marin RCD wants to expand the Program to include nine additional practices and to allow flexibility to approve individual projects outside the PCP umbrella that may meet CEQA categorical exemptions based on project type, size, and lack of extensive ground disturbance in non-sensitive areas. This Addendum analyzes the potential impacts of expanding the Program to include nine additional practices that are similar in nature to those already included in the Program.

1.2 Purpose of this Addendum

Marin RCD is proposing minor changes to the PCP to allow Marin RCD the ability to approve individual projects outside the PCP umbrella and to provide flexibility in project approval processes and CEQA compliance. Marin RCD proposes to incorporate the use of CEQA statutory exemptions for projects that

have been determined to have no significant effects on the environment and would therefore be exempt from the provisions of CEQA. These projects would include individual practices or a suite of practices that if approved outside the PCP would meet the conditions of a CEQA exemption and have no significant impacts. These practices may include riparian or upland restoration activities that are less than five acres in size with no grading needed to accomplish project objectives located in areas that would have no impacts on endangered, rare, or threatened species or their habitat or on cultural or tribal resources. Practices may also include maintenance activities on existing facilities, whether or not the facilities were approved and constructed under the PCP umbrella.

The Marin RCD anticipates potential use of the Existing Facilities (§15301 of the CEQA Guidelines), Minor Alterations of Land (§15304), and the Small Habitat Restoration Project (§15333) categorical exemptions for projects approved outside the PCP. Projects approved using a CEQA categorical exemption would not require implementation of mitigation measures to reduce potential impacts. Projects that require implementation of mitigation measures would be authorized under the PCP. At no time would Marin RCD split projects into smaller components to facilitate use of an exemption. The entire project either would be exempt from the provisions of CEQA or the entire project would be approved using the PCP. The primary decision regarding use of a CEQA exemption would be the activity type, the location of the activity, and the overall activity size. All practices implemented in sensitive areas that require mitigation to reduce potential impacts will be included in the Program and authorized by Marin RCD following the PCP approval process, regardless of the size or type of project.

The Addendum also analyzes the potential impacts from expanding the Program to include additional practices that are similar in nature to those practices already included in the PCP. The additional practices were identified by PCP users and reflect the current and anticipated future actions needed to expand the pace and scale of habitat restoration activities. The additional activities incorporate mechanical and biological treatment for herbaceous weed treatment, tree and shrub planting site preparation activities, and brush management. All additional measures come from the USDA Natural Resources Conservation Service's Conservation Practice Standards. Each measure is revised slightly to remove practices not intended for use within the PCP program. For instance, the new herbaceous weed treatment and brush management practices described in the standards include use of prescribed fire. The PCP program does not allow use of fire; therefore, the standards were revised for use in the Program.

This Addendum also provides an analysis of the potential impacts associated with the removal of practices from the PCP that would be considered maintenance on existing facilities, would be implemented in non-sensitive areas, and would have little or no ground-disturbing activities associated with them.

1.3 Basis for Decision to Prepare Addendum

When a negative declaration is adopted for a project, CEQA Guidelines Section 15162 (Subsequent EIRs and Negative Declarations) sets forth the criteria for determining whether a subsequent EIR or negative declaration should be prepared in support of further agency action on the project. Under these

guidelines, a subsequent EIR or negative declaration is to be prepared if any of the following criteria are met. In determining whether an Addendum is an appropriate document to analyze the modifications to the project and its approval, CEQA Guidelines Section 15164 (Addendum to an EIR or Negative Declaration) states:

- a) The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.
- b) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.
- c) An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.
- d) The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.
- e) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's required findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

Removal of the CEQA exempt practices would not require revisions to the previously adopted Mitigated Negative Declaration. Approving smaller projects that meet CEQA exemptions would have no significant impacts on the environment and would not require the implementation of any of the PCP mitigation measures to reduce impacts.

Any new practices added to the PCP would be implemented in the same manner as similar practices already included in the Program, including implementation of best management practices and mitigation measures where needed to reduce potential impacts. The addition of new practices would not result in any new significant impacts or increase the severity of impacts presented in the 2018 Mitigated Negative Declaration. There is no new information of substantial importance that would change the impacts previously analyzed. Marin RCD determined none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred; therefore, a subsequent Mitigated Negative Declaration was not prepared.

2 Permit Coordination Program Overview

The updated PCP includes 53 Conservation Practice Standards developed by the USDA Natural Resources Conservation Service (NRCS)¹ that are grouped into ten categories. Each practice addresses a

¹ Full descriptions of the NRCS practice standards are available online at (www.ca.nrcs.usda.gov/technical/efotg). However, they have been tailored for inclusion in the PCP in order to avoid and minimize potential impacts on the environment that define the limitations to each overall NRCS practice. For example, although the original NRCS *Pond* practice (378) allows construction of new ponds, the actions authorized by the *Pond* practice in the PCP are limited to restoration of *existing* ponds; no new ponds are authorized under the PCP.

broad range of resource conservation needs by providing a framework under which site-specific designs and specifications can be developed.

The PCP includes numerous partners to provide expansive use of the program to improve the pace and scale of restoration activities in Marin County. These partners include Marin RCD, NRCS, Point Reyes National Seashore (PRNS), Point Blue's Students and Teachers Restoring a Watershed (STRAW), and the Marin Agricultural Land Trust (MALT). The Addendum does not add or exclude any partners from this list.

The PCP Area encompasses the greater Tomales Bay watershed (Lagunitas Creek, San Geronimo Valley, Marin County portions of Walker Creek, Inverness, and the direct eastern and western drainages into Tomales Bay); Stemple Creek-Estero de San Antonio; Marin County portions of the Estero Americano watershed; Novato, Miller, and San Antonio Creek watersheds in the northeast; and the creeks in the northern portion of western PRNS that flow directly to the Pacific Ocean. The Addendum does not change the geographical area.

Several natural communities and special-status species are *excluded* from the PCP because they have been determined to be particularly sensitive and inappropriate for programmatic CEQA review. These excluded natural communities remain excluded from the PCP. Work that would occur within or affect the natural communities and species listed below would require project-specific environmental review. This Addendum does not revise the excluded species list.

Excluded Natural Communities:

Coastal estuaries,
Salt marshes and mudflats,
Tidally influenced wetlands and waters,
Vernal pools,
Dune or beach habitat, and
Serpentine grasslands.

Excluded Species and Habitats:

Tidewater goby,
Salt marsh harvest mouse,
Clapper rail, California black rail,
Point Reyes mountain beaver, and
Baker's and yellow larkspur critical habitat.

3 PCP Project Description

3.1 Overview of Activities and Practices Included in the Permit Coordination Program

Marin RCD proposes to add an additional nine practices and Low Impact Development methods into the Program, expanding the Program from 44 practices to 53 NRCS Conservation Practice Standards, technical guidelines for the conservation of soil, water, air, and related plant and animal resources. The nine new additional practices are incorporated into the existing activity categories in the PCP.

The table below provides a brief summary of each activity type included in the PCP and the changes addressed in the Addendum. The activities include land management actions to address water quality, sedimentation, and erosion from rural roads, stream crossings, vegetation, and facility operations, as well as resource management activities for waterways, alternative water sources for livestock, erosion and sediment control, and aquatic habitat restoration.

Table 1. Marin Permit Coordination Program Activities and Practices

Activities	Description	Associated NRCS Practices*	Addendum Changes
Road Upgrade & Decommission	Improvements to an existing road network for the purpose of preventing erosion and protecting water quality that may include re-grading surfaces (e.g., out-sloping, crowning, in-sloping); construction of water bars, rolling dips, or critical dips; removal or addition of roadside ditches to assist with stormwater drainage; installation or repair of ditch relief culverts or critical culverts; removal of a screen or installation of a trash rack at a culvert inlet; construction of cross-road drains; and protection of ecologically sensitive, erosive, or potentially erosive sites.	Access Road (560), Trails and Walkways (575), Structure for Water Control (587), Road Closure and Treatment (654)	None
Stream Crossing	Installation of a ford, bridge (channel spanning when feasible), or culvert crossing for people, livestock, equipment, or vehicles where necessary for access over an intermittent or perennial watercourse to protect water quality, habitat, and species and to facilitate healthy agricultural operations.	Stream Crossing (578)	None
Operations Management	Agricultural management practices to protect water quality, such as the amount (rate), source, orientation, collection, placement, and timing of plant nutrients, residue, and amendments on the soil surface year-round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops. Other practices address vegetation management with grazing and browsing animals and provide measures to control the movement of animals, people, and vehicles.	Nutrient Management (590), Residue and Tillage Management/ No-Till (329), Fence (382), Mulching (484), Heavy Use Area Protection (561), Roof and Covers (367), Roof Runoff Structure (558)	Allow approval of Fence (382), Mulching (484), Roof (367) and Roof Runoff (558) using a CEQA exemption where appropriate based on location and ground disturbance or approval as maintenance of existing structures. Add Nutrient Residue and Tillage Management (345) and Soil Carbon Amendment (808) to the PCP
Manure Management	Installation of practices that improve management of manure, thereby resulting in improved water and/or air quality conditions. Actions include installation of manure/liquid separators, composting pads, techniques resulting in a reduction of Greenhouse gas (GHG) emissions, such as conversion from dairy flush to scrape systems, and the proper transfer of liquid	Composting Facility (317), Waste Treatment (629), Waste Separation Facility (632), Waste Transfer (634), Waste Storage Facility (313)	Add Anaerobic Digester (366) to the PCP

Table 1. Marin Permit Coordination Program Activities and Practices

Activities	Description	Associated NRCS Practices*	Addendum Changes
	manure to avoid impacts on environmentally sensitive areas.		
Upland and Riparian Vegetation Management and Planting	Plant establishment to stabilize a disturbed area, reduce stormwater flow velocity and surface flow erosion, encourage infiltration, and enhance wildlife habitat. Actions may include planting a vegetative buffer along a field perimeter to filter runoff exiting the area; establishing native grasses, forbs, shrubs, or trees in disturbed or eroding areas; lightly re-grading and planting a vegetated barrier to collect and filter runoff; planting permanent vegetation at a pipe or underground outlet; establishing a dense line of vegetation to function as a windbreak/habitat enhancement/barrier to noise or to increase carbon storage capacity; establishing perennial or self-sustaining vegetation across fields used as rangeland; and replacing invasive species or potential disease-host plants with native species.	Critical Area Planting (342), Prescribed Grazing (528), Range Planting (550), Hedgerow Planting (422), Riparian Herbaceous Cover (390), Riparian Forest Buffer (391), Vegetative Barrier (601), Forage & Biomass Planting (512), Windbreak/ Shelterbelt Establishment and Renovation (380), Silvopasture (381), Tree/Shrub Establishment (612), Conservation Cover (327), Wildlife Habitat Planting (420), Tree-Shrub Site Preparation (490), Herbaceous Weed Treatment (315, without use of herbicides or chemical treatment)	Allow for the approval of all the upland and riparian vegetation management and planting practices using a CEQA categorical exemption, rather than through the PCP, where feasible based on location and ground disturbance. Add Wildlife Habitat Planting (420), Tree-Shrub Site Preparation (490), Herbaceous Weed Treatment (315), and Brush Management (314) to the PCP and allow for approval under PCP or as a CEQA exemption as appropriate based on each individual project.
Waterway Vegetation and Planting	Establishment of suitable vegetation to convey surface water at a non-erosive velocity using a broad and shallow cross section to a stable outlet or where environmentally sensitive areas need to be protected from sediment, other suspended solids, or dissolved contaminants in runoff.	Grassed Waterway (412), Filter Strip (393)	None
Waterway Stabilization	Stabilization of a gully or downcutting channel by installing a structure to control the grade and/or stabilize the slope. Implementation may require some grading and installation of brush, erosion-control fabric, rock, or timber structures that do not impound water but rather	Grade Stabilization Structure (410), Lined Waterway/Outlet (468)	None

Table 1. Marin Permit Coordination Program Activities and Practices

Activities	Description	Associated NRCS Practices*	Addendum Changes
	allow water conveyance in a stable manner. Actions may include installing a rock weir to control and slow in-channel flow; adding rock to stabilize a gully draining towards a stream channel; lining an eroding swale or diversion ditch; rock armoring an eroding ditch; armoring below an outlet; installing an energy dissipater at a spillway or pipe outlet to a channel; and stabilizing and protecting streambanks through laying back the bank, bioengineering, or vegetated rock installation.		
Alternative Livestock Water Supply	Actions to provide a dependable supply of water for livestock, including the collection system (e.g., pipeline, trench, appurtenances below ground). Implementation will require shallow digging/trenching for the removal/installation of piping and associated equipment. The practice may include the installation of an underground outlet to disperse concentrated runoff.	Spring Development (574), Livestock Pipeline (516), Underground Outlet (620), Watering Facility (614), Pumping Plant (533)	Above-ground pipelines may be approved using the PCP or CEQA Exemption as appropriate for each project.
Sediment Basin	Protection of water quality through the installation of a basin with an engineered outlet designed to capture and detain sediment-laden runoff for a sufficient length of time to allow it to settle. Practice is used when physical conditions or land ownership preclude use of erosion control measures.	Sediment Basin (350)	None
Aquatic Habitat Improvement	Restoration, enhancement, or maintenance of aquatic habitat by improving physical, chemical, or biological conditions of ponds, streams, and associated riparian zones. Practices may include controlling erosion; maintaining in-stream flows; restoring floodplain connectivity; ensuring up- and downstream passage; and enhancing in-stream habitat elements to increase complexity, such as large wood, rootwads, spawning gravels, headcut repairs, and pool and riffle habitat.	Pond Restoration (378[R]), Stream Habitat Improvement (395), Channel Bed Stabilization (584), Aquatic Organism Passage (396), Streambank Protection (580)	Add Wetland Restoration (657), Restoration of Rare and Declining Natural Communities, and USDA Low Impact Development Practices to the PCP and allow for approval under PCP or as a CEQA exemption, as appropriate based on each individual project.

PCP Implementation Period and Estimated Number of Projects

Marin RCD intends to continue implementation of PCP-approved or CEQA exemption approved projects through the fall of 2027. The estimated number of individual projects would not exceed 30 per year for an estimated maximum of 300 for the life of the Program. The total number of projects does not change with the Addendum.

3.1.1 Project Selection, Impact Assessment, and Regulatory Review Process

The Addendum would not change the PCP project selection, impact assessment, and regulatory review process. A Technical Advisory Committee will continue to vet projects on an annual basis to guide development of projects to ensure selection of an optimal set of conservation practices to maximize resource protection and enhancement dollars. The Marin RCD Board of Directors will continue to establish local program priorities and secure appropriate technical expertise to help guide and inform the Board's decision-making process.

3.2 Detailed Descriptions of Activities and Practices Added to the PCP

Marin RCD and its partners have chosen practices for inclusion in the PCP that support their mission to assist landowners to conserve and enhance Marin County's agricultural and natural resources, including its soil, water, vegetation, and wildlife. The additional nine practices and LID measures were added following an internal program review with input from partners about practices needed to improve the Program. The additions are limited to practices that have the same or reduced potential for environmental impacts with all potential impacts reduced with implementation of Best Management Practices and mitigation measures. No changes to the Best Management Practices or mitigation measures are proposed under this Addendum.

The sections below contain descriptions of the nine new practices and LID measures. Where appropriate, the practice sizing limitations are presented. All practices must fit within their individual maximum size limits; individual practices or projects that exceed the maximum limits do not qualify for CEQA coverage through the PCP. To avoid the potential to "piecemeal" projects (i.e., divide larger projects into sizes that fit within the practice limitations but that, as a whole, would not qualify), Marin RCD and its partners will use the process and procedures described in Section 3.1.2 above to evaluate, select, and track the projects to be implemented.

Individual practices may still be combined to develop a single "project". The collective practices grouped together must meet Program size limitations to qualify for use of the Program. For example, a project to address erosion from a ranch road could require use of 1) *Access Road* upgrades with a 2) *Lined Waterway* that would carry excess upland surface runoff to a 3) *Structure for Water Control* (e.g., culvert). The three practices together would make up one project. Also, projects that would result in ground disturbance, such as *Road Upgrades*, *Stream Crossings*, or *Aquatic Habitat Improvements*, may also utilize actions to control erosion, such as *Critical Area Planting*, *Mulching*, or exclusionary *Fencing*.

3.2.1 Road Upgrades and Decommissioning

No changes are proposed for the road upgrade and decommissioning activities in the PCP.

3.2.2 Stream Crossing

No changes are proposed for the stream crossing activity in the PCP.

3.2.3 Operations Management

Marin RCD proposes a change to the Operations Management activity within the PCP to allow approval of Fence (382), Mulching (484), Roof (367), and Roof Runoff (558) practices using a CEQA exemption where appropriate based on location and ground disturbance or approval as maintenance of existing structures. The activities themselves would not change; however, Marin RCD has the flexibility to approve implementation of these measures under a CEQA categorical exemption or as a maintenance activity rather than through the standard PCP approval process. The change in CEQA compliance would not result in new or increased severity of potential impacts. Best management practices will still be required during the planning and implementation of the activities and Marin RCD will complete and file a Notice of Exemption for projects approved in this manner.

Marin RCD will add two new conservation practices under the Operations Management activity: Nutrient Residue and Tillage Management (345) and Soil Carbon Amendment (808). Nutrient residue and tillage management is a means to manage the amount, orientation, and distribution of crop and other plant residue on the soil surface while limiting soil-disturbing activities used to grow and harvest crops where the field is tilled before planting. It is designed to reduce sheet, rill, and wind erosion and soil erosion; reduce tillage-induced particulate emissions that may air quality impact; improve soil health and maintain or increase organic matter content; and reduce energy use. The practice uses conservation tillage practices to reduce erosion by leaving a majority of the soil surface covered by residue after planting. The residue protects the soil from erosional forces and allows water to infiltrate.

The Soil Carbon Amendment conservation practice (808) would allow for the addition of amendments derived from plant or animal residues to improve the physical, chemical, and biological properties of the soil. The practice would allow for use of Biochar. Amendments would be added to improve soil organic matter quantity and quality; maintain or improve soil stability and improve habitat for soil organisms; improve plant productivity and health; improve moisture management and enhance the efficient use of irrigation water; and improve air quality by sequestering carbon and reducing fine particulate matter emissions. The measure would not be used on native grasslands to prevent undesirable changes to the plant community. The use of this conservation measure will require soil testing and evaluation to determine where soil organic carbon amendment will improve soil condition and to determine application rates and timing to meet plant nutrient needs. In addition, this practice will not be used on land above 8 percent slopes for rangeland or forestland or 15 percent slopes for cropland or pasture, on serpentine grasslands and within 100 feet of a surface water body to prevent runoff. The use of this activity would be subject to the measures in the PCP designed to ensure compliance with water quality standards including Mitigation Measure HYD-3, Protect Water Quality – Measures for Application of Manure or Manure-laden Debris to Land as Fertilizer.

PCP Operations Management activities include agricultural management practices to protect water quality, such as the amount (rate), source, orientation, collection, placement, and timing of plant

nutrients, residue, and amendments on the soil surface year-round while limiting soil-disturbing activities to only those necessary to place nutrients, condition residue, and plant crops.

The operations management practices will continue to allow control over the amount, orientation, and distribution of conservation practices while limiting soil-disturbing activities to only those necessary to place soil amendments and plant materials. There are now nine operations management practices included in the PCP: *Nutrient Management, Residue and Tillage Management/No-Till, Fence, Mulching, Heavy Use Area Protection, Roof and Covers, and Roof Runoff Structure, and Soil Carbon Amendment*. The following table illustrates the size limitations for the two new practices added to the Operations Management activity.

PCP Size Limitations Per Project for Operations Management		
	Practice Acres	Additional Criteria
Residue and Tillage Management/No-till	N/A	Limited tillage (no more than 10% of the field) is allowed to close or level ruts from harvesting equipment.
Soil Carbon Amendment	N/A	Limited to use on slopes less than 8 percent slopes on rangeland or forestland and 15 percent slopes on cropland or pasture and will not be used on areas within 100 feet of a surface water body to prevent runoff. Not for use in native grasslands.

3.2.4 Manure Management

The purpose of the manure management activities is to protect water and air quality and to improve soil conditions. Actions include installation of composting pads and manure/liquid separators; use of techniques that result in a reduction of GHG emissions, such as conversion from dairy flush to scrape systems; and the proper transfer of liquid manure to avoid impacts on environmentally sensitive areas. The work associated with manure management includes five practices: *Composting Facility, Waste Treatment, Waste Separation Facility, Waste Transfer, and Waste Storage Facility*. A sixth practice is added in the Addendum: *Anaerobic Digester (366)*.

The addition of the Anaerobic Digester conservation practice would allow for the installation of waste management systems that use biological treatment to break down animal manure and other organic materials. The measure helps manage odors, reduces the net effect of greenhouse gas emissions, reduces pathogens, and captures biogas to facilitate energy production. Any anaerobic digester would be planned, designed, and constructed to meet all federal, state, and local laws and regulations as well as following the best management practices and mitigation measures included in the PCP. Fencing and signage would be installed around anaerobic digesters to prevent use for any other purpose as required by law. The use of this conservation measure would also require an overall nutrient management plan to address by-products created during the digester process.

Placement of the digester would be subject to the same considerations as the other manure management practices in the PCP. Facility planning would incorporate environmental concerns and economics, while taking into account the overall nutrient management plan for the site, and safety and health factors. The design of digester structures would depend the site location; federal, state, and local laws and regulations; waste type and production rate; equipment limitations; and safety concerns. The

following table describes some additional criteria for design and construction of an Anaerobic Digester practice

PCP Size Limitations per Project for Manure Management					
	Length	Disturbance Area	Soil Disturbance	Volume	Additional Criteria
Anaerobic Digester (366)	N/A	N/A	N/A	N/A	<p>The required setback of 100 feet from the nearest surface waterbody or the nearest water supply well. A lesser setback may be allowed by the RWQCB if MRCD can demonstrate that the groundwater, geologic, topographic, and well construction conditions at the site are adequate to protect water quality (SWRCB 2015).</p> <p>Locate outside the 100-year floodplain.</p> <p>Locate in area that would not cause a visual impact.</p>

3.2.5 Upland and Riparian Vegetation Management and Planting

The PCP upland and riparian vegetation management and plantings activity includes 12 practices: *Critical Area Planting*, *Prescribed Grazing*, *Range Planting*, *Hedgerow Planting*, *Riparian Herbaceous Cover*, *Riparian Forest Buffer*, *Vegetated Barrier*, *Forage and Biomass Planting*, *Windbreak and Shelterbelt Establishment*, *Silvopasture*, *Tree and Shrub Establishment*, and *Conservation Cover*. The Addendum analyzes the inclusion of four additional practices: *Wildlife Habitat Planting (420)*, *Tree-Shrub Site Preparation (490)*, *Herbaceous Weed Treatment (315)*, and *Brush Management (314)* to address activities that are needed to fulfill the objectives of the PCP for vegetation management and planting. The 16 upland and riparian vegetation management and planting practices are all included to:

- Restore, enhance, or create desired plant communities and fish and wildlife habitats;
- Protect soils, control erosion, reduce sediment, and improve water quality;
- Improve accessibility, quantity, and quality of forage and browse for livestock and wildlife;
- Reduce fire hazards by managing fuel loads to prevent potential fires from reaching the tree canopy;
- Improve air quality; and
- Sequester carbon.

Numerous existing PCP practices allow management of vegetation with grazing and browsing animals and support the establishment of adapted perennial or self-sustaining vegetation, such as grasses, forbs, legumes, shrubs, and trees. Herbicides and other biological treatments (e.g., grazing) may be used to control or eliminate invasive, noxious, or toxic infestations.

The Wildlife Habitat Planting (420) practice enhances wildlife habitat by planting herbaceous vegetation or shrubs. It requires identification of target habitat conditions to be created with the establishment of

selected plant materials. The targeted habitat conditions will include a description of plant species richness, diversity, pattern, and structure. The target conditions will include species that do not require annual cultivation and annual planting.

The Tree-Shrub Site Preparation (490) practice includes treatment of sites to enhance the success of natural or artificial regeneration of desired trees and/or shrubs. The practice will be used in areas suited to growing woody plants where current site conditions are not suitable for the natural or artificial establishment of desired trees. This practice may use mechanical or chemical methods to alter woody residue, vegetation, ground cover, soils or microsite conditions to prepare the site for planting, seeding, or natural regeneration of desired tree and shrub species. Herbicides may be used; however, prescribed burning is not allowable under PCP.

The Herbaceous Weed Treatment (315) practice includes the removal or control of herbaceous weeds including invasive, noxious, prohibited, or undesirable plants. The practice would be used to achieve the desired control of the target species and protection or enhancement of desired species in specific areas. The practice may include use of mechanical, chemical, or biological (prescribed grazing) methods either alone or in combination with other PCP treatments. Prescribed burning would not be used.

The Brush Management (314) practice is designed to manage or remove woody plants including those that are invasive and noxious. It will be used to achieve the designed plant community based on species composition, structure, density, and canopy cover or height. Brush management goals may be accomplished by mechanical, chemical, or biological methods, either alone or in combination and will be used for non-native blackberry and gorse removal or to meet other invasive species removal needs. No prescribed burning would be used. Brush management will be planned and applied in a manner to meet the habitat requirements for wildlife species of concern.

The addition of the four activities discussed above may include use of herbicides. The PCP currently allows use of herbicides and requires implementation follow all environmental hazards and site-specific application criteria listed on the herbicide labels. Best management practices in the PCP include development of written guidance for herbicide use on a project-specific basis. The written guidance for projects will include acceptable treatment references for containment and management or control of target species. The assessment for herbicide use will include evaluation and interpretation of herbicide risks associated with selected treatments; acceptable dates or plant growth stage at application to best effect control and discourage re-invasion; any special measures, timing, or other factors (e.g., protection of non-target species and soil texture and organic matter content) that must be considered to ensure the safest, and most effective application of the herbicide.

The four additional activities added to the PCP will be subject to the measures described in the Program including development of biological treatment plans. Biological treatment plans for upland and riparian vegetation management will provide references for containment and management or control of target species; kind of grazing animals to be used; timing, frequency, duration, and intensity of grazing or browsing; desired degree of grazing or browsing use for effective control of target species; maximum allowable degree of use on desirable non-target species; and precautions or requirements associated

with the selected treatments. Vegetation management activities may include minor grading or digging to remove roots and prepare the area for planting.

Marin RCD proposes a change to the Upland and Riparian Vegetation Management and Planting activity within the PCP to allow approval of all practices using a CEQA exemption where appropriate based on location and ground disturbance. Any project that proposes the use of herbicides would not be approved using a CEQA exemption. The PCP includes Mitigation Measure HAZ-1, Ensure Safe Use of Herbicides. Use of herbicides would be subject to implementation of the mitigation measure; therefore, the activity would not be considered exempt from the provisions of CEQA and Marin RCD would approve them using the PCP. The change in CEQA compliance would not result in new or increased severity of potential impacts. Best management practices will still be required during the planning and implementation of the activities, and Marin RCD will complete and file a Notice of Exemption for projects approved in this manner.

3.2.6 Waterway Vegetation and Planting

No changes are proposed for the waterway vegetation and planting activities in the PCP.

3.2.7 Waterway Stabilization

No changes are proposed for the waterway stabilization activities in the PCP.

3.2.8 Alternative Livestock Water Supply

No changes are proposed for the alternative livestock water supply activities in the PCP. Marin RCD may approve projects that only include above-ground pipeline installation using an exemption depending on the location of pipeline placement.

3.2.9 Sediment Basin (350)

No changes are proposed for the sediment basin activity in the PCP.

3.2.10 Aquatic Habitat Improvement

The purpose of the aquatic habitat improvement activity is to improve in-stream conditions for fish and other aquatic species, so the practice is expanded to include additional wetland and stream condition improvement measures and to include an array of Low Impact Development (LID) measures to protect wetlands, woodlands, and streams. The PCP does not include aquatic habitat improvement in tidally influenced locations, and the Addendum does not expand the program to include these areas.

The work associated with aquatic habitat improvement is composed of five practices: *Pond, Stream Habitat Improvement and Management, Channel Bed Stabilization, Aquatic Organism Passage, and Streambank Stabilization*. Installation of aquatic habitat improvement infrastructure will often require grading and use of heavy equipment.

Marin RCD is adding Wetland Restoration (657) and Restoration of Rare and Declining Natural Communities (643) to the PCP in this Addendum. Wetland Restoration will provide a means to return a former or degraded wetland to a condition that is a close approximation of its original condition. The addition of the Restoration of Rare and Declining Natural Communities practice in the PCP will facilitate restoring, conserving, and managing unique or diminishing native terrestrial and aquatic ecosystems and associated wildlife species. The practice may include use of Beaver Dam Analogues (BDAs), which are hand-built bioengineering structures designed to mimic the function of natural beaver dams. They can accelerate recovery of incised streams and riparian areas and wet meadows by slowing water flow and increasing sediment deposition to create conditions that restore natural processes that can develop self-sustaining riparian and wetland habitat. Both practices will provide the means to return imperiled aquatic or terrestrial ecosystem to a more functioning state to improve biodiversity.

Implementation of these activities will be subject to the best management practices and mitigation measures included in the PCP, especially those measures associated with the protection of wildlife species, rare plants, and water quality. The practices will be used only where the natural hydrologic conditions can be approximated by actions such as modifying drainage, restoring stream/floodplain connectivity, removing diversions, dikes, and levees, and/or by using a natural or artificial water source to provide conditions similar to the original, natural conditions. Treatments would be designed to achieve habitat and population objectives wetlands and to avoid adverse effects on special-status species and their habitats, as well as on aesthetics and pre-historic, historic, or traditional Tribal cultural values. The addition of the Wetland Restoration and the Restoration of Rare and Declining Natural Communities activities to the PCP would not introduce new impacts not already addressed in the PCP, nor would it increase the severity of any impacts previously addressed. The table below presents the size limitations for the newly added wetland restoration practice.

PCP Size Limitations per Project for Aquatic Habitat Improvement				
	Length	Disturbance Area	Soil Disturbance	Additional Criteria
Wetland Restoration	N/A	1 acre	N/A	
Restoration of Rare and Declining Natural Communities	500 feet	5 acres	N/A	

The addition of LID practices to the PCP is designed to provide Marin RCD with more measures to protect wetlands, woodlands, and stream buffers through improved stormwater management. The measures added to the PCP will help direct stormwater to infiltrate and allow the water to be absorbed on-site. The measures will reduce pollutant loads, moderate peak stormwater flows, and enhance base flows in streams and creeks. These measures may be used in urban settings or in rural ranch settings within the PCP area. A variety of LID conservation practices that work together to improve site conditions including rain gardens, bio-retention cells, bioswales, native landscaping, and soil quality restoration.

Rain gardens will be native, perennial gardens strategically located to capture runoff from impervious surfaces to absorb water, reduce runoff, protect water quality, and prevent flooding. Bio-retention cells

will be shallow, landscaped depressions that can handle large volumes of stormwater. Bio-retention cells will often have an engineered base to offset compacted soil conditions. Level spreaders are flat areas constructed to slow runoff. They dissipate water velocity and prevent erosion by spreading water flows over a wide area. Bioswales will be stormwater conveyance features that slowly convey water to storm sewer inlets or surface waters and filter the “first flush” of runoff. Other LID measures may also include, but would not be limited to, driveway removal, flow-through planters, and curb cuts.

Implementation of LID activities will be subject to the best management practices and mitigation measures included in the PCP, especially those measures associated with the protection of wildlife species, rare plants, and water quality. Treatments would be designed to achieve water quality and wildlife habitat improvement objectives and avoid impacts on aesthetics and pre-historic, historic, or traditional Tribal cultural values. The addition LID activities to the PCP would not introduce new impacts not already addressed in the PCP, nor would it increase the severity of any impacts previously addressed. There are no size limitations on LID activities.

4 Environmental Analysis

The following identifies how the inclusion of the nine additional conservation practices and LID measures to the PCP would affect the resource analyses presented in the 2018 Initial Study/Mitigated Negative Declaration (IS/MND).

The approval of projects using a CEQA exemption, where appropriate, will not change the impacts presented in the IS/MND. Projects approved using an exemption will not require mitigation measures to reduce impacts and they will be limited in size and scope based on the exemption selected. Marin RCD will file a Notice of Exemption for each project approved in this manner.

The addition of the nine new practices and LID measures would not change the analysis of the impacts presented in the IS/MND.

- ***Aesthetics*** – The additional conservation practices would be subject to the same standards, sizing, and requirements as the other measures in the PCP. The new PCP practices could be completed near any of the three currently undesignated scenic highways in Marin County. There would be temporary impacts associated with construction, but these would not damage scenic resources along the highways. The impact would be less than significant.

Installation of an anaerobic digester as part of the manure management activity would be subject to implementation of all necessary best management practices and mitigation measures in the PCP. Specifically, the design of a digester would require implementation of Mitigation Measure AES-1, Provide Site-specific Planning to Maintain Vistas on Scenic Highways to reduce impacts on scenic resources to less than significant levels.

Implementation of the mitigation measure would require a site-specific visual resources assessment and preparation of a planting/screening plan to avoid impacts. Implementation of Mitigation Measure AES-1 will reduce impacts on scenic resources to less-than-significant levels by designing and constructing according to the results of a site-specific scenic

resources evaluation. The visual assessment will be used to identify locations where a digester could be installed without having significant impacts on scenic resources. If a digester cannot be located without impacts on visual resources, the digester would not be installed as part of the PCP.

- ***Agriculture and Forestry Resources*** - A fundamental goal of both the PCP and of Marin RCD and its partners is to support sustainable agriculture in environmental stewardship. The activities included in the PCP were selected to protect agricultural lands from erosion and to improve conditions where soil erosion is already occurring. The expansion of the PCP to include nine additional conservation practices and LID measures serve the same purpose. The operations and manure management practices added to the PCP will be used to increase productivity and sustainability, as well as to comply with regulatory directives to protect water quality and sensitive resources. The addition of nine conservation practices and the LID measures into the PCP will not result in a change in important farmland status or conversion of farmlands to other uses, conflict with zoning or Williamson Act contracts, or impact farmlands or forestlands.
- ***Air Quality and Greenhouse Gas Emissions*** – The inclusion of the nine additional conservation practices and LID measures would be beneficial for air quality and would reduce greenhouse gas emissions. The new practices would serve to sequester carbon or expand capture of greenhouse gas emissions, especially the new manure management practice as they promote addition of carbon to the soil and methane capture. The total annual number of PCP projects would not increase with the addition of the nine added conservation measures or the use of LID measures; therefore, no new or increased impacts to air quality from construction of projects would occur. With the implementation of best management practices, use of the new practices would not increase the potential air quality impacts presented in the IS/MND.
- ***Biological Resources*** – Implementation of the new conservation measures may cause temporary and minor impacts on biological resources, just as the existing 44 measures would during implementation. Over the long-term, the new PCP conservation practices would provide improved aquatic, riparian, and upland habitat conditions and decreased sedimentation in waterbodies to benefit fish, amphibians, reptiles, resident and migratory birds, and other species. The practices would be implemented in the same geographic areas as those measures described in the PCP; therefore, no new impacts on biological resources would occur with implementation of the best management practices and mitigation measures included in the IS/MND.

Any conservation projects approved using a CEQA exemption would require implementation of all relevant Best Management Practices such as designing projects to minimize the area of disturbance and design standards to protect sensitive biological resources. Proposed projects that require mitigation measures to minimize impacts to biological resources would

not be approved using a CEQA exemption. Those projects that require mitigation to reduce impacts would be approved through the standard PCP process. Therefore, approval of projects using a CEQA exemption would not increase impacts beyond those described in the PCP.

- ***Cultural and Tribal Resources*** – The inclusion of nine additional conservation practices and LID measures would not change the PCP requirements for Marin RCD to identify and avoid known cultural resources during project design. The new measures would be subject to all the requirements included in the PCP. No project with the potential to affect a cultural or tribal resource would be approved using a CEQA exemption; these projects would be approved through the PCP process. Therefore, there would be no change in the impacts discussed in the IS/MND.
- ***Geology, Soils, Hydrology, and Water Quality*** – The newly added conservation measures would be designed to improve conditions in terms of soil erosion, site stability, and water quality improvement. New anaerobic digesters would be approved for locations outside of the 100-year flood hazard area to avoid impeding or redirecting flood flows. Implementation of each measure would be subject to the same standards as described in the PCP. Therefore, there would be no new impacts.
- ***Hazards and Hazardous Materials*** – The addition of nine new measures and LID practices would not change the kinds of hazardous materials used already described in the IS/MND. No new materials or increased hazards are expected. Mitigation Measure HAZ-2, Provide Information for Safe Practices with Anaerobic Digesters is already included as part of the PCP and would be required for any anaerobic digester constructed under the PCP. All other Best Management Practices and mitigation measures would be used as necessary to reduce potential impacts from hazards and hazardous materials. No new impacts would occur from adding the nine new practices or LID measures.
- ***Land Use and Planning*** – None of the new conservation measures would physically divide a community or conflict with land use plans. These practices would occur on rural agricultural land as would the existing conservation measures. The impacts would be the same as those discussed in the PCP.
- ***Mineral Resources*** - The PCP does not authorize mineral recovery and inclusion of the nine additional conservation practices and the LID measures would not result in changes to mineral extraction practices or availability. Therefore, there would be no impact.
- ***Noise*** - None of the nine conservation practices or the LID measures added to the PCP would create long-term changes to the ambient noise. They could cause temporary noise increases during noise-generating construction. Implementation of the conservation measures would be subject to the Best Management Practices included in the PCP associated with limits on

construction hours. The equipment used would be similar to the types described in the PCP, and therefore, there would be no increased noise beyond that evaluated in the IS/MND. The impacts would remain less than significant.

- ***Population and Housing, Public Services, Utilities and Service Systems*** – The PCP IS/MND identified no impacts for these analysis areas. The addition of nine new conservation practices and LID measures and the approval potential of some projects using a CEQA exemption would not change the analysis and would not result in impacts on population and housing, public services, or utilities and service systems.
- ***Recreation*** – The PCP does not increase the use of any recreational facility nor does it include construction or expansion of any recreational facilities. The added conservation measures do not include recreational facilities; therefore, there would be no impact.
- ***Transportation and Traffic*** – No impacts associated with implementation of any of the PCP activities were identified in the IS/MND. The nine additional conservation practices and the LID measures would be of similar size and complexity as the 44 measures already included in the Program. None of the new measures would trigger a new or more severe impact.