

**RELIEF REACH – KENNEDY MEADOWS
RIPARIAN RESTORATION AND
STREAMBANK STABILIZATION PROJECT**

**INITIAL STUDY/
NEGATIVE DECLARATION**

**Spring Gap-Stanislaus Hydroelectric Project
Federal Energy Regulatory Commission
Project No. 2130**

Draft

Prepared By:



For:

State Water Resources Control Board

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Proposed Negative Declaration

Pacific Gas and Electric Company Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project

Spring Gap-Stanislaus Hydroelectric Project Federal Energy Regulatory Commission Project No. 2130

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INTRODUCTION

This Negative Declaration (ND) and the associated Initial Study evaluate the potential impacts of implementing Pacific Gas and Electric Company's (PG&E's) Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project (Kennedy Meadows Project or Project) in compliance with the California Environmental Quality Act (CEQA).

The Kennedy Meadows Project will occur along a 3,000-linear-foot reach of the Middle Fork Stanislaus River identified as "Kennedy Meadows Reach"¹ (also referred to as the Project Reach) on land owned by Tuolumne County, California. The property is surrounded by public land managed by the United States Department of Agriculture - Forest Service (USFS). Kennedy Meadows is located along Highway 108, approximately 57 miles east of Sonora and 50 miles south of South Lake Tahoe at an elevation of approximately 6,500 feet above mean sea level . The Project Reach is located approximately 2.5 miles downstream of PG&E's Relief Dam. Relief Dam, constructed in 1910, is on Summit Creek. Kennedy Creek joins Summit Creek approximately one mile downstream from Relief Dam and upstream of the Project Reach, forming the Middle Fork Stanislaus River. A map is included in the attached Initial Study (IS) for the Project.

PG&E is required by its current Federal Energy Regulatory Commission (FERC) License for the Spring Gap-Stanislaus Hydroelectric Project (FERC Project No. 2130) to evaluate riparian and streambank conditions in the Kennedy Meadows Reach and to develop and implement vegetation restoration and streambank stabilization measures to improve riparian vegetation

¹ The Kennedy Meadows Reach is within the Relief Reach, which extends from Relief Dam to Donnell's Reservoir in PG&E's studies for the relicensing of the Spring Gap-Stanislaus Hydroelectric Project.

and habitat, aquatic habitat, and bank stability. PG&E has completed several years of studies to inform the Project development.

PROPOSED PROJECT

The main components of the Project include: (1) construction of streambank stabilization bioengineering design elements (including improvement and planting of riparian vegetation) in seven treatment areas within the Project Reach; (2) implementation of best management practices (BMPs) and avoidance, protection, and minimization measures (APMMs) for potential construction impacts; and (3) implementation of a maintenance and monitoring plan (MMP).

Stream Restoration and Enhancement Design Elements

Seven locations were selected for bank stabilization and riparian restoration treatments within the Project Reach. The seven locations (treatment areas) have vulnerable or unstable streambanks and lack riparian vegetation cover. Please see attached IS for a map of treatment area locations, as well as proposed treatments.

The proposed treatments include a combination of various bioengineering techniques, including, but not limited to: streambank grading, wood and rock placement, and native vegetation planting. Toe rock additions and root wad series are recommended in areas with more recent and severe active streambank erosion, and where flow velocities and shear forces are higher during high flows compared to the other treatment areas. Areas with lower flow velocities and shear forces will be treated with riparian vegetation planting. To protect the restored vegetation and log structures and promote the successful establishment of riparian vegetation along the streambanks, split rail fencing will be installed in two areas at the downstream end of the Project Reach on the east meadow. These fenced areas are separated by an approximate 80-foot bank section without fencing, which is currently used for river access by recreationists and cattle. Fencing will focus access in this section, and reduce pressure on the restored areas.

Best Management Practices and Avoidance, Protection, and Minimization Measures

This section describes BMPs and APMMs that PG&E and/or their designated contractor will use during implementation of the Kennedy Meadows Project. The Kennedy Meadows Project has been designed to limit potential impacts to environmental resources. The following BMPs and APMMs are specific to the Kennedy Meadows Project and include standard PG&E adopted measures.

- General Construction Measures
- Equipment Maintenance
- Hazardous Materials Management and Spill Prevention
- Water Quality Protection
- Concrete Waste Management
- Fire Prevention
- General Wildlife Avoidance and Protection
- Nesting Bird and Bat Avoidance and Protection
- Stream Diversion and Dewatering
- Aquatic Species Protection
- Aquatic Species Recovery and Relocation
- Riparian and Meadow Habitats and Wetlands Protection
- Cultural Resource Protection
- Recreation Resource Protection
- Turbidity Monitoring

Maintenance and Monitoring Plan

An MMP has been developed to ensure the success of the Kennedy Meadows Project (see Appendix C of attached IS). The MMP includes the following:

- Purpose of the MMP and need for maintenance and monitoring.
- Success criteria with measurable attributes for establishment of new riparian habitat and stabilized streambanks.
- Monitoring schedule: Baseline and Years 1, 2, and 5 (or until success criteria are met).
- If success criteria are not met, PG&E will consult with agencies to determine appropriate next actions, which could include more plantings, bank treatments, or other actions.
- No action if agencies determine that the restoration and enhancement objectives of the Kennedy Meadows Project have been achieved.
- Maintenance schedule: Multiple times per year in Years 1 and 2, twice per year in Years 3 and 4, and then once per year every five years and in the spring of wet years through the duration of the FERC license.
- Maintenance and monitoring methods.
- Reporting and consultation.

FINDINGS AND DETERMINATION

The Kennedy Meadows Project as proposed by PG&E will avoid or reduce any negative environmental impacts to a point where no significant impact on the environment will occur.

There is no substantial evidence in light of the whole record before the public agency that the Kennedy Meadows Project may have a significant impact on the environment.

On the basis of this evaluation, the State Water Board concludes:

- a) Implementation of the Kennedy Meadows Project will not 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, 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) Implementation of the Kennedy Meadows Project will not have impacts that are individually limited, but cumulatively considerable.
- c) Implementation of the Kennedy Meadows Project will not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Once approved, this Negative Declaration will be filed pursuant to the CEQA Guidelines.

DRAFT

Leslie F. Grober
Deputy Director for Water Rights

Date

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ACRONYMS

°C	degrees Celsius
APCD	Air Pollution Control Districts
APMMs	avoidance, protection, and minimization measures
ATV	all-terrain vehicle
Basin Plan	Water Quality Control Plan for the Sacramento River and San Joaquin River Basins
BCC	Birds of Conservation Concern
BMI	benthic macroinvertebrate
BMPs	best management practices
BP	before present
CAA	Clean Air Act
CAL FIRE	California Department of Forestry and Fire Protection
Cal-IPC	California Invasive Plant Council
CalTrans	California Department of Transportation
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFP	California Fully Protected (species)
cfs	cubic feet per second
CNDDDB	California Natural Diversity Database
CO ₂	carbon dioxide
CVWQCB	Central Valley Water Quality Control Board
CWA	Clean Water Act
D50	median diameter
DO	dissolved oxygen
EIR	Environmental Impact Report
ESA	Endangered Species Act
FE	federally endangered
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration

FSS	Forest Service Sensitive Species
FT	federally threatened
ft.	foot
GHG	greenhouse gas
GPS	global positioning system
IPaC	Information for Planning and Conservation
IS	Initial Study
LOS	level of service
MBTA	Migratory Bird Treaty Act
MCAB	Mountain Counties Air Basin
mg/L	milligrams per liter
mm	millimeter
MMP	maintenance and monitoring plan
MMT CO ₂ -e	million metric tons carbon dioxide equivalent
mph	miles per hour
MRZ	Mineral Resource Zone
msl	mean sea level
NAHC	Native American Heritage Commission
ND	Negative Declaration
NO _x	nitrogen oxides
NTU	Nephelometric Turbidity Unit
O ₃	ozone
OHWM	ordinary high water mark
PG&E	Pacific Gas and Electric Company
Plan	Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Plan
PM	particulate matter
Project	Kennedy Meadows Riparian Restoration and Streambank Stabilization Project
Project Reach	Kennedy Meadows Project Reach
PSW	Pacific Southwest
RWQCB	Regional Water Quality Control Board
SE	state endangered
SEC	Sequoia Ecological Consulting

SNYLF	Sierra Nevada yellow-legged frog
SSC	California Species of Special Concern
ST	state threatened
SWPPP	Stormwater Pollution Prevention Plan
State Water Board	State Water Resources Control Board
UCMP	University of California Museum of Paleontology
USACE	United States Army Corps of Engineers
USFS	United States Department of Agriculture - Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 INTRODUCTION

This Initial Study/Negative Declaration (IS/ND) evaluates the potential impacts of implementing Pacific Gas and Electric Company's (PG&E's) Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project (Kennedy Meadows Project or Project) in compliance with the California Environmental Quality Act (CEQA).

The Kennedy Meadows Project will occur along a 3,000-linear-foot reach of the Middle Fork Stanislaus River identified as “Kennedy Meadows Reach”² (also referred to as the Project Reach) on land owned by Tuolumne County, California. The property is surrounded by public land managed by the United States Department of Agriculture - Forest Service (USFS). Kennedy Meadows is located along Highway 108, approximately 57 miles east of Sonora and 50 miles south of South Lake Tahoe at an elevation of approximately 6,500 feet (mean sea level [msl]). The Project Reach is located approximately 2.5 miles downstream of PG&E's Relief Dam. Relief Dam, constructed in 1910, is on Summit Creek. Kennedy Creek joins Summit Creek approximately one mile downstream from the dam and upstream of the Project Reach, forming the Middle Fork Stanislaus River.

PG&E is required by the current Federal Energy Regulatory Commission (FERC) License for the Spring Gap-Stanislaus Hydroelectric Project (FERC Project No. 2130) to evaluate riparian and streambank conditions in the Kennedy Meadows Reach and to develop and implement vegetation restoration and streambank stabilization measures to improve riparian vegetation and habitat, aquatic habitat, and bank stability. PG&E has completed several years of studies to inform the development of this Project (PG&E 2011a; PG&E 2012b; PG&E 2013; PG&E 2016a). The main components of the Project include: (1) construction of streambank stabilization bioengineering design elements (including improvement and planting of riparian vegetation) in seven treatment areas within the Project Reach; (2) implementation of best management practices (BMPs) and avoidance, protection, and minimization measures (APMMs) for potential construction impacts; and (3) implementation of a maintenance and monitoring plan (MMP).

1.1 LEAD AGENCY AND TRUSTEE AGENCY

The State Water Resources Control Board (State Water Board) is the CEQA lead agency for the Project. PG&E is requesting water quality certification for Ecological Restoration and Enhancement Projects under Section 401 of the Clean Water Act. In addition, the California Department of Fish and Wildlife (CDFW) will use this document in its issuance of a Streambed Alteration Agreement to PG&E under Section 1602 of the California Fish and Game Code. This IS/ND has been prepared in accordance with the provisions of CEQA and the State CEQA Guidelines.

² The Kennedy Meadows Reach is within the Relief Reach, which extends from Relief Dam to Donnell's Reservoir in PG&E's studies for the relicensing of the Spring Gap-Stanislaus Hydroelectric Project (PG&E 2002).

1.2 PROJECT PURPOSE AND NEED

The **Kennedy Meadows Project** is required by Article 401 of the FERC License for the Spring Gap-Stanislaus Hydroelectric Project (issued on April 24, 2009). The License condition is derived from USFS 4(e) conditions and conditions contained in the State Water Board 401 Water Quality Certification.³ PG&E was required to evaluate riparian and streambank conditions in the upper Kennedy Meadows Reach (i.e., the Project Reach) on the Middle Fork Stanislaus River below Relief Dam and to develop and implement vegetation restoration and streambank stabilization measures.

PG&E completed several years of studies (2009–2013) focused on the assessment of streambank and riparian conditions in the Project Reach.⁴ The findings of these studies were used in developing the Project (PG&E 2016a). Specifically, the study findings were used to identify: (1) locations where bank stabilization is needed, and (2) factors limiting riparian vegetation along the streambanks, which were used to inform the bioengineering treatments that will be most suitable to address streambank instability and lack of riparian vegetation in each of these locations. Through consultation with regulatory agencies and interested parties, PG&E has developed the Kennedy Meadows Project to provide streambank stabilization and enhance riparian and other habitats within the Project Reach.

The objectives of the Kennedy Meadows Project are to:

- provide streambank stabilization and reduce extent of active erosion;
- increase riparian cover on streambanks within the Project Reach; and
- enhance aquatic, riparian, and meadow habitats.

The Project is comprised of the following three components to provide streambank stabilization and protect, enhance, and create riparian, meadow, and aquatic habitats:

- (1) Construction of streambank stabilization bioengineering design elements in seven treatment areas along the 3,000-foot length of the Project Reach;
- (2) Implementation of BMPs and APMMs to minimize potential construction impacts; and
- (3) Implementation of an MMP.

³ PG&E prepared the Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Plan (Plan) (PG&E 2009), which was approved by FERC on October 29, 2010. Additional information on the License requirements and the Plan are provided in PG&E's 2015 Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Project Description 100% Design Level (100% Design Report) (PG&E 2016a).

⁴ PG&E completed three focused studies: Geomorphic Conditions Assessment and Streambank Stability Focused Study; Riparian Vegetation Focused Study; and Grazing Exclusion and Planting Focused Study. See PG&E 2016a for additional information on these studies. Additional hydrologic and hydraulic analyses and historical aerial photograph evaluations are included in the 100% Design Report (PG&E 2016a).

The Project Description (Section 2) describes the general vicinity of the Project area; describes the Proposed Action, which includes restoration and enhancement treatments, BMPs and APMs, and the MMP; evaluates construction activities in relation to delineated wetlands and Other Waters of the United States; provides estimates of dredge and fill volumes; summarizes biological and cultural resources; and summarizes the ecosystem function and service benefits of the Project.

1.3 PURPOSE OF THE INITIAL STUDY/ NEGATIVE DECLARATION

CEQA requires that public agencies document and consider the potential environmental impacts of any agency actions that meet CEQA's definition of a project. Briefly summarized, CEQA defines a "project" as an action with the potential to result in direct or indirect physical changes in the environment. A project includes the direct activities of an agency and activities that involve public agency approvals or funding. Guidelines for an agency's implementation of CEQA are found in the State CEQA Guidelines (California Code of Regulations, [CCR] title 14, Chapter 3).

Provided that a project is found to be nonexempt from CEQA, the first step in an agency's evaluation of the potential environmental impacts of a project is preparation of an IS, as outlined in Appendix G of the State CEQA Guidelines. An IS is prepared to determine whether the project will involve "significant" environmental impacts as defined by CEQA and to describe feasible mitigation measures that would avoid significant impacts or reduce them to a less-than-significant level. If the IS does not identify significant impacts, the agency may prepare an ND. If the IS identifies potentially significant impacts and mitigation measures that will reduce them to a less-than-significant level, the agency may prepare a Mitigated Negative Declaration. If a project will result in significant impacts that cannot be mitigated to a less-than-significant level, the agency must prepare an Environmental Impact Report (EIR) that documents the significant impacts of the project.

The Proposed Action is considered a project as defined by CEQA. The State Water Board has determined that the Kennedy Meadows Project, as designed and proposed, will not result in potentially significant environmental impacts and that an IS/ND is the appropriate CEQA document. To satisfy the requirements of CEQA, this IS/ND describes the Kennedy Meadows Project and its environmental setting, discusses the potential environmental impacts of the Project, and identifies elements incorporated into the Project design to avoid what otherwise might be potentially significant environmental impacts. A copy of the completed CEQA Appendix G checklist is provided in Appendix A to this IS/ND.

1.4 SCOPE OF THE DOCUMENT

This IS/ND evaluates the Kennedy Meadows Project's potential to cause significant environmental impacts in the following issue areas:

- Aesthetic Resources
- Agricultural Resources
- Air Quality
- Biological Resources

- Cultural Resources
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Public Services
- Recreational Resources
- Transportation/Traffic
- Utilities and Service Systems

The document identifies no significant environmental impacts, as the objective of the Project is to provide environmental restoration and because of the BMPs and APMMs built into the Project design avoid and protect resources from otherwise potentially significant impacts. As a result, it finds that no additional mitigation measures are needed to reduce impacts to a less-than-significant level.

2.0 PROJECT DESCRIPTION

This section describes the Kennedy Meadows Project, as proposed by PG&E, to provide streambank stabilization and to enhance and create riparian, meadow, and aquatic habitat in the Project Reach.

2.1 PROJECT LOCATION AND OVERVIEW

Kennedy Meadows is located in Tuolumne County, California, along Highway 108, approximately 57 miles east of Sonora, approximately six miles east of the town of Dardanelle, and 50 miles south of South Lake Tahoe at an elevation of approximately 6,500 feet (msl). The Kennedy Meadows Project is located in the Sonora Pass United States Geological Survey (USGS) Quadrangle, in Section 2 of Township 5 North, Range 20 East. The latitude and longitude of the Project is 38.302569 North and -119.741307 West (North American Datum [NAD] 83).

The Project Reach is located along the Middle Fork Stanislaus River approximately 2.5 miles downstream of Relief Dam (Figure 2.1-1). Streambank stabilization and riparian restoration will occur along a 3,000-linear-foot Project Reach along the Middle Fork Stanislaus River. Upstream of the Project Reach, the stream is a steep and rocky channel. At Kennedy Meadows, the stream transitions to a wide, low-gradient, and depositional section and meanders through a montane meadow with scattered cottonwood stands.

2.2 LAND OWNERSHIP AND MANAGEMENT

The Kennedy Meadows Project is located on a 240-acre parcel owned by Tuolumne County. The lands surrounding the parcel are managed by the Stanislaus National Forest, including the Emigrant Wilderness, which is located less than 0.5 mile southeast of the Kennedy Meadows Project (Figure 2.1-1). The Assessor's Parcel Number is 021-020-02-00 and the Land Conservation Parcel Identification Number is 940. The parcel is zoned as a commercial and general recreation district (Tuolumne County Ordinance Code, Section 17.16.010 and Section 17.31.010).

PG&E donated the 240-acre parcel to Tuolumne County and established a conservation easement held by the Mother Lode Land Trust in November 2013. The intent of the conservation easement is to ensure the permanent protection of the beneficial public values on the property, while allowing for the ongoing use of the property by PG&E for hydroelectric operations, water delivery, and related activities. The specific conservation management objectives for Tuolumne County's property include:

- ensure the Kennedy Meadows planning unit remains open space for the benefit of the public;
- allow the Kennedy Meadows Resort and Pack Station to continue operating;
- protect future public access subject to reasonable limitations set by the landowner;
- require forested lands to be managed to provide ecological, economic, social, and cultural benefits for present and future generations;
- permit agricultural uses to continue; and

- require protection of cultural resources (Stewardship Council 2013).

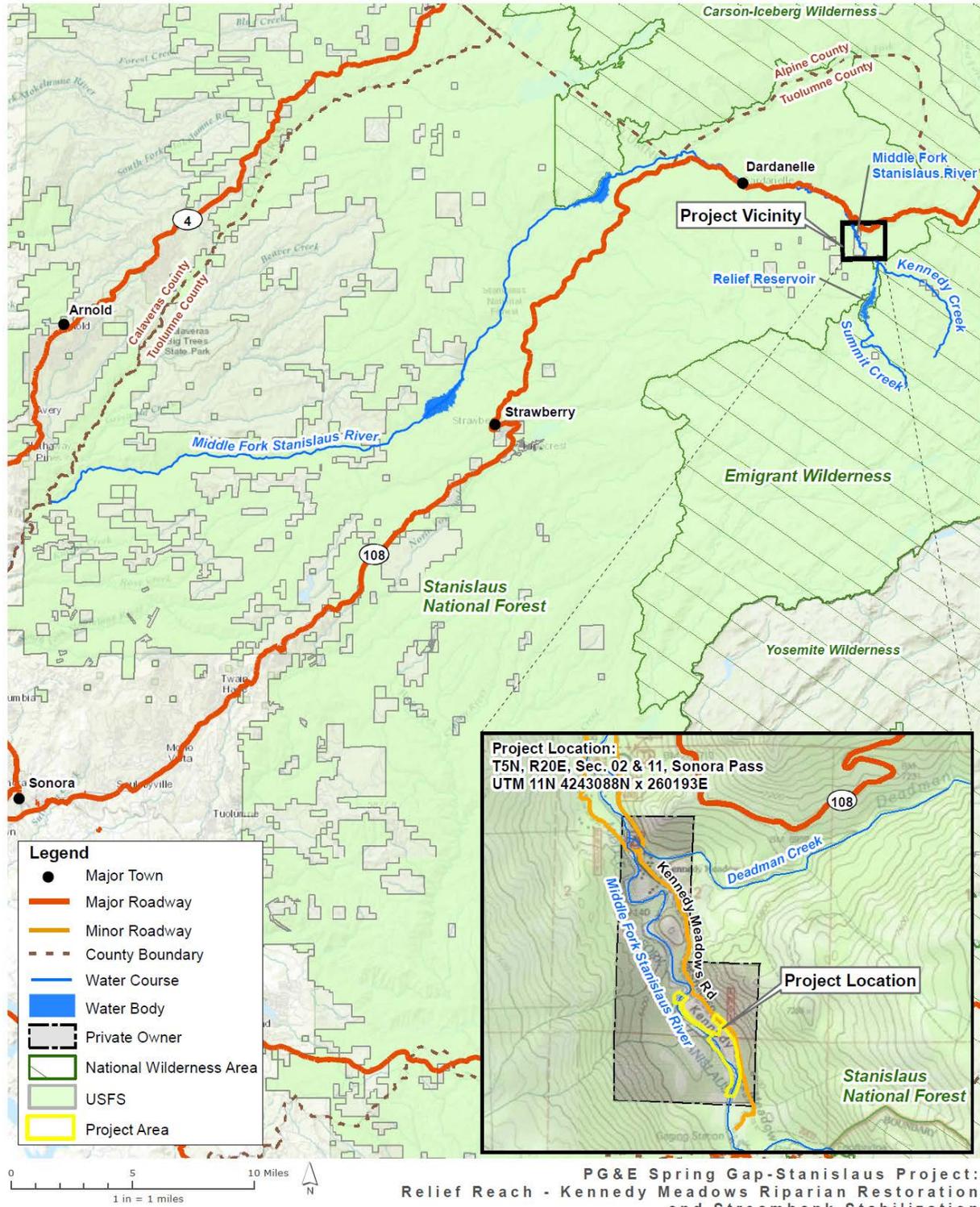


Figure 2.1-1. Regional Area and Land Use Jurisdiction.

2.3 LAND USE

The Project Reach and vicinity provides outdoor recreation and wildlife habitat in the remote upper elevations of the Sierra Nevada. The Stanislaus National Forest is managed for multiple uses including recreation, open space, timber management, wildlife habitat, and water quality. A prominent feature near Kennedy Meadows is the Huckleberry Trail, along the Kennedy Meadows Road, which provides equestrian, angling, and hiking access to the Emigrant Wilderness. Approximately 300 head of cattle are staged in the Project Reach and surrounding meadows for approximately one week each year in late September,⁵ and pack animal use of the meadow has been observed throughout the summer. Cattle access and cross the river at multiple locations within the Project Reach. All-terrain vehicle (ATV) use has been observed in the east meadow (right meadow, facing downstream) and along the walking path at the top of the streambank. Manure spreading also occurs in the fall after departure of the cattle in the east meadow (PG&E 2016a).

2.4 PROJECT BACKGROUND

The Middle Fork Stanislaus River within the Project Reach is moderately incised and locally widened with broad floodplain meadows and generally sparse old cottonwood forest on the west floodplain. Recent geomorphic changes (e.g., channelization; bank erosion and channel widening; changes in bar size; and shifts in channel position) influence the observed distribution of riparian vegetation within the Project Reach.

Historically, the channel was relatively confined and narrow, as described by Stillwater Sciences (2004) (e.g., 1944 aerial photography). There were localized areas with cutbank erosion, bar deposition, and evidence of overbanking at the top of the downstream meander in the historical aerial photographs. Riparian vegetation was distributed as a discontinuous narrow corridor along the east streambank. Along the west streambank, riparian vegetation occurred as a continuous narrow corridor in the upper and lower portions of the reach. A wide cottonwood forest occurred in the middle portion of the reach.

Channelization and other in-channel work have occurred within the Project Reach at least four times since 1944: (1) between 1956 and 1965 (downstream portion of reach); (2) between 1965 and 1977 (entire reach); (3) between 1987 and 1993 (downstream portion of reach); and (4) between 1993 and 1997 (downstream portion of reach). Other in-channel work has included the placement of rock riprap on the cutbank on the east streambank at the upstream-most meander bend after high flows in 1996 and 1997, and moving of downed cottonwoods from within the channel toward the streambanks. These activities altered the position of the channel and changed channel sinuosity, slope, and channel width and depth within the Project Reach. Some of these activities resulted in the direct removal of riparian vegetation along the stream margins. Recent changes to the channel (lateral instability and bar formation) have occurred as

⁵ The USFS allows a grazing lessee to stage approximately 300 head of cattle in the meadows for two days annually on the way to a USFS allotment at higher elevation and up to one week on the way out in late September. The cattle are typically staged in the Project Reach and surrounding meadows only in the fall.

the channel adjusts its slope, sinuosity, and geometry in response to the aforementioned activities that occurred during the past 50 years.

Substantial bank erosion has occurred in localized areas during high-flow events that have occurred since 2009. Riparian vegetation has established on bar surfaces since 2004; however, vegetated cover is lacking along portions of the reach, particularly in areas with active streambank erosion. The channel is no longer channelized or leveed, although remnants of the excavated material can be observed along the east channel margins in the downstream portion of the reach.

More detailed descriptions of existing conditions for specific environmental resources are found in Section 3. Photographs of the Project Reach are provided in Appendix B.

2.5 PROJECT OBJECTIVES AND PROJECT BENEFITS

2.5.1 Project Objectives

The Kennedy Meadows Project has been designed to provide streambank stabilization and reduce the extent of active erosion; increase riparian cover on streambanks within the Project Reach; and enhance aquatic, riparian, and meadow habitats. It will protect 1,885 feet of streambank within the 3,000-foot Project Reach from further bank erosion, slumping, and failure and:

- reduce meadow (wetland) habitat loss;
- decrease sedimentation/erosion, thus improving water quality; and
- minimize activities on streambanks that may contribute to continued instability.

The Kennedy Meadows Project will also enhance 6.2 acres of aquatic habitat, by improving habitat complexity, increasing roughness and decreasing flow velocities, improving water quality, and increasing large wood that can provide habitat and detritus to enhance macroinvertebrate food.

2.5.2 Project Benefits

The Project will protect and restore approximately 1,885 feet within the 3,000-foot Project Reach, as well as improve water quality downstream. Elements of the bioengineering treatments and the restored riparian corridor will improve several aquatic, riparian, and meadow ecosystem functions; provide long-term ecosystem service benefits; and enhance beneficial public values in the vicinity of the Project Reach and beyond. Improvements to aquatic and riparian/floodplain ecosystem functions with long-term aquatic and wildlife benefits and associated benefits to ecosystem services include:

Enhanced Ecosystem Function and Ecological Changes

- Aquatic habitat complexity (aquatic habitat quality and quantity)
- Substrate quality for benthic macroinvertebrates (aquatic habitat quality and quantity)

Benefited Ecosystem Service

- Fishing, recreational experience
- Fishing, recreational experience

Enhanced Ecosystem Function and Ecological Changes

- Stream margin habitat for aquatic biota and food source (aquatic habitat quality and quantity)
- Reductions in ongoing streambank erosion and restoration of the riparian buffer (aquatic and wildlife habitat quality and quantity)
- Water temperature by increasing riparian shade and reducing rate of continued channel widening through bank erosion (aquatic habitat quality and quantity)
- Aquatic and riparian food web (aquatic and wildlife habitat quality and quantity)
- Riparian corridor cover, vegetation structural complexity, and species diversity (wildlife habitat quality and quantity)

Benefited Ecosystem Service

- Fishing, recreational experience
- Water quality, fishing, recreational experience, aesthetic appreciation, wildlife viewing opportunities
- Fishing, streamside recreation activities, recreational experience
- Fishing, recreational experience, wildlife viewing opportunities
- Water quality, recreational experience, aesthetic appreciation, streamside recreation activities, wildlife viewing opportunities

Improvements to ecosystem functions that will benefit these ecosystem services are discussed further below.

Aquatic habitat complexity will be enhanced by the installation of large wood. Large wood, including logs and root wads as specified in the Kennedy Meadows Project designs, serves an important ecosystem function in providing fish and benthic macroinvertebrates (BMI) shelter from high water velocities and predators. Root wads provide highly complex and dynamic microhabitats that support fish and BMI communities. Large wood used in the Kennedy Meadows Project design will promote localized bed scour and the formation of deeper water habitats. The presence of both deep and shallow habitats creates a wider variety of water velocities and habitat diversity that can be used by aquatic biota. The wood itself provides a porous surface for the attachment of algae and BMI. As the wood slowly decays over decades, aquatic communities will continue to colonize the structures further.

The Project will improve the ecosystem function of **benthic substrate** as habitat for aquatic biota by decreasing input of fine sediment from the eroding banks and runoff from the adjacent meadow that may fill interstitial spaces and reduce the suitability of cobble and gravel for fish spawning and BMI colonization. Within the benthic substrate, BMI primarily inhabit interstitial spaces between gravel and cobble. Interstitial spaces also provide incubation for the eggs of trout. Large boulders, used to anchor log structures and protect banks, will provide shelter for fish and BMI, as well as providing substrate for periphyton.

Riparian revegetation will provide **shelter and food** for aquatic biota. Shallow stream margins, especially those with overhead and object cover, are important habitat for juvenile fishes and some BMI. Riparian vegetation near or in contact with the water's edge enhances cover, complexity, and biological productivity along the channel margins. Streamside vegetation will also increase the source of allochthonous material (i.e., leaves, branches, terrestrial insects) that contribute to aquatic productivity.

Riparian revegetation and bank stabilization will improve **water quality** conditions within the Project Reach and downstream. The Project will restore the riparian buffer that protects the stream

from adjacent land uses by capturing and retaining eroding sediments and nutrients from adjacent lands in surface runoff and subsurface flow prior to them entering into the river channel. The treatments will reduce the existing high rate of bank erosion and sediment inputs into the stream channel by providing protection from hydraulic and geotechnical erosional processes and restoring a more natural rate of bank erosion. Treatments that increase the critical shear stress of the bank (e.g., bank and toe rock and wood) or decrease boundary shear stress (e.g., increase roughness by installing features such as large wood and vegetation) provide protection from hydraulic erosion. Treatments that increase bank strength (e.g., vegetation plantings) or decrease driving gravitational forces (e.g., bank grading) provide protection from geotechnical erosion.

Implementation of the bioengineering techniques and riparian revegetation will moderate **stream temperatures** by increasing shade and reducing ongoing channel incision and widening that threatens to increase the average width and decrease the average depth of the river at low flows. Wide, shallow channels have greater exposure to sun in the summer and cold air in the winter and therefore experience wider annual temperature variation, which can be detrimental to aquatic biota.

Reduction of bank erosion and enhancement of riparian vegetation will have broad beneficial impacts on the **aquatic and riparian food web**. The reduction of fine sediment erosion into the channel substrate will maintain interstitial space within the gravel that can be used by larger aquatic insects eaten by fish. These insects emerge from the stream in their adult stage where they can be eaten by terrestrial organisms such as bats and birds. Likewise, the enhancement of riparian vegetation will increase habitat for terrestrial invertebrates such as caterpillars and riparian spiders. Terrestrial insects in riparian vegetation are food for amphibians, bats, and birds, but may also fall into the water where they become food for fish. In this way, stream channel and riparian enhancement mutually subsidize a food web that is connected between the aquatic and riparian environments.

The Kennedy Meadows Project will substantially increase the **extent of the riparian corridor** within the reach, as well as enhance the vegetation **structural complexity and diversity**. Riparian corridors, although a relatively small proportion of the overall vegetated landscape, are located at the interface of the aquatic and terrestrial ecosystems and are typically more diverse and productive in plant and animal biomass compared to adjacent areas. An enhanced riparian corridor improves habitat for numerous wildlife and avian species.

2.6 PROPOSED ACTION

The Project, as described above, includes streambank stabilization and riparian restoration design elements; implementation of BMPs and APMMs; and implementation of an MMP. BMPs and APMMs have been integrated into the Proposed Action to minimize potential impacts to wetlands and waters, biological resources, water quality, human use, and cultural resources. The MMP (Appendix C) will help achieve Project objectives over time through periodic maintenance and monitoring of specific channel and riparian attributes.

The Project has a footprint of 9.38 acres. This footprint encompasses the streambank stabilization and riparian restoration treatment areas (discussed below) along the 3,000-linear-foot Project Reach, and construction access and staging areas. Stabilization of the streambanks and riparian planting will require activities within the ordinary high water mark (OHWM) and

result in impacts to a small amount of existing riparian vegetation (0.014 acre) and wetlands (0.06 acre). The Kennedy Meadows Project will result in overall enhancement of riparian and aquatic habitat. Permanent impacts will NOT result in loss of waters of the United States or wetlands. Below is a description of the specific activities associated with this restoration and enhancement Project.

2.6.1 Stream Restoration and Enhancement Design Elements

Seven locations were selected for bank stabilization and riparian restoration treatments within the Project Reach. The seven locations (treatment areas) have vulnerable or unstable streambanks and lack riparian vegetation cover. These locations are shown on Figure 2.6-1. Table 2.6-1 identifies issues at the treatment areas, lists proposed restoration and enhancement activities, and includes recent photographs of each treatment area. Figure 2.6-2 shows the type of activities proposed within each treatment area, including both portions of the treatment areas with planting only and areas where digging and grading will occur. Bank stabilization and riparian restoration treatment activities, including the equipment to be used and the source of the material, are briefly described in Table 2.6-2.

The proposed treatments include a combination of various bioengineering techniques, including streambank grading, wood and rock placement, and native vegetation planting. Toe rock additions and root wad series are recommended in areas with more recent and severe active streambank erosion, and where flow velocities and shear forces are higher during high flows compared to the other treatment areas. Areas with lower flow velocities and shear forces will be treated with riparian vegetation planting. Two of the treatment areas with unstable streambanks and lack of riparian vegetation (Treatment Areas 5 and 6) are located adjacent to a popular recreation trail and river access for cattle and recreationists. To protect the restored vegetation and log structures and promote the successful establishment of riparian vegetation along the streambanks, split rail fencing will be installed in two areas at the downstream end of the Project Reach on the east meadow. These fenced areas are separated by an approximate 80-foot bank section without fencing, which is currently used for river access by recreationists and cattle. Fencing will focus access in this section, and reduce pressure on the restored areas.

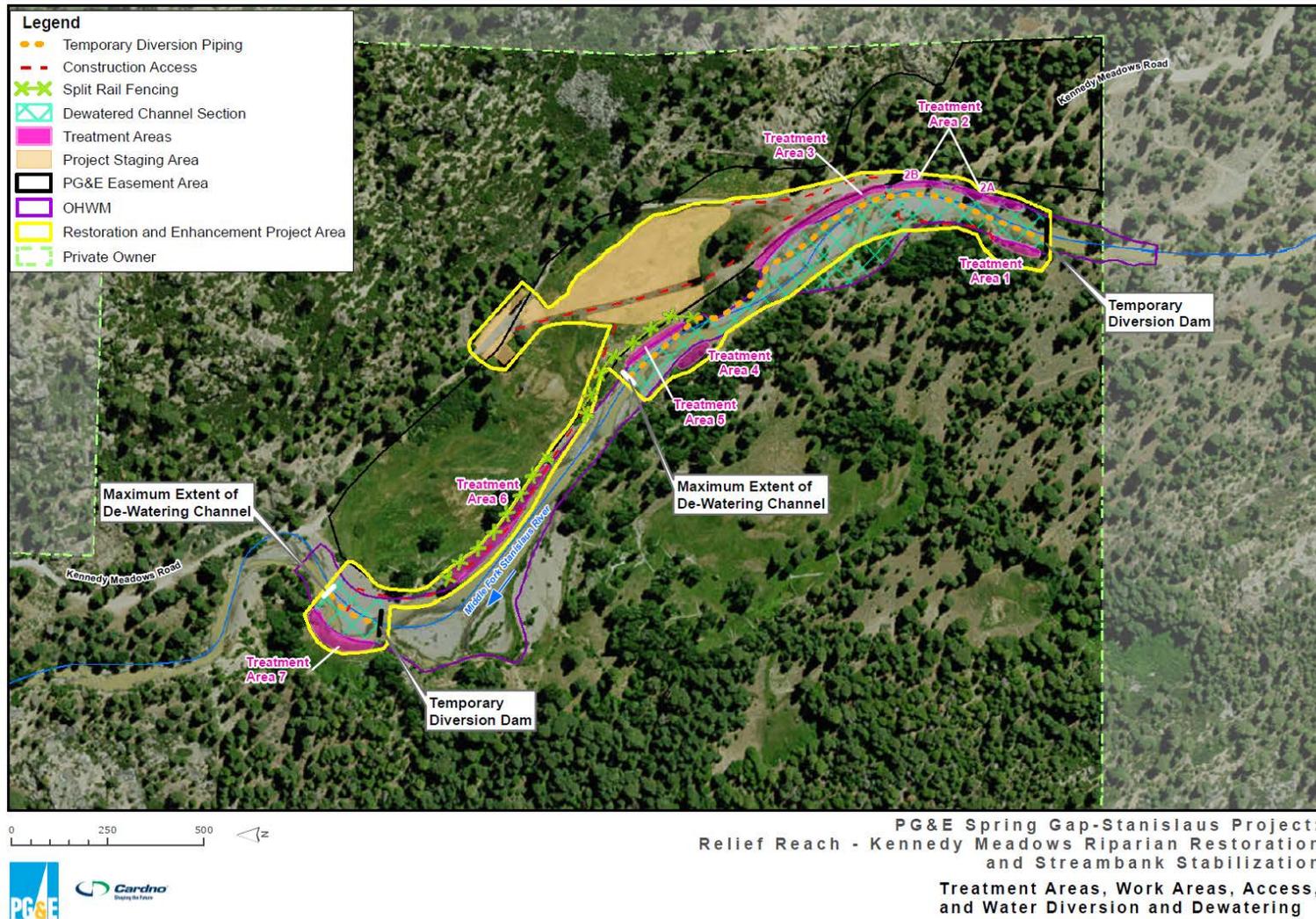
2.6.2 Work Areas and Activities

The Kennedy Meadows Project work area includes the treatment areas (described above), temporary staging areas, temporary construction access, and materials to divert water around the active work area within the channel (Figure 2.6-1).

2.6.2.1 Site Access and Staging

The Project Reach is directly accessible via Kennedy Meadows Road off Highway 108. From Highway 108, access to the Project Reach requires traveling 1.6 miles to the Kennedy Meadows Resort general store and then traveling 0.5 mile past the general store along a dirt road (Kennedy Meadows Road). The route includes a USFS bridge over Deadman Creek. Construction access to the treatment areas is shown on Figure 2.6-1. Temporary staging, storage, and vehicle parking will be in the existing disturbed area within the east meadow, shown on Figure 2.6-1. The temporary staging area for equipment and materials will be located in the upland area adjacent to Treatment Area 5 and Wetland B, and will encompass approximately 1.87 acres. This is the previously disturbed area within the “laydown” area, where PG&E has legal right for use during

activities associated with operations and maintenance at Relief Reservoir (Stewardship Council 2013).



A combination of partial dewatering with water-filled dams, temporary bridge crossing, or channel dewatering may be used to create work areas during construction of each treatment. This will be determined by the contractor based on site conditions. The maximum channel dewatering is shown on the figure. The maximum staging area within the meadow is shown in the figure. The staging and laydown area in the meadow will be limited to the minimum area required for storage of materials and staging of equipment.

Figure 2.6-1. Kennedy Meadows Project – Treatment Areas, Work Areas, Access, and Water Diversion and Dewatering.

Table 2.6-1. Bank Stabilization Treatment Techniques to Address Erosion and Vegetation Issues within the Project Reach.

Treatment Area	Issue	Bank Grading	Large Wood Placement	Stakes/ Poles/Bare Root ^a	Root Wad Series	Rock Toe/ Additional Rock	Site Photograph
		Bank Stabilization Treatment Technique					
1	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening (wood present) Bank length: 130 ft. Photograph: facing west bank from east bank, upstream		2 logs	~25 riparian poles/containers		see Table 2.6-5	
2	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening and incision (ongoing) Bank length: 350 ft. Photograph: east bank, facing upstream	●	9 logs	~80 riparian poles/containers and 38 upland containers		see Table 2.6-5	

Treatment Area	Issue	Bank Grading	Large Wood Placement	Stakes/ Poles/Bare Root ^a	Root Wad Series	Rock Toe/ Additional Rock	Site Photograph
		Bank Stabilization Treatment Technique					
3	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening and undercut banks Bank length: 500 ft. Photograph: east bank, facing downstream	●	18 logs	~260 riparian poles/containers		see Table 2.6-5	
4	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening (minimal vegetation present) Bank length: 130 ft. Photograph: facing west bank from east bank			~25 riparian poles/containers			
5	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening, bank slumping/ block failure Bank length: 200 ft. Photograph: east bank, facing upstream	●	3 logs	~157 riparian poles/containers		see Table 2.6-5	

Treatment Area	Issue	Bank Grading	Large Wood Placement	Stakes/ Poles/Bare Root ^a	Root Wad Series	Rock Toe/ Additional Rock	Site Photograph
		Bank Stabilization Treatment Technique					
6	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening, bank slumping/ block failure Bank length: 400 ft. Photograph: east bank, facing downstream			~295 riparian poles/containers			
7	<ul style="list-style-type: none"> Lack of riparian cover Bank erosion – channel widening (meander bend) Bank length: 250 ft. Photograph: facing west bank from east bank, upstream	●		~87 riparian poles/containers	14 logs	see Table 2.6-5	

^a Quantities are minimum numbers, and may be modified during the permitting process and site conditions.

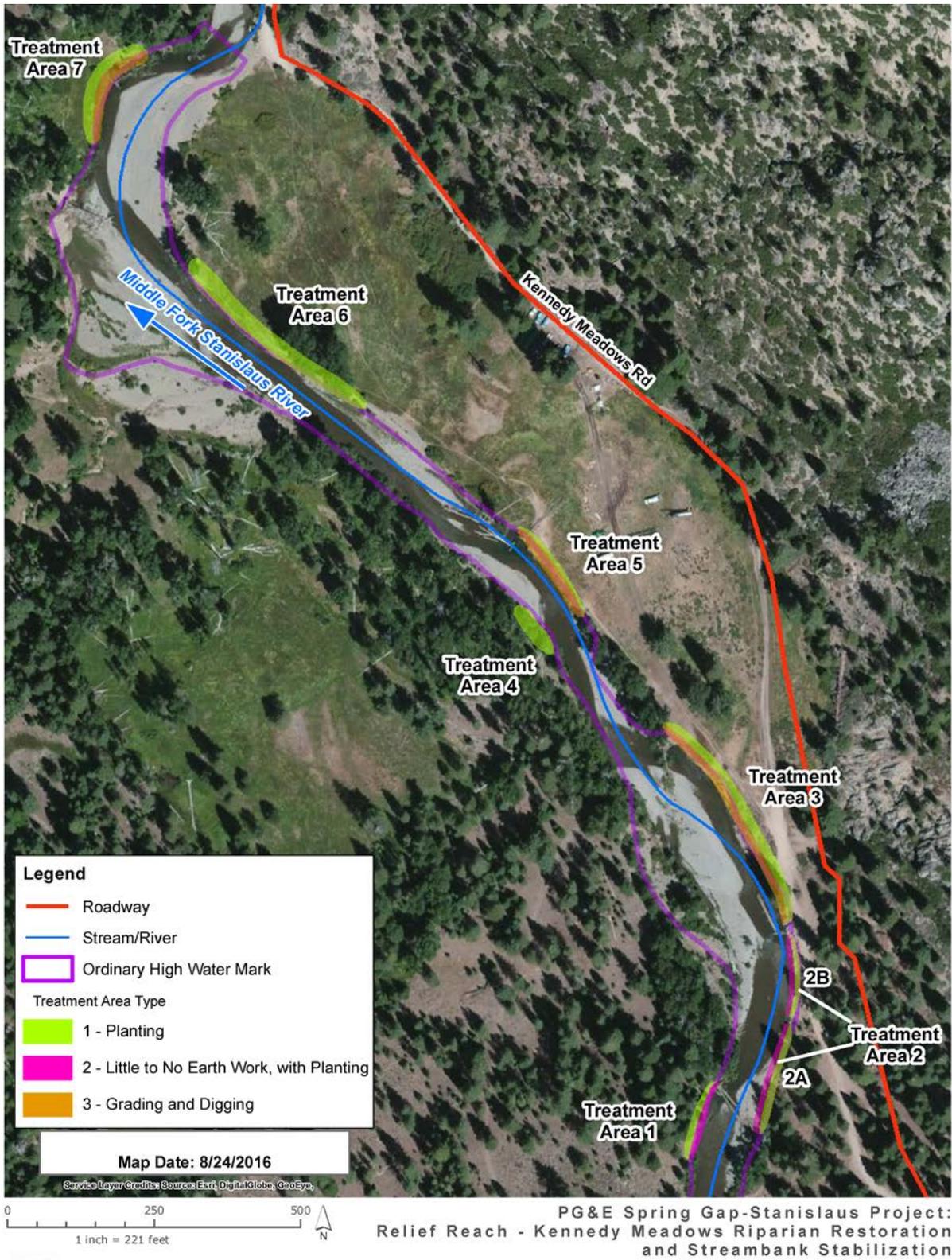


Figure 2.6-2. Treatment Areas Delineated by Level of Activity in the Project Reach.

Table 2.6-2. Description of Streambank Stabilization and Riparian Restoration Activities, Equipment, and Sources of Material.

Activity ^a	Description	Equipment	Source
Bank grading	Prepare streambank slopes by grading them to a more stable angle. Prepare a relatively uniform, smooth surface suitable for vegetation planting.	Excavator	No imported fill
Large wood	<p>Suitable tree (i.e., of adequate size and with root wads and branches or boles) will be delivered to and stockpiled in the temporary staging area. Trees will be delivered by the PG&E contractor. They will be moved to the designated work areas within the Project Reach via the access routes shown on Figure 2.6-1. Trees will be hauled with the excavator, and/or placed on a flatbed truck and transported to the sites from the staging area. Salvaged upland trees (described below under Vegetation Removal) will also be incorporated into the stabilization treatments.</p> <p>An excavator will be used to place the large wood in each treatment area. There will be approximately 25 round trips by trucks to complete this activity.</p>	Excavator, ten-wheel dump truck (or similar), and flatbed truck	Tuolumne County property in the vicinity of the Project, and PG&E vegetation management projects in the vicinity of the Spring Gap-Stanislaus Hydroelectric Project. None will be obtained from floodplain or riparian areas. Trees will be delivered to the Project Reach. Any trees that need to be removed for implementation of the treatments will also be incorporated into the treatments (described below under Vegetation Removal).
Live stake/pole planting	<p>Installation involves the collection and planting of live willow, alder, and/or cottonwood branches.</p> <p>Prior to harvesting, a qualified biologist will identify suitable source areas for collecting the live plant material. Final selection will be coordinated with the appropriate landowner (e.g., Tuolumne County).</p> <p>The branches will be stripped of all side branches, tips, and leaves when salvaged. Stakes are typically three to six feet in length with diameters that vary from ½ inch to four inches. Live stakes may be driven in place or set in holes dug with a digging bar, soil auger, or similar tool. Poles are longer with larger diameters and will be used in areas where depths to groundwater are greater. Live stakes/poles will be inter-planted with bare root plants in the treatment areas where streambank erosion is less severe, but currently lacks vegetated cover. The roots will provide soil</p>	Cuttings will be harvested with hand tools and transported by pickup truck or similar vehicle, as needed. Soil augers or similar tools will be used to dig the holes.	Live plant materials will be cut from existing riparian stands found within the Project Reach or in the vicinity on Tuolumne County property.

Activity ^a	Description	Equipment	Source
	reinforcement and top growth will enhance vegetated cover.		
Bare root planting	Willow/alder/cottonwood/red osier dogwood and upland tree/shrub bare root container stock will be inter-planted with the live stakes/poles.	Shovel, hand trowels. Plantings will be delivered by pickup truck or similar vehicle.	Local nursery.
Toe rock	<p>Toe rock is rock placed at the toe of the bank to provide additional strength to the bank to reduce scouring of the toe and banks during high velocity flows. It is most effective when combined with other bioengineering techniques, and is recommended for several treatment areas to provide additional strength at the toe of the bank. Large rock (approximately 10 inches in diameter) will be incorporated as part of the stabilization treatments. Rock will range in size from 1- to 3-inch river cobble to 1-ton boulders. The smaller rock will also be used to fill voids within the bank treatments.</p> <p>Ten-wheel dump trucks will haul the rock onsite and dump it close to the treatment areas. From that location, an excavator will place the rock. An estimated 25 dump truck trips will be required to haul the material to the site.</p>	Excavator, ten-wheel dump truck.	Expected to be sourced from excess rock material from other PG&E construction projects in the vicinity of the Spring Gap-Stanislaus Hydroelectric Project or from Sonora, California.
Root wad series	<p>Root wad series are a sequence of interlocking uprooted hardwood trees that are typically used in combination with other revegetation methods such as planting, to protect and enhance fish habitat.</p> <p>The bottom segment containing the root mass is placed into an excavated hole into the bank (trunk-first) and the root wad section protrudes perpendicular to the flow. The hole is then backfilled. The root wads deflect the flow away from the streambank so that the bank is less susceptible to erosion. Root wads have the potential to enhance instream habitat by promoting the formation of pool habitat and providing instream habitat.</p>	Same as for large wood.	Same as for large wood.
Vegetation removal (Treatment Area 2 only; see Table 2.6-1)	Salvage any existing riparian and upland trees that need to be removed for the construction of the treatments. Riparian trees (approximately 0.014 acre in Treatment Area 2) will be salvaged for use in revegetation as appropriate. Upland trees, including root wads, will be salvaged and used as the large wood. Based on surveys conducted in summer 2015, five (5) Jeffrey pine trees, three (3) white fir trees, and three (3) incense cedar trees (10-30 inch diameter at breast height) ² may need to be removed from Treatment Area 2 for construction of the treatment.	Backhoe or similar equipment, and hand tools.	Not applicable.

Activity ^a	Description	Equipment	Source
	<p>Salvaged riparian vegetation will be lifted and removed concurrent with construction activities. Based on surveys conducted in summer 2015, six (6) cottonwood trees (15- to 25-inch diameter at breast height)^b in Treatment Area 2 will need to be transplanted. Soils surrounding the plants will be moistened prior to removal and will be gently removed by excavating around the root zone with hand tools, a backhoe bucket, or other similar equipment. The root wad will be kept as intact as possible and damaged roots shall be pruned as needed. Burlap will be used to wrap and protect the root zone during transport, which will be kept moist/watered to maintain viability. The salvaged plants will be replanted in a suitable location within one of the treatment areas.</p>		
<p>Split rail fence (east meadow near Treatment Areas 5 and 6 only)</p>	<p>A split rail fence (stained pressure treated wood or similar product) (~ 36 inches high, with 3 rungs approximately 8 inches apart) will be installed along the top of the bank to protect the restored banks and revegetated areas approximately two to three feet from the planted vegetation. The fence will be installed in two segments (480 ft. along Treatment Area 5 and 440 ft. along Treatment Area 6), with an open area between these two segments for river access by recreationists and cattle. Large boulders (approximately 4-ft. wide; 2 to 3 ft. in height) will be placed from the end of the fence angling down to the OHWM to discourage access into the treatment areas from the bank slope.</p> <p>Six-foot fence posts will be placed approximately 10 ft. apart and secured with concrete footings. The holes (approximately 95 in total) will be dug approximately 2.5 ft. in depth using a backhoe with an auger attachment. Six inches of clean gravel will be placed at the bottom of the hole to facilitate water infiltration. Concrete will be mixed using a small mixer adjacent to the fence and shoveled into the holes. The top of the concrete will be finished to slope away from the post for drainage. The holes will be filled with concrete to approximately three to four inches below the ground surface, backfilled with existing topsoil, and seeded with the riparian/meadow seed mix. BMPs will be implemented to ensure resource protection.</p>	<p>Cement mixer, backhoe with auger attachment, and hand tools</p>	<p>Expected to be sourced from Sonora, California.</p>

^a Additional information on treatment activities can be found in the 100% Design Report (PG&E 2016a).

^b Refer to Table 2.6-1; a minimum of 80 riparian species poles/containers and 38 species upland containers will be planted in Treatment Area 2 as part of the treatment.

Upon completion of construction activities, all access routes and disturbed areas will be restored to their preconstruction conditions. Restoration of disturbed areas may include ripping and scarification to remove compaction caused by heavy equipment, seeding with native species, and slope stabilization. All areas that are within the grading limits will be seeded with the appropriate native seed mix (meadow or riparian).

Workforce

PG&E estimates that the Kennedy Meadows Project will require approximately eight to ten contracted workers onsite daily during construction. This will be in addition to staff required to provide project management and oversight, waste management, and other core services that will remain with PG&E. The existing available parking and laydown area is sufficient to accommodate the additional workers. Lodging is available at several locations near the Kennedy Meadows Project, including at Kennedy Meadows Resort and Pack Station, nearby campgrounds, Dardanelle Resort approximately six miles west on Highway 108, and in the town of Twain Harte, approximately 45 miles southwest on Highway 108.

Construction Schedule

Construction will occur from as early as early August to no later than the end of October. In-channel construction activities will occur for an estimated six weeks.

Active construction will be scheduled to limit the quantity of streamflow that will need to be diverted (i.e., during low flow once snowmelt runoff subsides), to minimize disruption during the peak recreation season to the extent feasible, to limit risk of runoff during rainstorms, and to maximize the potential for completion in one season prior to road closure due to weather, while considering the optimal time for planting (fall). Normal work hours will be from dawn until dusk, Monday through Friday. No night work will be authorized.

Construction Vehicles and Equipment

Table 2.6-3 lists the type of and number of construction vehicles that are anticipated to be used for implementation of the Kennedy Meadows Project.

Table 2.6-3. Construction Vehicles and Equipment.

Construction Vehicle/Equipment	Quantity
Construction Vehicles	
Excavator (30-foot reach)	1–2
Dump truck (10 yard [YD])	1
Loader (rubber-tired with 2 cubic yard [cy] bucket)	1
Crane, truck (100-foot boom, 30-ton capacity) ^a	0–1
Trucks	
Truck, pickup	2
Truck, water ^b	0–1
Other Equipment	
Drill, rock (track-mounted) (for drilling holes for posts)	1
Air/hydraulic hammers (soil anchor installation; fence installation)	1+
Pump (diesel or electric, trailer mounted, 200–500 gallons per minute [gpm] ^c)	1+
Fuel tank	0–1
Generator (diesel) ^d	1
Pipe fusing machine	0–1
Hand tools for planting (shovels, poke bars)	Several

^a If needed, to install temporary crossing, dependent on field conditions at the time of construction.

^b If required by the Stormwater Pollution Prevention Plan (SWPPP).

^c For dewatering work area seepage flows; size dependent on amount of seepage.

^d Generators and pumps may run continuously at certain stages of construction and dewatering.

Public Safety Signage and Notification

To alleviate the potential hazard to public safety, signage and fencing will be used during construction to help warn the public of hazards and isolate the work area. Advance notice of the construction schedule will be provided to Kennedy Meadows Resort and Pack Station. Signage will also be placed at the campground facilities, the Kennedy Meadows trailhead parking area, the gate across Kennedy Meadows Road at the pack station, the Project site, and on the trail south of the Project site. A public notice will also be placed in the local newspaper. If it can be done safely, PG&E may also provide access points for recreation and grazing away from construction areas, as feasible. Public safety may also be a concern after construction, particularly if people walk on the wood structures or rock. Signage will be used to educate recreationists on the restoration activities and to discourage people from climbing or walking on the treatments.

2.6.2.2 Water Diversion and Dewatering

Construction of the bioengineered structures and planting measures in Treatment Areas 1, 2, 3, 5, and 7 will require work areas within the channel and two stream crossings to access Treatment Areas 1 and 7. Dewatering will be required to create dry work areas for the construction of the structures at these treatment areas. At Treatment Area 4, no mechanized equipment crossing will be necessary for planting vegetation. The work areas for construction of Treatment Areas 1, 2, 3, 5, and 7 will be isolated and dewatered, and BMPs will be followed to minimize impacts to aquatic species and downstream water quality during construction. These BMPs are listed in Sections 2.6.4.4, 2.6.4.9, 2.6.4.10, and 2.6.4.15.

Channel dewatering is expected to be used to provide access to work areas below the current water surface elevation and to allow work under relatively dry conditions. Channel dewatering will involve the use of temporary cofferdam(s)/bladder dam(s) and gravity flow pipes to temporarily divert and dewater within the channel. Up to approximately 1,423 feet of channel (1.5 acres) could be dewatered in the Project Reach (1.5 acres below the water elevation at typical August/September flows or 3.4 acres below the OHWM). A maximum of two stream segments within the Project Reach will be dewatered under this alternative: an upstream section to enable in-channel work at Treatment Areas 1, 2, 3, and 5 and access to Treatment Area 1 (1,263 feet; 1.3 acres) and a downstream section to access Treatment Area 7 (160 feet; 0.2 acre). The locations of the maximum lengths of the dewatered channel section and diversion piping are shown in Figure 2.6-1. Figure 2.6-1 also provides a schematic of the proposed diversion dams and piping, and the extent of the dewatered portion of the work area. The diversions will consist of a cofferdam (with super sacks, sand bags, water-filled dam, or k-rails with plastic sheeting) or bladder dam (water-filled dam) and gravity flow pipes sized appropriately to the flow, or similar technique. The cofferdam/bladder dam directs flow into the pipe that then discharges downstream. This dewatering approach would have the maximum potential impact to environmental resources compared to partial or local dewatering approaches, described below.

The temporary cofferdam and diversion piping approach are expected to create a temporary backwater upstream of the cofferdams. This backwater upstream of Treatment Area 1 at the upstream-most area of the Project Reach is expected to be approximately 1.3 feet above the typical August to October water surface level, based on hydraulic analyses completed for the Project (Cardno 2017).¹⁵ The amount of increased stage and backwater will depend on the flow magnitude and the diversion and dewatering design (based on the site conditions). The width of water in the channel is not expected to increase substantially due to the confined banks upstream of the Project reach. The backwater area caused by setting up the cofferdam at Treatment Area 7, at the downstream-most part of the Project Reach is expected to also be 1.3 feet above the typical August to October water surface level which will cover portions of the existing bar.

¹⁵ The backwater would not extend to the S-52 compliance gage on the Middle Fork Stanislaus River.

To allow flexibility based on field conditions, a combination of partial channel dewatering with water-filled dams (bladder dams) near each treatment area, temporary crossing, or channel dewatering may be used. Construction is anticipated to occur when flows are typically very low (late summer to early fall). Dewatering of work areas may be phased, with diversion and dewatering and construction being completed in one work area before beginning work in another work area. Once conditions are better known, PG&E will inform the United States Army Corps of Engineers (USACE), State Water Board, and CDFW of the final dewatering design.

Partial channel dewatering will involve the installation of bladder dams oriented at an angle of approximately 10 to 15 degrees from the streambank to isolate the specified work area from the flow. This could include the isolation of specific treatment areas or multiple treatment areas. In sections of the river where this alternative is used, flow will not be fully diverted, and will remain within a portion of the channel through the Project Reach. This will occur within a smaller footprint than the full dewatering described below.

If the channel was not fully dewatered to access Treatment Areas 1 and/or 7, a temporary bridge crossing will be established at the approximate locations, where the stream crossings are shown in Figure 2.6-1. The temporary crossing(s) will be installed in a manner that will not impede seasonal flows in the river; contingencies will be established in the Project's Stormwater Pollution Prevention Plan (SWPPP) to address any forecasted storm events and/or peak flows, including removal of the temporary crossing(s) within a 24-hour emergency response notice. All components of any temporary crossing(s) will be completely removed after work is completed and all disturbed areas completely restored to pre-Project or Project conditions (if identified for modification).

It is anticipated that some seepage through the cofferdams/bladder dams into the work areas will occur, and pumping will likely be required to dewater the work areas. Water will be pumped into a baker tank or through silt bags and allowed to infiltrate into an upland area and/or used for irrigation of plantings. APMMs/BMPs will be followed to protect aquatic resources and water quality (see Sections 2.6.4.4, 2.6.4.9, 2.6.4.10, and 2.6.4.15). Fish will be relocated from work areas to a location downstream of Treatment Area 7 by qualified biologists prior to installation and any in-channel work.

Localized pumping will be used to contain turbid water hydraulically within the Project Reach, as needed. The turbid water will be treated at an upland area adjacent to the Project Reach in silt bags or a baker tank to levels below state and federal thresholds for discharge. Appropriate APMMs/BMPs will be followed throughout the Project so that turbidity within surface waters meets all federal, state, local, and permit requirements (see Sections 2.6.4.4, 2.6.4.9, 2.6.4.10, and 2.6.4.15). APMMs/BMPs will be employed in areas where equipment is used to grade streambanks or implement streambank treatments (Section 2.6.4). APMMs/BMPs, such as silt fencing or sediment retention equipment (see discussion above for in-channel work), will be employed to ensure that excessive amounts of sediment are not discharged into the channel during construction activities. Turbidity will be monitored when performing any in-water work, or in the event that activities result in sediments reaching the river. The APMMs/BMPs include measures to halt work and/or implement additional APMMs/BMPs if turbidity exceeds permit-identified specific threshold criteria.

Additionally, construction equipment will be cleaned of oil, grease, and other pollutants prior to mobilization to the site. APMMs/BMPs in Section 2.6.4 and a SWPPP will be followed.

2.6.3 Summary of Impacts to Wetlands and Waters

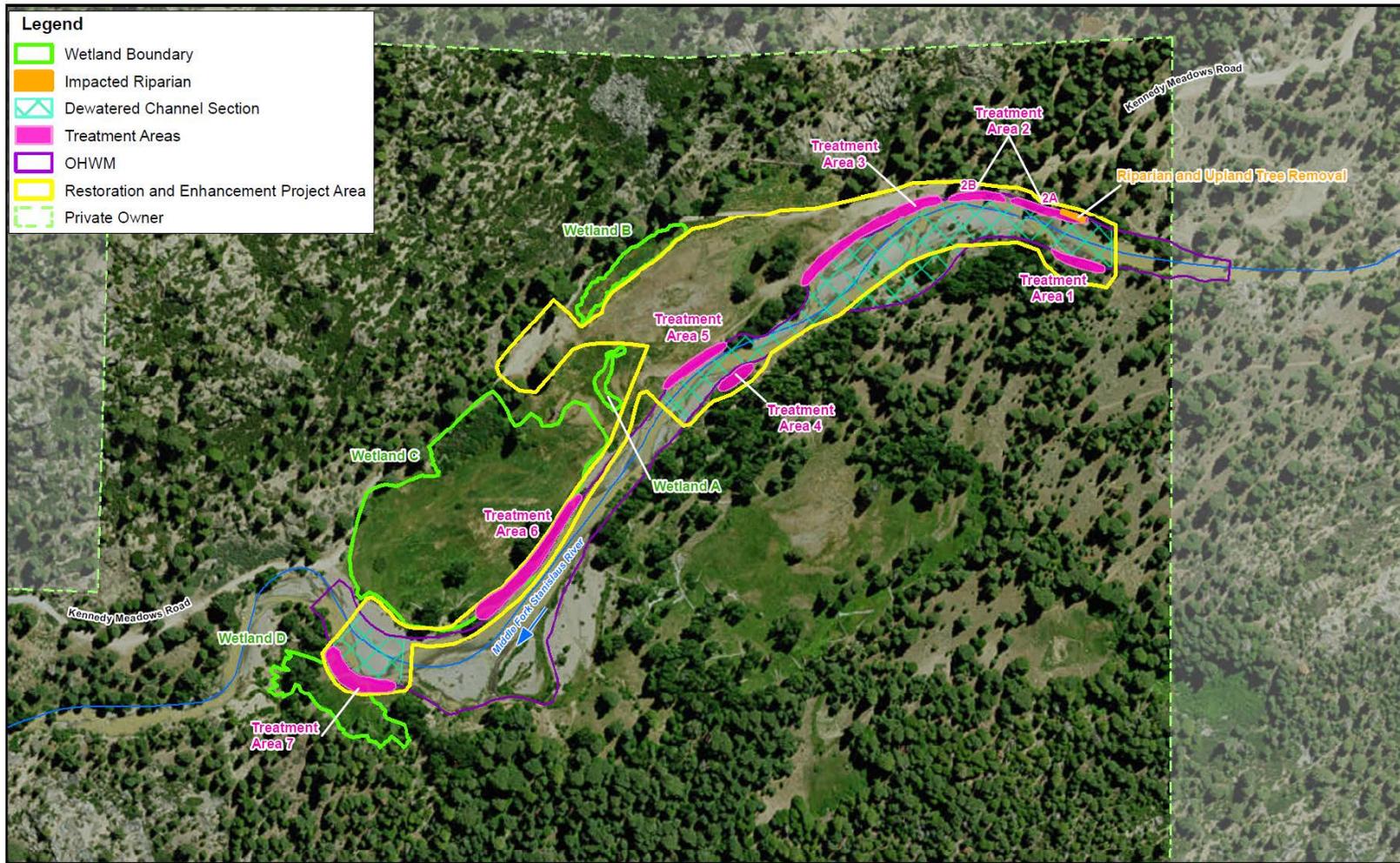
Potential impacts to wetlands and waters of the United States present within the Project Reach are summarized in Appendix D, Aquatic Resource Wetland Delineation Report.

The treatment areas extend along 1,885 linear feet of the Middle Fork Stanislaus River, for a total footprint of 1.2 acres. Approximately 0.30 acre of the treatment area is within the OHWM and 0.90 acre is outside the OHWM (Figure 2.6-3).

Most stabilization treatments will be constructed in portions of the streambank and meadow where there is minimal existing riparian vegetation. There will be no permanent impacts to wetlands or waters as a result of the construction of the treatments (Table 2.6-4). The Kennedy Meadows Project will improve bank stability, riparian cover, and wetland functions, and therefore will constitute “no net loss” of potentially jurisdictional wetlands and waters. Kennedy Meadows Project activities will result in an overall enhancement of wetlands, riparian habitat, and aquatic habitat (Table 2.6-4).

2.6.3.1 Dredge and Fill within the Ordinary High Water Mark

Bank stabilization treatments include the placement of rock, large wood, and dirt below the OHWM to stabilize the streambanks. The amount of dredge removed from and fill placed below the OHWM is summarized by treatment area in Table 2.6-5.



PG&E Spring Gap-Stanislaus Project:
Relief Reach - Kennedy Meadows Riparian Restoration
and Streambank Stabilization



Impacts to Riparian, Wetland and Other Waters of the U.S.

Figure 2.6-3. Impacts to Riparian Habitat, Wetlands, and Other Waters of the United States.

Table 2.6-4. Estimated Project Impacts and Permanent Enhancements to Wetlands and Other Waters of the United States.

Wetland/ Riparian/ Waters of the United States	Treatment Area	Activity	Impact Acreage		Enhancement Permanent Acreage
			Temporary	Permanent ^a	
Wet Meadow C	6	Riparian planting only; no construction equipment	0 acre	0.28 acre	0.28 acre
Wet Meadow D	7	Root wad installation, rock placement, riparian planting	0 acre	0.06 acre	0.06 acre
Total			0 acre	0.34 acre	0.34 acre
Riparian	2	Bank grading, installation of rock and wood, riparian planting	0 acre	0.014 acre	1.2 acres
Middle Fork Stanislaus River	1	Dredge and fill below the OHWM ^b		0.01	0.01
	2			0.08	0.08
	3			0.12	0.12
	5			0.07	0.07
	7			0.02	0.02
Total	1, 2, 3, 5, 7		0 acre	0.30 acre	0.30 acre
Dewatering					
Waters of the United States			Impact Acreage/Linear Feet		Enhancement Permanent Acreage / Channel Length
			Temporary	Permanent ^a	
Middle Fork Stanislaus River	1,2,3	Temporary fill below the OHWM: Cofferdams to dewater work areas ^c	0.04 acre / 20 linear feet	0 acre	
	7		0.039 / 20 linear feet	0 acre	
Total			0.08 acre / 40 linear feet	0 acre	0.08 acre / 40 linear feet

Waters of the United States			Impact Acreage/Linear Feet		Enhancement Permanent Acreage / Channel Length
			Temporary	Permanent ^a	
Middle Fork Stanislaus River	1, 2, 3, 5	Temporary dewatering during construction <u>below the OHWM^d</u>	3.0 acre / 1,263 linear feet	0 acre	
	7		0.4 acre / 160 linear feet	0 acre	
Total			3.4 acres / 1,423 linear feet	0 acre	7.0 acre^e / 3,000 linear feet
Middle Fork Stanislaus River	1, 2, 3, 5	Temporary dewatering during construction <u>based on late summer flows^f</u>	1.3 acre / 1,263 linear feet	0 acre	
	7		0.2 acre / 160 linear feet	0 acre	
Total			1.50 acre / 1,423 linear feet	0 acre	7.0 acre^e / 3,000 linear feet

^a Permanent includes rock, wood, or other fill material placement into the Waters of the United States for the restoration and enhancement of the stream channel. Permanent impacts will NOT result in a loss of Waters of the United States or Wetlands.

^b Dredge and fill will not change the aquatic resource to a non-aquatic resource. Rock and large wood will be placed within the channel to protect the toe of slope and deflect flows, as well as enhance aquatic habitat.

^c Will vary depending on the dewatering approach used. Values are maximum potential temporary impact.

^d There is approximately 7.0 acres below the OHWM in the 3,000-foot Project Reach. This assumes the maximum length of channel that would be dewatered for the Project.

^e Area within 3,000 feet Project Reach; actual area of enhanced aquatic habitat expected to be much larger than specific work area, including adjacent wetlands, and downstream aquatic habitat.

^f Acreage based on the area of flow that is typically in the Middle Fork Stanislaus River channel in August through October. This assumes the maximum length of channel that will be dewatered for the Project.

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Table 2.6-5. Summary of Permanent Impacts NOT Resulting in a Loss of Waters of the United States or Wetlands.

Treatment Area #	Treatment Description	Length of Treatment (linear feet)	Total Size of Treatment Area sq. ft. (acres)			Dredge and Fill within the OHWM (Other Waters)									Dredge and Fill outside the OHWM (Wetlands)						Dredge and Fill outside the OHWM (Riparian/Uplands)					
						Total Area and Length of Dredge and/or Fill Linear Feet (ft.)	Total Volume Dredged by Material Type (cy)			Total Volume Fill by Material Type (cy)			Total Volume Dredged by Material Type (cy)			Total Volume Fill by Material Type (cy)			Total Volume Dredged by Material Type (cy)			Total Volume Fill by Material Type (cy)				
			Within OHWM (Other Waters)	Outside OHWM (Wetland)	Outside OHWM (Riparian/Uplands)		Rock	Wood/Root Wad	Dirt/Soil/Sand	Rock	Wood/Root Wad	Dirt/Soil/Sand	Rock	Wood/Root wad	Dirt/Soil/Sand	Rock	Wood/Root Wad	Dirt/Soil/Sand	Rock	Wood/Root Wad	Dirt/Soil/Sand	Rock	Wood/Root Wad	Dirt/Soil/Sand	Rock	Wood/Root Wad
1	Placement of wood/rock; planting	130	225 (0.01)	--	1,300 (0.03)	130	--	--	--	7.2	1.0	--	--	--	--	--	--	--	--	--	--	41.3	6.0	--		
2A	Placement of wood/rock; planting	200	2,000 (0.05)	--	1,000 (0.02)	200	--	--	--	103.3	11.7	40.0	--	--	--	--	--	--	--	--	--	51.7	5.8	20.0		
2B	Bank grading, "enhanced" rock toe; planting (seed)	150	1,500 (0.03)	--	500 (0.01)	150	--	--	--	23.3	10.5	--	--	--	--	--	--	--	--	--	7.8	3.5	--			
3	Planting; grading of bank; placement of wood/rock	400	5,200 (0.12)	--	15,000 (0.34)	400	--	--	141.6	22.9	16.2	--	--	--	--	--	--	--	--	408.4	66.1	46.8	--			
4	Planting	155	--	--	1,300 (0.03)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
5	Planting; grading of bank; placement of wood/rock	200	3,000 (0.07)	--	3,000 (0.07)	200	--	--	85.0	30.5	5.3	--	--	--	--	--	--	--	--	85.0	30.5	5.3	--			
6	Planting	400	--	12,000 (0.28) ^b	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
7	Root wad; grading, planting (seed)	250	1,000 (0.02)	2,657 (0.06) ^c	2,343 (0.05)	250	--	--	--	15.0	9.3	--	--	--	--	39.9	20	--	--	--	35.1	20	--			
Total		1,885	12,925 (0.30)	14,657 (0.34)	24,443 (0.55)	1,330	0	0	226.6	202.2	54.0	40	--	--	--	39.9	20	--	--	493.4	232.5	87.4	20.0			
Grand Total		3,000^a	52,025 (1.20)			1,330	226.6			296.2			0.0			59.9			493.4			339.9				

^a The entire Project Reach is ~3,000 linear feet.

^b Wetland C

^c Wetland D

Total Volume Dredged	720 cy
Total Volume Fill	696.7 cy

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2.6.4 Kennedy Meadows Project Best Management Practices and Avoidance, Protection, and Minimization Measures

This section describes BMPs and APMMs that PG&E and/or their designated contractor will use during implementation of the Kennedy Meadows Project. Referenced BMP numbers refer to specific measures included in the *National Forest System Lands in California – Best Management Practices, USDA Forest Service, Pacific Southwest (PSW) Region, 2011* and *National Best Management Practices for Water Quality Management on National Forest System Lands, Vol 1: National Core BMP Technical Guide* (USFS 2012). The Kennedy Meadows Project has been designed to limit potential impacts to environmental resources. The following BMPs and APMMs are specific to the Kennedy Meadows Project and include standard PG&E adopted measures.

2.6.4.1 General Measures

PG&E proposes the following measures related to designation of work areas and proper handling of materials. PG&E and/or their designated contractor will implement the following measures, as necessary.

- Environmental Awareness Training, to be conducted by PG&E or their designee, will ensure that proposed measures are implemented by PG&E personnel or their designated contractor. A PG&E Representative will be designated prior to implementation of the Project and will be available during Project-related activities to assist with APMM/BMP compliance. All contractors and equipment operators will be required to complete the training prior to beginning work to increase awareness of the resource values present within the Project area. Training will include a review of avoidance and protection measures and BMPs listed in this section and included in Project permits. Contractors will require all onsite workers to attend a 15-minute environmental training session. The session will outline sensitive resources, requirements for protection, state and federal laws pertaining to protection of sensitive resources, and worker BMPs required for the job. Workers will be required to sign a statement indicating they will comply with such requirements during work.
- Work crews will be restricted to designated and clearly defined work areas. Staging of equipment and material sites will be restricted to designated areas. Work areas will be clearly delineated on construction drawings and will be staked and flagged where necessary prior to initiation of construction activities. Flagging will be maintained in good repair for the duration of the Kennedy Meadows Project (BMP 2.8; BMP 5.3).
- Overnight staging of equipment and material sites shall be restricted to designated areas outside the OHWM.
- If appropriate, loose materials will be covered with tarps, plastic, or erosion control blankets when not in use.
- At the end of each workday, equipment, tools, loose sediment, spoils, etc. will be removed from within the OHWM of the riverbed in case an unexpected rise in water level during the night should disturb the construction area.

- Trimming and/or removal of vegetation will be minimized to the extent required to complete the proposed Project.
- Motorized equipment will comply with Air Resources Board permitting requirements.
- Vehicle idling, noise, and odor will be minimized to the extent practicable when working near campsites, residences, public buildings, or commercial buildings. Diesel-fueled work vehicles will not stand idling for more than three minutes at any location, unless necessary for work purposes.
- Contractors will have the ability to communicate quickly with their supervisor and/or the PG&E Representative by having a working cell phone or radio on the job site at all times, or by identifying the closest area of cell phone reception or closest public phone and familiarizing all personnel with that location.
- Vehicles will not exceed 15 miles per hour (mph) on unsurfaced roads.
- All non-emergency work activities will be limited to the hours between dawn and dusk.
- In-channel work will occur in the late summer/fall (dry season) when flows are low and during dry weather (BMP 5.6).

2.6.4.2 Equipment Maintenance

PG&E and/or their designated contractor will implement the following measures, as necessary.

- All power equipment and vehicles will be free of petroleum residue, kept in good working order, and inspected each day for leaks prior to use. Leaks will be repaired immediately, or problem vehicles or equipment will be removed from the Kennedy Meadows Project site.
- Temporary equipment staging, maintenance, and refueling will only take place in designated areas away from any waterways. Equipment will be staged overnight in secondary containment or with other suitable barriers to prevent accidental leakage of fuel, oils, and other liquid from soaking into the soil, or being carried to waterways.
- No foreign materials, such as petroleum or other fuels, will be released.
- Refueling will only take place in a designated area away from any waterways. Drip pans or absorbent pads will be used during equipment fueling. Absorbent spill clean-up materials and spill kits will be available in fueling areas. Fuels will be stored in containment basins.
- Portable diesel power generators that may be used to generate temporary power for work will be maintained in good working condition. Generators will be turned off when not in use, and placed in an area clear of dry brush and atop a platform, tarp, or pan that will prevent the spill of fluids onto the earth. Generators will be equipped with a muffler and a spark arrester, or otherwise meet USFS standards for such equipment.

2.6.4.3 Hazardous Materials Management and Spill Prevention

Hazardous materials associated with the Kennedy Meadows Project construction include oils, fuel, lubricants, coolants, and herbicide products. An accidental spill or unplanned release could result from storage, transfer, and use of these materials. PG&E and/or their designated contractor will implement the following measures, as necessary.

- Job site briefings of personnel will be held at the beginning of each workweek to discuss and implement measures for spill prevention, reporting, and clean-up.
- Temporary storage of hazardous materials, and servicing and refueling of equipment will only be permitted at pre-designated locations away from waterbodies.
- All hazardous materials shall be contained in appropriate spill-proof containers, and/or secondary containment, and stored in a designated area away from waterways (BMP 2.8; BMP 2.11).
- Appropriate spill containment and clean-up materials will be available onsite at all times. Any spills will be cleaned up immediately and will not be buried or washed with water (BMP 7.4). Initial containment will be with absorbent material or, if necessary, the construction of berms. Contaminated soil will be excavated, contained, and transported to an approved disposal site.
- Used clean-up materials, contaminated materials, and recovered spilled materials that are no longer suitable for clean-up will be stored and disposed of properly. Hazardous and non-hazardous materials will be disposed of in the manner specified by the manufacturer.
- PG&E personnel will perform periodic inspection of the Project site and a final site inspection after maintenance is complete in order to certify that any spills have been reported.
- All applicable agencies will be notified as soon as feasible as to the type, day and time, and response to all spills within their jurisdiction. In the event of major spill affecting plant, wildlife, or aquatic resources or creating public health concerns, notification will be according to regulatory specifications.
- Temporary sanitary facilities will be located away from watercourses and drainages. Facilities will be maintained in good working order during the duration of the Kennedy Meadows Project.
- Unless directed otherwise by a regulatory agency, an approved site-specific Spill Prevention Control and Countermeasure Plan will be prepared and implemented as appropriate if the contractor conducting the restoration activity plans to store an aboveground oil or fuel container that exceeds 1,320 gallons (BMP 2.11; BMP 7.4).

2.6.4.4 Water Quality Protection

This section describes measures to reduce or avoid the incidence of dust, erosion, and sedimentation. Kennedy Meadows Project construction activities that could cause ground disturbance and subsequent dust, erosion, and sedimentation may include mechanical vegetation control activities and/or use of heavy equipment. This Project proposes only limited ground disturbance (6 inches to 1 foot) to no ground disturbance in non-construction areas.

The Kennedy Meadows Project will involve work in flowing water or otherwise wet conditions; however, erosion control and other BMPs shall be implemented to minimize and avoid water quality impacts both during and after ground-disturbing activities.

- The Project area is located within waters of the United States, jurisdictional under the Clean Water Act (CWA). CWA Section 404 and 401 permits will be obtained prior to work in this area. All avoidance, protection, minimization, and mitigation measures included in these permits will be implemented (BMP AqEco-2).
- The Project area is located within waters of the state, jurisdictional under Section 1600 of the California Fish and Game Code. A Section 1602 Streambed Alteration Agreement will be obtained prior to work in this area. All avoidance, protection, minimization, and mitigation measures included in this permit will be implemented.
- If necessary, seepage water will be pumped into a baker tank or through silt bags and allowed to infiltrate into an upland area or used for irrigation of plantings.
- PG&E will maintain minimum instream flows above and below the Project area, as required by the FERC License.
- Vehicles, heavy equipment, and gas-powered hand tools will be refueled in designated areas only, located away from the riparian area and stream corridor. Tanks will not be topped off (BMP 2.8; BMP 5.3).
- PG&E and its contractors will keep the Kennedy Meadows Project area in a neat, clean, and safe condition.
- If needed, dust will be controlled primarily through application of water, which will be applied to surfaces to prevent blowing dust.
- All stockpiles of fine-grained material will be covered and surrounded with coil rolls, straw wattles, or equivalent, to prevent sediment runoff, and will be protected by being located away from the stream channel (BMP 2.8; BMP 5.1).
- Absorbent spill clean-up materials and spill kits will be available onsite to be used in the event of an emergency to absorb spills. All used absorbent materials will be managed for proper disposal. If fuel spills occur, affected soils will be removed and managed for proper disposal.
- Vehicle use within riparian areas and waterways is limited to designated work areas and access routes. Vehicles will be checked and maintained daily to prevent leaks of materials that, if introduced to water, could be harmful to aquatic life.

- All stationary equipment containing hazardous chemicals (generators, pumps, compressors, etc.) temporarily staged within the OHWM will be placed within secondary containment.
- Cleared or pruned vegetation and woody debris (including chips) will be disposed of in a manner that ensures they do not enter surface water or a watercourse. All cleared vegetation and woody debris (including chips) will be removed from surface water or watercourses daily and placed or secured where they cannot re-enter the watercourse.
- A SWPPP that provides details regarding erosion/stormwater BMPs will be approved prior to implementation of the Project and implemented during construction (BMP 2.13).

2.6.4.5 Concrete Waste Management

Only a minimal amount of concrete will be used on this Project, to set fence posts in upland areas. PG&E and/or their designated contractor will implement the following concrete waste management measures, as appropriate.

- Dry and wet concrete materials will be stored under cover, away from drainage areas and waterways.
- Mixing of excess amounts of fresh concrete or cement onsite will be avoided. Any excess concrete will be temporarily stored in a designated area and disposed of at an approved disposal site.
- Washout of concrete mixing equipment will take place offsite or in designated areas only. Concrete equipment will not be washed out into storm drains, open ditches, streets, streams, or rivers.
- Concrete washout areas will be located in designated locations away from storm drains, open ditches, or waterbodies. Runoff from concrete washout areas will be controlled by constructing a temporary pit or bermed area large enough to contain liquid and solid waste.
- Washed out wastes will be directed into the temporary pit where the concrete can set, be broken up, and then disposed of properly.
- When washing concrete to remove fine particles and expose the aggregate, runoff creation will be avoided by draining the water to a bermed or level area.
- Sweepings from exposed aggregate concrete will not be swept into streets or storm drains. They will be collected and returned to aggregate base stockpile, or otherwise disposed of properly.
- Employees and subcontractors will be educated in proper concrete waste management.

2.6.4.6 Fire Prevention

The following measures address fire prevention and safety. PG&E and/or their designated contractor will implement the following fire prevention measures, as appropriate.

- Appropriate fire suppression equipment (e.g., extinguishers, shovels, water backpacks) will be available onsite, and appropriate fire prevention measures shall be taken to help minimize the chance of human-caused wildfires.
- During designated fire season, motorized equipment must have federal or state-approved spark arrestors; all vehicles must be equipped with firefighting tools as appropriate and in accordance with all applicable laws, rules, regulations, orders, and ordinances. When the fire adjective rating is Very High or Extreme, no vehicular travel will be permitted off cleared roads except in case of emergency.
- Smoking will not be allowed at any time in grass and wildland areas. Smoking will be allowed in barren areas, or within an area cleared to mineral soil at least 3 feet in diameter.
- Hunting, firearms, portable stoves, and open fires (such as barbecues) not required by vegetation management activity (except for safety in remote locations) will be prohibited in the Kennedy Meadows Project area. All trash, food items, and human-generated debris will be properly contained and/or removed from the site.
- Woody debris created by chipping, lop and scatter, or brush mowing operations must be left at an average depth of less than 18 inches from the ground surface.

2.6.4.7 General Wildlife Avoidance and Protection

This section describes the general wildlife avoidance and protection measures that PG&E and/or their designated contractor will utilize as appropriate, during Project construction:

- Clear work area limits will be defined and respected.
- If required by a regulatory agency or warranted by the identification of nesting birds or threatened and endangered species through a preconstruction survey, a qualified biologist will be present and will monitor all construction activities within the Project Reach. The biologist will educate employees and construction workers as described above under General Measures.
- Preconstruction and construction activities will be completed outside of the bird breeding season (February to August), to the extent feasible.
- Animals or their nests/burrows will not be disturbed, captured, handled, or moved. If any wildlife is encountered during the course of Project activities, said wildlife will be allowed to leave the area freely and unharmed.
- All dead or injured listed or sensitive animals will be reported to the PG&E Representative immediately.
- In the unlikely event of the discovery of any sensitive species, active nest, den, or burrow, the PG&E Representative will be notified.

- PG&E personnel and their contractors will be prohibited from bringing pets and firearms to the Kennedy Meadows Project area while performing Project-related activities.
- The contractor will institute a litter control program during the course of construction activities. Covered trash receptacles will be placed at the Project site and the contents properly disposed of at the end of the day, and more often as necessary. No foodstuffs or associated trash, containers, etc. will be left overnight.
- All work will be completed during daylight hours. Nighttime work (and use of artificial lighting) is not permitted unless specifically authorized.
- Any large pipes, containers, etc. will be capped during the evenings to prevent entry by wildlife. All of these described items will be thoroughly inspected again immediately prior to use to ensure that no entry or nesting has occurred.
- The undersides of all vehicles will be inspected after being parked and prior to movement.
- If a protected wildlife species is killed or injured as a result of construction or maintenance activities, the incident will be reported immediately to a supervisor and the PG&E Representative for appropriate management.

2.6.4.8 Nesting Bird and Bat Avoidance and Protection

Nesting birds are protected under the Migratory Bird Treaty Act (MBTA). The MBTA makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird including feathers, parts, nests, or eggs. California Fish and Game Code 3503 makes it illegal to destroy any birds' nests or eggs that are protected under the MBTA during the breeding season. Code 3503.5 further protects all birds of prey, such as hawks and owls, and their eggs and nests from any form of take during the breeding season.

The Project area contains potential nesting habitat for migratory bird species. Pursuant to the MBTA and California Fish and Game Code, removal of any trees, shrubs, or other potential nesting habitat should be conducted outside of the nesting season. The nesting season typically occurs from February to mid-September, but can vary from year to year. The measures below shall be implemented in order to ensure that nesting birds are not disturbed by the Project.

- PG&E personnel and contractors will not disturb, capture, handle, or move birds or their nests.
- If PG&E personnel and contractors discover any nests or roost sites, they will call the PG&E Representative for assistance.
- From February 1 to September 15, preconstruction nesting bird surveys will be performed by a qualified biologist to identify any nests that could be affected. The survey will take place no more than 10 days prior to the onset of scheduled mobilization and staging activities. The results of the survey will be submitted to the appropriate agencies for approval, as needed.

- All active nests will be clearly marked following the survey to avoid destruction and/or disturbance by construction activities. Non-disturbance buffers will be established around the nest site as detailed below.
- Should active nests be found within 250 feet (or 500 feet for raptors) of scheduled active construction areas, a biologist will be assigned to monitor the nest during construction activities to determine if the activities are detrimental to the nesting process. Should the biologist determine that nesting activities are being disturbed or disrupted, the biologist will discuss with the PG&E Representative and the contractor practical alternatives to activities within the nest buffer. If needed, the PG&E Representative shall contact the USFS, United States Fish and Wildlife Service (USFWS), and/or CDFW for further guidance.
- Preconstruction surveys for special-status bats will be conducted prior to the onset of construction activities. Survey methods will be determined in consultation with CDFW.

2.6.4.9 Stream Diversion and Dewatering

In order to create a dry workspace around the in-channel work area, surface flow will be diverted around the work area. This will be accomplished by placement of a cofferdam within the river channel and diversion of the river flow into a pipe, culvert, or similar structure, or alternatively around the work site, but leaving flow in the remainder of the channel. PG&E will develop a Diversion, Dewatering, Recovery, and Relocation Plan that describes the diversion and dewatering process, as well as methods for the exclusion, recovery, and relocation of fish and other aquatic species (see Section 2.6.4.10). PG&E and/or their designated contractor will implement the following measures. The measures described below may be modified to further reduce the potential for impacts at final permit issuance.

- Diversion of surface water will be done in a manner that prevents pollution and/or siltation.
- Surface flows required by the FERC License will be maintained to the downstream reaches at all times in order to support aquatic life. Said flows shall be of sufficient quality and quantity, and of appropriate temperature, to support aquatic life both above and below the diversion.
- During the diversion period, weather conditions and streamflow will be evaluated daily or more often if conditions warrant. If a precipitation event is forecasted with a probability of 50 percent or greater based on the forecast information found on the National Weather Service Forecast Office website (www.srh.noaa.gov), PG&E will consult with the agencies to determine if additional site protective actions or an emergency diversion removal is warranted.
- Normal flows will be restored to the diverted reach immediately upon completion of work. For the dewatered portion of the channel, the original surface of the streambed will be restored according to Project specifications and drawings (BMP 2.8; BMP AqEco-2).

2.6.4.10 Aquatic Species Protection

This section summarizes the general avoidance and protection measures related to aquatic species. The Diversion, Dewatering, Recovery, and Relocation Plan will contain additional information. PG&E and/or their designated contractor will implement the following measures. The measures described below may be modified to further reduce the potential for impacts at final permit issuance.

- Equipment, waders, and boots used by biologists during fish capture and relocation will be decontaminated prior to being brought onsite. Decontamination protocols developed by the Declining Amphibian Task Force (CDFW 2014) will be implemented during any instream work.
- All pump intakes will be screened to avoid potential for entrainment.
- Any fish occurring within the temporary work area will be recovered and relocated outside the Kennedy Meadows Project site prior to diverting water. Fish will be excluded from areas near pump intakes.
- Rescued fish will be moved to previously identified relocation pools and/or the nearest appropriate aquatic habitat outside of the Project site.
- A record will be maintained of all fish rescued and moved, including species, date capture and relocation, method of capture, location of relocation pool, and total number of fish captured and relocated, or as required by permits.
- A record will be maintained for any injured or dead fish, including species and date. Any dead fish will be properly disposed of.
- Fish collection equipment will be cleaned of aquatic invasive species and oil and grease. Equipment will also be well-maintained (BMP 2.8; BMP 7.4).
- The fish capture and relocation record will be provided to the appropriate agencies.

The Aquatic Species Recovery and Relocation measures provided below will be implemented. These will be included in the Diversion, Dewatering, Recovery, and Relocation Plan.

2.6.4.11 Aquatic Species Recovery and Relocation

Fish to be rescued will be captured using seines and electrofishers with work supervised by qualified biologists under a Memorandum of Understanding with CDFW for this work. Methods for fish rescue and relocation will depend on the approach for dewatering the channel. Methods that will be utilized if one of the supplementary approaches is determined to be most suitable also are described below.

Instream areas to be dewatered will be isolated using block nets with 1/8-inch mesh no more than 48 hours prior to installation of the cofferdam. Block nets will be placed at the upstream and downstream ends of stream sections prior to fish rescue to prevent the movement of fish back into the area after rescue and transport. Fish rescue will commence after the placement of block nets but prior to dewatering. The cofferdam will be constructed once the area is cleared of fish.

If bladder dams were used to isolate the work area, fish rescue would commence after the bladder dams were initially inflated and would continue until the work area was fully drained and all fish removed.

Stranding Avoidance

During dewatering, dewatered areas will be surveyed to collect and relocate any fish present in the work areas. Deep pools may require extra effort for pumping and fish rescue. If pumps are used to dewater an area prior to conducting a fish rescue, the pump intake will be placed within an area blocked off by a maximum 1/8-inch mesh opening screen or net. Qualified fisheries biologist(s) will be on-hand during work hours for the first two days to make sure no fish or other aquatic species have entered the work area. During dewatering, fish capture shall be completed as expeditiously as feasible and an adequate number of biologists will be onsite during fish recovery efforts to minimize mortality. Special consideration to worker safety will be observed due to loose or uneven substrate and exposure of previously hidden hazards as the water level drops. Where there is a question about worker safety, biologists will only attempt to recover fish after confirming with construction crews and equipment operators that it is safe to do so.

Collection, Handling, Holding, Transport, and Release Methods

Biologists will use electrofishing gear, seines, and dip nets, as appropriate, to capture all aquatic vertebrates between the upstream block net and the cofferdam. The method of capture will depend on the conditions encountered during the fish rescue and relocation event. Electrofishing is generally more effective in shallow or fast moving water while beach seining can be more effective in pools with relatively smooth bottoms.

Electrofishing will be used in shallow areas, less than roughly 2-3 ft in depth, and in areas with substantial amounts of submerged structures such as logs or boulders. Dip nets are used to capture fish that have been stunned by an electrofisher and can capture fish in and around submerged structures more effectively than a beach seine. High elevation Sierra Nevada streams tend to have low concentrations of dissolved ions and therefore low electrical conductivity. Salt (sodium chloride) in the form of salt blocks may be added to the stream temporarily immediately upstream of electrofishing activities to increase the electrical conductivity of the water, making electrofishing more effective. When an electrofisher is in use, all nearby personnel in the water will be safety trained and use appropriate safety gear.

Bag seines will be used in deeper areas such as pools and deep runs without major obstructions. Bag seines are pulled by hand through the water to capture fish. They may be used in conjunction with block nets to confine fish to a certain area. All nets used will have woven round mesh sizes less than 1/8 inch to prevent gilling of small fish. After capture, fish will be placed in buckets and coolers equipped with aerators for holding and transporting out of the work area. Fish will be released in a predetermined location (Figure 2.6-4) before the concentration of fish in the coolers is such that causes crowding stress or oxygen depletion (the specific number depends on the sizes of fish contained). Fish will be held in aerated coolers for the minimum amount of time practicable, no more than one hour, and will be kept in shaded locations. Water temperature will be monitored while fish are in aerated coolers. If a greater

than 2 degrees Celsius ($^{\circ}\text{C}$) difference is encountered between the cooler and the release point, the fish will be acclimated by slowly diluting the holding cooler with stream water.

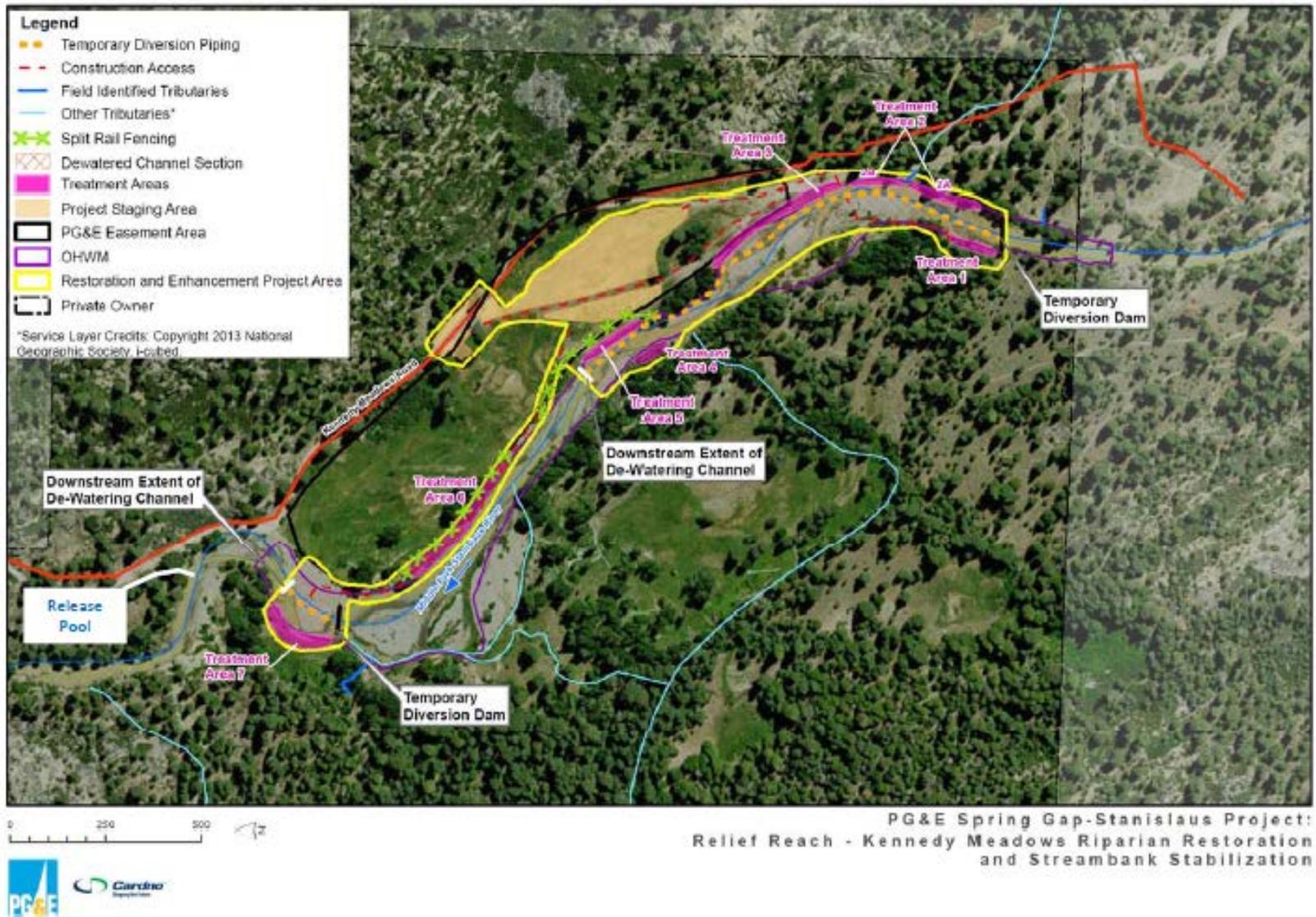


Figure 2.6-4. Recommended Relocation Pool Downstream from the Project Reach.

Rescued reptiles and amphibians will be removed from the work site and temporarily held in buckets or coolers with enough water to remain wet and cool, but shallow enough to prevent drowning. Buckets will be kept shaded and will be held for no more than 30 minutes prior to transport to relocation sites.

All rescued aquatic biota will be moved to a relocation pool located downstream from the Project Reach to ensure they will not be impacted by construction activities. A recommended relocation pool is shown in Figure 2.6-4. The relocation will be done in accordance with the CDFW 1602 permit and in coordination with CDFW. The number of fish, species, condition, fork length, and date and time of capture and relocation will be recorded. All equipment used to relocate the fish will be decontaminated according to California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocols (CDFW 2014).

Biological and Water Quality Monitoring

All Project activities that could affect aquatic species, such as installation of the diversion system and dewatering the work area, will be monitored by a qualified fisheries biologist. Regular monitoring of the diversion structure and the dewatered reach will be conducted by PG&E and/or their designated contractor to ensure that fluctuating water levels have not created any isolated pools or other similar conditions.

Compliance and Reporting

At a minimum PG&E proposes to provide the fish capture and relocation record to CDFW. The record will include:

- Fish species
- Fork length
- Date of capture and relocation
- Method of capture
- Location of relocation pool
- Total number of fish captured and relocated

Total number of any injured or dead fish, including species and date

2.6.4.12 Riparian and Meadow Habitats and Wetlands Protection

This section summarizes the general avoidance and protection measures related to riparian and wetland habitats.

- The disturbance or removal of vegetation will not exceed the minimum amount necessary to complete Project activities and will only occur within the defined work area.

- Temporary fencing will be installed between the immediate work area and surrounding riparian and native meadow vegetation and wetlands to limit disturbance of vegetation in these areas (BMP 1.8; BMP 5.3). No grading or parking will occur within the dripline of trees that will not be removed unless otherwise approved.
- Mats or other means to prevent sinking and rutting will be used in areas where meadow soils are soft (BMP 5.3).

2.6.4.13 Cultural Resource Protection

Items identified through patrols/screenings: When previously identified cultural resources are found (i.e., old bottles, cans, buildings), they must be left in place and undisturbed. If it is necessary to move or disturb them to complete the work, or if human remains are found, work must be stopped and the PG&E Representative contacted.

Unanticipated discovery of archaeological materials: If any new cultural resources (e.g., structure features, bone, shell, artifacts, or architectural remains) are encountered and site disturbance cannot be avoided during work activities, or if human remains are suspected:

- All work within 100 feet of the discovery will be stopped;
- The PG&E Representative will be notified, and will contact PG&E’s Cultural Resource Specialist;
- The location will be secured, but remains and associated artifacts will not be touched or removed;
- Associated spoils will not be removed or picked through;
- The location will be noted and all calls and events documented; and
- The location will be kept confidential.

Unanticipated discovery of human remains: If human remains or potentially human bone is encountered, the following steps will be taken.

- All ground-disturbing work within 100 feet of the discovery will be stopped;
- The PG&E Representative will be notified, and will contact the Cultural Resources Specialist;
- The Cultural Resource Specialist will contact the Tuolumne County Sheriff/Coroner;
- If the Sheriff/Coroner determines the remains to be those of a Native American, he/she will contact the Native American Heritage Commission (NAHC);
- The NAHC will assign a “Most Likely” descendant, who will work with the county to determine the treatment and ultimate disposition of the remains and any associated grave goods;

- The location will be secured, but remains and associated artifacts will not be touched or removed;
- Associated spoils will not be removed or picked through;
- The location will be noted and all calls and events documented; and
- The location will be kept confidential.

2.6.4.14 Recreation Resource Protection

This section summarizes the general protection measures related to recreation resources.

- PG&E will fund additional fish stocking of up to a total of 250 catchable rainbow trout in the late summer/early fall in the year of construction. Stocking will take place downstream of the dewatered areas, in coordination with CDFW.
- Signage and fencing will be used during construction to help warn the public of hazards and isolate the work area.

2.6.4.15 Post-Project Site Rehabilitation, Maintenance, and Monitoring

This section summarizes the post-construction rehabilitation activities, and the short- and long-term maintenance and monitoring.

- PG&E will implement an agency-approved MMP (Appendix C) to address long-term maintenance and monitoring of the Project Reach.
- Following completion of construction activities, all temporary use areas will be returned to preconstruction contours and seeded as appropriate with an agency-approved seed mix (refer to the MMP).
- PG&E will inspect the condition of Kennedy Meadows Road prior to and after construction of the Kennedy Meadows Project. PG&E will coordinate with the appropriate landowner (USFS, Tuolumne County) to address potential damage.

2.6.4.16 Turbidity Monitoring

This section summarizes turbidity monitoring that will be implemented when performing any in-water work, or in the event that Project activities result in any materials reaching surface waters. The measures described below may be modified to further reduce the potential for impacts at final permit issuance.

Monitoring Locations

PG&E will establish two turbidity monitoring locations: (1) at a suitable reference location upstream of the influence of the Project to establish turbidity levels coming into the Kennedy Meadows Reach, and (2) at a location approximately 300 feet below the Project Reach. These locations will be established by pin flag and used as the monitoring locations throughout the monitoring period. A global positioning system (GPS) point and a photograph of each location will be taken at the time of initial sampling.

Turbidity Monitoring during Project Implementation

Turbidity will be measured using a Manta 2 turbidity recorder. Two recorders will be established at the upstream location and two will be established at the downstream location. Turbidity data will be logged at hourly time intervals. Turbidity measurement will begin prior to any in-water work activity to establish baseline turbidity conditions, and will continue through the duration of in-water work or activities that may result in any materials reaching surface waters.

Onsite monitors will visually monitor for turbidity plumes and visible construction-related pollutants created by Project activities during daylight hours. These pollutants include oil, grease, foam, petroleum products, and construction-related, excavated, organic, or earthen materials. If a visible plume occurs during daylight hours, PG&E will perform hourly grab sample turbidity measurements using a hand-held turbidity meter to supplement the turbidity recorders every hour and settleable solid measurements using an Imhoff cone every four hours.

The hand-held field meter will use a U.S. Environmental Protection Agency (USEPA)-approved algorithm/method and will be used in accordance with manufacturer's instructions. A calibration and maintenance log will be kept daily for each meter used. The grab sampling and settleable solids measurements will continue for the remainder of that day. If a visible plume occurs during daylight hours, a water sample will be collected by immersing the sampling vial into the stream surface water at each monitoring location. Prior to placing the vial into the meter to collect the turbidity measurement, the vial will be cleaned with the cloth provided with the meter. After each turbidity measurement is collected, the sample will be discarded and the vial cleaned prior to drawing a new sample for measurement. Settleable solids will be measured using the Imhoff cone test (as described in 40 Code of Federal Regulations Part 136; Standard Methods; 2540 A, 2540 F). Two tests will be performed each time.

Data Evaluation and Threshold Criteria

Downstream turbidity measurements will be compared to upstream turbidity measurements to determine if there is an increase in turbidity between the upstream and downstream monitoring locations. The comparison of turbidity measurements to permit-specific threshold criteria will be calculated on a 24-hour average basis.

Data Recording and Reporting

Data Recording. A visual turbidity monitoring form will be completed daily when in-water work is in progress; completed forms will remain on file during the construction period, and thereafter be kept in the long-term PG&E files. Daily observational data will include the date and time of day, the name of the monitor, weather conditions, visual observations of water quality conditions, and any other remarks or observations made that have the potential to affect water quality conditions. Turbidity data will be reviewed daily and 24-hour daily averages calculated and compared to permit-required threshold criteria.

Reporting. PG&E will provide the State Water Board and the Regional Water Quality Control Board (RWQCB) staff water quality monitoring reports on a bi-weekly basis until the Project is complete. The reports will include baseline results, a summary table of daily water quality monitoring results, including a summary of daily observations, and the turbidity monitoring

forms. The reports will also include a brief description of Project activities covered during the dates of the report. Abnormal weather or other unusual conditions or occurrences unrelated to Project activities that could cause increases in turbidity will also be reported.

2.6.5 Maintenance and Monitoring Plan

An MMP has been developed to ensure the success of the Kennedy Meadows Project (Appendix C). The MMP includes the following:

- Purpose of the MMP and need for maintenance and monitoring.
- Success criteria with measurable attributes for establishment of new riparian habitat and stabilized streambanks.
- Monitoring schedule;
 - Baseline and Years 1, 2, and 5 (or until success criteria are met).
- If success criteria are not met, PG&E will consult with agencies to determine appropriate next actions, which could include more planting or bank treatments or other actions.
- No action if agencies determine that the restoration and enhancement objectives of the Kennedy Meadows Project have been achieved.
- Maintenance schedule
 - Multiple times per year in Years 1 and 2, twice per year in Years 3 and 4, and then once per year every 5 years and in the spring of wet years through the duration of the License.
- Maintenance and monitoring methods.
- Reporting and consultation.

2.7 REQUIRED PERMITS AND APPROVALS

The Project will require the following permits and approvals prior to construction:

- USACE CWA Section 404 Nationwide Permit 27, *Aquatic Habitat Restoration, Establishment and Enhancement Activities*
- CDFW Section 1602 Streambed Alteration Agreement
- State Water Board CWA Section 401 Water Quality Certification
- California General Construction Permit, permit registration documents to be filed with the Central Valley RWQCB that include a Notice of Intent (NOI) and a SWPPP.

3.0 ENVIRONMENTAL CHECKLIST

This IS/ND discusses the potential adverse environmental impacts associated with the Kennedy Meadows Project and its construction using the environmental significance checklist described in Appendix G of the State CEQA Guidelines. The Environmental Checklist evaluates the environmental issues required by CEQA. According to CEQA, determining whether a project potentially may result in one or more significant impacts should be based on substantial evidence in light of the whole action. All answers should take into account the whole action involved—offsite as well as onsite, cumulative as well as Project-level, indirect as well as direct, and construction as well as operational impacts.

As noted in the Project Description, the Kennedy Meadows Project components include: (1) construction of streambank stabilization bioengineering design elements in seven treatment areas along a 3,000-foot reach of the Middle Fork Stanislaus River in Tuolumne County, California; (2) implementation of BMPs and APMMs to minimize or avoid potential construction impacts as part of the Project design; and (3) implementation of a long-term MMP. The impact analysis focuses on all Kennedy Meadows Project components. It incorporates any applicable previously certified or adopted environmental analyses.

Each section of the checklist provides the environmental setting for the specific issue area and the basis for determining whether constructing the Kennedy Meadows Project will adversely affect the environment. As applicable, the discussion identifies the significance criteria or threshold used to evaluate potential Project-related impacts on a specific issue area.

3.1 AESTHETIC RESOURCES

This section discusses the existing conditions for aesthetic resources and potential Project-related impacts. Aesthetics or visual resources are generally considered to be the natural and built-in features of the landscape that are visible and that contribute to the public's experience and appreciation of the environment. Impacts to visual resources or aesthetics are defined in terms of a project's physical characteristics and potential visibility, and the extent to which its presence will alter the perceived visual character and quality of the environment. This section analyzes the Project using the State CEQA Guidelines for visual impact analysis. The significance criteria for determining impacts on aesthetics, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist I.

3.1.1 Environmental Setting

This section contains a description of the general setting, viewers, and scenic features in the Project area, which are described in more detail below.

The Project Reach encompasses a wide, low-gradient, and depositional section of the Middle Fork Stanislaus River that meanders through a montane meadow with scattered cottonwood stands and conifers. The Kennedy Meadows Project site contains a variety of views, including mountainous landscape, forested lands, meadows, waterways, and vegetation/riparian/habitat areas. A prominent feature in the vicinity of the Project is the Huckleberry Trail, located to the east of the Project Reach, which provides equestrian, angling, and hiking access to the Emigrant Wilderness, about one-half mile southeast of the Project Reach. The approximate 111,300-acre

Emigrant Wilderness, designated by Congress in 1975, is bordered by Yosemite National Park, the Humboldt-Toiyabe National Forest, and Highway 108. Watersheds in the Emigrant Wilderness drain into the Tuolumne and Stanislaus rivers. ATV use has been observed in the east meadow (right meadow, facing downstream) and along the walking path at the top of the streambank. The visual character of the Project Reach can be described generally as scenic, riparian, and recreational.

3.1.1.1 Viewers and Viewer Sensitivity

“Viewer sensitivity” is a response to a visual change combined with the duration of exposure to the view. Viewer sensitivity depends on the expectations and awareness of the viewer. Recreational viewers are the primary viewers of the Project Reach and are presumed to be more sensitive than other groups (e.g., transient viewers such as drivers or workers) because of their increased exposure to the site. As exposure time increases, so does the effect of the visual resource. Viewers of the Project Reach from ground level will be those who use the Huckleberry Trail (including hikers, day-use recreationists, and equestrians) and anglers along the river corridor. These types of viewers are consistently present on and near the Project Reach during the recreation season (i.e., approximately end of April to early/mid-October).

3.1.1.2 Viewsheds and Scenic Vistas

“Viewsheds” are environmental elements, such as natural and built-in features of the landscape that are visible to the human eye from a fixed vantage point. The Project Reach has several viewsheds from ground level including views from the meadows, the river corridor, and the Huckleberry Trail. These vantage points provide views of the meadows, riparian corridor, and wildlife habitat located on the Kennedy Meadows Project site, as well as mountainous landscapes and forested lands within the surrounding Stanislaus National Forest.

Views from vantage points located within the Kennedy Meadows Project area may be considered scenic vistas by regular recreational users of the area. A “scenic vista” commonly is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public.

There are no officially designated vista points or designated State Scenic Highways in the vicinity of the Project (California Department of Transportation [Caltrans] 2015; Tuolumne County 2015).

3.1.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist I, followed by a detailed discussion. The Kennedy Meadows Project will comply with all state and local requirements related to aesthetics; no federal regulations related to aesthetics apply to the Project.

Checklist I. CEQA Checklist for Assessing Project-Specific Potential Impacts on Aesthetic Resources.

I. Aesthetics

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Have a substantially 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. Finding.** There are no officially designated scenic vistas in the vicinity of the Project Reach. The Project Reach itself could be considered a scenic vista by those who regularly use the area for recreation. Vantage points within the Project Reach also afford views of scenic vistas including mountain landscapes and forested lands in the surrounding national forest. The Project work area includes temporary staging areas, temporary construction access, the seven treatment areas, and temporary dewatering around the active work area and temporary access across the river (Figure 2.6-1). PG&E anticipates that construction activities will occur during a short time period, from mid-August through mid-October. The Project work area will cause obstructions to the natural scenic vistas present in the area. However, portions of meadow and riparian habitat not included in the construction work area allow for very similar views from certain positions, and these areas will continue to be accessible during construction. To minimize potential effects of construction activities on recreationists, PG&E also will provide advance notice of the construction schedule and activities to the local community and recreationists. Signage will be placed at nearby campground facilities, the Kennedy Meadows trailhead parking area, the gate across Kennedy Meadows Road at the resort, the Project site, and on the trail south of the Project Reach. PG&E will provide the construction schedule to Kennedy Meadows Resort. A public notice also will be placed in the local newspaper. Once construction is complete, the development of riparian vegetation as part of the Project will enhance the scenic vista of the river corridor. Periodic monitoring to assess streambank conditions and riparian cover (one day per year during four

years of the first five years after construction) and long-term maintenance to identify any remedial problem that may require action (initially more frequently during the first five years, and then every five years through 2036) will not affect the scenic vista. These activities will involve one or two people walking within the meadow or along the stream channel collecting information, assessing any remedial actions, or implementing actions, if needed. These actions could include watering plantings, weeding, or fixing damaged fencing. With implementation of the Project and the enhanced riparian corridor and streambank condition, the scenic view of the meadow and channel will be improved from its current condition. Due to the availability of similar unobstructed accessible views, the short duration of construction, and the enhanced condition of the riparian corridor and stream channel after construction of the restoration Project, this impact will be less than significant.

- b. Finding.** There are no state scenic highways near the work area, and therefore the Kennedy Meadows Project will have no impact on scenic resources within a scenic highway.
- c. Finding.** The visual character of the site will be disturbed temporarily during construction, but this disturbance will be short term, and the visual character, ultimately will be enhanced by the Kennedy Meadows Project. Periodic maintenance and monitoring of the Project Reach to maintain Project success as described in Appendix C, Maintenance and Monitoring Plan, will be of short duration and not substantially different from the normal uses in the area. During construction, temporary disturbance to the visual character of the site may occur due to the presence of construction equipment in the stream corridor, which includes salvage, and removal of existing riparian vegetation required for construction of restoration treatments, and dewatering of the channel. However, the Kennedy Meadows Project activities will result in an overall enhancement of the wetlands, riparian habitat, and aquatic habitat, which contribute to the visual character of the site. In addition, ongoing recreational activities will continue after construction. The visual character of the site, described generally as scenic, riparian, and recreation, will not change with implementation of the Project. Therefore, while disturbance will occur during construction activities (approximately August to mid-October), neither the visual character nor the quality of the site and its surroundings will be substantially degraded, and this impact will be less than significant.
- d. Finding.** No new sources of substantial light or glare will be introduced. No nighttime construction is anticipated, and therefore no nighttime lighting will be required. The Kennedy Meadows Project does not involve installation of lighting or reflective surfaces; therefore, there will be no impact from lighting.

3.2 AGRICULTURAL RESOURCES

This section discusses existing conditions and potential Project-related impacts on agricultural resources. Agricultural resources include Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, as defined by the U.S. Department of Agriculture. This section also

addresses the State CEQA Guidelines for agricultural resource analysis. Significance criteria for determining impacts on agricultural resources, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist II, followed by a detailed discussion.

3.2.1 Environmental Setting

The Kennedy Meadows Project Reach is located within a 240-acre parcel owned by Tuolumne County, with a conservation easement held by the Mother Lode Land Trust.¹⁶ Kennedy Meadows is surrounded by the Stanislaus National Forest, including the Emigrant Wilderness, which is located less than 0.5 mile southeast of the planning unit (Figure 2.1-1).

The area in the vicinity of the Project Reach is zoned as a commercial and general recreation district (Tuolumne County Ordinance Code, Section 17.16.010 and Section 17.31.010). As discussed in the Project Description (Section 2), conservation management objectives include protection of sustainable forestry; agricultural uses; and historical values.

The area adjacent to the Kennedy Meadows Project is zoned for Timberland (TPZ), which allows for all commercial timber production operations and facilities, agricultural operations, mineral and other resource extraction operations, recreation uses such as public utility, and safety facilities (Tuolumne County General Plan Chapter 1, Land Use).

The forested areas surrounding the Project Reach are Mixed Conifer Forest, and the tree species present are sugar pine (*Pinus lambertiana*), Jeffrey pine, white fir, Douglas-fir (*Pseudotsuga menziesii*), incense cedar, and other high-elevation mixed coniferous forest types (see Section 3.4 for more detail on plant species). The forest will be managed in its current condition as part of the conservation easement, allowing for the removal of dead, dying, diseased, or hazard trees and the management of timber for the betterment of the forest. While commercial timber management is not a primary objective of the forest's management, the goal of sustainable management includes practices such as fuel hazard reduction and thinning of trees to ensure forest health and vigor, and safety of the public that recreates at Kennedy Meadows (Routt 2013; Stewardship Council 2013).

3.2.2 Impact Analysis

Impacts from the Kennedy Meadows Project on agricultural resources are determined by analyzing how the Proposed Action converts, conflicts with, or causes a loss of existing farmland or timberland. According to the CEQA guidelines, "agricultural land" means land that meets the requirements of "prime agricultural land" as defined in paragraphs (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code. Specifically, agricultural land must

¹⁶ PG&E donated the property to Tuolumne County in November 2013 as part of its Land Conservation Commitment. PG&E agreed to conserve and protect 140,000 acres of PG&E-owned watershed lands, including lands of FERC-licensed hydropower projects, as part of a settlement agreement of a federal bankruptcy proceeding. As part of the settlement, these lands would be conserved for a broad range of "beneficial public values" defined by the Bankruptcy Settlement Agreement as protection of the natural habitat of fish, wildlife, and plants; preservation of open space; outdoor public recreation; sustainable forestry; agricultural uses; and historic values. The Bankruptcy Settlement Agreement was approved by the California Public Utilities Commission on December 18, 2003.

be: (1) a class I or class II in the Natural Resources Conservation Service land use capability classifications; (2) have a rating of between 80 and 100 in the Storie Index Rating; (3) support at least one animal unit per acre; or (4) sustain other agricultural products producing at least \$200 per acre per year. The Kennedy Meadows Project does not meet any of these criteria.

The Public Resources Code defines agricultural land as “Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Commercial Grazing Land as defined in the Guidelines for the Farmland Mapping and Monitoring Program, pursuant to Section 65570 of the Government Code” (Public Resources Code, Section 10210-10224). There are no Farmlands of Local Importance in Tuolumne County (California Department of Conservation, Division of Land Resource Protection 2016).

Potential Kennedy Meadows Project-related impacts that require analysis under CEQA are identified in Checklist II, followed by a detailed discussion.

Checklist II. CEQA Checklist for Assessing Project-Specific Potential Impacts on Agricultural and Forest Resources.

II. Agricultural and Forest Resources

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 nonagricultural 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 rezoning of, forest land (as defined in Public Resources Code Section 12220[g]) or timberland (as defined in Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 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 nonforest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

II. Agricultural and Forest Resources

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e. Involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to nonforest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance occurs in the Project area. Therefore, there will be no impact on farmland because the Kennedy Meadows Project will not result in any conversion of farmland.
- b. **Finding.** The Kennedy Meadows Project will not conflict with an existing Williamson Act contract or conflict with existing land zoned for agriculture use. Therefore, there will be no impact on existing zoning or Williamson Act contracts.
- c. **Finding.** The Kennedy Meadows Project is located on Tuolumne County property and will not conflict with existing zoning or cause rezoning of forestland or timberland. There will be no impact under this criterion.
- d. **Finding.** Conversion is considered any use that may “alter the landscape in a relatively permanent fashion” (Public Resources Code, Section 12220). Forest land is defined as “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.” The proposed Kennedy Meadows Project will not convert forestland to nonforestland. It will not preclude 10 percent native tree cover. Therefore, there will be no impact.

Several upland and riparian trees that occur within Treatment Area 2 may need to be removed for implementation of the bioengineered bank treatment. Riparian trees (approximately 0.014 acre in Treatment Area 2) will be salvaged for use in revegetation, as appropriate. Upland trees, including root wads, will be salvaged and incorporated into the treatments using large wood. Based on surveys conducted in summer 2015, five Jeffrey pine (*Pinus jeffreyi*) trees, three white fir (*Abies concolor*) trees, and three incense cedar (*Libocedrus decurrens*) trees (10-

to 30-inch diameter at breast height) may need to be removed from Treatment Area 2 for construction of the treatment.¹⁷ Based on surveys conducted in summer 2015, six cottonwood (*Populus trichocarpa*) trees in Treatment Area 2 may need to be removed and transplanted. These riparian trees will be salvaged, lifted, and removed concurrent with construction activities.

The Proposed Action will result in temporary impacts on riparian vegetation and upland trees from restoration and enhancement at the treatment areas, but it will not result in conversion of forestland to nonforestland. These areas will be revegetated as part of the overall Project construction (as described in the *2015 Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Project Description 100% Design Level Plan* [100% Design Report; PG&E 2016a]). Specifically, the affected areas within the Project Reach will continue to support at least 10 percent of native tree species and allow for management of multiple forest resources. Management of forest resources will be enhanced with implementation of the Kennedy Meadows Project, which includes planting native forest and riparian trees. In Treatment Area 2, the revegetation element of the treatment requires more than a 1:3 planting ratio for upland trees. All cottonwoods will be replanted within Treatment Area 2. Additionally, the Kennedy Meadows Project will not negatively alter the landscape in a “relatively permanent fashion.” Conversely, the Project aims to stabilize actively eroding areas and plant native trees and shrubs, which will enhance the landscape over time. Therefore, this impact will be less-than-significant.

- e. **Finding.** The Kennedy Meadows Project will not result in conversion of farmland to nonagricultural use or conversion of forestland to nonforest use. The Project does not propose any changes to the current uses of the meadow and will have no effect on these activities. Therefore, there will be no impact.

3.3 AIR QUALITY

This section discusses existing conditions for air quality and potential Project-related impacts on air quality. Air quality refers to the state of the air around us (ambient air) and specifically the level of pollutants in the ambient air. Air quality is assessed by measuring a number of indicators of pollution. This section also analyzes the Project using the State CEQA Guidelines for air quality impact analysis. Significance criteria for determining impacts on air quality, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist III, followed by a detailed discussion.

¹⁷ Refer to Table 2.6-1; a minimum of 80 riparian species poles/containers and 38 upland containers will be planted in Treatment Area 2 as part of the treatment.

3.3.1 Environmental Setting

The Project Reach is located in Tuolumne County in the southern portion of the Mountain Counties Air Basin (MCAB). The MCAB covers the mountainous area of the central and northern Sierra Nevada Mountains from Plumas County south to Mariposa County. An “air basin” is an area typically with similar geographical and meteorological features. The terrain of the MCAB comprises the foothills and mountain peaks of the Sierra Nevada Mountains. The range in elevation within the MCAB contributes to localized wind patterns and climate conditions. The basin comprises all or portions of seven air quality control districts: the Northern Sierra Air Quality Management District, and the Placer, El Dorado, Amador, Calaveras, Tuolumne, and Mariposa County Air Pollution Control Districts (APCDs). The air basin is thinly populated, and its communities separated from one another by the basin’s complex terrain (Tuolumne County 2015).

3.3.1.1 Climate

The general climate of the MCAB varies considerably with elevation and proximity to mountain peaks. The terrain of the basin make it possible for various climates to exist within it. The pattern of mountains and hills is primarily responsible for the wide variations of rainfall, temperatures, and localized winds that occur throughout the region. Temperature variations have an important influence on basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry. The Sierra Nevada mountain range receives large amounts of precipitation from storms moving over the continent from the Pacific Ocean. Precipitation in the basin is highly variable, depending on elevation and location. Areas in the eastern portion of the basin have relatively high elevations and receive the most precipitation. Precipitation levels decline toward the western areas of the basin. Climates vary from alpine in the high elevations of the eastern areas to more arid at the western edge of the basin (Tuolumne County 2015).

3.3.1.2 Existing Local Air Quality

While the residents of Tuolumne County enjoy some of the best air quality in the state, the growing population of the county is accompanied by routine sources of air pollution from vehicles, industrial facilities, open burning, woodstoves, and earth-moving equipment (Tuolumne County 2015). The air quality of the county is further diminished by the transport of pollutants from the more industrialized and populated San Joaquin Valley and Bay Area (Tuolumne County 1996). According to the federal CAA, criteria pollutants consist of six common ambient air pollutants: ozone (O₃), particulate matter (PM), carbon monoxide, nitrogen oxides (NO_x), sulfur dioxide (SO₂), and lead. Air quality is determined by the amount of these criteria pollutants in an air basin.

The Tuolumne County portion of the MCAB is a non-attainment area for state standards for O₃ and is unclassified or in attainment for the federal standards for O₃ and for the federal and state standards for carbon monoxide, NO_x, sulfur dioxide, PM₁₀, PM_{2.5}, and lead (CARB 2013). “Non-attainment” means that the air quality levels in an area are considered worse than the National Ambient Air Quality Standards as defined in the CAA or by the California Ambient Air Quality Standards. O₃ is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. O₃ precursors, which include reactive organic gases and NO_x, react in the atmosphere in the presence of sunlight to form O₃. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, O₃ is primarily a summer air

pollution problem. O₃ is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials.

3.3.1.3 Sensitive Receptors

“Sensitive receptors” include infants and children, the elderly, and individuals with health afflictions such as cardiovascular and chronic respiratory disease. Sensitive receptors also include persons engaged in strenuous work or exercise. Land uses such as schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality because they often contain sensitive receptors. Residential areas also are considered sensitive to air pollution because residents tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present.

Sensitive receptors in the vicinity of the Project Reach include recreational users. Other sensitive receptors in the vicinity of the Project include guests and residential employees of the Kennedy Meadows Resort and Pack Station. There are no schools or hospitals in the vicinity of the Project. The nearest schools and hospital are located in Sonora, California, approximately 50 miles from the Project area.

3.3.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist III, followed by a detailed discussion. Based on a review of regulations, the Project will comply with all federal, state, and local requirements related to air quality.

Checklist III. CEQA Checklist for Assessing Project-Specific Potential Impacts on Air Quality.

III. Air Quality

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

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 checked="" type="checkbox"/>	<input 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 nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

III. Air Quality

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

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>

Discussion

In general, construction activities associated with the Project will be relatively small in scale and short in duration. PG&E-planned BMPs and APMs provided in Section 2.6.4 include General Measures and Equipment Maintenance measures to protect air quality. The longer-term maintenance and monitoring of the Kennedy Meadows Project (through 2039) will not result in any air quality impacts.

- a. **Finding.** The majority of emissions associated with the Project will come from temporary construction emissions. Construction emissions include discharge from machines and equipment such as excavators, dump trucks, pickup trucks, portable generators, air compressors, and other gas-powered equipment. Post-construction emissions will consist of minimal use of personal vehicles for post-construction restoration monitoring. There are no operational emissions associated with the Kennedy Meadows Project; that is, once the Project is completed and long-term monitoring has documented its success, emissions associated with the Project will cease.

The applicable air quality plan is the Clean Air Act (CAA) and the California Clean Air Act (CCAA). Since the duration of Project construction will be relatively short, approximately 10 weeks, with implementation of the BMPs and APMs incorporated into the Project design (see Section 2.6.4., General Measures and Equipment Maintenance), the Project will comply with and be consistent with the applicable air quality plans (CAA and CCAA); therefore, impacts will be less than significant.

- b. **Finding.** The Project will not generate new regional vehicular trips; therefore, it will not result in a long-term increase in regional mobile source emissions. The Project is a restoration project, not a development project, and does not include any stationary source of emissions. In addition, the restoration efforts of the Kennedy Meadows Project will result in a net increase of habitat features such as wetlands and riparian vegetation, which will provide long-term benefits to air quality by providing carbon sequestration benefits. The Project will comply with the CAA and CCAA standards, which will meet or exceed measures listed in the

county's policies and implementation programs. PG&E-proposed BMPs and APMMs provided in Section 2.6.4 (General Measures and Equipment Maintenance) include standard PG&E measures and construction practices such as use of appropriate equipment, no idling equipment, appropriate speed limits, proposed equipment maintenance, and turning off equipment when not in use. Due to the small scale and short duration of the Project (construction only; no operational emissions) and required compliance with all applicable regulations, air pollutant emissions associated with construction of the Project will be minor and temporary. Therefore, with implementation of the BMPs and APMMs integrated into the Project, the impacts on air quality will be less than significant.

- c. **Finding.** See Finding "a." above
- d. **Finding.** Potential sensitive receptors adjacent to the Project (e.g., recreational users) will not be subject to substantial emission concentrations from Kennedy Meadows Project construction activities because of the short duration of construction and the limited work area. There are opportunities for recreation and other land uses in the direct vicinity, and potential sensitive receptors will likely shift their use to adjacent available areas. As proposed in the Project Description (Section 2.6.2) signage will be placed at the nearby campground facilities, the Kennedy Meadows trailhead parking area, the gate across Kennedy Meadows Road at the resort, the Project site, and on the trail south of the Project Reach. Implementation of public notifications, signage, and fencing will redirect the public away from the construction zone and toward adjacent available recreation areas. Kennedy Meadows Road and/or the Huckleberry Trail are located on the far east side of the staging area, and will not expose users to emission concentrations. In addition, with implementation of BMPs and APMMs (referenced above) incorporated into the Project design, this impact will be less than significant.
- e. **Finding.** Objectionable odors that may be generated from the Project will be limited to those generated by diesel- or gas-powered construction equipment. As described above, construction will be of short duration and timed (as feasible) to avoid the peak recreational season. See above regarding notification and signage for the public.

The Kennedy Meadows Project will comply with all applicable air quality control measures, and construction will follow construction practices per PG&E's standard measures as described in the Project Description (Section 2). These actions will limit any potential objectionable odors emitted during construction. In addition, due to the availability of other alternative areas to recreate, it can reasonably be assumed that potential sensitive receptors will be sufficiently distant from the Kennedy Meadows Project construction areas to avoid being exposed to Project-related odors. Therefore, this impact will be less than significant.

3.4 BIOLOGICAL RESOURCES

This section discusses existing conditions and potential Kennedy Meadows Project-related impacts on biological resources. Biological resources include plant, wildlife, and aquatic species, especially those considered special-status species (including rare, threatened, and/or endangered species). Significance criteria for determining impacts on biological resources, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist IV, followed by a detailed discussion.

3.4.1 Environmental Setting

The Project Reach is located on the Middle Fork Stanislaus River below Relief Dam in the central Sierra Nevada mountains within Tuolumne County, surrounded by the Stanislaus National Forest. Upstream of the Project Reach, the stream is a steep and rocky channel. At Kennedy Meadows, the stream transitions to a wide, low-gradient, and depositional section and meanders through a montane meadow with scattered cottonwood stands. The Project Reach contains multiple types of vegetation, habitat, and biological resources. Several listed plant and wildlife species are known to occur in the Kennedy Meadows Project vicinity and are described in detail below.

3.4.2 Methodology

Multiple biological studies and assessments have been conducted in the Project Reach, and were used to characterize the existing conditions of the Project Reach and to make recommendations for biological resources that may be located onsite. The assessment is summarized below.

3.4.2.1 Review of Existing Field Studies

Vegetation (wetlands, special-status plants, and noxious weeds), wildlife, and aquatic resources in the Project Reach have recently been assessed during numerous field studies conducted in the vicinity of the Project Reach. These focused studies include: (1) special-status plants, (2) noxious weeds, and (3) special-status wildlife. Additional information on these surveys, including survey protocols, agency consultation, and/or results are available in various technical reports. The individual reports have been provided under separate cover in the 100% Design Report (PG&E 2016a).

Resource-specific studies conducted in the Kennedy Meadows Project Reach and vicinity include the following:

- Bird Surveys:
 - 2010 Relief Reservoir Dam Project Nesting Raptor Survey Memo (PG&E 2010a);
 - 2010 Relief Reservoir Dam Project Willow Flycatcher Survey Memo (PG&E 2010b);
 - 2011 Relief Reservoir Dam Project Nesting Raptor Survey Memo (PG&E 2011c);
 - 2011 Relief Reservoir Dam Project Willow Flycatcher Survey Memo (PG&E 2011d); and

- 2016 Kennedy Meadows Great Gray Owl Protocol-level Surveys - Year One, 2016 Memorandum (PG&E 2016b).
- Amphibian Studies:
 - Sierra Nevada (Mountain) Yellow-legged Frog (*Rana sierrae*) Survey Report for PG&E’s Spring Gap-Stanislaus Hydroelectric Project (FERC No. 2130) (PG&E 2011b);
 - Sierra Nevada (Mountain) Yellow-legged Frog (*Rana sierrae*) Survey Report for PG&E’s Spring Gap-Stanislaus Hydroelectric Project (FERC No. 2130) (PG&E 2012a); and
 - Sierra Nevada (Mountain) Yellow-legged Frog (*Rana sierrae*) Survey Report for PG&E’s Spring Gap-Stanislaus Hydroelectric Project (FERC No. 2130) (PG&E 2014).
- Vegetation, Wetlands, Riparian, and Streambank Condition Studies and Surveys:
 - Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Report 2010 (PG&E 2011a);
 - Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Report 2011 (PG&E 2012b);
 - Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Report 2012 (PG&E 2013);
 - Wetland Delineation and Preliminary Jurisdictional Determination, Spring-Gap Stanislaus Hydro Electric Project, Tuolumne County, California (ENTRIX 2010); and
 - Wetland Delineation and Preliminary Jurisdictional Determination, Spring-Gap Stanislaus Project, Tuolumne County, California (Sequoia Ecological Consulting [SEC] 2015a).
- General Plant and Wildlife Surveys:
 - PG&E Spring Gap Stanislaus Relief Reach Vegetation and Streambank Stabilization Project Kennedy Meadows Plant and Wildlife Surveys for June and July 2015 (SEC 2015b); and
 - Final Environmental Impact Statement. Pacific Gas and Electric Company and Tri-Dam Project. Stanislaus River Projects (FERC Project Nos. 2130, 2005, 2118, and 2067) (FERC 2005).
- Aquatic Surveys:
 - Final Environmental Impact Statement. Pacific Gas and Electric Company and Tri-Dam Project. Stanislaus River Projects (FERC Project Nos. 2130, 2005, 2118, and 2067) (FERC 2005).

Individual technical reports are available upon request for any species or resource. A summary of all wetland information for the Project Reach is provided in Appendix D.

3.4.2.2 Database and Literature Review

A review of existing of existing databases and listing packages was completed in November 2016 to ensure that the listing statuses of species were up to date and to check the Project Reach for new or updated species occurrences.

- California Natural Diversity Database (CNDDDB) (CDFW 2016);
- California Native Plant Society (CNPS) Online Inventory of Rare Plants (CNPS 2015);
- Various state and federal listing packages (CDFW 2015a-c and 2017)
- USFS Region 5 Regional Foresters List of Sensitive Animals (USFS 2013);
- Birds of Conservation Concern (USFWS 2008);
- USFWS IPaC (Information for Planning and Conservation) (USFWS 2016a); and
- USFWS Critical Habitat for Threatened and Endangered Species (USFWS 2016b).

Database queries included a review of the CNDDDB within 5 miles of the Project Reach (CDFW 2016) and a query of the CNPS Online Inventory for the Sonora Pass Quad. Critical habitat maps (USFWS 2016b) within 5 miles of the Project Reach were reviewed.

The list of potential species generated from the database and literature search was reviewed to determine if the species was likely or unlikely to occur within the Project Reach, based on the known range, habitat suitability (including reproduction, cover, and/or foraging) within the Project Reach, and known occurrences in the vicinity of the Project Reach. Tables 3.4-1 and 3.4-2 provide a list of special-status plant and wildlife species identified as potentially occurring and the rationale for determination of “low,” “moderate” or “high” likeliness to occur. The sections below provide species accounts for those species with “high” and “moderate” potential to occur. The results of recent resource-specific and species-specific studies are also summarized below.

Table 3.4-1. Special-Status Plant Species Potentially Occurring in the Vicinity of the Project Reach.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale
Plants				
Mountain bent grass	<i>Agrostis humilis</i>	CRPR 2B.3	Subalpine forest, Alpine fell-fields, wetland-riparian, and meadows between 8,700 and 10,500 ft.	Low. Elevation of Project Reach below elevation of habitat.
Sweetwater Mountains milk-vetch	<i>Astragalus kentrophyta</i> var. <i>danaus</i>	CRPR 4.3	Alpine boulder and rock field, subalpine coniferous forest (rocky, talus) between 9,800 and 12,000 ft.	Low. Elevation of Project Reach below elevation of habitat.
Broad-keeled milk-vetch	<i>Astragalus platytropis</i>	CRPR 2B.2	Alpine boulder and rock field, pinyon and juniper woodland, subalpine coniferous forest between 7,700 and 11,600 ft.	Low. Elevation of Project Reach below elevation of habitat.
Sierra bolandra	<i>Bolandra californica</i>	CRPR 4.3	Lower and upper montane coniferous forest between 3,200 and 8,00 ft.	Moderate. Suitable habitat present in limited amounts in the Project Reach.
Alpine dusty maidens	<i>Chaenactis douglasii</i> var. <i>alpina</i>	CRPR 2B.3	Rocky or gravelly alpine ridges, talus, fell-fields, rock crevices; 8,800–13,100 ft.	Low. Elevation of Project Reach below elevation of habitat.
Subalpine cryptantha	<i>Cryptantha crymophila</i>	CRPR 1B.3	Subalpine forest between 9,000 and 9,500 ft.	Low. Elevation of Project Reach below elevation of habitat.
Clustered-flower cryptantha	<i>Cryptantha glomeriflora</i>	CRPR 4.3	Granitic or volcanic, sandy soils. Great Basin scrub, meadows and seeps, subalpine coniferous forest, upper montane coniferous forest between 5,900 and 12,000 ft.	Moderate. Suitable habitat present in Project Reach at low end of elevation suitability.
Jack's wild buckwheat	<i>Eriogonum luteolum</i> var. <i>saltuarium</i>	CRPR, FSS	Sandy granitic flats and slopes, sagebrush communities, montane conifer woodlands at elevations between 5,500 and 7,900 ft.	Moderate. One of two observations near Dardanelle in Tuolumne County.
Blandow's bog moss	<i>Helodium blandowii</i>	CRPR 2B.3	Fens within montane forest; elevation 4,250–8,200 ft.	Moderate. Suitable habitat present in limited amounts in the Project Reach.
Three-ranked hump moss	<i>Meesia triquetra</i>	CRPR 4.2	Bogs and fens within subalpine coniferous forest or mesic upper montane coniferous forest 4,200–9,700 ft.	Moderate. Suitable habitat present in limited amounts in the Project Reach.

Common Name	Scientific Name	Status^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale
Spjut's bristle moss	<i>Orthotrichum spjutii</i>	CRPR 1B.3	Granitic rocky outcroppings near water. Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest 6,900–7,800 ft.	Low. Elevation of Project Reach just below elevation of habitat and very limited suitable habitat at site.
Masonic Mountain jewelflower	<i>Streptanthus oliganthus</i>	CRPR 1B.2	Native to western Nevada and eastern California at elevations between 6,800 and 8,770 feet. Habitat includes forest, woodland, sagebrush, and mountain talus.	Low. Elevation of Project Reach below elevation of habitat.
Oregon campion	<i>Silene oregana</i>	CRPR 2B.2	Great basin scrub, subalpine conifer forest, elevation 4,900–8,200 ft.	Moderate. Suitable habitat very limited in the Project Reach.

^a Codes:

Federal:

BCC: USFWS Birds of Conservation Concern

FC-T: Federal candidate – threatened

FD: Federal Delisted

FE: Federally listed as endangered

FSS: Forest Service Sensitive

FT: Federally listed as threatened

State:

CFP: CDFW Fully Protected

CRPR: California Rare Plant Rank

SC-T: State candidate – threatened

SD: State Delisted

SE: State listed as endangered

SSC: CDFW Species of Special Concern

ST: State listed as threatened

Table 3.4-2. Special-Status Wildlife Species Potentially Occurring in the Vicinity of the Project Reach.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Fish					
Central California roach	<i>Lavinia symmetricus</i>	SSC	Low to mid-elevation streams and tributaries to the Sacramento and San Joaquin rivers and tributaries to San Francisco Bay. Well adapted to intermittent watercourses and a variety of habitat types.	Low. The Project Reach is out of the known elevation range for this species.	None. The Project Reach is out of the known elevation range for this species.
Hardhead	<i>Mylopharodon conocephalus</i>	FSS, SSC	Found in low to mid-elevation warm streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic Centrarchids predominate.	Low. The Project Reach is out of the known elevation range for this species.	None. The Project Reach is out of the known elevation range for this species.
Amphibians					
Southern long-toed salamander	<i>Ambystoma macrodactylum sigillatum</i>	SSC	Occurs along the northern Sierra Nevada at elevations up to around 10,000 ft. Typically found in alpine meadows and high mountain ponds and lakes.	Low. Project Reach is south of the known range limits of species.	None. Project Reach is south of the known range limits of species.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Yosemite toad	<i>Anaxyrus (=Bufo) canorus</i>	FT, FSS, SSC	Restricted to central high Sierra Nevada. Prefers mountain, alpine meadow, lodgepole pine, successional stages of mixed conifer, Jeffrey pine, and red fir. Typically at elevations between 6,400 and 11,000 ft.	Low. Past and ongoing activities including trampling by horses, cattle, and recreationists; manure spreading; and historical dam operations have affected habitat quality. This species was not observed during repeated surveys in 2001, 2003, 2010, 2011, or 2013 (PG&E 2011b, 2012b, and 2014c).	Low. No occurrences have been documented within the Project Reach during recent surveys.
Limestone salamander	<i>Hydromantes brunus</i>	FSS, ST, CFP	Limestone outcrops in digger pine-chaparral belt along the Merced River and its tributaries, from 800–2,600 ft. in elevation.	Low. The Project Reach is out of the known elevation range for this species.	None. The Project Reach is out of the known elevation range for this species.
Mount Lyell salamander	<i>Hydromantes platycephalus</i>	SSC	Elevation range is 4,000–12,000 ft. Associated with granite talus with water seeping through it, typically downslope from snowfields that melt well into the summer. Inhabits caves, granite boulders, rock fissures, rocky stream edges, and seepages from springs and melting snow. Frequents cliff faces, vertical cavern walls, and level ground.	Low. Suitable habitat not present in Project Reach and majority of observations for this species occur at or above 8,000 ft. elevation.	None. Suitable habitat not present in Project Reach and majority of observations for this species occur at higher elevations.
Foothill yellow-legged frog	<i>Rana boylei</i>	FSS, SSC	Occurs in low-gradient, partly shaded streams and ponds generally below 6,000 ft., with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg laying. Need at least 15 weeks to attain metamorphosis.	Low. The Project Reach is out of the known elevation range for this species.	None. The Project Reach is out of the known elevation range for this species.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Sierra Nevada yellow-legged frog	<i>Rana sierrae</i>	FE, FSS, ST, SSC	Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitat. Breeds in shallow water in low-gradient perennial streams and lakes.	Low. Suitable habitat not present in Project Reach. One young-of-the-year and several tadpoles were found in 2001 surveys in the side channel in the meadow on the west side of the Middle Fork Stanislaus River. None was found in repeated surveys in 2003, 2010, 2011, or 2013 (PG&E 2011b, 2012b, and 2014c). It was concluded (PG&E 2014c) that this was a strong indication that this species has been locally extirpated or, if extant populations occur, they no longer use the habitat for breeding, foraging, or overwintering.	Low. No occurrences have been documented within the Project Reach during recent surveys.
Reptiles					
Western pond turtle	<i>Emys marmorata</i>	FSS, SSC	A thoroughly aquatic turtle of low-gradient ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation; need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 mile from water for egg-laying. Can be found up to one mile from perennial water.	Low. No suitable habitat in the Project Reach.	None. No suitable habitat in the Project Reach.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Birds					
Northern goshawk	<i>Accipiter gentilis</i>	FSS, SSC	Dense, multi-layered mature forested stands with dense canopy cover for nesting, dense to moderately open overstories, and open understories interspersed with meadows, shrub patches, riparian areas, or other openings.	Moderate. Suitable habitat present in vicinity of the Project Reach.	<p>Low. No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b). None observed in focused surveys in 2010 and 2011, or incidentally during great gray owl (GGO) surveys in 2016.</p> <p>Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p> <p>Foraging raptors would be expected to move out the construction area and utilize abundant, adjacent suitable habitats for the short duration of construction activities.</p>
Willow flycatcher	<i>Empidonax traillii</i>	FE, BCC, SE, FSS	Dense riparian areas with willows, boxelder, buttonbush, and cottonwood.	Low. Suitable habitat not in Project Reach.	<p>None. Suitable habitat not present in Project Reach. Not observed during focused surveys in 2010 and 2011. Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p>

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
American peregrine falcon	<i>Falco peregrinus anatum</i>	FD, BCC, SD, CFP	Vertical cliff habitat with large potholes or ledges that are inaccessible to land predators and are preferentially located near habitat that has a high avian prey population.	Moderate. Nesting occurring approximately 10 miles away at Pinecrest Peak.	<p>Low. No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).</p> <p>Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p> <p>Foraging raptors would be expected to move out the construction area and utilize abundant, adjacent suitable habitats for the short duration of construction activities.</p>

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Bald eagle	<i>Haliaeetus leucocephalus</i>	FD, FSS, BCC, SE, CFP	Strongly associated with riparian areas.	High. Suitable habitat present in vicinity of the Project Reach and species observed hunting during preliminary investigations of the Project Reach.	<p>Low. Species has been observed hunting in the Project Reach during recent biological surveys (2015 and 2016). No evidence of nesting has been observed during any wildlife surveys or recent field studies conducted in the Project Reach.</p> <p>Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p> <p>Foraging raptors would be expected to move out the construction area and utilize abundant, adjacent suitable habitats for the short duration of construction activities.</p>
Yellow warbler	<i>Setophaga petechia</i>	BCC, SSC	Riparian vegetation along streams or in wet meadows, especially in willows, cottonwoods, and various riparian shrubs.	Moderate. Abundant in the Sierra Nevada.	<p>Low. No evidence of species during previous biological surveys (PG&E 2002, 2010b, 2011d; SEC 2015b).</p> <p>Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p>

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
California spotted owl	<i>Strix occidentalis occidentalis</i>	FSS, MIS, BCC, SSC	Forest on the west side of the Sierra Nevada mountains.	Moderate. Suitable habitat present in vicinity of the Project Reach.	<p>Low. No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).</p> <p>Preconstruction surveys will identify any nesting birds in the Project Reach and result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge; or a biologist will monitor the nest when activities are taking place within that buffer.</p> <p>Foraging raptors would be expected to move out the construction area and utilize abundant, adjacent suitable habitats for the short duration of construction activities.</p>
Great gray owl	<i>Strix nebulosa</i>	FSS, SE	Mixed conifer forests, but are highly dependent upon meadows.	Moderate. Suitable habitat present in vicinity of the Project Reach.	<p>Low. Protocol-level surveys are ongoing. Year One surveys were completed in 2016 and Year Two surveys will be completed in 2017. No GGO responses were heard during the 2016 survey season, and no breeding or resident GGO were observed. No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls were identified during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).</p>

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Mammals					
Pallid bat	<i>Antrozous pallidus</i>	FSS, SSC	Colony-forming bat occurring throughout most of California with a preference for dry, open habitats and lower elevations. Roosting habitat generalists and have been known to roost in rock crevices, tree hollows, and human-made structures. Tree roosting has been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks.	Moderate. Suitable foraging habitat present in the vicinity of the Project Reach. Closest known occurrence is 15 miles to southwest near Lake Pinecrest.	Low. Preconstruction bat surveys will be conducted prior to the onset of construction activities to identify any active roosting nests for avoidance. No construction activities will occur in the evening or at night, when foraging would occur.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	FSS, SC-T, SSC	Typically found in low desert to mid-elevation montane habitats throughout the West and are distributed from the southern portion of British Columbia south along the Pacific Coast to central Mexico. These bats are known to primarily roost in caves or cave-like dwellings that are often found in and around historical mines.	Moderate. Suitable foraging habitat present in the vicinity of the Project Reach. Closest known population is 29 miles to southwest.	Low. No suitable roosting habitat in Project area. Preconstruction bat surveys will be conducted prior to the onset of construction activities. No construction activities will occur in the evening or at night, when foraging would occur.
North American wolverine	<i>Gulo gulo</i>	FSS, ST, CFP	Alpine, boreal, and Arctic habitats, including boreal forests, tundra, and western mountains.	Low. Only 1 individual present in California.	None. Only 1 individual present in California
Sierra marten	<i>Martes caurina</i>	FSS	Coniferous forests above 5,000 ft. in elevation that have moderate- to high-canopy closure interspersed with riparian areas and meadows.	Moderate. Suitable habitat present in the vicinity of the Project Reach.	None. No suitable habitat in the Project Reach.

Common Name	Scientific Name	Status ^a	General Habitat Description	Potential to Occur in the Project Reach and Rationale	Potential to be Adversely Impacted by the Project
Fringed myotis	<i>Myotis thysanodes</i>	FSS	Widespread in California, occurring in all but the Central Valley and Colorado and Mojave deserts. Optimal habitats are pinyon-juniper, valley foothill hardwood, and hardwood-conifer, generally at 4,000 to 7,000 ft. Roost in caves, buildings, and crevices.	Moderate. Suitable foraging habitat present in the vicinity of the Project Reach. Closest known occurrence is 29 miles to the northwest in the El Dorado National Forest.	Low. No suitable roosting habitat in Project area. Preconstruction bat surveys will be conducted prior to the onset of construction activities. No construction activities will occur in the evening or at night, when foraging would occur.
Fisher	<i>Pekania pennanti</i>	FC-T, FSS, SC-T, SSC	Mature forests with relatively high canopy closure, significant amounts of downed woody debris and snags, and adequate habitat connectivity	Low. Suitable habitat present near Project Reach. Current known range is restricted to two populations in the Sierra Nevada, one near the Oregon/California border and one in the Southern Sierras below the Merced River.	Low. Suitable habitat not present in the vicinity of the Project Reach.
Sierra Nevada red fox	<i>Vulpes vulpes necator</i>	FSS, ST	Above 6,000 ft. in the subalpine zone, amongst the red fir and lodgepole pines, and alpine fell-fields.	Low. Suitable habitat not present in the vicinity of the Project Reach.	None. Suitable habitat not present in the vicinity of the Project Reach.

^a Codes:

Federal:

BCC: USFWS Birds of Conservation Concern
 FC-T: Federal candidate – threatened
 FD: Federal Delisted
 FE: Federally listed as endangered
 FSS: Forest Service Sensitive
 FT: Federally listed as threatened

State:

CFP: CDFW Fully Protected
 CRPR: California Rare Plant Rank
 SC-T: State candidate – threatened
 SD: State Delisted
 SE: State listed as endangered
 SSC: CDFW Species of Special Concern
 ST: State listed as threatened

3.4.3 Biological Conditions

3.4.3.1 Critical Habitat

Critical habitat is defined by the USFWS as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat has been proposed for two species with potential to occur within the Project Reach. Critical habitat for Sierra Nevada yellow-legged frog (SNYLF; *Rana sierrae*) is located 1.4 miles south of the Project Area (Unit 2I-Emigrant Yosemite) and 2.6 miles east of the Project Area (Unit 2H-Wells Peak). Critical habitat for Yosemite toad (*Anaxyrus canorus*) is located 2.6 miles south of the Project Reach (Unit 2-Leavitt Lake/Emigrant) (USFWS 2016b). The Project area does not lie within designated or proposed critical habitat for any species.

3.4.3.2 Vegetation

The description of vegetation communities was taken from the 2010 and 2015 Wetland Delineation and Preliminary Jurisdictional Determination reports (ENTRIX 2010; SEC 2015a). Nomenclature follows the Jepson Manual (Baldwin et al. 2012). Vegetation community classifications were taken from *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Three main vegetation types were found in the area surveyed for the Kennedy Meadows Project: Wet Meadow, Ruderal, and Riparian Woodland.

Wet Meadow Habitat, conforming to a mixture of herbaceous alliances including the *Carex aquatilis, lenticularis* Herbaceous Alliance, colonizes areas along the Middle Fork Stanislaus River floodplain with seasonally saturated soils. Dominant species are native graminoids and forbs such as water sedge (*Carex aquatilis* var. *aquatilis*), short hair sedge (*Carex filifolia* var. *erostrata*), Mexican rush (*Juncus mexicanus*), western buttercup (*Ranunculus occidentalis*), meadow barley (*Hordeum brachyantherum*), and Kentucky blue grass (*Poa pratensis*).

Ruderal Habitat, not conforming to any natural vegetation classification system, occurred in the surveyed areas that were highly disturbed by vehicle use, equestrian use, and other human activities. This habitat was heavily disturbed and dominated primarily by non-native grasses and forbs and occasional shrubs, such as woolly mullein (*Verbascum thapsus*), cheatgrass (*Bromus tectorum*), bull thistle (*Cirsium vulgare*), spiny buttercup (*Ranunculus muricatus*), chicory (*Cichorium intybus*), and bulbous blue grass (*Poa bulbosa*), with occasional native species such as dove weed (*Croton setigerus*) and common sage (*Artemisia tridentata*). The proposed staging area for the Kennedy Meadows Project is located in Ruderal Habitat.

Riparian Woodland Habitat, conforming to a variety of forested alliances including the *Alnus rhombifolia* Forest Alliance and *Alnus incana* Shrubland Alliance, occurs along the banks of the Middle Fork Stanislaus River. Riparian areas are dominated by native riparian trees, including black cottonwood, white alder (*Alnus rhombifolia*), mountain alder (*Alnus incana*), quaking aspen (*Populus tremuloides*), and willow (*Salix* spp.). Species from adjacent mixed conifer forest were also found within the riparian corridor, including Jeffrey pine, white fir, and incense cedar.

Recent surveys in summer of 2015 (SEC 2015b) identified trees and shrubs in the vicinity of treatment areas. Table 3.4-3 summarizes trees located in the vicinity of the treatment areas and identifies those that may need to be removed during construction activities.

Table 3.4-3. Trees and Shrubs in the Vicinity of the Treatment Areas.

Species	Diameter at Breast Height Range (inches)	Average Height (feet)	Number of Individuals	Notes
Treatment Area 2				
Black cottonwood	15–25	20–60	6	Long strip of trees along river; right bank. Steep slope. Mostly upland habitat with some in-bank large cottonwoods and alders.
Jeffery pine	15–35	20–70	13	
Incense cedar	15–30	20–40	25	
White fir	10–30	30–65	21	5 Jeffrey pines, 3 white firs, and 3 incense cedars may need to be removed for the construction of this treatment. These upland trees will be salvaged and used as large wood in the treatments. The 6 cottonwood may also need to be removed. The cottonwoods will be transplanted as part of the treatments.
Treatment Area 3				
Black cottonwood	23–32	50–70	6	Trees are located north of treatment area along bank. These trees will be avoided during construction.
Treatment Area 4				
White alder	1–3	10–20	0	Vegetated area is 20 feet by 125 feet. These trees will be avoided during construction.
Treatment Area 5				
Willow	1–2	4–8	200	No trees within treatment area. Willows are immediately north of area. These trees will be avoided during construction.
Treatment Area 6				
Black cottonwood	22–42	65–90	17	Large mature grove of cottonwoods along right bank in the vicinity of the treatment area. These trees will be avoided during construction.
Treatment Area 6				
Quaking aspen	5–20	45–65	9	Sparse grove of aspen about 60–90 ft. from streambank in the vicinity of the treatment area. These trees will be avoided during construction.

3.4.3.3 Noxious and Invasive Weeds

During recent vegetation field surveys, six invasive species (California Invasive Plant Council [Cal-IPC] 2015) were encountered in the Project Reach (PG&E 2012a; SEC 2015b). These species are summarized in Table 3.4-4. Noxious weed populations mapped during the 2015 surveys are described in SEC 2015b.

Table 3.4-4. Invasive Plant Species Identified within the Project Reach.

Species		Status	Potential to Impact Native Ecosystems (Cal-IPC) ^a
Scientific Name	Common Name		
<i>Bromus tectorum</i>	Cheatgrass	Non-native / Invasive	High
<i>Cirsium vulgare</i>	Bull thistle	Non-native / Invasive	Moderate
<i>Dactylis glomerata</i>	Orchard grass	Non-native / Invasive	Limited
<i>Poa pratensis</i>	Kentucky bluegrass	Non-native / Invasive	Limited
<i>Rumex acetosella</i>	Sheep sorrel	Non-native / Invasive	Moderate
<i>Verbascum thapsus</i>	Common (wooly) mullein	Non-native / Invasive	Limited

Sources: SEC 2015a, PG&E 2012a

^a Cal-IPC Ranking System

High These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Moderate These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.

Limited These species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

3.4.3.4 Special-Status Plants

For the purposes of this document, special-status plants are defined as any plant granted protection by a federal, state, or local agency. This includes species afforded protection under the federal Endangered Species Act (ESA) including federal threatened (FT), endangered (FE), and candidate (FC); California Endangered Species Act (CESA) state threatened (ST), endangered (SE), candidate (SC); and CNPS California Rare Plant Rank (CRPR) List 1, 2, 3, and 4.

Based on a review of the literature including known occurrence, species ranges, and habitat suitability, the following six special-status plant species were identified as having moderate to high potential to occur in the Project Reach (Table 3.4-1).

- **Sierra bolandra (*Bolandra californica*) CRPR 4.3.**⁹ Sierra bolandra is a perennial herb found in lower and upper montane coniferous forest between 3,200 and 8,000 feet. It blooms from June through July.
- **Clustered-flower cryptantha (*Cryptantha glomeriflora*) CRPR 4.3.** Clustered-flower cryptantha is an annual herb found in granitic or volcanic, sandy soils in Great Basin scrub, meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest between 5,900 and 12,000 feet. It blooms from June through September.
- **Jack's wild buckwheat (*Eriogonum luteolum* var. *saltuarium*) CRPR 1B.2, FSS.** Jack's wild buckwheat is an annual herb found in sandy granitic soils in Great Basin scrub and upper montane coniferous forests, at elevations from 5,500 to 7,900 feet. It blooms from July through September.
- **Blandow's bog moss (*Helodium blandowii*) CRPR 2B.3, FSS.** Blandow's bog moss is a moss in the Helodiaceae family. It occurs in meadows, seeps, and subalpine coniferous forests in damp soils, at elevations from 4,250 to 8,200 feet.
- **Three-ranked hump moss (*Meesia triquetra*) CRPR 2B.3, FSS.** Three-ranked hump moss is a moss in the Meesiaceae family. It occurs in bog, fens, and meadows and seeps within subalpine coniferous forests or mesic upper montane coniferous forest at elevations from 4,200 to 9,700 feet.
- **Oregon champion (*Silene oregana*) CRPR 2B.2.** Oregon champion is a perennial herb found in Great Basin scrub and upper montane coniferous forests, at elevations from 4,900 to 8,200 feet. Blooming period is from July through September.

Recent field surveys conducted by PG&E (PG&E 2002, 2011a, 2012a, 2013; SEC 2015b) have shown that none of these species is present within the Project Reach. The rare plant surveys were conducted in accordance with USFWS and CDFW guidelines. The surveys were floristic in nature; therefore, all plants observed within the survey area were identified to the species, subspecies, or variety level when possible.

⁹ CRPR ranking 1B indicates that the species is rare, threatened, or endangered in California or elsewhere; 2B indicates that the species is rare, threatened, or endangered in California, but is more common elsewhere. The 0.2 indicates that the species is moderately threatened in California (20-80% of the occurrences are threatened) and 0.3 indicates that the species is not very threatened in California (less than 20% of the occurrences are threatened).

3.4.3.5 Special-Status Wildlife

Special-status wildlife species include animals granted protection under federal ESA (FE, FT, FC, and Birds of Conservation Concern [BCC]), and CESA (ST, SE, SC, California Fully Protected Species [CFP], California Species of Special Concern [SSC]). Forest Service Sensitive (FSS) wildlife species listed for Stanislaus National Forest have been included in the analysis due to their potential to migrate into the Project Reach. Migratory birds, listed under the MBTA, are also considered special status.

Based on a review of the literature including known occurrence, species ranges, and habitat suitability, the following 10 special-status wildlife species were identified as having moderate to high potential to occur in the Project Reach. Three additional species with low potential to occur in the Project Reach (SNYLF, Yosemite toad, and willow flycatcher [*Empidonax traillii*]) also are discussed below. The determination for the potential for occurrence of these three species was based on the findings of several years of PG&E surveys for each of these species since 2003. Other species identified as having some potential to occur are listed in Table 3.4-2.

Special-Status Amphibians

Based on a review of agency records of occurrences in the vicinity of the Project Reach, species ranges, and habitat suitability, no special-status amphibian species were identified as having a moderate to high potential to occur within the Project Reach. Two species, SNYLF and Yosemite toad, have “low” potential to occur based on the findings of recent field surveys, and are discussed here.

SNYLF (*Rana sierrae*) FE, FSS, ST, SSC. The SNYLF is most commonly found at elevations above 5,000 feet. The species is always found near water. It requires rocks or clumps of grass along the shoreline for cover. In the Sierra Nevada, it is associated with stream, lakes, and ponds in montane, riparian, lodgepole pine, subalpine conifer, and wet meadow habitats. It prefers open stream and lake margins that gently slope.

PG&E conducted protocol-level SNYLF surveys in 2001, 2003, 2010, 2011, and 2013 in the two areas in the vicinity of the Project Reach where potential habitat had been identified: (1) in the shallow drainage channel that flows from the oxbow channel and meanders through the middle of the west meadow; and (2) and along the channel within the Project Reach. These study reports were provided to the USFS, State Water Board, CDFW, and USFWS on 3/21/11, 3/9/12, and 3/3/14, respectively. The oxbow channel is outside of the work area identified for the Kennedy Meadows Project. No SNYLF was observed during these surveys, and habitat is marginal within the proposed construction area. As such, this species is unlikely to occur. The study findings are summarized below. The nearest designated critical habitat for SNYLF are located 1.4 miles south of the Project Area (Unit 2I-Emigrant Yosemite) and 2.6 miles east of the Project Area (Unit 2H-Wells Peak) (USFWS 2016b).

Visual encounter surveys and habitat assessments were conducted near the isolated oxbow channel and along the river channel in 2001, with additional surveys completed in 2003, 2010, 2011, and 2013 (PG&E 2011b, 2012a, 2014), according to methods described in Survey Protocols, Standard Operating Procedures, and Data Sheets for Amphibian Surveys and Habitat Assessment (PG&E 2001; updated in Seltenrich and Pool 2002). No SNYLF were observed

along the main channel, nor were they observed incidentally during any of the many biological studies conducted in Kennedy Meadows since 2010 (cited in Section 3.4.2.1). A single metamorph and a single tadpole were observed in the 2001 surveys at the oxbow channel, but no SLYLF was observed during any of the subsequent surveys (2003, 2010, 2011, or 2013). Past and ongoing activities, including trampling by horses, cattle, and recreationists; manure spreading; and historical dam operations, have affected the quality of the meadow habitat and lowered its potential to support the species. It was concluded that this was a strong indication that this species has been locally extirpated or, if extant populations occur, they no longer use the habitat for breeding, foraging, or overwintering (PG&E 2014). No construction activities will occur near the oxbow where the one metamorph and tadpole were located in 2001.

Yosemite Toad (*Anaxyrus canorus*) FT, FSS, SSC. In the Sierra Nevada, the Yosemite toad occurs from Alpine County south to Fresno County, at elevations from 6,400 feet to over 11,000 feet (Jennings and Hayes 1994). Its preferred habitat is relatively open montane meadows, although forest cover around meadows also is used. Suitable breeding habitat generally includes the edges of meadows or slow-flowing runoff streams with short emergent sedges or rushes often present. The closest designated critical habitat for Yosemite toad is 2.6 miles south of the Project Reach (Unit 2-Leavitt Lake/Emigrant).

Yosemite toad may historically have occurred in the Kennedy Meadows area; however, past and ongoing activities including trampling by horses, cattle, and recreationists; manure spreading; and historical dam operations have affected the quality of the meadow habitat. No occurrences have been documented within the vicinity of the Project Reach, including during focused studies conducted in the meadow in 2002 (CDFW CNDDDB 2015d; PG&E 2002), nor were they observed incidentally during any of the many biological studies conducted in Kennedy Meadows since 2010 (cited in Section 3.4.2.1). As such, this species is unlikely to occur within the Project area.

Special-Status Raptors

Several special-status raptors have moderate to high potential to occur within the Project Reach based on agency records of occurrences in the vicinity of the Project Reach, species ranges, and habitat suitability. These include the bald eagle, California spotted owl, great grey owl, northern goshawk, and American peregrine falcon. Potential for each of these species to occur is discussed below.

One bald eagle was observed hunting over the Project Reach during 2015 surveys (discussed above) (SEC 2015b), and one was observed during recent great gray owl (GGO) surveys in 2016 (discussed below). No other special-status raptors, nor evidence of nesting raptors (e.g., observations of raptor species, presence of large nest structures, or vocal responses to broadcast calls) were observed in the vicinity of the Project Reach during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).

Bald Eagle (*Haliaeetus leucocephalus*) FD, FSS, BCC, SE, CFP. The breeding range of bald eagles previously included most of the North American continent, but now they nest mainly in Alaska, Canada, the Pacific Northwest states, the Great Lakes states, Florida, and the Chesapeake Bay. Their winter range is similar to the breeding range, but extends mainly from southern Alaska

and southern Canada southward. Bald eagles are permanent residents and uncommon winter migrants throughout California. They breed primarily in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties (USFS 2003). Bald eagles are known to nest within the watershed, and are regularly observed foraging at Pinecrest Lake. The breeding range is primarily in mountainous habitats next to reservoirs in the Central Coastal range, and on Santa Catalina Island.

Bald eagles forage near lakes, reservoirs, or free-flowing rivers. The nests are usually located in uneven-aged stands with old-growth components. Nesting usually occurs in large trees along shorelines in relatively remote areas. Breeding occurs February through July, with peak activity occurring in March through June. Average clutch size is two eggs. Incubation lasts approximately 35 days and fledging takes place at eleven to twelve weeks of age. Parental care may extend to eleven weeks after fledging. Bald eagles become sexually mature at four to five years of age (Jackman and Jenkins 2004; USFS 2003). One bald eagle was observed hunting over the Project Reach during the July 2015 survey (SEC 2015b) and one bald eagle was observed hunting during the 2016 GGO surveys described below. No evidence of nesting has been observed during any wildlife surveys or recent field studies conducted in the Project Reach.

California Spotted Owl (*Strix occidentalis occidentalis*) FSS, BCC, SSC. The California spotted owl occurs in dense, old-growth, multi-layered mixed conifer, redwood, Douglas-fir, and oak woodlands habitats from sea level up to approximately 7,600 feet in elevation. It prefers large trees and high canopy cover for nesting and foraging areas.

Foraging is most common in intermediate to late successional forests with greater than 40 percent cover and a mixture of tree sizes, some larger than 24 inches in diameter at breast height. Nesting habitat contains a dense canopy cover (greater than 70 percent) with medium to large trees in a multi-storied structure. Nesting season occurs from February to September. The egg-laying through incubation period extends from early April through May, and young owls typically fledge in mid- to late-June. In the weeks after fledging, the young are very weak fliers and remain near the nest tree. Adults continue to feed the young until late September (USFS 2001). No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls were recorded in the vicinity of the Project Reach during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).

Great Gray Owl (*Strix nebulosi*) FSS, SE. GGOs nest in montane mixed conifer and red fir forests, and forage in nearby montane wet meadows, from 2,500 to 8,000 feet in elevation. Their distribution includes the Sierra Nevada, Cascade Range, and Modoc Plateau in California, but they are rare throughout California and only isolated populations are known to occur. Nesting habitat consists of mid- to late-successional conifer forests containing large, broken-top snags in sufficient numbers to provide nest sites and areas with 60 to 100 percent multi-storied canopy, situated within 300 yards of montane meadows or grass/forb forage types. Foraging habitat requires meadows or openings (at least 10 acres in size) that have sufficient herbaceous cover to support gophers and rodents.

In the Sierra Nevada, nesting generally occurs from February to June in low elevations, March to July in middle elevations, and April to August in high elevations. Nesting chronology is dependent upon elevation, with nesting in high-elevation sites occurring more than a month after

low-elevation sites. The courtship and incubation periods are approximately 30 days each. They typically lay two to three eggs per clutch, with usually one to two chicks successfully fledging. Fledglings leave the nest 26 to 28 days after hatching (Beck and Winter 2000).

No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls have been recorded in the vicinity of the Project Reach during previous raptor surveys (PG&E 2002, 2010a, 2011c; SEC 2015b). PG&E recently completed protocol-level surveys for GGO in the Project Reach in August 2016. The surveys were completed following the protocol outlined in the *Protocol for the Great Gray Owl in the Sierra Nevada of California* (Beck and Winter 2000). A full protocol survey for GGO comprises six visits per year over two successive years within a 0.25-mile distance outside the perimeter of all planned ground-disturbing activities where potential suitable habitat occurs. No GGO responses were heard during the 2016 survey season. During the 2016 surveys no breeding or resident GGO were observed within the survey area, and no other owl species were observed. The second year of the survey will be conducted in 2017 prior to construction.

Northern Goshawk (*Accipiter gentilis*) FSS, SSC. On the western slope of the Sierra Nevada, the northern goshawk breeds from about 2,500 feet to approximately 10,000 feet in elevation in coniferous forests. They are general year-round residents in suitable habitat but some limited altitudinal movements may occur.

Nests generally occur in live conifer or hardwood trees, but also occasionally in snags. Nest trees are usually among the largest trees in the stand. The nesting period extends from mid-February through mid-September, with egg laying occurring between mid-April and mid-May. Incubation period is approximately 32 to 34 days. The nestling period is approximately 42 to 45 days, and once fledged, juveniles remain in the nest area for a period of four to eight weeks before dispersing. Annual variation in reproduction is affected by weather and prey dynamics, and not all pairs of goshawks reproduce each year (USFS 2001). No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls were recorded in the vicinity of the Project Reach during previous raptor surveys (PG&E 2002, 2010a, 2011c, 2016b; SEC 2015b).

American Peregrine Falcon (*Falco peregrinus anatum*) FD, BCC, SD, CFP. The peregrine falcon breeds in woodlands, forests, coastal habitats, and riparian areas near wetlands, lakes, rivers, or other water on high cliffs, banks, dunes, or mounds. It is a very uncommon breeding resident and uncommon as a migrant in California, with active nesting areas along the coast north of Santa Barbara, in the Sierra Nevada, and in other mountains of northern California. Migrants occur along the coast and in the western Sierra Nevada in spring and fall.

The peregrine falcon's nest is a scrape on a depression or ledge in an open area, on human-made structures, and occasionally in a tree or snag cavity or old nest of other raptors. Riparian areas and coastal and inland wetlands are important habitats year-round, especially in non-breeding years. Breeding occurs from early March to late August, with a clutch size of three to seven eggs. Incubation is approximately 32 days. The species feeds on a variety of birds and occasionally takes mammals, insects, and fish (Comrack and Logsdon 2008). No observations of this species, presence of suitable nest structures, or vocal responses to broadcast calls were recorded in the

vicinity of the Project Reach during previous raptor surveys (PG&E 2002, 2010a, 2011c; SEC 2015b).

Special-Status Riparian Birds

The literature search identified two special-status riparian birds that may potentially occur in the Project Reach, the willow flycatcher (low potential to occur) and the yellow warbler (*Setophaga petechia*) (moderate potential to occur). Surveys for these two species have previously been performed in the vicinity of the Project, and are discussed below.

Willow Flycatcher (*Empidonax traillii*) FSS, BCC, SE. The willow flycatcher is a rare to uncommon summer resident in wet meadow, foothill, and montane riparian habitats from 2,000 to 8,000 feet in the Sierra Nevada and Cascade Range. It forages in broad, open river valleys or large mountain meadows with lush growth of shrubby willows. Dense willow thickets are required for nesting and roosting.

No willow flycatchers or evidence of nesting was observed in the Project Reach during protocol-level studies conducted for the relicensing (PG&E 2002) or recent activities on the meadow (PG&E 2010b and 2011d). A few small patches of riparian/meadow habitat of marginal quality for willow flycatchers were found during the surveys. The habitat was determined to be marginal due to the small patch size, limited willow component, and high levels of recreation activity and grazing that occurs in the meadow. In conclusion, the willow flycatcher is not likely to occur within riparian areas within the Project Reach.

Yellow Warbler (*Setophaga petechia*) BCC, SSC. The yellow warbler is a potential summer resident that breeds in riparian vegetation along streams or in wet meadows, especially in willows, cottonwoods, and various riparian shrubs. They may occasionally use shrublands and understory trees in mixed conifer forests. Yellow warblers are fairly abundant in the Sierra Nevada, although nearly extirpated from the Central Valley. No evidence of yellow warbler was observed during willow flycatcher surveys (PG&E 2002) or other surveys conducted in the meadow (PG&E 2010b, 2011d; SEC 2015b). Therefore, the yellow warbler is not likely to occur within riparian areas within the Project Reach.

Special-Status Mammals

The following four special-status wildlife species were identified with moderate potential to occur within the Project Reach based on known occurrences in the vicinity of the Project Reach, species ranges, and habitat suitability. However, based on a review of recent site visits and survey summaries conducted for relicensing and other PG&E projects within the Project Reach (ENTRIX 2010; PG&E 2002, 2011b–d, 2012b, 2014; SEC 2015b), there are no known occurrences of special-status mammals within the Project Reach.

Sierra Marten (*Martes caurina*) FSS. The Sierra marten occurs throughout the foothills and high slopes of the Sierra Nevada in montane forests from 4,000 to 13,000 feet in elevation. Martens prefer coniferous forests with large-diameter trees, snags, large downed logs, moderate-to-high canopy closure, and an interspersed of riparian areas and meadows (USFS 2001). Denning occurs from late winter through early spring. Dens are located in cavities and are lined with leaves, grass, moss, or other vegetation. Young are born in March and leave their mothers

in the fall. Sierra marten are generally active at night and are usually very shy. Riparian woodland and adjacent upland forest within the Project area and vicinity do not represent suitable denning habitat for this species, and no suitable dens have been observed. Foraging occurs primarily during the night in edge habitat between forested and open areas. There is low potential for this species to forage within the Project Reach, although if foraging activities occurred, they would likely be limited to nighttime hours when the Project will be inactive.

Pallid Bat (*Antrozous pallidus*) FSS, SSC (foraging). The pallid bat is a year-round resident in California. The species utilizes a variety of habitats, including grasslands, shrublands, woodlands, and forests, although it is most commonly found in open habitats with rocky areas for roosting and prefers to forage in the open. Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, and trees. Roosts in trees include deciduous trees in riparian areas. It also roosts in human-made structures such as bridges, barns, bat boxes, and vacant to lightly used buildings. Pallid bats breed from late October through February, and young are born from April through July (Sherwin and Rimbaldini 2005; Zeiner et al. 1990). Potential foraging habitat occurs within the Project Reach, and potential roost sites include riparian trees.

Townsend's big-eared bat (*Corynorhinus townsendii*) FSS, SSC, SC-T (foraging). Townsend's big-eared bat is a year-round resident in California, occurring from low desert to mid-elevation montane habitats. Habitat associations include riparian communities, active agricultural areas, and coastal habitat types. The species requires caves, mines, tunnels, buildings, or other human-made structures for roosting, and has been reported to utilize bridges, rock crevices, and hollow trees as roost sites. There are no caves, abandoned mines, tunnels, buildings, or other human-made structures representing appropriate roosting habitat for this species in the vicinity of the Project Reach. It may use separate sites for night, day, hibernation, or maternity roosts. Townsend's big-eared bats prefer mesic habitats. They glean from brush or trees, and feed along habitat edges. Foraging associations include edge habitats along streams, adjacent to and within a variety of wooded habitats. Potential foraging habitat occurs within the Project Reach. Mating occurs from October through February; fertilization is delayed, and gestation lasts 56 to 100 days. Young are born in May and June, peaking in late May. Townsend's big-eared bat has high site fidelity and is extremely sensitive to disturbance of roosting sites (Sherwin and Piaggio 2005; Zeiner et al. 1990). Potential foraging habitat occurs within the Project Reach; however, potential roost sites would be limited to hollow trees and snags, which are not present in the Project Reach, but are present in the areas surrounding the meadow. Foraging would occur in the evening and night, when the construction activity will not be active; therefore, this species has low potential to be affected by construction.

Fringed Myotis (*Myotis thysanodes*) FSS (foraging). The fringed bat is widespread in California, occurring in all areas but the Central Valley and Colorado and Mojave deserts, from sea-level to 9,350 feet in elevation, but is most common in middle elevations. It is most common in drier woodlands (e.g., oak, pinyon-juniper, ponderosa pine), but is found in a variety of habitats including desert scrub, mesic coniferous forest, grassland, and sage-grass steppe. The species feeds over water, over open habitats, and by gleaning from foliage. Fringed myotis roosts in crevices in buildings, underground mines, rocks, cliff faces, and bridges. None of these occurs in the vicinity of the Project Reach. Separate day and night roosts may be used. Roosting in decadent trees and snags, particularly large ones, is common throughout its range. Tree preference is based on structural characteristics (e.g., height, decay stage) rather than tree species. Maternity

roosts are colonial and males roost singly or in small groups. Hibernacula include caves, mines, and buildings. Breeding occurs in the fall, but due to delayed fertilization and a 50- to 60-day gestation, young are born from late June; however, this likely varies according to latitude, elevation, and climate (Weller 2005; Zeiner et al. 1990). Potential foraging habitat occurs within the Project Reach; however, potential roost sites would be limited to large decadent trees and snags, which are not present in the Project area. Foraging would occur in the evening and night, when construction will not take place. Therefore, the potential is very low for this species to be affected by construction.

3.4.3.6 Fish and Aquatic Habitat and Communities

The Middle Fork Stanislaus River in the Project Reach consists of four riffle-pool sequences with an average slope of 0.0049 ft/ft. The bed consists of very coarse gravel (D50 = 54 millimeter [mm]), with fine gravel (8 mm) constituting less than 10 percent of the bed material. The bars within the Project Reach consist primarily of coarse to very coarse gravel. There was no evidence of armoring of the bed during previous studies (PG&E 2002).

The fish community consists entirely of rainbow trout and brown trout, based on surveys conducted in 2000 (FERC 2005). The trout community is a mixture of wild and hatchery-sourced individuals. The Middle Fork Stanislaus River, including the Project Reach, is regularly stocked with catchable-size rainbow trout. Percent composition of rainbow trout ranged from 85 to 100 percent and percent composition of brown trout ranged from 0 to 15 percent, depending upon time and sampling location. Total trout biomass was estimated at 206 pounds/mile in 2000. Biomass and percent composition varied by season and inter-annually (FERC 2005; PG&E 2002).

BMI communities were sampled in 2000 and 2001 (FERC 2005), and were determined to be roughly similar to those in the Clark Fork of the Stanislaus River (an unimpaired river). Aquatic habitat for BMI communities is of high quality, and the BMI species present are of types generally associated with cold, clean water and montane trout communities. BMI communities in the reach serve as important forage for trout (FERC 2005).

3.4.3.7 Wetlands

Two routine wetland delineations and preliminary determinations of jurisdictional wetlands and waters of the United States and the State of California, as defined by the CWA (Federal Register 2015), were recently completed (June 30, 2010, and June 16–17, 2015) within the Project Reach. Parameters evaluated for wetland delineations (presence of wetland vegetation, soils, and hydrology) are not expected to have changed between 2010 and 2015. Land use and the flow regime remained the same during this time period. These reports were combined into a single wetland delineation report to conform to the recent guidance *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2016).

Based on the areas delineated in 2010 and 2015, four wet meadows, seasonal wetland features, and three “other waters” of the United States (the Middle Fork Stanislaus River and two tributaries to the Middle Fork Stanislaus River) are located in the vicinity of the Project Reach (see Figure 2.6-3). Table 3.4-5 provides a summary of aquatic resources, or “wetlands” occurring within the Project Reach.

The four wetlands areas exhibited wetland vegetation, hydric soils, and primary hydrologic indicators. The Middle Fork Stanislaus River and the two tributaries contain bed, bank, and OHWM indicators. One additional tributary was identified within the 2015 survey area. This tributary occurs upstream of the Project Reach. A few other tributaries are located in the west meadow, but none are located within the treatments areas or locations where construction activities will occur.

The tributaries are directly adjacent to and are hydrologically connected to the Middle Fork Stanislaus River. Table 3.4-5 summarizes the wetlands and “other waters” of the United States in the Project Reach. These features are shown in Figure 2.6-3.

Table 3.4-5. Wetlands and Other Waters of the United States in the Project Reach.

Wetlands	Acres	Notes
Wet Meadow A	0.09	Area on the east floodplain adjacent to anticipated staging area
Wet Meadow B	0.329	Area on the east floodplain bordering the dirt road
Wet Meadow C	4.9	Area at the downstream end of the Project Reach on the east floodplain
Wet Meadow D	0.7	West floodplain near Treatment Area 7
Total Wetlands	6.02	
Other Waters of the United States	Acres/Linear Feet	
Middle Fork Stanislaus River	7.0 acre / 3,000 linear feet	
Tributary 2	0.004 acre/ 35 linear feet	Located in Treatment Area 2
Tributary 3	0.01 acre / 138 linear feet	Located within the Project Reach and is adjacent to, but not within, a treatment area.
Total Other Waters	7.014 acres/ 3,173 linear feet	

3.4.4 Impact Analysis

Potential impacts related to the Kennedy Meadows Project and requiring analysis under CEQA are identified in Checklist IV, followed by a detailed discussion. Based on a review of regulations, the Kennedy Meadows Project will comply with all federal, state, and local requirements related to biological resources.

Checklist IV. CEQA Checklist for Assessing Project-Specific Potential Biological Resources Impacts.

IV. Biological Resources

Would the Project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>

Discussion

- a. **Finding.** Based on a review of existing literature including known occurrence, species ranges, habitat suitability, and Kennedy Meadows Project-specific surveys, several special-status species have the potential to occur in the Project Reach. Multiple surveys conducted by PG&E and their consultants have failed to detect any special-status plants, fish, amphibians, raptors, riparian birds, or mammals within the Project Reach or vicinity. Exceptions include two incidental sightings of a bald eagle hunting in the vicinity of the Project Reach in 2015 and 2016 and one observation of a metamorph SNYLF in 2001 in the oxbow channel west of the

Project Reach. Multiple protocol-level surveys for SNYLF have not observed any individuals, and the species is not thought to occur in the Project vicinity. The Project area does not lie within designated or proposed critical habitat for any species.

However, the Project Reach does represent suitable foraging habitat for some special-status species (i.e., bald eagle), and other species have the potential to occur as transient visitors. Construction activities proposed for the Kennedy Meadows Project activities have the potential to temporarily disturb special-status species passing through the Project area or its immediate vicinity. In addition, construction activities will temporarily modify and disturb potentially suitable habitat within the immediate construction footprint. No special-status species are expected to be injured or killed by Project activities. Any impacts will be limited to disturbance and are expected to be of low magnitude and of minimal duration.

Implementation of APMMs and BMPs, which are integrated into the Project design, will further protect any special-status species that may move through the area and will minimize and/or avoid any potential impacts to those species or their habitat to a less-than-significant level. All BMPs/APMMs listed in Section 2.6.4 will reduce impacts to environmental resources. APMMs and BMPs that specifically address listed plants and wildlife species and their habitat include:

- General Wildlife Avoidance and Protection
- Nesting Bird and Bat Avoidance and Protection
- Stream Diversion and Dewatering
- Aquatic Species Protection
- Riparian and Meadow Habitats and Wetlands Protection

Additional measures that indirectly protect vegetation, wildlife, and water resources include General Measures, Equipment Maintenance, Water Quality Protection, Concrete Waste Management, Stream Diversion and Dewatering, and Fire Protection. The following section provides an analysis of potential impacts of the Kennedy Meadows Project on special-status species, including direct effects and indirect effects through modification of aquatic, riparian, and/or terrestrial habitats and vegetation communities that support these species.

Special-Status Plants

No special-status plants have been identified in the Project Reach during recent rare plant surveys conducted in accordance with USFWS and CDFW guidelines. As such, implementation of the Kennedy Meadows Project will not result in impacts to special-status plants.

The Kennedy Meadows Project includes several BMPs and APMMs that will protect vegetation communities that could support special status-species that have the potential to occur within the Project Reach. Riparian and Meadow Habitats

and Wetlands Protection measures include: limiting disturbance or removal of vegetation to the minimum necessary to complete Project activities and ensuring this occurs only within the defined work areas; installing temporary fences around riparian and meadow habitats and wetlands to limit vegetation disturbance in these areas; and using mats or other means to prevent sinking or rutting where meadow soils are soft. The Kennedy Meadows Project specifies that access routes and disturbed areas will be restored to their preconstruction conditions, including decompaction of soils and post-construction seeding. The MMP includes monitoring to ensure that these areas are restored.

With implementation of the BMPs and APMMs included in the Kennedy Meadows Project, the Project will protect vegetation resources in the Project area and vicinity. Therefore, any potential impacts, including direct effects and indirect effects, will be less than significant.

Special-Status Wildlife

Potential Impacts to Special-Status Fish

There are no special-status fish in the Middle Fork Stanislaus River in the Relief Reach; therefore, implementation of the Project will not result in any impact to special-status fish.

Potential Impacts to Special-Status Amphibians

SNYLF and Yosemite Toad Individuals. No occurrences have been documented within the Project Reach, especially during focused studies conducted in the meadow in 2002, 2010, 2011, or 2013 (CDFW CNDDDB 2016; PG&E 2002, 2011b, 2012a, 2014), nor does the Project area encompass critical habitat for this species. As such, these species are highly unlikely to occur. Therefore, the Project will result in no impact to these species.

Potential Impacts to Special-Status Raptors and Riparian Birds

Implementation of the Kennedy Meadows Project could potentially impact special-status raptors and other birds, including:

- Raptor nest disturbance
- Aquatic foraging habitat and availability of prey species for raptors
- Disturbance of forest-dwelling raptors and other birds
- Riparian-nesting birds

Construction activities have the potential to disturb raptors and other riparian nesting birds during vegetation removal, dewatering, grading, and other bank revetment activities. The use of heavy equipment and increased activities from a construction workforce could create noise and other disturbances that discourage or disturb nesting activities.

Riparian trees and upland forests represent suitable nesting habitat, while open areas such as Kennedy Meadows and the Project Reach represent suitable foraging habitat. Although the Project will result in temporary disturbance to potential nesting and foraging habitat, the impacts will be short in duration and relatively small in extent. Implementation of APMMs and BMPs such as General Wildlife Avoidance will further protect individuals during construction of the Project, and the Nesting Bird and Bat Avoidance and Protection measures will directly address potential impacts to nesting birds. Preconstruction nesting bird surveys will identify any nesting birds in the Project area and will result in the implementation of a suitable buffer distance. Any nests identified will be protected by a suitable buffer for that species until the chicks fledge, or a biologist will monitor that nest when activities are taking place within that buffer. Foraging raptors or other bird species using the Project area or its immediate vicinity would be expected to move out of the construction area and use abundant adjacent suitable habitats for the short duration of construction activities; therefore, impacts will be substantially less than significant to avian species.

Potential Impacts to Special-Status Bats

The Kennedy Meadows Project is within the known range of three special-status bats—the pallid bat, Townsend’s big-eared bat, and fringed myotis. There are no records of these species in the Project Reach or surrounding area; however, riparian woodlands and other forested areas represent suitable roosting habitat for pallid bat, while open areas such as Kennedy Meadows and other mesic habitats represent suitable foraging habitat for all three species. Although Project construction will result in temporary disturbance to potential roosting and foraging habitat, the impacts will be short in duration and relatively small in extent. Any individual bats using the Project Reach or its vicinity would be expected to use adjacent suitable habitats for the short duration of construction activities.

Nesting Bird and Bat Avoidance and Protection APMMs/BMPs provide for preconstruction bat surveys, which will identify any active roosting sites for avoidance. Further, implementation of APMMs and BMPs such as General Wildlife Avoidance and Protection will minimize potential impacts to these species, and therefore, impacts will be less than significant.

Potential Impacts to Special-Status Mesocarnivores

Only one mesocarnivore, the Sierra marten, has moderate potential to occur in the vicinity of the Kennedy Meadows Project. Sierra marten are generally active at night and are usually very shy. Riparian woodland and adjacent upland forest within the Project area and vicinity do not provide suitable denning habitat for this species, and no suitable dens have been observed. There is low potential for this species to forage within the Project area, and in any case foraging activities will likely be limited to nighttime hours when Project construction is inactive. Implementation of APMMs and BMPs such as General Measures and General Wildlife Avoidance and Protection will further minimize potential impacts to the Sierra marten, and therefore, potential impacts will be less than significant.

- b. Finding.** Construction of the bioengineered treatments will require removal of approximately 0.014 acre of riparian vegetation at Treatment Area 2A (Table 2.6-4). Based on recent biological surveys, it is estimated that approximately six riparian trees will be removed (Table 3.4-3). In addition, 11 upland trees may also need to be removed to construct the treatment in Treatment Area 2A. To the extent feasible, the riparian trees will be salvaged and replanted. Removed upland trees will be incorporated in the large wood features. One of the objectives of the Project is to protect existing riparian vegetation in other portions of the Project area that are susceptible to erosion. The Project will replace the trees that are being removed. In Treatment Area 2A, a minimum of 80 plantings will replace the 0.014 acre of affected riparian habitat. In addition, within the entire Project Reach, a total of 1.19 acres will be replanted to permanently enhance riparian habitat. This includes the proposed planting of a minimum of 961 riparian poles/stakes/containers in the seven treatment areas within the Project Reach. Additionally, during construction, implementation of APMs and BMPs for Riparian and Meadow Habitats and Wetlands Protection will reduce and or/avoid potential impact to any riparian habitat to a less-than-significant level. While implementation of the Project will result in the permanent removal of 0.014 acre of riparian vegetation at Treatment Area 2A, the effect will be less than significant with implementation of Project-proposed riparian enhancement activities.

No other sensitive natural communities were observed in the Project Reach; therefore, the Project will not impact any sensitive natural communities identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

- c. Finding.** The Kennedy Meadows Project will result in both impacts and enhancements to wetlands as a result of work activities in the treatment areas. The treatment areas extend along 1,885 linear feet of the Middle Fork Stanislaus River, for a total footprint of 1.2 acres. Approximately 0.30 acre of the treatment area is within the OHWM and 0.90 acre is outside the OHWM.

The majority of the stabilization treatments will be constructed in portions of the streambank and meadow where there is minimal existing riparian vegetation. Kennedy Meadows Project impacts will be considered permanent as defined by Nationwide Permit Program General Condition 13, as the fill is designed to stay in place after completion of construction (and not removed in the final stages of construction). The Kennedy Meadows Project will improve bank stability, riparian cover, and wetland functions, and therefore will constitute a “no net loss” of potentially jurisdictional wetlands and waters. Kennedy Meadows Project activities will result in an overall enhancement of wetlands, riparian habitat, and aquatic habitat (Table 3.4-6).

Table 3.4-6. Kennedy Meadows Project Impacts and Permanent Enhancements.

Resource	Temporary Impact (acre) ^a			Permanent Enhancement (acre)
	Modification due to Site Access and Planting Only	Modification with Dredge/Fill	Dewatering	
Wetlands	0.28 (Wetland C)	0.06 (Wetland D, Treatment Area 7 only)		0.34 ^b (Treatment Area 6 and 7; Wetlands C and D)
Riparian Habitat		0.014 (Treatment Area 2A only)		1.20 (Total area enhanced by Treatment Areas 1–7)
Instream – below OHWM		0.30 (work within OHWM)		0.30
Aquatic Habitat			1.5 ^c (maximum area of stream to be dewatered)	7.0 ^d (area of the entire 3,000 Kennedy Meadows Project Reach, within OHWM)

^a Impacts will NOT result in a loss of waters of the United States or wetlands.

^b Calculated by 0.28 (Wetland C) + 0.06 (Wetland D).

^c The dewatered area is the area within the OHWM (i.e., bankfull channel) and equals 3.45 acres; construction and dewatering will occur at summer low flows and are estimated at approximately 1.5 acres.

^d Area within 3,000-foot Project Reach; actual area of enhanced aquatic habitat expected to be much larger than specific work area, including adjacent wetlands and downstream aquatic habitat.

Implementation of the APMs and BMPs for Riparian and Meadow Habitats and Wetlands Protection will reduce the potential impact to a less-than-significant level. Implementation of measures required in the CWA Section 404 permit, CWA Section 401 certification, and Section 1602 permit would only further lessen the potential for significant impacts.

- d. Finding.** Construction activities will temporarily disturb and/or discourage the movement of migratory or resident wildlife species within the immediate Project area; however, similar habitat of equal value is available in the vicinity (for example on the west side of the river), and migration or movement of wildlife will continue unimpeded around the Project. The timeframe for project construction is outside the primary migratory timing of most species, including fish. Implementation of Stream Diversion, Dewatering, and Aquatic Species Protection APM/BMP measures,

including fish rescue and relocation, will minimize potential impacts to fish throughout construction. Further, implementation of APMMs and BMPs such as General Measures limit work crews and equipment to designated areas and establish driving speed limits, which will further protect the movement of wildlife. Due to the availability of similar habitat in the vicinity, the short duration of construction, and the implementation of APMMs and BMPs to protect these species, this potential impact will be less than significant.

Implementation of the Kennedy Meadows Project could potentially impact resident fish in the Middle Fork Stanislaus River in the following ways:

- Entrainment during pumping and gravity flow piping of Middle Fork Stanislaus River flow to dewater the channel to allow for in-channel work and access to the western streambank.
- Stranding of fish in isolated pools in the Middle Fork Stanislaus River.
- Degradation of water quality in the Middle Fork Stanislaus River.

Each of these is discussed further below.

Entrainment. During construction of the Project, pumps will be used to dewater the channel and to maintain a dry workspace during construction. There is potential for fish to be entrained into the pumps, which could result in direct fish mortality. Implementation of the Aquatic Species Protection and Stream Diversion and Dewatering measures will directly address potential impacts to native fish during diversion activities. These APMMs/BMPs provide for an agency-approved Diversion, Dewatering, Recovery, and Relocation Plan to be developed and implemented prior to diversion activities. The fish recovery and relocation measures for exclusion, recovery, and relocation of fish and other aquatic species that will be included in the Diversion, Dewatering, Recovery, and Relocation Plan are provided in Section 2.6.4.10. Exclusion activities will be implemented prior to construction of cofferdams. Implementation of these measures will ensure that pump entrainment of resident fish does not occur, and therefore, potential entrainment impacts will be less than significant.

Stranding. During dewatering, there is potential for fish to become stranded in isolated pools. Absent implementation of BMPs/APMMs, these isolated pools may dry up or water quality may be poor, resulting in the potential for fish mortality if fish are present in the pools. BMPs/APMMs for Aquatic Species Protection and Stream Diversion (Section 2.6.4.10) include measures to address potential impacts from stranding during diversion activities. These measures provide specific actions for aquatic species protection including the requirement for an aquatic biologist to monitor activities that have the potential to affect aquatic biota. The measures also include stranding surveys after dewatering to prevent aquatic species from becoming stranded during dewatering activities. Implementation of these measures will minimize the potential for stranding of resident fish, and therefore, potential impacts will be less than significant.

Water Quality. Dewatering of the channel and other instream construction activities have the potential to affect water quality (turbidity, fine sediment, and petroleum) in the Middle Fork Stanislaus River downstream of the Project Reach, potentially resulting in adverse impacts to aquatic biota.

BMPs and APMMs that directly address potential impacts to water quality include Equipment Maintenance, Hazardous Materials Management and Spill Prevention, Water Quality, Erosion, and Sediment Control, Concrete Waste Management, and Aquatic Species Protection. These measures will be implemented to avoid or minimize the potential for construction activities to impact water quality. The Project APMMs also include Turbidity Monitoring measures that specify monitoring locations, method of monitoring, criteria thresholds, and data recording and reporting. Based on the foregoing, water quality impacts will be less than significant.

In addition, as provided for in the Stream Diversion and Dewatering measures, PG&E will prepare a Diversion, Dewatering, Recovery, and Relocation Plan to address potential instream impacts resulting from dewatering. The aquatic species protection measures that are included in this plan are provided in Section 2.6.4.10. The specific approach for dewatering the channel will depend on the field conditions at the time of construction, and will consider safety and cost-effectiveness. PG&E will also be preparing a SWPPP that will provide details regarding erosion/stormwater BMPs.

- e. **Finding.** The Kennedy Meadows Project will not conflict with any local policies or ordinances protecting biological resources and will be consistent with the Tuolumne County General Plan policies that relate to protection and maintenance of native wildlife and vegetation. Therefore, there will be no impact.
- f. **Finding.** There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other habitat conservation plan applicable to the Project Reach. Therefore, there will be no impact.

3.5 CULTURAL RESOURCES

The region surrounding the Kennedy Meadows Project Reach is known to contain a variety of prehistoric and historic-era cultural resources including Native American seasonal habitation and resource processing sites and the remains of early historic-era ranching and mining activities. The following provides a brief overview of the cultural context of the vicinity of the Project Reach, the cultural resources study methodology, findings, and an analysis of potential impacts to prehistoric and historic-era resources and human remains.

3.5.1 Environmental Setting

3.5.1.1 Prehistoric Context

The western slope of the Sierra Nevada and the Stanislaus River drainage have been the subject of numerous archaeological studies since at least the mid-twentieth century, and recent investigations have shed further light on the extent and nature of early Native American

occupation and land use of the region (Rosenthal 2011). These investigations have defined a general sequence of prehistoric cultural patterns found in the region, traces of which could be encountered within or near the Project area:

- The **Early Archaic** (11,500–7,000 years before the present day [BP]) represents the earliest documented presence of people in California and has been noted at two western Sierra locales: CA-CAL-629/630 in Copperopolis, and Clark’s Flat (CA-CAL-342) located upstream from New Melones Reservoir on the Stanislaus River. Artifact assemblages and features found on these sites indicate that early prehistoric land use in the western Sierra was seasonally structured and did reflect a highly mobile lifestyle often supposed for this time.
- The **Middle Archaic** (7,000–3,000 BP) sites on the western slope of the Sierras have, like those of the Early Archaic, been found primarily in buried contexts. Sites dating to this period often include large numbers of handstones and milling stones in their assemblages, indicating a reliance on floral resources. The availability of flora varied with the seasons and elevations. Faunal assemblages from sites dating to this time trend toward large mammal remains in a pattern of resource procurement that continues throughout the remainder of the prehistoric archaeological record.
- Sites dating to the **Late Archaic** (3,000–1,100 BP) are among the most commonly encountered prehistoric archaeological sites on the western slope of the Sierras, with many also being found in buried contexts. In general, Native American lifeways appear to have been largely comparable to those noted during earlier periods although there was a marked increase in obsidian use during this time. Exotic shell ornaments and beads are commonly found in the lowest elevations and in the Central Valley for sites dating to this time, but are only rarely encountered in the upper foothills and higher elevation sites.
- By the **Recent Prehistoric** (1,100–150 BP), dramatic changes took place in terms of Native American settlement, technological, and subsistence patterns. Research has demonstrated that settlement patterns changed region-wide due to a pervasive drought linked to the Medieval Climatic Anomaly (Jones et al. 1999; Stine 1994; Waechter and Andolina 2005). Many specialized technologies appear to have developed and expanded (or were at least archaeologically preserved) during this time and long-range material exchange became commonplace.

3.5.1.2 Ethnographic Context

The Project Reach is situated in an area used seasonally by the Central Sierra Me-Wuk and the Washoe to take advantage of the available natural resources (d’Azevedo 1986; Kroeber 1925; Levy 1978; Merriam 1907). As d’Azevedo (1984:23) stated, tribal boundaries were often porous and “ventilated by corridors of tolerated access,” incorporating areas of joint or overlapping use, such as Kennedy Meadows, as long as exclusive-use areas and rules of exchange were observed. Brief cultural overviews of each group are provided below.

Central Sierra Me-Wuk

The Me-Wuk (also spelled Mi-Wuk or Miwok) traditionally occupied a large portion of the central Sierra Nevada range, the adjacent foothills, and a portion of the adjacent Sacramento-San Joaquin river valley (Barrett and Gifford 1933; Kroeber 1925). Linguistic studies suggest that the ancestral Me-Wuk occupied the Sacramento-San Joaquin Delta from an early time, but did not arrive in the Sierra foothills and mountains until much more recently, possibly as recently as 800 years ago (Levy 1978:398). Regardless of their specific origins, Me-Wuk lifeways remained largely unchanged for centuries until the sustained incursions of Euro-Americans, which began during the late eighteenth and early nineteenth centuries. Apart from various epidemics that spread through native populations during the early 1800s, the most significant impacts on Me-Wuk peoples occurred after the start of the Gold Rush in 1849 that forced many off their traditional lands and dramatically reduced their population. Today, however, many Me-Wuk bands are thriving as federally and state-recognized communities working to preserve their culture for future generations.

Washoe

Culturally, the Washoe people are linked to both California and the Great Basin. However, their language is unique, being the only non-Numic language in the Great Basin. Although the Washoe language is commonly classified as a member of the Hokan stock (cf., Shipley 1978) which has 10 other branches in California, the relationships among these branches have not been firmly established (Jacobsen 1986:107; Moratto 1984). Washoe core territory extended from Honey Lake on the north to the West Walker River, south of Gardnerville, Nevada, on the south, and from the Pine Nut Range, east of Reno, to the Sierra crest on the west. The traditional economy was based on seasonally available resources from catchments tethered to camps where “first use” rights and accessibility were maintained by priority of use. Key among these resources were fish and pinyon pine nuts. Researchers (i.e., d’Azevedo 1955; Siskin 1990; Wright 1990) have described their seasonal movements in terms of spring and fall fish runs and fall pinyon harvests (September–October). The contemporary Washoe are actively engaged in the stewardship of their ancestral cultural resources. The Washoe Cultural Resources Advisory Council advises the Tribal Historic Preservation Officer, the Cultural Resources Department, and Tribal Council on cultural resource matters.

Historic-Period Context

Mining, logging, ranching, recreation, the development of the National Forest system, and the generation of hydroelectric power have all played a major role in shaping the history of the Project Reach and surrounding region. Ranching and recreation, however, have been the most significant historic-period activities that have influenced the Project Reach and surrounding area.

As described by Thomas et al. (2016), the discovery of gold at Coloma in 1848 was the primary impetus for Euro-American incursion into the Stanislaus watershed and disruption of native traditions. Placer mining operations in the foothill regions required a dependable water source, particularly during summer months. To meet this demand, a series of flumes, tunnels, and ditches was constructed to convey water from the Stanislaus River. Mining-related settlement and activities were, however, often transitory. Sustained Euro-American occupation of the Project Reach and surrounding area dates to about 1870, when Knight’s Ferry ranchers Andrew

Thomas Kennedy and his brother, J.F. Kennedy homesteaded or otherwise controlled thousands of acres of land through grazing rights. They owned property that included present-day Kennedy Lake southeast of the Project Reach, and in 1870 built a cabin in the western portion of the meadow. The Kennedys sold their property to the Sierra and San Francisco Power Company, which built nearby Relief Reservoir, in 1906. By 1917, Charles Ledshaw and a “Mr. Edwards” established a hunting camp in the western meadow¹⁰ where they operated an equestrian pack station, a store, and gas station, which they sold 12 years later to Frank Kurzi. Kurzi built the first tourist and hunters’ lodge at Kennedy Meadows in the 1930s. Fire destroyed the lodge in 1940. It was rebuilt the following year, but burned again in 2007. Today, the new lodge and pack station are owned and operated by Matt and Leslie Bloom, who purchased the resort in 1998 (Routt 2013). With no significant interruptions, packing has continued in the vicinity of the Project Reach since 1917, with the operation now consisting of over two dozen buildings including barns, rental cabins, a lodge, a saloon, various outbuildings, and several corrals (Stewardship Council 2007).

3.5.1.3 Existing Conditions

Methodology

The Project cultural resources investigation consisted of a thorough literature review, a records search conducted by the Central California Information Center of the California Historical Resources Information System, an information request submitted to the NAHC, outreach to appropriate tribal representatives and groups, and an intensive survey of the Project area. The NAHC was contacted on May 13, 2016. On May 19, 2016, per the NAHC contacts list, PG&E sent letters to Mr. Stanley Cox of the Tuolumne Band of Me-Wuk Indians, Mr. Kevin Day of the Tuolumne Band of Me-Wuk Indians, and Ms. Melissa Powell of the Chicken Ranch Rancheria of Me-Wuk Indians of California. Follow-up emails were sent to each of these contacts on June 14, 2016.

An inventory of paleontological resources was also completed, which included a review of the University of California Museum of Paleontology (UCMP) online database.

Results and Findings

Archival research and the Central California Information Center records search noted that one cultural resource (FS 05-16-53-0300) was previously mapped in the vicinity of the Project Reach. The record for the site dates to 1983. This prehistoric/historic-era site could not be relocated during the 2016 survey and was likely incorrectly mapped more than 30 years ago. This site does not appear to be located within the current Project area, and the existing site record could not be updated.

¹⁰ This location is about 0.5 mile to the northwest of the Project Reach, at the existing Kennedy Meadows Resort and Pack Station.

A query of the NAHC's Sacred Lands File yielded negative results within or near the Project Reach. Outreach to three Native American tribal representatives did not result in the airing of concerns regarding the proposed Project or the archaeological investigation. However, a monitor from the Tuolumne Band of Me-Wuk Indians did accompany archaeologists on the field survey of the Project Reach and the vicinity.

The intensive survey of the Project Reach resulted in the documentation of two previously unrecorded historic-era resources: an alignment of Kennedy Meadows Road (KM-7H [FS 05-16-53-0582]) and KM-1H, a historic-period dam and ditch segment. Neither site has been evaluated for listing on the California Register of Historical Resources, and they are therefore both considered to be historical resources for the purpose of this analysis.

A review of the UCMP database indicated that no paleontological finds have been recorded within or in the immediate vicinity of the Project Reach.

Three cultural resources have been identified within and immediately adjacent to the Project Reach. These consist of a portion of the alignment of Kennedy Meadows Road (KM-7H/FS 05-16-53-0582), a diversion dam and ditch system (KM-1H), and a prehistoric artifact scatter and historic-era structure site (FS 05-16-53-0300). Site FS 05-16-53-0300 was first identified in 1983. This site was not relocated in a 2016 survey and was probably incorrectly mapped when first recorded and is not discussed further.

KM-1H

The site consists of a small water diversion dam and ditch system situated on an unnamed tributary of the Middle Fork Stanislaus River. The site is located near Treatment Area 2A/B where little or no ground disturbance will occur other than vegetation plantings (see Figures 2.6-1 and 2.6-2). Site components include a small diversion dam, a ditch, three lengths of riveted seam steel pipe, and a half circle of galvanized corrugated steel pipe. The ditch, which carried water north to Kennedy Meadows, measures four feet wide at the bottom, 10 feet wide at the top, and five feet in depth, and is approximately 480 feet in length. No artifacts or additional features associated with KM-1H were identified within the Project Reach.

KM-7H (FS 05-16-53-0582)

This resource consists of two alignments of Kennedy Meadows Road: a 1,000-foot-long segment of road that is depicted on the 1898 Dardanelles, California, 1:25,000-scale USGS topographic quadrangle map, and the current road that is depicted on the 1956 Sonora Pass, California, 1:62,500-scale topographic quadrangle map. The current name of the road is Kennedy Meadows Road, and it runs on a north-south axis extending between Highway 108 on the north end and a hiking trail leading to Relief Reservoir on the south end. However, the only portions of the road alignment that were recorded were those located on land owned by Tuolumne County and on the adjacent Stanislaus National Forest land south of the Project Reach.

The current road alignment is used to access Kennedy Meadows Resort and Pack Station. The section between Highway 108 and Deadman Creek is a paved, two-lane road. The bridge over Deadman Creek is constructed of concrete and exhibits a stamped date of 1955. South of the creek, the alignment transitions to a maintained dirt road that continues to the resort and pack

station. South of the resort and pack station, access is restricted. The road eventually terminates at a footpath leading to Relief Reservoir. An approximately 3,134-foot-long segment of Kennedy Meadows Road passes adjacent to the Project Reach; however, no associated features or artifacts were identified within the Project Reach.

3.5.2 Impact Analysis – Cultural Resources

Potential Project-related cultural resources impacts that require analysis under CEQA are identified in Checklists Va and Vb followed by a detailed discussion. Based on a review of regulations, the Project will comply with all state and local requirements as they relate to cultural resources. As noted, no federal regulations related to cultural resources will apply to the Project.

Checklist Va. CEQA Checklist for Assessing Project-Specific Potential Impacts on Cultural Resources.

Va. Cultural Resources

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

Discussion

- a. **Finding.** Archival and field investigations have resulted in the documentation of two historic-era cultural resources situated within the Project area. These resources consist of a segment of Kennedy Meadows Road (KM-7H [FS 05-16-53-0582]) and a water diversion dam and ditch feature (KM-1H). Although located near treatment areas 2A and 2B, only vegetation plantings are proposed for those areas, which will not affect the nearby dam and ditch feature. In addition, KM-1H is situated outside the restoration and enhancement Project area and away from any potential ground-disturbing activities (see Figure 2.6-1). Kennedy Meadows Road, situated partially within the Project area (see Figure 2.6-1) will be used as an access route for meadow restoration activities. However, Project-related uses of the road will be in keeping with historic and contemporary uses that will not affect the condition or setting of the alignment. Consequently, no Project-related

activities will affect the integrity of KM-1H or KM-7H, and, as a result, there will be no impacts.

- b. Finding.** No documented archaeological resources are known to be present within the Project Reach. Unrecorded and potentially significant archaeological resources could be present in the Project Reach in subsurface contexts that could be affected by Project-related ground-disturbing activities. However, archival and field research does not indicate that archaeological resources are present and as a consequence, specific impacts cannot be identified. In addition, the BMPs and APMMs incorporated into the Project design will eliminate potentially significant impacts to hitherto unidentified archaeological resources. Therefore, there will be no Project impacts on archaeological resources.
- c. Finding.** A review of the UCMP online database for Tuolumne County indicates that 221 paleontological specimens have been found in the county and are currently cataloged in the UCMP collections. The majority of these were found at or near Table Mountain in the Sonora area (a significant distance from the Project Reach) and consist almost entirely of Miocene epoch *Magnoliopsida* (a broad group of seed-bearing flowering plants). Other fossils found in the Table Mountain area include examples of the Pleistocene *Mammot americanum* (American mastodon). These locations are, however, located at least 40 miles southeast of Kennedy Meadows. No fossils have been documented in the Project area. The geological context of the area (see Koenig 1963) consists of Miocene and Pliocene volcanics along with some Tertiary intrusive rocks and Mesozoic granite—formations where fossil plant and animal remains do not occur. Since fossils have not been documented and the Project area geology consists of formations where fossils do not occur, there will be no impacts on paleontological or geologic features.
- d. Finding.** No dedicated cemeteries or human remains are known to be present or have been documented within the Project Reach, although unrecorded human remains could be located in subsurface contexts. However, archival and field research does not indicate that dedicated cemeteries or human remains are present in or immediately adjacent to the Project area. Consequently, specific impacts cannot be identified; however, the BMPs and APMMs incorporated into the Project design will eliminate or reduce potentially significant impacts. Therefore, the Project will have a less than significant impact on dedicated cemeteries or human remains.

3.5.3 Impact Analysis – Tribal Cultural Resources

Assembly Bill 52 added new requirements to the CEQA regarding consultation with California Native American tribes and consideration of Tribal Cultural Resources. Information on Tribal Cultural Resources is not necessarily available through existing databases; rather, they are identified through consultation between a lead agency and a Native American tribal group. The new requirements apply to projects that have a notice of preparation for an ND, mitigated negative declaration, or an EIR filed on or after July 1, 2015.

Checklist Vb. CEQA Checklist for Assessing Project-Specific Potential Impacts on Tribal Cultural Resources.

Vb. Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resources, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is:

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	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)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** No sites, features, places, or cultural landscapes that could be identified as Tribal Cultural Resources are known to be present within or near the Project Reach. No such resources were identified by the NAHC or during subsequent contact with the Tuolumne Band of Me-Wuk Indians or the Chicken Ranch Rancheria Band of Me-Wuk Indians of California. Consequently, there will be no impacts on Tribal Cultural Resources.
- b. **Finding.** The lead agency has determined that no evidence exists to suggest the presence of a Tribal Cultural Resource in or near the Project Reach. Consequently, there will be no impacts on Tribal Cultural Resources.

3.6 GEOLOGY AND SOILS

This section discusses existing conditions and potential Project-related impacts on geology and soils. Geology and soils include the Earth's physical structure and substance, its history, and the processes that act on it, soil conditions, and seismicity. This section also addresses the State CEQA Guidelines for impact analysis of geology and soils. Significance criteria for determining impacts on geology and soils, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist VI, followed by a detailed discussion.

3.6.1 Environmental Setting

3.6.1.1 Geology and Seismicity

The Kennedy Meadows Project is located in the Sierra Nevada mountain range, on the eastern side of the Sierra Nevada-Great Valley Block, between the Central Valley of California and the Basin and Range Province. The Sierra Nevada's underlying granite formed during the Triassic Period. The uplift began between two and four million years ago. Erosion by glaciers exposed the granite, leaving only remnants of metamorphic rock on top of the peaks. Kennedy Meadows was formed by Pleistocene Era volcanic and glacial activity (Routt 2013). Kennedy Meadows now sits in a long, narrow valley bisected by the Middle Fork Stanislaus River.

Seismic activity at Intensity IX (magnitude 8.0 or higher on the Richter scale) can break underground pipes, damage foundations, and shift buildings off foundations (Alfors et al. 1973). Geologists use geological, geophysical, and geotechnical data from numerous sources to produce Seismic Hazard Zone Maps. USGS and the California Geology Survey coordinated to compile earthquake shaking hazard maps for California. Earthquake shaking hazards are calculated considering earthquake magnitudes and rates, the decrease in earthquake shaking with distance, and amplification of shaking by soils. The result is expressed as the level of ground shaking (as a percentage of gravity) that on average occurs every 500 years.

The Project area historically is characterized by low seismic activity, with no active or potentially active faults located in the Project Reach vicinity. The area is subject to seismic shaking from fault features located to the east. The nearest fault zone is the Sierra Nevada Zone, which is located east of the Project Reach in Mono County (California Geological Survey 2002). The peak ground acceleration on average every 500 years in the Project area is between four (4) and five (5) percent gravity, on a scale from zero to 180 percent gravity (Peterson et al. 2008).

The Project Reach is not located within any of the earthquake faults zoned for special studies as delineated by the Alquist-Priolo Earthquake Fault Zoning Act (California Geological Survey 2016). No known faults have been mapped across the site. The nearest Alquist-Priolo Fault Zone is approximately 6 miles east of the Project Reach, at Fales Hot Springs, making the Project area well outside an Alquist-Priolo Fault Zone.

3.6.1.2 Soils and Erosion

The Natural Resources Conservation Service mapped several soil types within the Project Reach. The majority of the work areas are classified as Entic Cryumbrepts. The Entic Cryumbrepts series consists of deep, well-drained loamy sand in alluvial flats (1 to 10 percent slope). It primarily occurs along the river corridor and adjacent meadow floodplain in the downstream half of the Project Reach. It was formed in alluvium derived from igneous materials. This well-drained soil is highly permeable, with the water table occurring typically at a depth of 80 inches or greater.

Soils in Treatment Areas 1, 2, and 4 and a portion of Treatment Area 3 are classified as the Gerle family. The Gerle family series consists of well-drained gravelly sandy loam underlain by weathered bedrock formed in moraines. This soil is found in the upstream half of the Project Reach and along the outer margins of the meadow floodplain on the western side of the Middle

Fork Stanislaus River. It was formed in till derived from granite. This well-drained soil is also highly permeable, with the water table typically occurring at a depth of more than 80 inches.

The rock outcrops surrounding the Project Reach include the Fiddletown family, a moderately deep complex with 35 to 70 percent slopes. The Rock outcrop occurs solely near the access road and consists of unweathered bedrock formed from mountains. This excessively drained soil was formed from granite, and lithic bedrock is found at or below the soil surface.

The Rock outcrop-Fiddletown family is a moderately deep complex, with 35 to 70 percent slopes. It is located only at the upstream end of the Project Reach as the river transitions from riffle complex to shallow runs and glides. This series is a combination of the previously mentioned Rock outcrop series and the Fiddletown family. The Fiddletown family series consists of gravelly sandy loam and very gravelly sandy loam underlain with weathered bedrock. This series was formed in residuum weathered from granite and is a well-drained soil, with the water table depth occurring typically below 80 inches.

“Erosion” is the detachment and movement of soil materials through natural processes (e.g., rainfall and wind) and human activities (e.g., grading). Excessive soil erosion can lead to damage of building foundations, roadways, and dam embankments, and can result in increased sedimentation to local drainage ways. Grading activities during proposed restoration activities have the potential to cause erosion.

3.6.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist VI, followed by a detailed discussion. Based on a review of regulations, the Project Reach will comply with all state and local requirements as they relate to geology and soils. As noted, no federal regulations related to geology and soils will apply to the Kennedy Meadows Project.

Checklist VI. CEQA Checklist for Assessing Project-Specific Potential Impacts on Soils and the Potential for Geologic Impacts on the Project.

VI. Geology and Soils

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>

VI. Geology and Soils

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" 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"/>

Discussion

- a. **Finding.** People and structures will not be exposed to adverse effects, including the risk of loss, injury, or death.
 - i. **Finding.** The Fales Hot Springs Quadrangle, designated as an Alquist-Priolo Fault Zone, is approximately 6 miles to the east of the Project Reach, making the Project area well outside an Alquist-Priolo Fault Zone. No impact is anticipated to people or structures due to a rupture of a known fault as delineated by the most recent Alquist-Priolo Earthquake Fault Zoning Map.
 - ii. **Finding.** The Project Reach is not located near or within an active fault. In addition, proposed restoration activities do not include any facilities that may be affected by seismic ground shaking. Therefore, there will be no impact associated with risks from seismic ground shaking.
 - iii. **Finding.** Activities proposed in the Project Reach will not expose people or structures to hazards due to liquefaction. Liquefaction in soils and sediments occurs during earthquake events, when soil material is transformed from a solid state to a liquid state, generated by an increase in pressure between pore space and soil particles. Earthquake-induced liquefaction typically occurs in

low-lying areas with soils or sediments composed of unconsolidated, saturated, clay-free sands and silts, but it can also occur in dry, granular soils or saturated soils with partial clay content. In addition to necessary soil conditions, the ground acceleration and duration of the earthquake must be of sufficient energy to induce liquefaction. However, as stated above, the Project Reach is not near or within a fault zone and the proposed Project does not include construction of any facilities that could be affected by liquefaction or ground failure. Thus, there will be no impact related to ground failure or liquefaction hazard in the Project Reach.

- iv. Finding.** Activities proposed in the Project Reach will not expose people or structures to hazards due to landslides. Additionally, the area is considered to have low landslide susceptibility and low landslide incidence (less than 1.5 percent of area involved) (Redbrick-Hall et al. 1982).
- b. Finding.** Construction activities such as vegetation removal, excavation, grading, etc. associated with the Kennedy Meadows Project have the potential to result in substantial soil erosion or loss of topsoil. The Project has been designed to minimize soil erosion and sedimentation. PG&E will prepare a SWPPP to address specific measures to prevent erosion and protect water quality. The SWPPP will comply with the Tuolumne County General Plan and will include BMPs to address any potential erosion from rain runoff during construction as needed. Additional provisions for the protection of soil and water resources are included in the Water Quality Protection APMMs and BMPs incorporated into the Project design. The Project SWPPP will be implemented to minimize and avoid water quality impacts both during and after ground-disturbing activities. Therefore, the impact will be less than significant.
- c. Finding.** The Project Reach is not located on a geologic unit or soil that is unstable or that will become unstable as a result of the Project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse. Therefore, there will be no impact.
- d. Finding.** Expansive soils contain mixed-layer clay minerals that increase and decrease in volume upon wetting and drying, respectively, and can destabilize building foundations. The soils in the Project Reach are primarily gravel and sandy loam. In addition, the Project Reach is underlain by soils with little to no clays with swelling potential (Olive et al. 1989). Additionally, no structures or regular human traffic is proposed for the Project Reach. Therefore, the Kennedy Meadows Project will not result in substantial risk to life or property due to expansive soils and there will be no impact.
- e. Finding.** There are no wastewater facilities in the vicinity of the Project Reach; the closest facilities are located at the Kennedy Meadows Resort and Pack Station, approximately 0.5 mile to the northwest of the Project Reach. The proposed restoration activities will have no effects on nearby wastewater disposal facilities. Therefore, there will be no impact.

3.7 GREENHOUSE GAS EMISSIONS

This section discusses existing conditions related to greenhouse gas (GHG) emissions and potential Project-related impacts to these. GHGs are gases that contribute to the greenhouse effect by absorbing infrared radiation. The “greenhouse effect” is the trapping of the sun’s warmth in the Earth’s atmosphere, a natural condition that is becoming considerably and dangerously stronger because of the use of fossil fuels. GHGs and climate change are a cumulative global issue. This section analyzes the Project using the State CEQA Guidelines for impact analysis of GHG emissions. Significance criteria for determining impacts of GHG emissions, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist VII, followed by a detailed discussion.

3.7.1 Environmental Setting

3.7.1.1 Greenhouse Gases

Many chemical compounds found in the Earth’s atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth’s surface, some is reflected back toward space as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to the Earth’s surface should be approximately the same as the amount of energy radiated back into space, leaving the temperature of the Earth’s surface roughly constant. Many gases exhibit these “greenhouse” properties. Some of them occur in nature (e.g., water vapor, carbon dioxide [CO₂], and methane), while others are exclusively human-made (such as gases used for aerosols).

The principal GHGs resulting from human activity that enter and accumulate in the atmosphere are listed below:

- Carbon dioxide (CO₂): CO₂ enters the atmosphere through burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO₂ also is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.
- Methane: Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- NO_x: NO_x is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- Fluorinated gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases often are used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochlorofluorocarbons, and halons). These gases typically are emitted in smaller quantities but are potent GHGs.

On a global scale, there are concerns about GHGs directly contributing to an overall warmer climate, with more days of intense heat. Other direct consequences that could affect the state of California may include reduced air quality, reduced snowpack with subsequent impacts on water supply, potentially higher intensity storms and associated flood threats, and rising sea levels. In

turn, these changes may affect agricultural production, viability of existing ecosystems and the species that depend on them, energy production and consumption, and public health.

3.7.1.2 Existing State and County Greenhouse Gas Emissions

Major GHG sources in California were measured in a 2013 study and included transportation (37 percent), electric power (20 percent), industrial (20 percent), and agriculture and forestry (8 percent). Measured in million metric tons carbon dioxide equivalent (MMT CO₂-e), total GHG emissions in California were estimated to be 459.3 MMT CO₂-e, which is a decrease from the 2004 measurement of 492.7 MMT CO₂-e (Rincon 2012).

Major GHG sources in Tuolumne County were established in the 2010 baseline study *Tuolumne County Regional Blueprint Greenhouse Gas Study* (Rincon 2012), and included transportation (58 percent), residential sector (17 percent), off-road equipment (11 percent), non-residential sector (7 percent), agriculture and forestry (5 percent), wastewater (1 percent), and solid waste management (1 percent). Total emissions in 2010 were estimated to be 782,846 MT CO₂-e in Tuolumne County (Rincon 2012).

3.7.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist VII followed by a detailed discussion. Based on a review of regulations, the Project will comply with all federal, state, and local requirements related to GHG emissions.

Checklist VII. CEQA Checklist for Assessing Project-Specific Potential Impacts from Greenhouse Gas Emissions.

VII. Greenhouse Gas Emissions

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any 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"/>

Discussion

- a. **Finding.** The Project is a restoration project, not a development project, and does not include any stationary source of emissions; therefore, it will not directly or indirectly generate long-term GHG emissions. The Project will generate minimal temporary emissions from operation of construction equipment and minimal use of personal vehicles used in post-construction restoration monitoring. Project restoration and habitat enhancement activities will result in a net increase of

habitat features such as wetlands and riparian vegetation that will provide carbon sequestration benefits. APMMs and BMPs (General Measures) included in the Project design set speed limits and limit equipment idling time, which limit GHG emissions. Likewise, measures for Equipment Maintenance ensure that construction equipment is in good working order.

According to the Tuolumne County General Plan Update Draft EIR 2015, Section 4.7, Global Climate Change: “The Tuolumne County APCD has not adopted any construction-related GHG emission standards” (Tuolumne County 2015). Considering the small scale and short duration of Project construction, and the implementation of BMPs and APMMs, impacts related to the generation of GHG emission are considered less than significant.

- b. Finding.** The Kennedy Meadows Project will not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. Therefore, there will be no impact.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section discusses existing conditions related to hazards and hazardous materials and potential Project Reach-related impacts. Hazards and hazardous materials include wildland fire hazards, hazardous materials, and hazardous waste used or generated in Kennedy Meadows Project construction. This section provides an overview of federal, state, and local hazardous materials regulations (refer to Section 3.14 for a discussion of local emergency response services). This section also addresses the State CEQA Guidelines for hazards and hazardous materials impact analysis. Significance criteria for determining impacts related to hazards and hazardous materials, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist VIII, followed by a detailed discussion.

3.8.1 Environmental Setting

Generally, a material is considered hazardous if it could adversely affect the safety of the public or handlers during transportation, if it appears on a list of hazardous materials presented by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. The State of California defines a “hazardous material” as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10).

“Hazardous wastes” are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, or contaminated, or are being stored prior to proper disposal. Hazardous materials and hazardous wastes are classified according to four properties: toxicity, ignitability, corrosivity, and reactivity (CCR, Title 22, Chapter 11, Article 3).

Sensitive receptors are primarily those persons who have the potential to come into contact with a hazardous material on the Project Reach. Adjoining properties may be sensitive receptors if a

release occurred that spilled onto their properties. The nearby Kennedy Meadows Resort and Pack Station and the environment will be considered the primary sensitive receptors.

According to the California Department of Toxic Substances Control EnviroStor database and the USEPA EnviroMapper database, the Project area is not identified as a hazardous materials site. There is a hazardous materials site at the location of a small logging and disposal company in Cold Springs, approximately 19.5 miles to the southwest of the Project Area (California Department of Toxic Substances Control 2015; USEPA 2015).

The Kennedy Meadows Environmental Site Assessment Report dated February 19, 2010, contains a discussion of the hazardous waste, substance contamination, or other such environmental conditions that were identified in the vicinity of the Project near the Kennedy Meadows Resort and Pack Station, downstream of the Project Reach. Subsequent to issuance of the Kennedy Meadows Environmental Site Assessment Report, the soil condition identified in the report was remediated by PG&E in coordination with the lessee and the Tuolumne County Division of Environmental Health. Tuolumne County issued a letter dated January 4, 2012, stating that the environmental case is closed and no further action is required (Stewardship Council 2013).

The Kennedy Meadows area is designated a “Very High” Fire Hazard Severity Zone in State Responsibility Area (Tuolumne County 1996).

3.8.2 Impact Analysis

Potential Kennedy Meadows Project-related impacts that require analysis under CEQA are identified in Checklist VIII, followed by a detailed discussion. Based on a review of regulations, the Kennedy Meadows Project will comply with all federal, state, and local requirements related to hazards and hazardous materials.

Checklist VIII. CEQA Checklist for Assessing Project-Specific Potential Impacts Related to Hazards and Hazardous Materials.

VIII. Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Discussion

- a. **Finding.** The Kennedy Meadows Project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Standard construction materials such as oil, gasoline, and other related materials will be present on and near the Project Reach. The Project, however, does not require the use or transportation of a substantial amount of hazardous materials during the course of construction, and no hazardous materials use is associated with long-term monitoring and maintenance of the Project. To ensure the safety of the public and environment, hazardous materials will be handled appropriately and with care, per governmental regulations, and PG&E's Construction Standards, which include measures for safe handling of hazardous (flammable) materials and require the preparation of a project-specific Site Safety Plan. All hazardous materials are currently regulated and controlled by California Environmental Protection Agency in a manner that minimizes risks of spills or accidents. PG&E has proposed BMPs to adequately protect against and address releases of any hazardous materials used during construction, such as diesel fuel for equipment. In addition, implementation of the SWPPP further reduces the potential for hazardous materials to be spilled and carried offsite.

Implementation of APMs and BMPs for Hazardous Materials Management and Spill Prevention incorporated in the Project design will reduce and or/avoid the potential impacts to the public or the environment from the routine use and transportation of these materials to a less-than-significant level. Implementation of measures required in the CWA Section 404 permit, CWA Section 401 certification, and Section 1602 permit would only further lessen the potential for significant impacts.

- b. **Finding.** Construction activities associated with restoration activities could involve the use of potentially hazardous materials, including vehicle fuels and lubricants. However, all potentially hazardous materials will only be used during construction of the Kennedy Meadows Project, and will be transported, contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations.

Implementation of the protection measures in the required Project permits and implementation of APMs and BMPs for Hazardous Materials Management and Spill Prevention incorporated in the Project design will reduce and or/avoid the potential impacts on the public or the environment from accidental spills or releases to a less-than-significant level.

- c. **Finding.** There are no schools within 0.25 mile of the Project Reach. Therefore, there will be no impact to schools.

- d. Finding.** The Project Reach is not located on or near a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The nearest such site is 19.5 miles from the Project Reach. Therefore, the proposed activities will not result in a significant hazard to the public or the environment, and there will be no impact.
- e. Finding.** The Kennedy Meadows Project is not located within an airport land use planning zone. The two airports identified in the Tuolumne County Airport Land Use Compatibility Plan, Pine Mountain Lake Airport and Columbia Airport, are 40 and 42 miles southwest of the Project Reach, respectively (Tuolumne County 2003). Therefore, there will be no impact.
- f. Finding.** The Kennedy Meadows Project is not located in the vicinity of an airport or private airstrip. The nearest airport is Bryant Field Airport in Bridgeport, approximately 28 miles east of the Project Reach. Therefore, there will be no impact.
- g. Finding.** The Kennedy Meadows Project will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Therefore, there will be no impact.
- h. Finding.** Restoration activities will not expose people or structures to a significant loss, injury, or death involving wildland fires. However, a slight increase in potential wildland fire hazards associated with construction activities does exist, as construction will occur during the dry season (April through October) and because of the Project Reach's proximity to wildlands. However, construction will be conducted in accordance with CCR Title 14, PG&E's Construction Standards (which include measures for safe handling of hazardous [flammable] materials), and all applicable governmental regulations and permit requirements. This includes California Department of Forestry and Fire Protection's (CAL FIRE's) Wildland Fire Plan.

In addition, implementation of the protection measures in the required permits and implementation of APMs and BMPs for Fire Protection and Hazardous Materials Management and Spill Prevention incorporated in the Project design will further ensure that fire prevention and safety are addressed, and that construction materials, such as oil and gasoline, are handled safely and appropriately. Therefore, the potential slight increase in wildland fire hazards is considered less than significant.

3.9 HYDROLOGY AND WATER QUALITY

This section discusses existing conditions hydrology and water quality and potential Kennedy Meadows Project-related impacts to hydrology and water quality. Hydrology includes surface water and groundwater. This section also addresses the State CEQA Guidelines for impact analysis of hydrology and water quality. Significance criteria for determining impacts on geology and soils, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist IX, followed by a detailed discussion.

3.9.1 Environmental Setting

The waterbody potentially affected by the Kennedy Meadows Project is the Middle Fork Stanislaus River. The headwaters of the Middle Fork Stanislaus River originate within Kennedy Creek in the Emigrant Wilderness Area at an elevation of about 9,650 feet. From its headwaters, the Middle Fork Stanislaus River generally flows in a southwesterly direction for about 50 miles and joins the North Fork Stanislaus River at elevation of 1,230 feet to form the Stanislaus River. The Stanislaus River is a tributary to the Lower San Joaquin River, which eventually flows into the Pacific Ocean through San Francisco Bay. The watershed has dry, hot summers and cool, wet winters with moderate to heavy precipitation. The mean annual precipitation in the region is approximately 49 inches per year. Snowfall, most of which occurs between December and March, is the primary form of precipitation. Annual snowfall average is approximately 50 inches per year, with snow usually covering the ground throughout the winter season.

3.9.1.1 Surface Water

The Project Reach is located along the Middle Fork Stanislaus River approximately 2.5 miles downstream of PG&E's Relief Dam, which was constructed in 1910. Relief Dam is located on Summit Creek, which joins Kennedy Creek approximately one mile downstream from the dam, forming the Middle Fork Stanislaus River. The watershed area of Kennedy Creek upstream of the Summit Creek confluence is 21 square miles. The watershed area of Summit and Relief creeks upstream of the Kennedy Creek confluence is 25 square miles.

The flows in Kennedy Creek are natural, dominated by snowmelt runoff, and contribute a substantial portion of the Middle Fork Stanislaus River flow during the spring and early summer (FERC 2005; PG&E 2002). Occasional heavy winter rains, including rain-on-snow events, periodically produce high flows. Flows in Summit Creek below Relief Dam are managed by PG&E in compliance with their FERC License for the Spring Gap-Stanislaus Hydroelectric Project (FERC No. 2130) issued in April 2009. The 2009 FERC License requires¹¹ higher flows with declining flows through the snowmelt period in wetter years, as well as gradual ramping down of rates after spill compared to the flow requirements prior to the 2009 License. The 2009 FERC License flow requirements for flows in the Middle Fork Stanislaus River, which are measured at the USGS gage 12192000 (PG&E gage S-52) and are a combination of the flow releases from Relief Dam and natural accretion flows from Kennedy Creek and other sources, are provided in Table 3.9-1 below.

¹¹ PG&E implemented the 2009 FERC License flows in 2004, prior to License issuance.

Table 3.9-1. PG&E Flow Requirements for the Middle Fork Stanislaus River below Relief Dam (combined flow of releases from Relief Dam and Kennedy Creek natural flows) (measured at USGS gage 121092000; PG&E gage S-52).

Month	Water-Year Type					
	Normal		Dry and Critically Dry		Wet	
	Min	Max	Min	Max	Min	Max
October 1–31	30	50	20	40	40	125
November 1–30	30	60	20	50	40	125
December 1–31	30	60	20	50	40	125
January 1–February 9	30	60	20	50	40	125
February 10–March 9	30	60	20	50	40	125
March 10–April 9	30	60	25	50	40	125
April 10–May 9	60	NA	45	NA	70	NA
May 10–May 31	100	NA	80	NA	150	NA
June 1–30	150	NA	100	NA	250	NA
July 1–31	90	NA	40	NA	200	NA
August 1–31	40	200	20	40	100	300
September 1–30	30	120	20	40	60	200

NA – Not Applicable

The 20, 50, and 80 percent exceedance curves, measured at USGS gage 11292000, just upstream of the Project Reach, are shown in Figure 3.9-1. The figure shows the flows from 1938 through 2016 (solid lines) and the flows since PG&E’s implementation of the minimum instream flows required in their 2009 License (dashed line). It reflects PG&E’s early implementation of the new flows in 2004. The lower flows in August and September since 2004 reflect both recent dry years (2012–2015) and a change in PG&E’s operations.

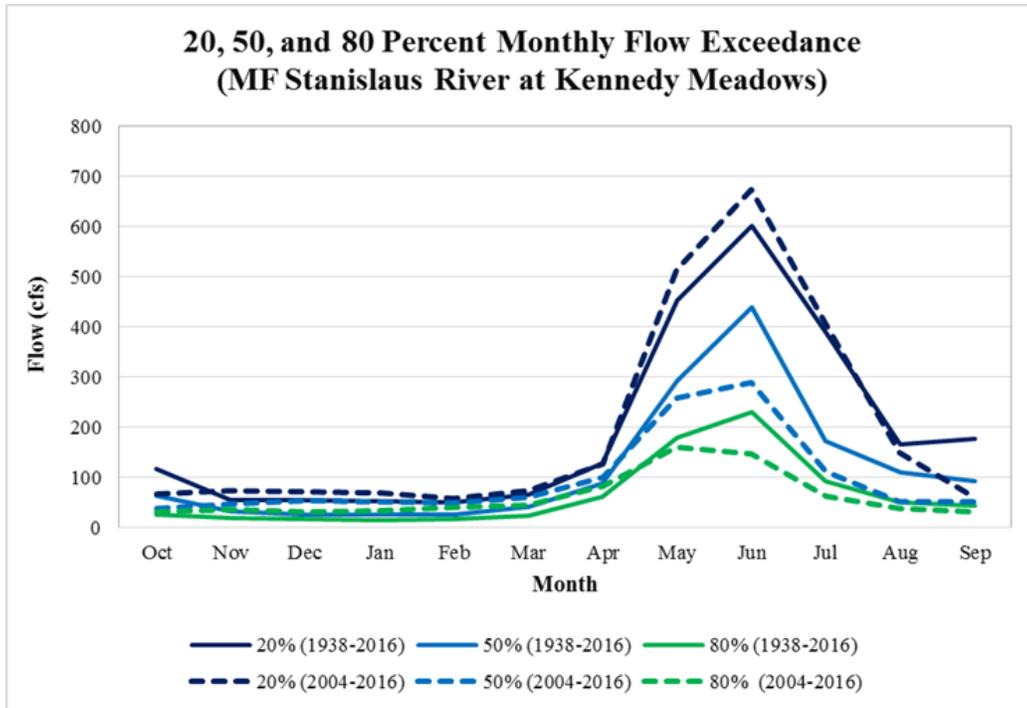


Figure 3.9-1. 20, 50, and 80 Percent Exceedance for the Middle Fork Stanislaus River (Water Years 1938 through 2016).

Recent flow data are also available from immediately below Relief Dam from PG&E (PG&E gage S-2) starting on July 12, 2012. These data were subtracted from the flows measured at the USGS gage to estimate Kennedy Creek flows during July 12, 2012, through 2016. The water year types since 2012 have been either Dry or Critically Dry and Normal-Wet in 2016, and the contribution of flows from Kennedy Creek may not be representative of flows during wetter years, like 2017 appears to be. Figure 3.9-2 shows the monthly average flows in Kennedy Creek for this time period. During 2012 to 2016, about 30 percent of the flow in the Middle Fork Stanislaus River occurred in the late summer/early fall (August–October). During the early spring and through the snowmelt runoff period, Kennedy Creek contributed about 60 to 70 percent of the flow.

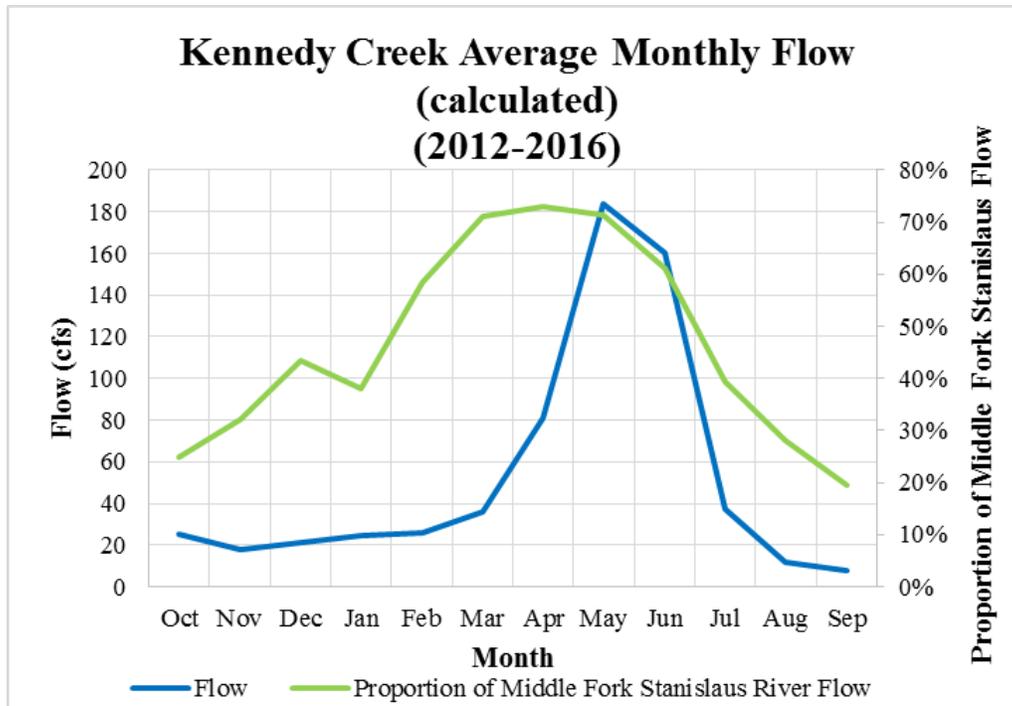


Figure 3.9-2. Calculated Kennedy Creek Average Monthly Flows and Proportion of Middle Fork Stanislaus River Flow (2012–2016) (PG&E Gage S-2).

Historical annual maximum daily average and instantaneous peak flows from 1939 to 2013 are shown in Figure 3.9-3. As shown in Figure 3.9-3, flows in 1996 and 1997 were considerably greater than in the previous 60 years. Recent flows (2005–2006 and 2010–2011) also were relatively high compared to the historical record. The annual maximum instantaneous peak flows in water years 2010 and 2011 were 1,490 cfs and 2,870 cfs (third highest in the record since 1939), respectively (Table 3.9-2). The two highest instantaneous peak flows on record occurred in 1996 and 1997 (3,310 cfs and 2,890 cfs, respectively). Flood frequencies based on a maximum daily average flow and instantaneous peak flow bases are shown in Figure 3.9-4. The two-year, five-year, and ten-year recurrence interval flows are 963 cfs, 1,300 cfs, and 1,550 cfs, respectively, on an instantaneous flow basis (and 855 cfs, 1,100 cfs, and 1,285 cfs, respectively, on a daily-average basis).

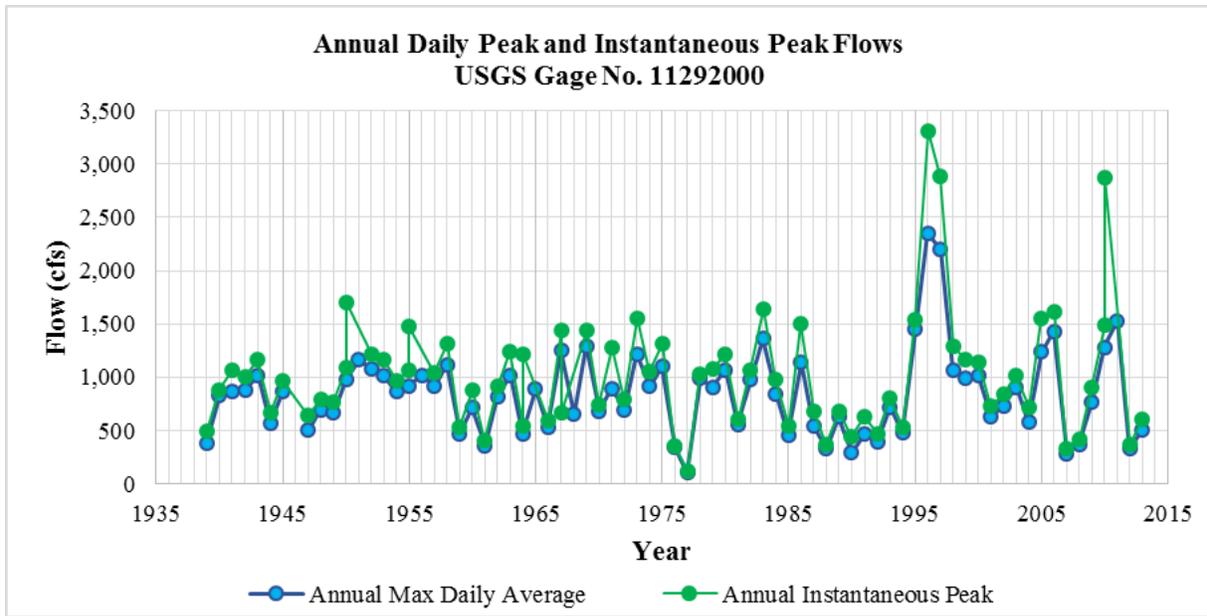


Figure 3.9-3. Annual Maximum Daily Average and Instantaneous Peak Flows between 1939 and 2013 in Kennedy Meadows (USGS Gaging Station 11292000).

Table 3.9-2. Annual Maximum Instantaneous Peak Streamflow on the Middle Fork Stanislaus River at Kennedy Meadows (USGS Gaging Station 11292000) (1939–2015).

Date	Flow (cfs)	Date	Flow (cfs)	Date	Flow (cfs)
5/29/1939	496	5/21/1966	590	7/16/1992	463
5/25/1940	880	7/1/1967	1,440	6/20/1993	802
6/20/1941	1,060	10/5/1967	666	5/31/1994	531
7/4/1942	1,000	6/2/1969	1,440	7/9/1995	1,540
6/1/1943	1,160	5/18/1970	744	5/16/1996	3,310
5/23/1944	668	6/26/1971	1,280	1/2/1997	2,890
5/7/1945	961	5/30/1972	785	6/22/1998	1,290
6/7/1947	644	5/18/1973	1,550	5/25/1999	1,160
5/27/1948	796	6/7/1974	1,050	5/25/2000	1,140
5/26/1949	767	6/1/1975	1,310	5/16/2001	728
5/31/1950	1,090	6/23/1976	350	5/31/2002	836
11/20/1950	1,700	6/9/1977	119	6/3/2003	1,010
6/6/1952	1,220	6/7/1978	1,030	5/28/2004	714
6/18/1953	1,160	5/22/1979	1,080	5/20/2005	1,550
5/21/1954	965	7/2/1980	1,220	5/19/2006	1,620
6/10/1955	1,070	5/29/1981	602	5/28/2007	327
12/23/1955	1,480	5/27/1982	1,060	6/10/2008	414
6/3/1957	1,040	5/29/1983	1,640	5/19/2009	905
6/18/1958	1,310	5/30/1984	974	6/5/2010	1,490
6/6/1959	533	6/8/1985	539	10/24/2010	2,870 ^a
6/2/1960	880	6/1/1986	1,500	5/22/2012	372
6/5/1961	408	5/17/1987	678	5/14/2013	608
6/19/1962	920	5/22/1988	368	5/26/2014	347
6/16/1963	1,240	5/9/1989	679	6/10/2015	361
6/15/1964	548	7/16/1990	447		
12/23/1964	1,220	5/30/1991	630		

^a On 10/24/2010, the instantaneous peak flow was 2,870 cfs and the average daily flow was 957 cfs.

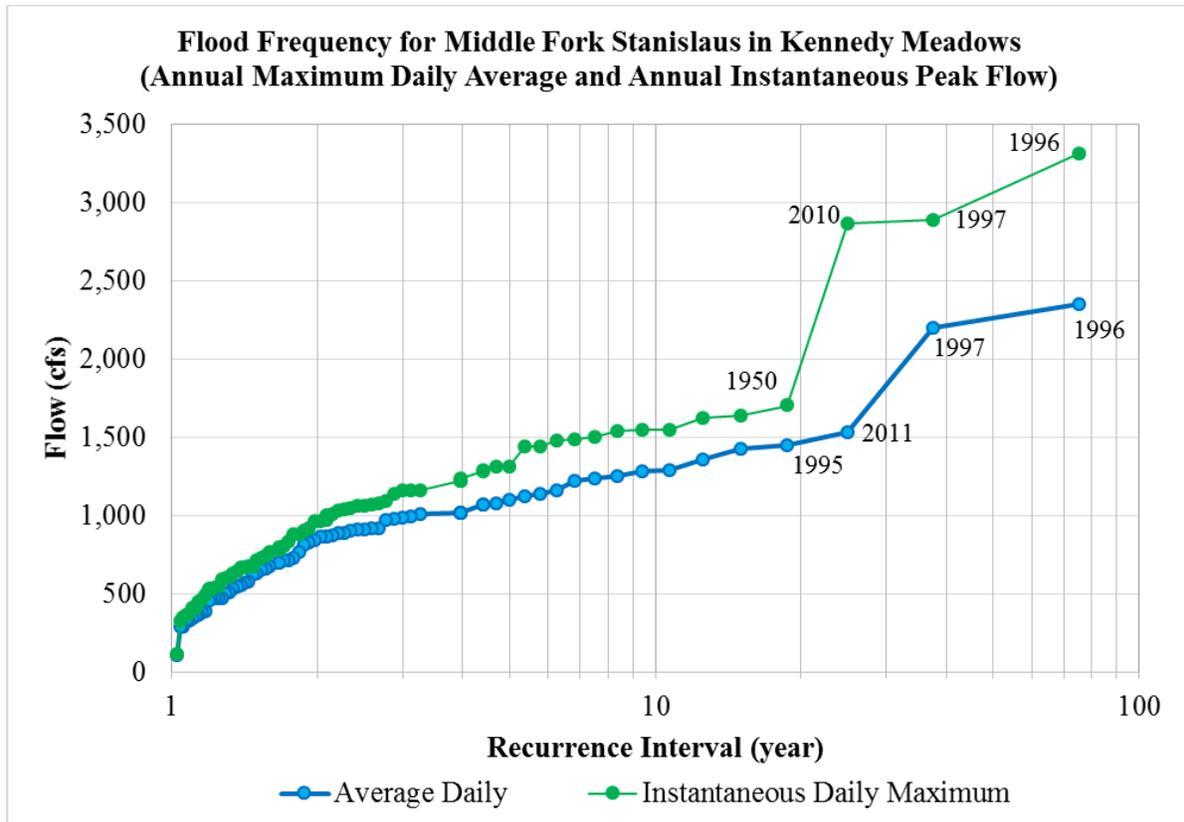


Figure 3.9-4. Middle Fork Stanislaus River in Kennedy Meadows Reach Flood Frequency (Annual Maximum Daily Average and Annual Instantaneous Peak Flow) (USGS Gage 11292000) (1939–2013).

3.9.1.2 Groundwater

The Project Reach is not located within a mapped regional groundwater basin, with the closest such basin, the San Joaquin Valley Groundwater Basin-Modesto Subbasin (5-22.02), located approximately 60 miles to the west. Shallow groundwater is present throughout the Project Reach and fluctuates seasonally with the highest flows and subsequent groundwater level rise during the spring snowmelt flows.

The majority of the treatment areas and the staging area are classified as Entic Cryumbrepts soils. The Entic Cryumbrepts series consists of deep, well-drained loamy sand in alluvial flats (1 to 10 percent slope). It primarily occurs along the river corridor and adjacent meadow floodplain in the downstream half of the Project Reach. It was formed in alluvium derived from igneous materials. This well-drained soil is highly permeable, with the water table occurring typically at a depth of 80 inches or greater.

Treatment Areas 1, 2, and 4 are classified as the Gerle family. The Gerle family series consists of well-drained gravelly sandy loam underlain by weathered bedrock formed in moraines. This soil is found in the upstream half of the Project Reach and along the outer margins of the

meadow floodplain on the western side of the Middle Fork Stanislaus River. It was formed in till derived from granite. This well-drained soil is also highly permeable, with the water table typically occurring at a depth of more than 80 inches.

3.9.1.3 Water Quality

Water quality objectives for the region are defined in the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins* (Basin Plan), which was adopted by the Central Valley Regional Water Quality Control Board (Central Valley Regional Water Quality Control Board [CVRWQCB], July 2016 Basin Plan revision). Beneficial uses for the Stanislaus River from the source to New Melones Reservoir, as specified in the Basin Plan, are identified as follows:

- Municipal and Domestic Supply (MUN);
- Irrigation (AGR);
- Stock Watering (AGR);
- Power (POW);
- Water Contact Recreation (REC-1);
- Canoeing and Rafting (REC-1);
- Non-contact Water Recreation (REC-2);
- Warm Freshwater Habitat (WARM);
- Cold Freshwater Habitat (COLD); and
- Wildlife Habitat (WILD).

Water upstream of the Project Reach originates in the Emigrant Wilderness, and there is little development upstream of Relief Reservoir. The upstream drainage is primarily erosion-resistant granitic bedrock. The reservoir has a relatively small drainage area and traps little fine sediment (PG&E 2002). Water in these types of watersheds is typically low in mineral and nutrient content, and tends to be clear, with high water quality. Turbidity and other constituents (total petroleum hydrocarbons, oil, and grease) are water quality constituents particularly pertinent to the Kennedy Meadows Project.

Historical water quality data have been collected in the vicinity of the Project Reach by the California Department of Water Resources and the USGS (near Dardanelle at USGS gage 11292450) from 1973 to 1988 (PG&E 2002). However, turbidity and total petroleum hydrocarbons were not measured, although several other parameters were monitored. Based on these data, river water in the vicinity of the Project is generally cold (maximum water temperature reading of 17°C), well-oxygenated (all dissolved oxygen [DO] readings greater than 7.7 milligrams per liter [mg/L]), low in nitrogen (maximum total Kjeldahl nitrogen reading of 0.4 mg/L), and soft (maximum total hardness reading of 39 mg/L), and has a high buffer capacity (maximum total alkalinity reading of 42 mg/L) (PG&E 2002). PG&E collected *in situ* water quality measurements in Summit Creek below Relief Dam and in Kennedy Meadows on seven occasions between July 2000 and November 2001 (PG&E 2002). DO and pH values were

within the ranges suitable for coldwater freshwater habitats. In Summit Creek, DO ranged from 7.37 to 9.90 mg/L, with an average of 9.15 mg/L during the study. pH ranged from 6.73 to 7.72, with an average of 7.08. In the Middle Fork Stanislaus River in Kennedy Meadows downstream of the Kennedy Creek confluence, DO ranged from 7.64 to 9.51 mg/L, with an average of 8.55 mg/L. The pH on these same sampling dates ranged from 7.16 to 7.70, with an average of 7.43.

Turbidity

Water quality data were collected in Summit Creek downstream of Relief Dam and in the Middle Fork Stanislaus River in Kennedy Meadows downstream of the Kennedy Creek confluence on seven occasions between July 2000 and November 2001 (PG&E 2002). In Summit Creek, turbidity ranged from 0.4 to 11.3 Nephelometric Turbidity Unit (NTU), with a mean of 5.2 NTU. Turbidity in Kennedy Meadows ranged from 0.2 to 16.4 NTU, with an average of 5.2 NTU.

Other Constituents

Because of the remote location of the Project Reach and the relatively high water quality of the river, most of the water quality issues/constituents are generally not a concern. However, hydrocarbon products could be a concern related to Project equipment and fuels during construction. PG&E measured oil and grease in August 2000 and 2001 on the Middle Fork Stanislaus River downstream from the Project Reach, just upstream of the Clark Fork confluence. Oil and grease were less than 1.0 mg/L. Methyl tert-butyl ether was negligible (PG&E 2002).

Other activities that occur in the Project Reach have the potential to effect water quality. A grazing lessee can stage approximately 300 head of cattle in the meadows for two days annually on the way to a USFS allotment at higher elevation and up to one week on the way out in late September (not part of this Project). Typically, the cattle are only staged in the meadow in the fall. Pack animal use of the meadow has been observed on several occasions throughout the summer. Manure spreading also occurs in the fall after departure of the cattle in the east meadow (PG&E 2016a). Tuolumne County is currently studying the potential effects of manure spreading on water quality (Stewardship Council 2013).

3.9.2 Impact Analysis

Potential Kennedy Meadows Project-related impacts that require analysis under CEQA are identified in Checklist IX, followed by a detailed discussion. Based on a review of regulations, the Kennedy Meadows Project will comply with all federal, state, and local requirements related to hydrology and water quality.

Checklist IX. CEQA Checklist for Assessing Project-Specific Potential Impacts on Hydrology and Water Quality.

IX. Hydrology and Water Quality

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 which 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 which 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 which 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 type="checkbox"/>	<input checked="" 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 which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** Construction activities associated with the Kennedy Meadows Project absent the SWPPP and APMMs/BMPs incorporated into construction practices might have the potential to violate water quality standards and/or waste discharge requirements. Implementation of the Kennedy Meadows Project includes a combination of bioengineering techniques, including streambank grading, wood and rock placement, and native vegetation planting. These ground-disturbing activities could generate dust or cause erosion and sedimentation. Channel dewatering will be required for construction of the treatments and to access the western streambank. These activities could potentially impact water quality, specifically by causing increases in turbidity and the release of constituents such as total petroleum hydrocarbons, oils, and grease.

PG&E will implement erosion control measures provided in the Project SWPPP and APMMs/BMPs incorporated into the Kennedy Meadows Project during construction to minimize and avoid water quality impacts. The APMMs/BMPs proposed in General Measures require employees and contractors to complete Environmental Awareness Training, establish designated access routes and work/staging areas, outline basic housekeeping measures, and set daily and seasonal construction schedules to minimize resource impacts. Equipment Maintenance measures will ensure that equipment is clean and staged away from waterways to minimize the potential for pollution from equipment to enter the river. Hazardous Materials Management and Spill Prevention measures will be implemented to protect waterways from accidental spills or unplanned releases of oils, fuel, and lubricants. Water Quality Protection measures, including erosion and sediment control measures, will reduce or avoid the incidence of dust, erosion, and sedimentation. Concrete Waste Management measures will be implemented to protect water quality during construction of fencing (requiring concrete footings). Implementation of a Diversion, Dewatering, Recovery, and Relocation Plan and Stream Diversion and Dewatering measures directly address the safe and successful dewatering of the instream work area. PG&E will implement Turbidity Monitoring measures during construction to compare with permit-specific threshold criteria. This plan also describes an approach for monitoring baseline turbidity and turbidity during construction. It also describes the process for data recording and reporting. By implementing the protection measures in the required Project permits, the approved SWPPP, and the APMMs and BMPs referenced above, the potential impacts during construction of the Kennedy Meadows Project will be avoided and/or reduced to a less-than-significant level.

The Kennedy Meadows Project also includes activities to minimize erosion after construction. Areas disturbed during construction activities will be restored to their preconstruction condition (or better) and stabilized using revegetation techniques as needed (e.g., seeding). The MMP, a component of the Kennedy Meadows Project, includes maintenance and monitoring activities to ensure that these areas are successfully restored. It also includes monitoring of treatment areas to ensure the Project objective of reducing active bank erosion is met.

The Kennedy Meadows Project will result in long-term improvements to water quality and beneficial uses by stabilizing streambanks that will reduce ongoing erosion and enhancing riparian vegetation that will improve water temperature conditions in the channel. In conclusion, the implementation of Project plans including BMPs/APMMs, adherence to permit conditions, and commitment to long-term restoration of the Project Reach will reduce the potential for the violation of water quality standards or waste discharge requirements to a less-than-significant level.

- b. Finding.** The Kennedy Meadows Project does not include development or operations that might use groundwater. Any water used during Kennedy Meadows Project construction will come from construction water tanks or from another permitted source, and will be limited in scope. For these reasons, the Kennedy Meadows Project will not deplete groundwater supplies or interfere with groundwater recharge; therefore, there will be no impact to groundwater.
- c. Finding.** The Kennedy Meadows Project will not substantially alter the existing drainage pattern of the site or the surrounding area. Project treatments have been designed to protect streambanks from continued erosion during high flows and to be stable during these flows (see discussion above). Some of the treatments have been designed to slow and deflect flow away from actively eroding streambanks during high flows, but will not alter the course of the river channel. Therefore, the Kennedy Meadows Project will reduce erosion and improve water quality within and downstream of the Project Reach.

However, dewatering of portions of the channel could potentially result in erosion or siltation downstream. In order to create a dry workspace around the in-channel work area, surface flow will be diverted around the work area. The final design for diversion and dewatering activities will be determined by the contractor in the field based on conditions at the time of construction. Safety, feasibility, and cost-effectiveness based on the flows will be considered. Flows in the Middle Fork Stanislaus River through the Project Reach are a combination of flow releases from Relief Dam and natural flows from Kennedy Creek. As such, flows could vary considerably depending on the amount and duration of the snowmelt recession. If flows remain high in August such that the above approach becomes difficult to engineer or will not provide adequate safety, a contingency supplemental design that may use a combination of channel dewatering, temporary crossing, or partial channel dewatering with water-filled dams near each treatment area may be used. The alternatives will be described in a Diversion, Dewatering, Recovery, and Relocation Plan. This plan also will describe design for temporary rock dissipater pads at the pipe outlets to provide protection from erosive forces at the pipe outlet tail water discharge areas. The rock will be sized appropriately to the flows at the time of construction.

Implementation of the Diversion, Dewatering, Recovery, and Relocation Plan, the APMs and BMPs for Water Quality Protection and Stream Diversion and Dewatering, and conditions outlined in Project permits and approvals will avoid and/or reduce potential impacts from erosion/siltation during construction to a less-than-significant level.

- d. Finding.** See above discussion. Construction activities and/or the final design will not alter the rate or amount of surface runoff in a manner that will result in flooding onsite or offsite. Therefore, there will be no impact.
- e. Finding.** The Kennedy Meadows Project will not create or contribute runoff water that will exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Project construction activities will involve ground disturbance, with an associated potential for erosion and discharge of sediment and other construction-related pollutants from the site. However, any natural or Project (construction) related runoff will not be conveyed in an existing (or planned) stormwater drainage system. Implementation of all proposed APMs and BMPs, specifically those for Water Quality Protection and Stream Diversion and Dewatering, will avoid or reduce potential impacts. Likewise, implementation of the agency-approved SWPPP and adherence to conditions outlined in the various Project permits will reduce and/or avoid any potential impact to a less-than-significant level. Prevention of Project-related contributions to polluted runoff will be avoided or minimized to a less-than-significant level by implementation of APMs and BMPs related to Equipment Maintenance, Hazardous Materials Management and Spill Prevention, Water Quality Protection, and Concrete Waste Management.
- f. Finding.** See above discussions. The Project does not have the potential to substantially degrade water quality other than as described above.
- g. Finding.** The Kennedy Meadows Project does not include any development; no housing or structures will be placed within a 100-year flood hazard area. Additionally, the Kennedy Meadows Project is not within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map. Therefore, there will be no impact.
- h. Finding.** The Kennedy Meadows Project includes the installation of treatments that include large wood features with rock within the channel, vegetation planting, and a split rail fence in the lower portion of the Project Reach to protect the riparian corridor. These treatments have been designed to protect streambanks from continued erosion during high flows and to be stable during these flows (see discussion above). Some of the treatments have been designed to slow and deflect flow away from actively eroding streambanks during high flows. The structures will not impede flood flows. The fence will be placed on the meadow on the east side of the revegetated area. The split rail fence will be installed on the floodplain above the estimated water surface elevation at 3,000 cubic feet per second (cfs). Large boulders will be installed to deter access down the bank slope rather than

continuing the fence, which will have a greater potential for damage and dislodging during high flows. Therefore, the bank stabilization features and fence will not impede or redirect flood flows, and there will be no impact.

- i. Finding.** In order to create a dry workspace around the in-channel work areas, surface flow will be diverted around the work areas by placement of bladder (water-filled) dams or similar types of structures within the river channel, and could include diversion of the river flow into a pipe to bypass around the work areas or into a portion of the channel width, which will have little effect on the drainage pattern. Additionally, diversion pipes, culverts, or similar types of structures could be used, if appropriate for site conditions, temporarily modifying local flow conditions within the Project Reach. The final design for diversion and dewatering activities will be determined by the contractor in the field based on conditions at the time of construction. Safety, feasibility, and cost-effectiveness based on the flows will be considered. Depending on the flows, the design may use a combination of channel dewatering, temporary crossing, or partial channel dewatering with water-filled dams near each treatment area, as described in Section 2. In any case, the impacts will be temporary and less than significant.

If a temporary dam structure is used, it will be removed following completion of the Project. Temporary cofferdams will be designed and constructed to withstand expected seasonal flows and 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); therefore, there will be no impact. The Diversion, Dewatering, Recovery, and Relocation Plan and the Construction Specifications for the Project will require safety measures, including daily inspections of the cofferdams and piping, to ensure safety during construction. Therefore, there will be no impact.

- j. Finding.** The Kennedy Meadows Project will not result in inundation by a tsunami, seiche, or mudflow; therefore, there will be no impact.

3.10 LAND USE AND PLANNING

This section discusses existing conditions for land use and planning and potential Project-related impacts. Land use planning refers to the assessment of potential land use related conflicts. Significance criteria for determining impacts on land use and planning, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist X, followed by a detailed discussion.

3.10.1 Environmental Setting

The Project Reach is located within a 240-acre parcel of land owned by Tuolumne County. The surrounding lands are managed by the Stanislaus National Forest, including the Emigrant Wilderness, which is located less than 0.5 mile southeast of the Kennedy Meadows Project (see Figure 2.1-1). The Kennedy Meadows Resort and Pack Station is a commercial endeavor located 0.5 mile northwest of the Project Reach that has been operated pursuant to a lease between the commercial operator and the landowner, currently Tuolumne County and formerly PG&E (or its predecessor in interest), on a seasonal basis since 1917. The resort contains approximately 27

rustic buildings, including a lodge, saloon, cabins, and ancillary buildings. The pack station provides visitor equestrian access to surrounding lands and is open from the last weekend in April to Columbus Day in October. Some 21,000 visitors are estimated to visit the Kennedy Meadows area annually, with an estimated 14,000 vacationers staying at the resort and pack station and about 1,500 taking horse-packing trips from the pack station. Camping occurs in what is referred to as the Sheriff's Posse Campground at the southern end of the pack station property. Long-distance hikers on the Pacific Crest Trail also use the pack station as a resupply point. The parcel is zoned as a commercial and general recreation district (Tuolumne County Ordinance Code, Section 17.16.010 and Section 17.31.010). Camping is available at two nearby USFS campgrounds, Baker and Deadman campgrounds, located approximately 1.7 and 1.2 miles northwest of the Project, respectively, on Kennedy Meadows Road.

The parcel in which the Kennedy Meadows Project is located is established as a conservation easement intended to ensure the permanent protection of beneficial public values on the property. Specific conservation management objectives include protection of natural aquatic, wildlife and plant habitats; preservation of open space; outdoor recreation by the general public; sustainable forestry; agricultural uses; and historical values. The surrounding Stanislaus National Forest is managed for multiple uses including recreation, open space, timber management, wildlife habitat, and water quality.

The Kennedy Meadows Project area and vicinity provides important outdoor recreation and wildlife habitat in the remote upper elevations of the Sierra Nevada. A prominent feature of the property is the Huckleberry Trail, which traverses the property and provides equestrian, angling, and hiking access to the Emigrant Wilderness. The USFS maintains an easement through the property on the Huckleberry Trail. Foot and equestrian traffic are the primary use along the Huckleberry Trail. Other users include pack station vehicles, PG&E maintenance vehicles, USFS vehicles, and vehicles accessing the Sheriff's Posse Campground.

The USFS allows a grazing lessee to stage approximately 300 head of cattle in the meadows for two days annually on the way to a USFS allotment at higher elevation and up to one week on the way out in late September. The cattle are typically only staged in the fall. Pack animal use of the meadow has been observed on several occasions throughout the summer, although it does not occur regularly. ATV use has been observed in the east meadow (right meadow, facing downstream) and along the walking path at the top of the streambank. Manure spreading also occurs in the fall after departure of the cattle in the east meadow (PG&E 2016a).

3.10.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist X, followed by a detailed discussion.

Checklist X. CEQA Checklist for Assessing Project-Specific Potential Impacts Related to Land Use and Planning.

X. Land Use and Planning

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 type="checkbox"/>	<input checked="" 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"/>

Discussion

- a. **Finding.** The Kennedy Meadows Project will not physically divide an established community; therefore, there will be no impact.
- b. **Finding.** The Kennedy Meadows Project is a restoration project that will not result in any changes to existing land use; will not physically divide a community; will not conflict with any land use plans, policies, or regulations; and will not conflict with any habitat or natural community conservation plan (see Section 3.4). Therefore, there will be no impact.
- c. **Finding.** See above discussion.

3.11 MINERAL RESOURCES

This section discusses existing conditions for mineral resources and potential Kennedy Meadows Project-related impacts. The section also addresses the State CEQA Guidelines for mineral resources analysis. Significance criteria for determining impacts on mineral resources, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist XI, followed by a detailed discussion.

3.11.1 Environmental Setting

The Project Reach is undeveloped in a natural setting. The California Surface Mining and Reclamation Act of 1975 requires the State Geologist to classify land into MRZs according to the known or inferred mineral resource potential of that land as determined from its economic geology. The Project Reach is classified as MRZ-4—areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

An abandoned gold and silver prospect is located approximately 1.6 miles southwest of the Project Reach adjacent to Relief Reservoir (MRZ-3a [pm-28] Silver Mine Creek). Ore production from the prospect appears to have been negligible, and the potential for commercial ore is believed to be small (Tooker et al. 1970).

3.11.2 Impact Analysis

Tuolumne County is considered a mining region capable of producing a wide variety of mineral resources. Metallic mineral deposits, gold in particular, are considered the most significant extractive mineral resource.

The State of California Division of Mines and Geology surveyed Tuolumne County for the presence of economically important mineral resources. The *Mineral Land Classification of a Portion of Tuolumne County, California for Precious Metals, Carbonate Rock and Concrete-Grade Aggregate (1997)*, Division of Mines and Geology Open File Report 97-09, indicates that the Project Reach and surrounding lands is classified as MRZ-4—areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

In summary, the Kennedy Meadows Project will comply with all state and local requirements related to minerals; no federal regulations related to mineral resources apply to the Kennedy Meadows Project.

Checklist XI. CEQA Checklist for Assessing Project-Specific Potential Impacts on Mineral Resources.

XI. Mineral Resources

Would the Project:	Potentially Significant Impact	Less-Than Significant Impact with Mitigation Incorporated	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"/>

Discussion

- a. **Finding.** The Project Reach is not located in an area mapped significant Mineral Resource Zone-2 (MRZ-2). The Kennedy Meadows Project will not impact the availability of mineral resources that are locally important or will be of value to the state. PG&E’s proposed Kennedy Meadows Project does not propose construction of any facilities and will not cause a loss of availability of mineral resources. Therefore, there will be no impact.

- b. Finding.** The Kennedy Meadows Project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, there will be no impact.

3.12 NOISE

This section discusses existing conditions for noise and potential Project-related impacts. “Noise” refers to unwanted levels of sound. Significance criteria for determining noise impacts as set forth in Appendix G of the State CEQA Guidelines are presented in Checklist XII, followed by a detailed discussion.

3.12.1 Environmental Setting

Simply stated, “sound” is what we hear. Sound is characterized by the rate of fluctuation of sound waves (frequency), the speed of dissemination, and the pressure level or energy content (amplitude). Sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound (a sound within a given environment). Unwanted sound becomes noise, and high noise levels can interfere with several activities (e.g., concentration, relaxation, and sleep) in a way that degrades public health and welfare. Certain land uses are more sensitive to noise levels; these sensitive receptors can include residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas.

The Project Reach is located in a natural setting in a remote area surrounded by the Stanislaus National Forest. Land use in the Kennedy Meadows Project vicinity is primarily seasonal outdoor recreational use. Sensitive receptors in the immediate vicinity of the Project Reach include users of the Huckleberry Trail, day-use recreationists, and anglers in the river corridor. Additional sensitive receptors in the vicinity include campers and visitors staying at the Kennedy Meadows Resort and Pack Station approximately 0.5 mile northwest of the Project Reach. Most existing ambient noise in the vicinity of the Kennedy Meadows Project is generated by occasional vehicles on Kennedy Meadows Road and recreational users. Other ambient sources of noise are natural sources.

The FHWA has developed noise abatement criteria that are used for federally funded roadway projects or projects that require federal review, which do not apply to the Project. The FHWA also developed a *Construction Noise Handbook* (U.S. Department of Transportation 2006) to help predict construction-related noise levels; the handbook is commonly referenced when discussing construction noise for all types of projects. Table 3.12-1 lists noise levels for standard pieces of construction equipment.

Table 3.12-1. Construction Equipment Noise Emission Levels.

Construction Equipment	Maximum Noise Level (dBA at 50 feet)
Backhoe	78
Chainsaw	84
Compactor (ground)	83
Dozer	82
Dump truck	76
Excavator	81
Flatbed truck	74
Front-end loader	79
Generator	81
Grapple (on backhoe)	87
Horizontal boring hydraulic jack	82
Impact pile driver	101
Paver	77
Pickup truck	75
Sheers (on backhoe)	96

Source: FHWA 2006.

dBA = A-weighted decibels

3.12.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist XII, followed by a detailed discussion. Based on a review of regulations, the Project will comply with all federal requirements related to noise. No state or local requirements that regulate noise will apply to the Project.

Checklist XII. CEQA Checklist for Assessing Project-Specific Potential Noise Impacts.

XII. Noise

Would the Project Result in:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Exposure of persons to or generation of 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. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
d. A substantial temporary or periodic 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"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project 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, would the project 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"/>

Discussion

- a. **Finding.** Tuolumne County has not adopted any noise standards relating to construction noise. The Federal Highway Administration (FHWA) has developed noise abatement criteria that are used for federally funded roadway projects or projects that require federal review, which do not apply to the Project. Construction of the Kennedy Meadows Project will comply with all established standards, rules, and regulations related to construction noise levels. The Kennedy Meadows Project does not include any permanent stationary noise-generating development or any substantial long-term noise-generating activities or operations. During the short construction time period, there will be incidental high decibel noise sources during daytime hours, such as excavators during bank grading and rock placement activities, dump trucks hauling materials to the site, and generators operating pumps for channel dewatering. PG&E will implement several measures (General Measures) that will reduce construction-related noise, including maintaining low vehicle speeds in and around the construction areas (less than 15 mph); minimizing noise to the extent possible when working near public areas; limiting vehicle idling time (3 minutes); and limiting construction work activities to the hours between dawn and dusk. Post-construction monitoring and

maintenance activities will involve one vehicle infrequently accessing the Project Reach and will contribute a negligible amount of noise. Due to the short duration of construction (early/mid-August to early/mid-October), the limited spatial extent of the work area, and the implementation of several measures to minimize noise levels during construction, the potential for noise impacts are considered less than significant.

- b. Finding.** The Kennedy Meadows Project will involve temporary and localized sources of groundborne vibration and groundborne noise from operation of heavy equipment during construction that could be perceptible by sensitive receptors such as recreationists. PG&E will provide advance notification of the construction activities and schedule to limit exposure to recreationists. Signage will be placed at the nearby campground facilities, the Kennedy Meadows trailhead parking area, the gage across Kennedy Meadows Road at the resort, the Project site, and on the trail south of the Project Reach. PG&E will provide the construction schedule to the resort and pack station. A public notice will also be placed in the local newspaper. Because of the brief duration of impact at any one location, limited spatial extent of the work area, and implementation of several measures to minimize noise levels during construction, the impact from construction-related groundborne vibration and groundborne noise is considered less than significant.
- c. Finding.** The Kennedy Meadows Project does not include development or construction of permanent structures and will not contribute to a substantial permanent increase in ambient noise levels in the Project vicinity. Therefore, there will be no impact.
- d. Finding.** Construction and post-construction monitoring activities associated with the Kennedy Meadows Project will be temporary and of short duration, and related noise impacts on nearby sensitive receptors due to an increase in ambient noise levels will be short term and limited to between dawn and dusk, Monday through Friday. In addition, implementation of the following general APMs incorporated into the Project design is expected to reduce impacts related to construction noise to a less-than-significant level. These include General Measures that will reduce construction-related noise, including maintaining low vehicle speeds in and around the construction areas (less than 15 mph); minimizing noise to the extent possible when working near public areas; limiting vehicle idling time (3 minutes); and limiting construction work activities to the hours between dawn and dusk.
- e. Finding.** The Project Reach is not located within an airport land use plan or near a public airport, nor is it within the vicinity of a private airstrip. The nearest public airport, Columbia Airport located in Columbia, California, is approximately 60 miles from the Project area. Therefore, there will be no impact.
- f. Finding.** See above discussion.

3.13 POPULATION AND HOUSING

This section discusses existing conditions for population and housing and potential Project-related impacts. “Population” refers to the local or regional population, and “housing” refers to places of usual residence. This section analyzes the Project using the State CEQA Guidelines to determine impacts to population and housing. Significance criteria for determining impacts on population and housing, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist XIII, followed by a detailed discussion.

3.13.1 Environmental Setting

The Project Reach is located in a natural setting within a 240-acre parcel established as a conservation easement owned by Tuolumne County. The parcel is surrounded by the Stanislaus National Forest. The Project Reach and vicinity provide outdoor recreation and wildlife habitat in the remote upper elevations of the Sierra Nevada. Additional use within the conservation easement includes the Kennedy Meadows Resort and Pack Station located 0.5 mile northwest of the Project Reach, which provides camping, cabins, and equestrian access to surrounding lands seasonally from the last weekend in April to Columbus Day in October. Resort and pack station employee housing consisting of privately owned trailers is located near Deadman Creek adjacent to the pack station. Camping is available at two nearby USFS campgrounds, Baker and Deadman campgrounds, located 1.7 and 1.2 miles northwest of the Project, respectively, on Kennedy Meadows Road.

Dardanelle Resort, established in 1927, is located on Highway 108 approximately 6 miles west of the Kennedy Meadows Road turnoff from Highway 108. The resort consists of a restaurant, general store, rustic cabins, a motel, and recreational vehicle park. It operates under a special use permit issued by the Stanislaus National Forest.

Construction of the Kennedy Meadows Project will require approximately 8 to 10 workers. Workers can camp in the nearby camping facilities at the resort and pack station and USFS campgrounds, or lodge at the Dardanelle Resort or in hotels in Twain Harte and Sonora, California.

3.13.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist XIII, followed by a detailed discussion. As noted, no federal, state, or local requirements that regulate population and housing will apply to the Project.

Checklist XIII. CEQA Checklist for Assessing Project-Specific Potential Impacts Related to Population and Housing.

XIII. Population and Housing

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 numbers 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"/>

Discussion

- a. **Finding.** The Kennedy Meadows Project is a restoration project that will not induce population growth in the area, as it will not produce new homes or business or extend roads or infrastructure. The Kennedy Meadows Project will not displace any existing housing or people. Therefore, there will be no impact.
- b. **Finding.** See above discussion.
- c. **Finding.** See above discussion.

3.14 PUBLIC SERVICES

This section discusses existing conditions for public services and potential Project-related impacts. Public services include fire protection, law enforcement, emergency medical response, education, and parks. This section also analyzes the Project using the State CEQA Guidelines to determine impacts to public services. Significance criteria for determining impacts on public services, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist XIV, followed by a detailed discussion.

3.14.1 Environmental Setting

Education-related public services such as schools and libraries are not discussed in this section, as none exist in or near the Kennedy Meadows Project and the project has no potential to affect these services.

3.14.1.1 Fire Protection, Law Enforcement, and Emergency Medical Response

The Kennedy Meadows Project is located on Tuolumne County land surrounded by the Stanislaus National Forest. Fire protection services in the vicinity of the Project Reach are provided by CAL FIRE and Tuolumne County Fire Department. Police services are provided by the Tuolumne County Sheriff’s Office located in Sonora. Tuolumne County Ambulance Service provides emergency and non-emergency medical transport services for Tuolumne County.

3.14.1.2 Parks

The 1996 Tuolumne County General Plan designates 4,827 acres of land for parks and recreation use. In addition to county-owned and managed resources, multiple agencies have jurisdiction over parks and other recreational facilities within Tuolumne County: the National Forest Service, Bureau of Reclamation, National Park Service, Bureau of Land Management, California State Parks and Recreation, and CDFW.

3.14.2 Impact Analysis

Potential Project-related impacts that require analysis under CEQA are identified in Checklist XIV, followed by a detailed discussion. Based on a review of regulations, the Project will comply with all local requirements related to public services; no federal or state regulations related to public services will apply to the Project.

Checklist XIV. CEQA Checklist for Assessing Project-Specific Potential Impacts on Public Services.

XIV. Public Services

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** The Project does not include new development and will not result in increases in other activities that would impact fire protection, law enforcement, emergency medical response, education, and parks. Construction activities and the presence of workers in the Project Reach may result in a small increased risk of fire that will be temporary. Implementation of standard PG&E adopted measures for fire suppression and good housekeeping will help to prevent fires or emergencies requiring fire or police protection. Relevant Project-specific BMPs and APMs include Hazardous Materials Management and Spill Prevention and Fire Prevention (see Section 2.6.4). Therefore, there will be no impacts related to fire or police protection from the Project. The Project will not result in an increase in residents and will therefore not increase school enrollment. There will be no impact on schools. The Project will not provide housing, and there will be no increase in residents. Therefore, no additional parks or recreational facilities will be required, and there will be no impact to parks or recreational facilities. The Kennedy Meadows Project will not construct any facilities or add residents to the vicinity of the Project Reach that will require other public services or facilities. There will be no impact to other public services.

3.15 RECREATIONAL RESOURCES

This section discusses existing conditions for recreation resources and Kennedy Meadows Project-related impacts. Recreation resources include public parks; public areas for hiking, biking, swimming, and other physical activities; and other public facilities used for recreation. This section also addresses the State CEQA Guidelines for recreation impact analysis. Significance criteria for determining impacts on recreation resources, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist XV, followed by a detailed discussion.

3.15.1 Environmental Setting

The Project Reach is located on land owned by Tuolumne County surrounded by public land managed by the USFS (Stanislaus National Forest) including the Emigrant Wilderness, which is located less than 0.5 mile southeast of the Kennedy Meadows Project (see Figure 2.1-1). The Stanislaus National Forest is managed for multiple uses including recreation, open space, timber management, wildlife habitat, and water quality. A prominent feature near Kennedy Meadows is the Huckleberry Trail, along Kennedy Meadows Road, which provides equestrian, angling, and hiking access to the Emigrant Wilderness. Kennedy Meadows Road traverses the east edge of the Project, providing pedestrian and equestrian access to the surrounding public lands.

The Kennedy Meadows area, including the Kennedy Meadows Resort and Pack Station and the Project Reach, supports a wide variety of recreation uses, including fishing, hiking, and equestrian riding. The pack station is located approximately 0.5 mile to the northwest of the Project Reach on Kennedy Meadows Road. The area has a long history of providing visitors with the opportunity to experience a high-alpine setting and access to nearby wilderness areas. The Kennedy Meadows Resort and Pack Station provides guided pack trips and offers lodging amenities, a restaurant, a saloon, and a general store. There are no developed camping areas in the Project Reach, although there are USFS campgrounds that offer camping on a first-come-

first-served basis nearby. The Middle Fork Stanislaus River, which flows through the Project Reach, provides fishing opportunities to resort and pack station visitors, and is regularly stocked with catchable-size rainbow trout (FERC 2005, PG&E 2002) (also refer to Section 3.10 for additional information on land uses in the Project Reach).

The USFS completed a Wild and Scenic River Study as part of the Environmental Impact Statement for the Stanislaus National Forest Land and Resource Management Plan that documents the results of a forest-wide inventory of rivers that were studied for their eligibility and possible inclusion in the National Wild and Scenic Rivers System. A 12-mile portion of the Middle Fork Stanislaus River, including the Project Reach, has been proposed for “recreational” Wild and Scenic River classification by the USFS. The recommendations are under review by the USFS and Congress, with the final decision lying with Congress (USFS 1991, updated 2002).

3.15.2 Impact Analysis

Potential Kennedy Meadows Project-related impacts that require analysis under CEQA are identified in Checklist XV, followed by a detailed discussion. Based on a review of regulations, the Kennedy Meadows Project will comply with all local requirements related to recreation; no federal or state regulations related to recreational resources will apply to the Project.

Checklist XV. CEQA Checklist for Assessing Project-Specific Potential Impacts on Recreational Resources.

XV. Recreation

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<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 which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** The Project will not increase the use of existing parks or other recreational facilities. During construction, the Kennedy Meadows Project will temporarily displace recreationists in the direct vicinity of the work area. Construction is scheduled to occur over an approximately ten-week period in the late summer/fall when flows are lowest and construction can be completed before road closures due to snow.

To minimize the potential of impacts to recreationists who may use the Project Reach during construction, PG&E will provide advance notice of the construction schedule to potential recreationists, including at the Kennedy Meadows Resort and Pack Station. PG&E will place signage at the campground facilities, the Kennedy Meadows trailhead parking area, the gate across Kennedy Meadows Road at the resort, the project site, and on the trail south of the project site. A public notice will also be placed in the local newspaper. Temporary displacement of recreationists is not expected to cause accelerated use or deterioration of any parks or other recreational facilities in the area. In addition, to avoid reduction of recreational fishing opportunities or success, PG&E will fund additional fish stocking during construction in the area downstream of the construction area within the Project Reach.

The Kennedy Meadows Project will result in redirected and refocused use of the river access points on the east bank. Split rail fencing will be installed in two segments at the downstream end of the Project Reach on the east meadow to protect restored vegetation and banks, separated by an approximate 80-foot bank section without fencing to allow continued recreation and cattle access to the river. This area is currently used for river access by recreationists and cattle, and will remain open to focus access in this section. Therefore, there will be no impact.

- b. Finding.** The Kennedy Meadows Project is a restoration and streambank stabilization project and does not include construction or expansion of recreational facilities. Recreational activities such as fishing, hiking, and wildlife viewing will be improved as a result of the Kennedy Meadows Project. The Kennedy Meadows Project will improve the condition of the surrounding public lands by 1) providing streambank stabilization and reducing the extent of active erosion; 2) increasing riparian cover on streambanks within the Project Reach; and 3) enhancing aquatic, riparian, and meadow habitats. Therefore, there will be no adverse physical impact on the environment that will affect recreation resources.

3.16 TRANSPORTATION AND TRAFFIC

This section discusses existing conditions for transportation systems and traffic and potential Kennedy Meadows Project-related impacts. Transportation systems and traffic include roadways, alternative modes of transportation, public transportation systems, parking, and vehicular traffic. Significance criteria for determining impacts on transportation systems and traffic, as set forth in Appendix G of the State CEQA Guidelines, are presented in Checklist XVI, followed by a detailed discussion.

3.16.1 Environmental Setting

The Project Reach is directly accessible via the Kennedy Meadows Road turnoff from Highway 108; from the turnoff, it is 1.6 miles to the Kennedy Meadows Resort general store, and the Project Reach is 0.5 mile past the general store along a dirt access road. The route includes a bridge over Deadman Creek.

Highway 108 is classified as a “Minor Arterial” roadway in the Tuolumne County General Plan (proposed amendments) (Tuolumne County 2015). In the vicinity of the Project, Highway 108 is a two-lane road.

The Tuolumne County road system was evaluated in conjunction with the Tuolumne County Regional Transportation Plan Update in 2015 to determine the operating level of service rating on all Arterial and Collector roads.

Pursuant to Implementation Program 2.A.h of the proposed General Plan Update, the minimum Level of Service (LOS) standard for Rural Arterials is LOS D (Tuolumne County 2015). The General Plan Update provides generalized roadway Average Daily Traffic LOS values for a two-lane Rural Minor Arterial (Mountainous Area Type; i.e., above 4,000-foot elevation) is Type #5, LOS A = 3,120, LOS B = 6,240, LOS C = 9,360, LOS C = 13,260, and LOS D = 15,600 (Tuolumne County 2015). This section of Highway 108 currently operates at the acceptable LOS D conditions (or better) (Tuolumne County 2015).

CalTrans maintains and has established standards for operation on the Highway 108 corridor, which provides access to the Kennedy Meadows Project from the Bay Area. Kennedy Meadows Road is a non-county maintained road. The majority of access via Kennedy Meadows Road is for travel to the Kennedy Meadows Resort and Pack Station or the recreational lands surrounding the Project Reach. A locked gate restricts vehicle access along the final 0.5 mile of Kennedy Meadows Road between the resort and the Kennedy Meadows Project except for vehicles allowed by the USFS, PG&E, and the resort. Public access is not restricted at the gate and there is permanent pedestrian access along all sections of Kennedy Meadows into the public lands surrounding the Kennedy Meadows Project.

Temporary staging, storage, and vehicle parking will be in the existing disturbed area within the east meadow, shown on Figure 2.6-1. This is the previously disturbed area within the “laydown” area, where PG&E has legal right for use during activities associated with operations and maintenance at Relief Reservoir (Stewardship Council 2013). The existing Kennedy Meadows Road will be used to access Treatment Areas 1 and 2 at the upstream end of the Project Reach. Construction access to the treatment areas is shown on Figure 2.6-1.

Anticipated equipment and equipment trips are summarized in Tables 2.6-2 and 2.6-3. PG&E anticipates that the construction crew will consist of eight to ten people during the active construction time period, in addition to personnel providing Kennedy Meadows Project management and oversight, waste management, and other core services.

3.16.2 Impact Analysis

The Kennedy Meadows Project will require a temporary increase in traffic for construction access to the site but does not increase the capacity of Highway 108 or Kennedy Meadows Road and will not result in increased Average Daily Traffic.

Checklist XVI. CEQA Checklist for Assessing Project-Specific Potential Impacts on Transportation and Traffic.

XVI. Transportation/Traffic

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and nonmotorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<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, including either an increase in traffic levels or a change in location that results 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 (e.g., farm equipment)?	<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 type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. **Finding.** Additional vehicle trips proposed during the construction phase will be short term and limited in scope. They will not conflict with any transportation or traffic plans, ordinances, policies, or programs, nor will they result in a change in air traffic patterns, significantly increase roadway hazards, or affect emergency access. The Kennedy Meadows Project will not conflict with any applicable plan or ordinance policy establishing a measure of effectiveness for the performance of a circulation system. It is estimated that the presence of between one and ten contracted workers will result in a temporary increase in vehicles traveling to and from the Project Reach during the active construction period. Workers will be encouraged to carpool whenever possible. All Project-related traffic will be subject to the control of PG&E and will comply with PG&E's Construction Standards, which include safety measures for the public and for workers including speed limits, standardized work hours, and designated areas for staging and equipment maintenance. With the exception of a moderate temporary increase in construction traffic, the Project will not affect any other forms of public transportation. Therefore, there will be no impact.
- b. **Finding.** The Kennedy Meadows Project will not conflict with any applicable congestion management program. See above discussion; no impact.
- c. **Finding.** The Kennedy Meadows Project does not involve air traffic and will not alter or affect air traffic patterns. See above discussion; no impact.
- d. **Finding.** Construction and operation of the Kennedy Meadows Project will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous or incompatible uses). See above discussion; no impact.
- e. **Finding.** The Kennedy Meadows Project will not limit emergency access. There will be no impact.
- f. **Finding.** Construction activities will not limit or restrict access to the surrounding public lands. There will be no impact.

3.17 UTILITIES AND SERVICE SYSTEMS

The Project Reach does not receive water, wastewater, electricity, natural gas, or solid waste services. Water in the Middle Fork Stanislaus River will flow unimpeded through the Project Reach once construction is complete. Dewatering of portions of the channel will be required for construction of streambank stabilization treatments and to access the west bank. The dewatering approach is described in Section 2.0.

The Project Reach does not currently host water or wastewater facilities or services and these conditions will not change as a result of the Project. Any water needed during construction will come from portable construction water tanks or water trucks, or will be pumped from the river. Wastewater generated in portable construction restrooms will be properly disposed of offsite. Any solid waste generated during construction will not exceed the designated landfill's capacity

and will be recycled and disposed of by the contractor, per all applicable governmental regulations.

3.17.1 Impact Analysis

Potential Kennedy Meadows Project-related impacts that require analysis under CEQA are identified in Checklist XVII, followed by detailed discussion. Based on a review of regulations, the Kennedy Meadows Project will comply with all state and local requirements related to public services; no federal regulations related to public services will apply to the Project.

Checklist XVII. CEQA Checklist for Assessing Project-Specific Potential Impacts on Utilities and Service Systems.

XVII. Utilities and Service Systems

Would the Project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation Incorporated	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 storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill with sufficient 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"/>

Discussion

- a. **Finding.** The Project Reach does not currently host water or wastewater facilities or services and these conditions will not change because of the Project. Therefore, no RWQCB wastewater treatment requirements will be exceeded, and there will be no impact.
- b. **Finding.** The Kennedy Meadows Project will not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities. Therefore, there will be no impact.
- c. **Finding.** The Kennedy Meadows Project will not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. There is the potential for stormwater runoff if large storm events occurred during construction. Temporary stormwater management during the construction phase will be implemented and maintained in accordance with all applicable regulations, including the Project SWPPP, which will reduce potential impacts to a less-than-significant level.
- d. **Finding.** Any water needed during construction will come from portable construction water tanks or water trucks that will receive water from offsite, or will be pumped from the river. The Project is expected to use minimal water for dust control and onsite sanitation, and existing water supplies will be sufficient to serve the Project from existing entitlements and resources. No new or expanded entitlements will be needed.
- e. **Finding.** The Project Reach does not currently host water or wastewater facilities or services and these conditions will not change as a result of the Project. Wastewater generated in portable construction restrooms will be properly disposed of offsite. Therefore, there will be no impact to wastewater treatment providers.
- f. **Finding.** Solid waste generated from the Project is expected to be minimal and limited to personal waste generated by onsite construction workers. Any solid waste generated during construction will not exceed the designated landfill's capacity and will be recycled and disposed of by the contractor, per all applicable governmental regulations.
- g. **Finding.** The Project will comply with federal, state, and local statutes and regulations related to solid waste. No impact is anticipated.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

3.18.1 Impact Analysis

CEQA identifies that the lead agency shall find that a project may have a significant effect on the environment and thereby require an EIR to be prepared for the project where there is substantial evidence, in light of the whole record, that any of the following conditions may occur (Checklist XVIII). Where, prior to commencement of the environmental analysis, a project proponent agrees to mitigation measures or project modifications that would avoid any significant effect on

the environment or would mitigate the significant environmental effect, a lead agency need not prepare an EIR solely because without mitigation the environmental effects would have been significant (Section 15065 of the State CEQA Guidelines).

Checklist XVIII CEQA Checklist for Assessing Project-Specific Mandatory Findings of Significance.

XVIII. Mandatory Findings of Significance

Does the Project:	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Discussion

- a. Finding.** As discussed in Section 3.4, surveys conducted by PG&E and their consultants have not confirmed the presence of any special-status plants, fish, amphibians, raptors, riparian birds, or mammals within the Project Reach or its vicinity. Exceptions include two incidental sightings of a bald eagle hunting in the vicinity of the Project Reach in 2015 and 2016 and one observation of a metamorph SNYLF in 2001 in the oxbow channel west of the Project Reach, outside of the construction area. Existing wetlands and riparian habitat and potential habitat for sensitive-status species have the potential to be affected during construction of the Project. APMMs and BMPs that have been incorporated into the Project design reduce these potential impacts to a less-than-significant level. As described in Section 2.5, elements of the bioengineering treatments and the restored riparian corridor will improve several aquatic, riparian, and meadow ecosystem functions and will provide long-term ecosystem service benefits and

enhance the beneficial public values in the Kennedy Meadows Reach and beyond. Therefore, the potential impacts will be less than significant.

- b. Finding.** The Kennedy Meadows Project will not result in cumulatively considerable impacts. As discussed throughout the analyses in Section 3, the Kennedy Meadows Project will result in no significant impacts or less-than-significant impacts to environmental or cultural resources. No mitigation measures are required. Therefore, these resources have no potential to contribute to a cumulative impact. Rather, as discussed in responses to (a) and (c), this Project will restore and enhance the stream channel and riparian corridor, with enhanced ecosystem function and ecological benefits, as well as ecosystem service benefits.
- c. Finding.** The Kennedy Meadows Project will not result in substantial adverse effects on human beings, either directly or indirectly. As described in Section 2.5, elements of the bioengineering treatments and the restored riparian corridor will improve several aquatic, riparian, and meadow ecosystem functions and will provide long-term ecosystem service benefits and enhance beneficial public values in the Kennedy Meadows Reach and beyond. Ecosystem service benefits with implementation of the Kennedy Meadows Project include enhanced recreational and fishing experience, improved water quality, enhanced wildlife viewing opportunities, and enhanced aesthetic appreciation. Therefore, there will be no impact.

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