APPENDIX A

APPENDIX G OF THE STATE CEQA GUIDELINES ENVIRONMENTAL CHECKLIST FORM

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Appendix G of the State CEQA Guidelines

Environmental Checklist Form

1. **Project Title**:

   Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project

2. **Lead Agency Name and Address:**

   State Water Resources Control Board
   1001 I Street
   Sacramento, CA 95814

3. **Contact Person and Phone Number:**

   Jeff Wetzel, Senior Water Resources Control Engineer
   (916) 323-9390

4. **Project Location:**

   The Kennedy Meadows Project will occur along a 3,000-linear foot reach of the Middle Fork Stanislaus River in the reach identified as "Kennedy Meadows" (also known 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. Kennedy Meadows is located along Highway 108, approximately 57 miles east of Sonora and 50 miles south of South Lake Tahoe.

5. **Project Sponsor's Name and Address:**

   Justin Smith, Senior Land Planner
   Pacific Gas and Electric Company
   2730 Gateway Oaks Dr. Ste. 220
   Sacramento, CA 95833
   (916) 923-7038

6. **General Plan Designation:**

   Public (Tuolumne County General Plan)

7. **Zoning:**

   The parcel is zoned as a commercial and general recreation district. The area surrounding the Project Reach is zoned for Timberland.

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8. **Description of the Project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary).**

   The Project is comprised of the following three components to provide streambank stabilization and to protect, enhance, and create riparian, meadow, and aquatic habitats: (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 best management practices (BMPs) and avoidance, protection, and minimization measures (APMMs) to minimize potential construction impacts; and (3) a maintenance and monitoring plan. The objectives of the 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. Refer to Project Description for additional information on the Project.

9. **Surrounding Land Uses and Setting: Briefly describe the project's surroundings.**

   The Kennedy Meadows Project is located on lands owned by Tuolumne County. The surrounding lands are managed by the Stanislaus National Forest (Forest), including the Emigrant Wilderness, which is located less than 0.5 miles southeast of the Kennedy Meadows Project. The Project Reach and vicinity provide important outdoor recreation and wildlife habitat in the remote upper elevations of the Sierra Nevada. The Kennedy Meadows Resort and Pack Station, a popular recreation destination, is located approximately 0.5 mile to the northwest of the Project. The 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.

10. **Other public agencies whose approval is required (e.g., permits, financing, approval, or participation agreement)**

    The California Department of Fish and Wildlife (CDFW) will rely upon this document for use in its issuance of a Streambed Alteration Agreement to PG&E under Section 1602 of the California Fish and Game Code.

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

    - U.S. Army Corps of Engineers (USACE) CWA Section 404 Nationwide Permit (NWP) 27, *Aquatic Habitat Restoration, Establishment and Enhancement Activities*.
    - California Department of Fish and Wildlife (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 Regional Water Quality Control Board (RWQCB) that include a Notice of Intent (NOI) and a Stormwater Pollution and Prevention Plan (SWPPP).

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ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below (☒) could be affected by this project, involving at least one impact that is a "potentially significant" impact, as indicated by the checklist on the following pages.

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

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Determination

On the basis of this initial evaluation:

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

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

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

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

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

Signature

Date

Jeff Wetzel

California Water Resources Control Board

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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?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

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?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 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)?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to nonforest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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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?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

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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?	☐	☐	☒	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

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V. 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?	☐	☐	☐	☒
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	☐	☐	☐	☒
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒

V. 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)	☐	☐	☐	☒
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.	☐	☐	☐	☒

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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:	☐	☐	☐	☒
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii. Strong seismic ground shaking?	☐	☐	☐	☒
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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?	☐	☐	☒	☐
b. Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

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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?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
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?	☐	☐	☒	☐

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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?	☐	☐	☒	☐
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)?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☐	☒
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

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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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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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?	☐	☐	☒	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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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)?	☐	☐	☐	☒
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e. Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

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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?	☐	☐	☒	☐
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.)	☐	☐	☐	☒
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

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APPENDIX B
PROJECT REACH PHOTOGRAPHS

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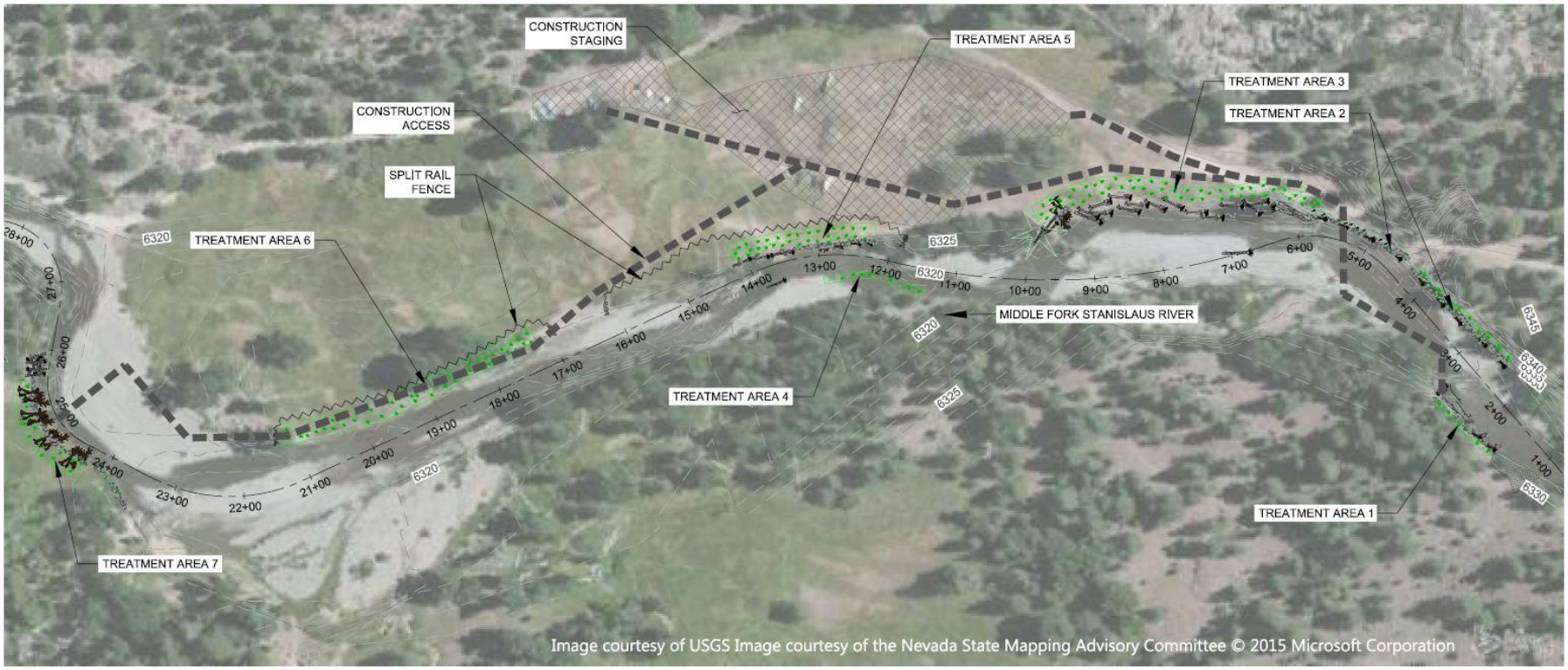

OVERVIEW PLAN

SCALE 1"=80'

0 80 160

SCALE IN FEET

Overview of the Kennedy Meadows Project Reach

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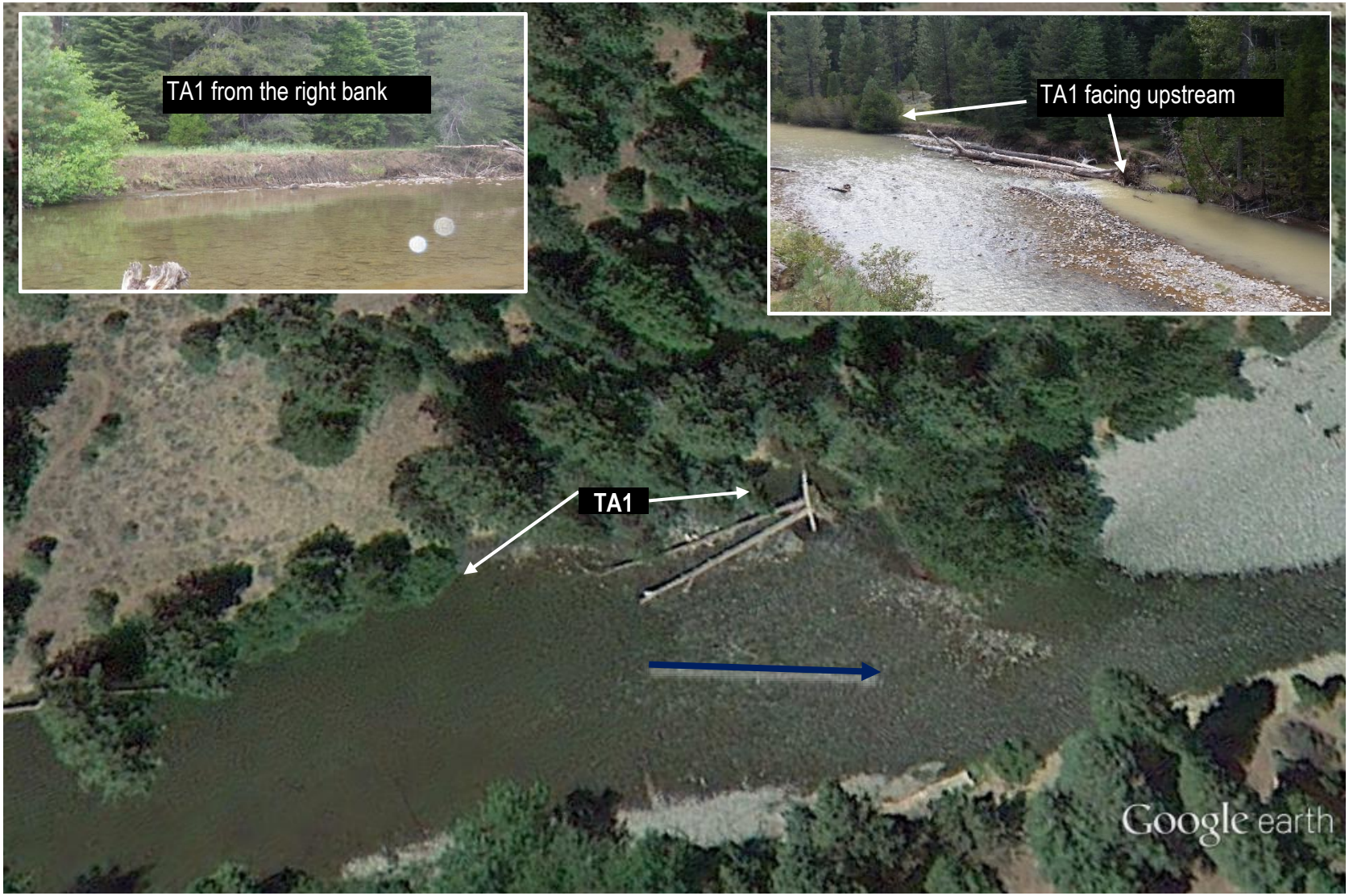

Treatment Area 1

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Treatment Area 2

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Treatment Area 3

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Treatment Areas 4 and 5

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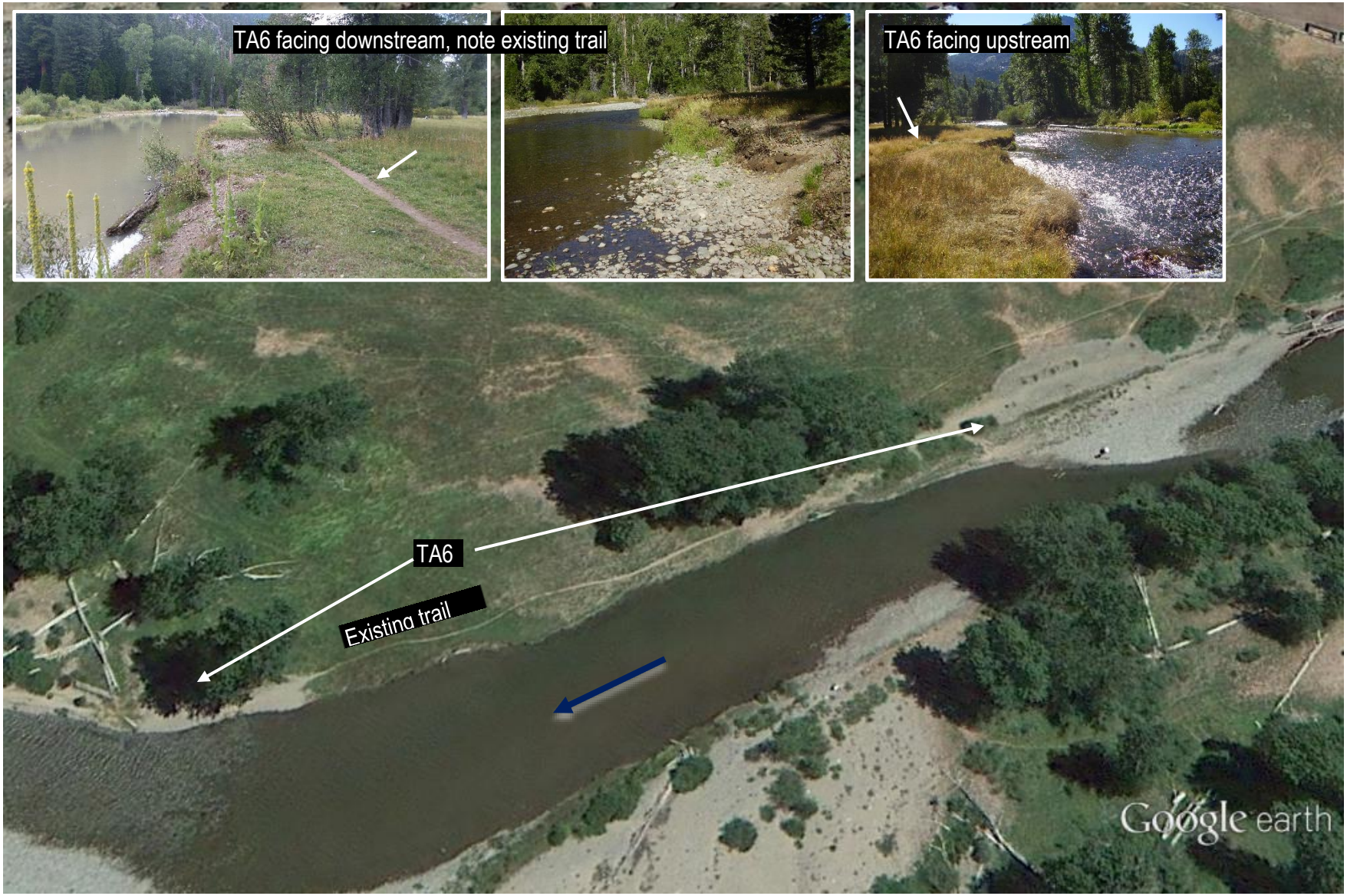

Treatment Area 6

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Treatment Area 7

Spring Gap-Stanislaus Project, FERC No. 2130
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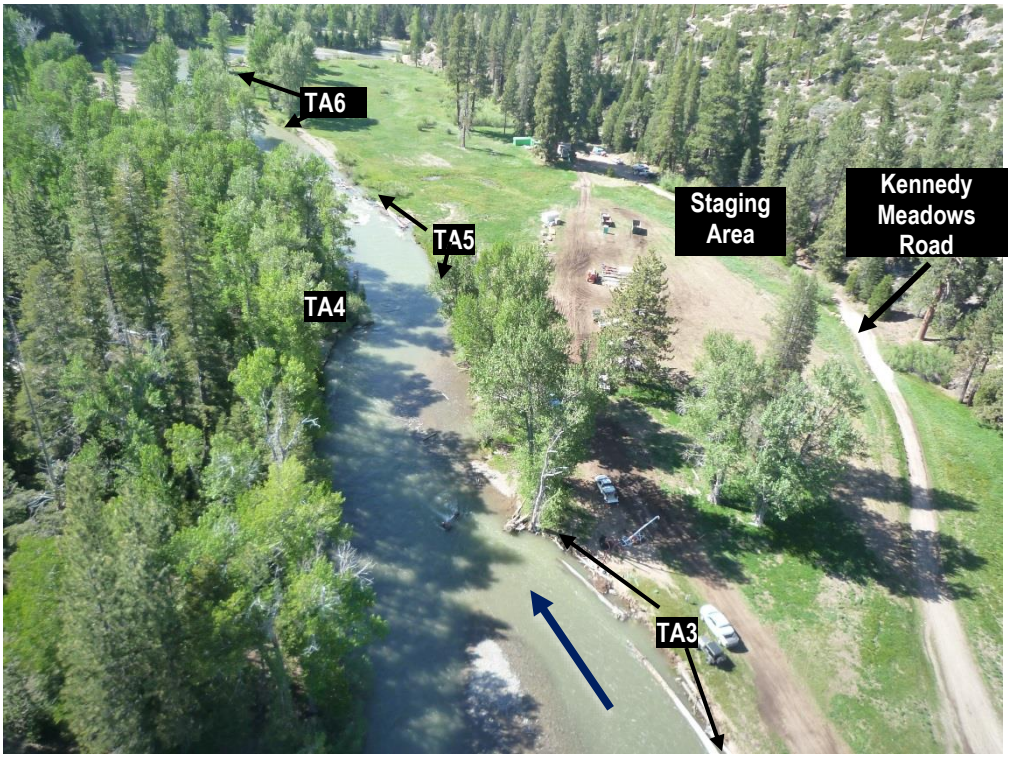
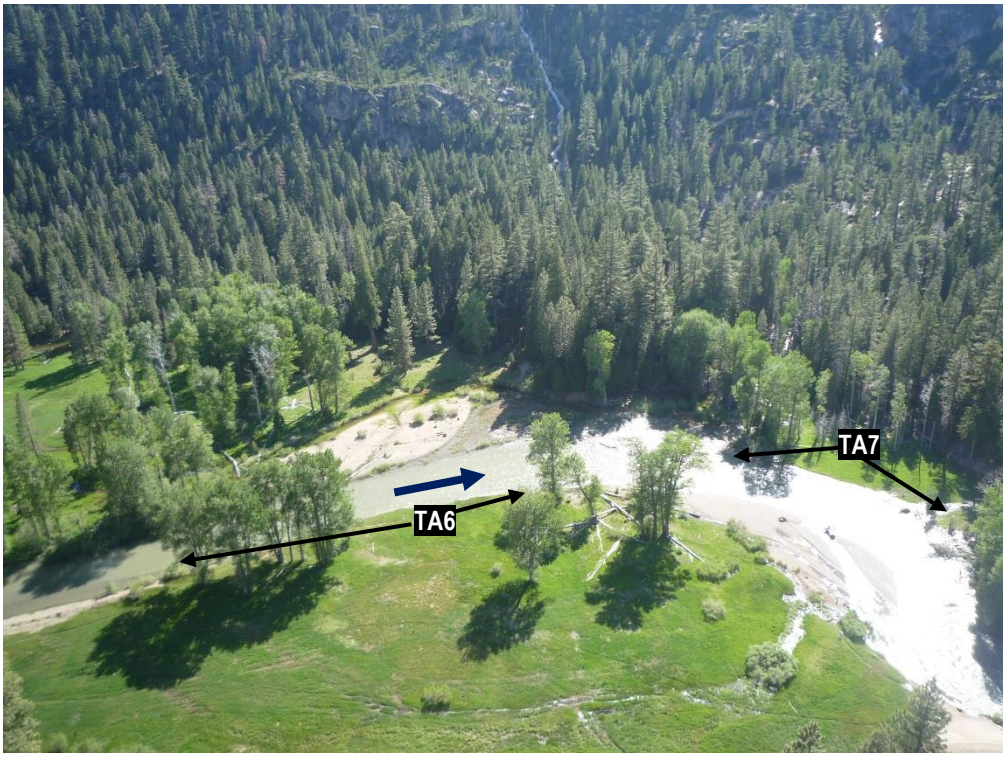


Overview of the Project Reach; Treatment Area 3, 4 and 5; staging area, and Kennedy Meadows Road.



Overview of the Project Reach; Treatment Area 6 and 7.

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Staging Area (photo shows staging for different project in 2011).

Staging Area (photo shows staging for different project in 2011).

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Staging Area (photo shows staging for different project in 2011).

Recreation activities along Kennedy Meadows Road adjacent to the Project staging area.

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Cattle watering in the river across from Treatment Area 6.

Cattle grazing; on the meadow adjacent to Treatment Area 6.

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Cattle watering in the cottonwood riparian forest located in the west meadow.

Cattle grazing in the east meadow where the staging area is located. Note the piled manure in the foreground.

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Pack animal grazing on the east meadow.

Recreation Use within Treatment Area 2; facing upstream.

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APPENDIX C

MAINTENANCE AND MONITORING PLAN

(Appendix G in PG&E's Relief Reach Riparian Vegetation Restoration and Streambank Stabilization – Project Description 100% Design Level Report for the Spring Gap-Stanislaus Project [FERC Project No. 2130], 2015 [dated April 2016])

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APPENDIX G

MAINTENANCE AND MONITORING PLAN

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This Maintenance and Monitoring Plan (MMP) has been developed for the Relief Reach Riparian Vegetation and Streambank Stabilization Project (Project) in Kennedy Meadows for PG&E. The purpose of the MMP is to help achieve the Project goals and objectives through periodic maintenance and monitoring of specific channel and riparian attributes.

The primary goals of the Project are to:

- Provide streambank stabilization, and
- Enhance the riparian and aquatic habitats within the Project reach of the Middle Fork Stanislaus River.

The objectives of the Project to meet these goals are to:

- Reduce the extent of actively eroding streambanks, and
- Increase riparian cover on the streambanks within the reach.

This MMP, addressing maintenance (including inspections and repair) and monitoring, will be implemented upon completion of the Project's construction (i.e., "post-construction"). Maintenance will be performed to identify problems needing remedial action (e.g., repairing damage from floods, winds, or snow; weeding; irrigation; re-seeding of areas disturbed during construction, etc.) until success criteria are met and through the remainder of the license term (2039; see schedule below). Monitoring will be performed to provide information to assess progress of the Project toward meeting the success criteria; monitoring will conclude when success criteria are met or as agreed upon by the resource agencies (described below). As the Project goals and objectives are focused on improving conditions within the Kennedy Meadows reach, the monitoring will focus on evaluating bank and riparian conditions for the reach as a whole, and will not monitor each treatment area as an individual area.

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Maintenance and monitoring will be conducted by qualified personnel[1]. The most intensive maintenance and monitoring period will be take place immediately after the restoration work over a two-year period to quickly identify potential issues with survival and disturbance.

Success Criteria

The following criteria will be used as the basis for determining the success of the Project:

- Establish approximately 1,885 feet (38 percent) of new riparian habitat within the Kennedy Meadows reach by Year 5 after construction (based on cumulative linear distance from the combined restoration treatment areas).
- Improve bank stability along approximately 1,885 feet (38 percent) of streambank within the Kennedy Meadows reach by Year 5 after construction (based on cumulative linear distance from the combined restoration treatment areas).

If success criteria for the increase in riparian cover and/or improved bank stability conditions are not achieved after five years, PG&E will consult with the resource agencies to determine the appropriate next actions. Additional actions (e.g., more planting or more bank treatments) may not be required if it is agreed that the Project objectives have been achieved (reduced extent of eroding streambanks and enhanced cover of riparian vegetation). If it is determined that additional planting or installation of new stabilization treatments is required to meet Project objectives, maintenance and monitoring will be required until success criteria are achieved.

Schedule

The most intensive maintenance period will take place over a two-year period immediately after the restoration work is completed to quickly identify potential areas within the restored reach that may require additional actions due to plant losses or presence of unstable areas of the bank (see Figure G-1 for schedule).

[1] Personnel conducting maintenance activities will review the MMP, previous completed forms, and photo point locations prior to the completing the activities.

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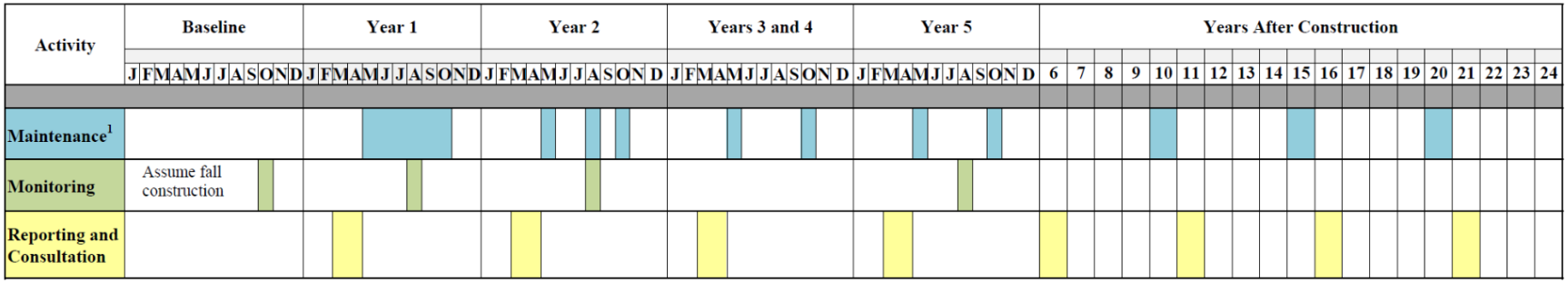

[1] Maintenance will also occur the first summer after a winter/summer high flow that exceeds 950 cfs on a daily average basis (measured at the USGS gage no. 11292000). This flow occurs about every 2.5 years on a daily average basis.

Figure G-1. Maintenance and Monitoring Schedule through the Remainder of the License Term (through year 2039).

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- Maintenance:
  - Year 1: Once per month between May (or later depending on Highway 108 access) and October.
  - Year 2: Three times in May (or later depending on Highway 108 access); in August and October after the cattle have left Kennedy Meadows.
  - Years 3, 4, and 5: Twice pear year, in May and October, after the cattle have left Kennedy Meadows.
  - Remainder of License Term: Once per year, every five years, and the first summer after a high flow that exceeds 950 cfs on a daily average basis (measured at the USGS gage 11292000)[2] known as gage S-52 in PG&E nomenclature.
- Monitoring:
  - Year 1: Baseline monitoring to establish as-built conditions
  - Years 1, 2, and 5 (or until success criteria are met as described above): conducted in August

<u>Maintenance</u>

The purpose of maintenance is to help ensure the overall quantity and quality of survival of the plantings and structural integrity of the bioengineering treatments to achieve success criteria and maintain conditions through the license term.

Maintenance will be accomplished by periodically inspecting the treatment areas post-construction until success criteria are met, including:

- Bioengineered structures for damage or displacement
- Installed vegetation for insect and/or disease infestations, moisture stress, damage by high flows, herbivory, damage by other uses of the meadow, and other conditions that could impact survival
- Need for irrigation or plant protections (e.g., wire cages)

[2] This flow occurs about every 2.5 years on a daily average flow basis.

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- Removal of invasive weeds included on the target list in the approved *Spring Gap-Stanislaus Hydroelectric Project Invasive Weed Management Plan* (PG&E 2011e) or other competing vegetation using manual methods (within a 3-foot radius of the planting)
- Additional fencing and other exclusion features on the meadow and in the riparian area and signage, particularly after winter
- Need for additional permanent exclusion features after removal of the temporary fencing

Maintenance for the remainder of the license term after success criteria are met will involve periodically inspecting:

- Bioengineered structures for damage or displacement
- General condition of riparian vegetation (damage by high flows, other uses of the meadow, or other conditions that could be affecting condition)
- Fencing and other exclusion features on the meadow and in the riparian area and signage

Repairs to the bioengineered structures will not be made if the treatment is still stable and continues to function by stabilizing the streambank. The condition of the features will continue to be monitored during subsequent maintenance. If the features are non-functional due to flows, repairs will be made as soon as practicable (see additional consultation that may be required in Section 5.0). Repairs may require use of large equipment to adjust large wood and/or rock into more stable positions. PG&E will consult with the resource agencies if the damage or displacement is caused by non-Project uses of the meadow/ riparian corridor, high flows, or other potential causes to discuss potential other options.

Vegetation maintenance will be focused on plant survival until the success criteria are met. Vegetation that is not in acceptable growing condition during the first three years after construction will be noted, removed, and replaced with materials of the same species and size as originally specified when conditions are suitable for re-planting (typically late fall). PG&E will hand weed aggressive invasive plants within the treatment areas. PG&E will water/irrigate or install plant protections (e.g., wire cages) if growing conditions are limited by water availability or deer browsing. Watering is only initially proposed to enhance initial survival of the plantings and

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should be infrequent to encourage deep rooting of the plantings. If plantings show indications of stress during a maintenance visit (e.g., leaf drop or failure of several pole plantings), the plantings will be watered during that maintenance visit. If herbivory by deer and other animals is resulting in planting mortality such that success criteria may not be achieved, PG&E will install plant protections as soon as practicable.

PG&E will consult with the resource agencies on remedial actions required to address low plant survival beyond typical required maintenance. Once success criteria are met, vegetation maintenance will no longer be conducted.

Damage or displacement of the fencing and other exclusion features on the meadow and in the riparian corridor by flows or winter weather conditions will be repaired by PG&E as soon as practicable. PG&E will consult with the agencies on any excessive or repeated damage to these features to determine if other actions may be required. If observations indicate that non-Project land uses are adversely affecting the condition of the vegetation or treatment features, PG&E will discuss potential actions at the next agency meeting. Specifically, if these uses are resulting in vegetation mortality and/or bank erosion, PG&E will discuss installation of temporary or permanent fencing and signage at these locations. The temporary fencing would likely remain in place in the summer/fall until the damage to the vegetation recovers. Additional permanent fencing would be discussed as an option if the temporary fencing were not successful in addressing use through the riparian corridor.

Maintenance will also include inspection of the disturbed areas that were seeded after construction, and re-seeding if necessary. Seeded areas will be inspected for percent cover once approximately one year after construction in the fall. If percent cover meets or exceeds 70 percent, the seeding will be determined to be successful and no additional maintenance will be required. If percent cover of the seeded areas does not exceed 70 percent, the area will be reseeded, maintenance inspections will continue the following year, and until the 70 percent success criteria are met. The areas will be photographed to document cover.

The maintenance datasheet is provided in Appendix G, Attachment A.

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Permanent photo-monitoring stations will be established at each treatment area as part of the Monitoring (see Photo Point section described below under Monitoring). Photographs will also be taken to document any areas that may require repairs or replacement plantings. The photographs will document overall condition of the treatment structures, vegetation condition, condition of exclusion features, and any other notable feature through the license term. Photographs will also be taken to document any damage that occurs within the treatment areas. Photographs of the treatment areas at the photo-point locations will continue as part of the periodic maintenance through the license term.

A brief summary memo, including photographs, will be prepared to document the maintenance that will include general condition of the treatment areas, any damage or plant mortality identified, and remedial actions taken to address deficiencies. The summary memo will also include the photographs and completed datasheets. This memo will be incorporated into a Maintenance and Monitoring Memorandum (Memo), as described below.

Responsibility for Repairs

Table G-1 identifies the repairs that PG&E will be responsible for providing and those that will require consultation with the resource agencies. PG&E will not be financially responsible for repairing damage or displacement that is attributable to non-Project uses of the meadow/ riparian corridor.

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Table G-1. Summary of Responsible Parties for Repairs of Stabilization Treatment Areas.

Issue	Cause	Responsible Party
Damage to or Displacement of Bioengineered Structures (see below for vegetation survival)		
	Flows or winter weather conditions	PG&E; discuss with agencies if repeated damage by flows
	Non-Project uses of meadow/ riparian corridor	Discuss with resources agencies
Vegetation Survival until Success Criteria are Met		
	Insect/disease infestations	PG&E
	Moisture stress	PG&E
	High flows or winter weather conditions	PG&E; discuss with agencies if repeated damage by flows
	Aggressive invasive plants	PG&E
	Deer herbivory	PG&E
	Non-Project uses of meadow/ riparian corridor	Discuss with resources agencies
Vegetation Survival (through license term)		
	High flows or winter weather conditions	PG&E; discuss with agencies if repeated damage by flows
	Non-Project uses of meadow/ riparian corridor	Discuss with resources agencies
Exclusion Features (temporary and permanent fencing)		
	Flows or winter weather conditions	PG&E
	Non-Project uses of meadow/ riparian corridor	Discuss with resources agencies

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Monitoring

The purpose of the monitoring is to track the progression of the restoration activities toward meeting the Project success criteria described above. If anything that may compromise the success of the restoration is identified, appropriate remedial actions may be implemented and will be documented in the Memo. Baseline monitoring will initially be conducted to document the as-built conditions of the Project and to identify any initial potential threats to Project success. Subsequent monitoring will be conducted as specified in Figure G-1 above. The following methods will be used to determine if the Project success criteria are being met:

- Improved Streambank Stability – Stream Condition Inventory (SCI) surveys (Forest Service 2005) and photo points
- New Riparian Habitat – Longitudinal transects (greenline[3] surveys [Winward 2000]) and photo points

Streambank stability and cover may decrease in other portions of the reach due to circumstances beyond the control of PG&E (e.g., high flows, wind throw, other uses of the meadow). If any of these types of events occur, the circumstances will be documented and PG&E will consult with the agencies.

Improved Streambank Stability

A SCI streambank survey will be conducted to document streambank stability conditions within the reach. The survey will begin at the upstream end of the Treatment Area 1 and extend downstream to the downstream end of Treatment Area 7. Both left and right streambanks will be surveyed in their entirety.

Survey protocols will follow those outlined in the Forest Service Region Stream Condition Inventory Guidebook (Forest Service 2005), and are provided in Appendix G, Attachment B. The entire reach will be surveyed on foot. The streambank condition will be categorized as "Stable," "Vulnerable," or "Unstable," as described in Forest Service (2005). The results will be mapped in

[3] The greenline is defined as: 'The first perennial vegetation that forms a lineal grouping of community types on or near the water's edge. Most often it occurs at or slightly below the bankfull stage' (Winward 2000).

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GIS. Photopoints will also be used to document bank conditions over time; those methods are outlined below.

New Riparian Habitat

New riparian habitat within the Kennedy Meadows Reach will be monitored over time using the greenline method (horizontal transect) (Winward 2000). The greenline intercepts the permanent vegetation closest to the channel. This line may be at, below, or above bankfull depending on where vegetation is established. The survey will begin at the upstream end of the Treatment Area 1 and extend downstream to the downstream end of Treatment Area 7. Both left and right streambanks will be surveyed in their entirety. This method is consistent with the vegetation surveys completed for the relicensing (PG&E 2002) and for the 2011 Riparian Progress Report (PG&E 2012a).

Data collected using the longitudinal transect method will be used to characterize the species distributions, and cover of litter, woody debris, woody trees and shrubs[4], and substrate particle size[5] along the streambank (Winward 2000). Composition data (dominant groundcover, shrub, and tree species present) will be obtained by walking along the stream margins, measuring, and recording the length of cover of each dominant or co-dominant species that intersects the greenline. Sub-dominant species found with the dominant species also will be recorded. When a change in the dominant species is observed, a new data entry will be recorded. In addition, the length of areas of bare ground, leaf litter, and large wood will be recorded along each transect. If the lengths of these attributes are different from the vegetation coverage lengths, these attributes will be recorded as separate entries on the datasheet. The lengths of the vegetation and other corridor attributes are then related to the length of the greenline survey to determine the proportion of each along the streambank (Winward 2000). A sample datasheet is provided in Appendix G, Attachment C.

[4] All cover measurements will be made with a densiometer.

[5] See Appendix G, Attachment C for substrate size classes.

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Evidence of unusual stress or mortality, and/or evidence of wildlife use, also will be noted. In addition, invasive weed and special-status plant species will be documented if encountered during field surveys. Photopoints will also be used to document bank conditions over time; those methods are outlined below.

Photo Points

Photo documentation provides a visual record of the conditions of the riparian community and streambank and land use (Elzinga et al. 1998; Burton et al. 2007). The photographs will document changes in vegetation cover along the streambank and bank stability for monitoring until success criteria are met, and will continue through the license term as part of the maintenance. The photo point procedures are described in Appendix G, Attachment D.

Permanent photo point locations will be selected to document conditions at each of the stabilization treatment areas. One or two photo point locations will be selected for each treatment area. The location of each photo point will initially be documented in relation to a permanent landmark feature (reference point) and with a Global Positioning System (GPS). If a photo point marker is eroded or removed, an attempt will be made to relocate the marker using the previous photographs, reference points, and GPS coordinates. If the location cannot be identified, a new location in close proximity will be established.

Photographs from the previous year will be taken into the field each year to assist in orienting the camera. The photographs will be taken from the same location. The photographs will be stored electronically in a photo log with pertinent information such as date, time, number, environmental information (such as recent high flows, land uses, etc.).

Reporting and Consultation

Report Consultation

PG&E will prepare a Maintenance and Monitoring Memo to document installation of the stabilization treatments and summarize results of the maintenance and monitoring as specified in Table G-2.

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The memos will be provided to the resource agencies at least 30 days prior to the Forest Service Annual Consultation meeting (between March 15 and April 15) and the results and recommendations will be discussed at a time corresponding with the Forest Service Annual Consultation meeting. The memos will be subsequently filed with FERC.

Repair Consultation

If the bioengineered structures are damaged by high flows such that they no longer stabilize the banks, repair work may require construction activities within the channel. PG&E will notify the USACE, State Water Board, and CDFW of the required repair work, and discuss the appropriate next steps to most efficiently and effectively implement the necessary repairs.

Table G-2. Analyses and Reporting to be Included in Each Maintenance and Monitoring Report.

Report	Analyses and Reporting
Baseline Conditions Report	• Summarize baseline conditions immediately after planting • As-built maps (treatment structures and plantings) • Before-and-after photographs
Year 1 Report	• Summary of Year 1 maintenance visits • Results of Year 1 monitoring in comparison to baseline results, including photo point comparisons) and results in PG&E 2002 and 2012 • Recommendations to improve success in the treatment areas • Any circumstances that may adversely impact bank stability or vegetation cover in non-treatment areas within the Project reach
Year 2 Report	• Summary of Year 2 maintenance visits • Results of Year 2 monitoring in comparison to baseline results, including photo point comparisons) and results in PG&E 2002 and 2012 • Recommendations to improve success • Any circumstances that may adversely impact bank stability or vegetation cover in non-treatment areas within the Project reach
Year 5 Report	• Summary of Years 3-5 maintenance visits • Results of Year 5 monitoring in comparison to baseline results, including photo point comparisons), results in PG&E 2002 and 2012, and success criteria • Recommendations to improve success in the treatment areas • Any circumstances that may adversely impact bank stability or vegetation cover in non-treatment areas within the Project reach
Years 10, 15, and 20 Reports	• Summary of all maintenance activities, including photo point comparison • Any circumstances that may adversely impact bank stability or vegetation cover in non-treatment areas within the Project reach

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APPENDIX G - ATTACHMENT A

MAINTENANCE DATASHEET

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Kennedy Meadows Streambank Stabilization
Maintenance Datasheet – Until Success Criteria are Met
(Page 1; Date:_____)

Name:_____ _____

General Site Conditions & Overall Observations:		
Describe:		
Disturbed Area Re-seeding:		
Reseeded Area	**Photograph ID**	**Percent Cover and Notes**
Photograph Descriptions of Each Treatment Area		
Treatment Area	**Photograph ID**	**Description**
1		
2		
3		
4		
5		
6		
7		

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Kennedy Meadows Streambank Stabilization
Maintenance Datasheet – Until Success Criteria are Met
(Page 2; Date:_____)

Natural/Fenced Exclusion Structures & Signage:		
Any damage? (circle one) Y or N		
If yes,	Photograph damage (photograph ID)	
	Describe:	
	Potential cause of damage:	
	Actions/Recommendations (circle all that apply)	
	• None required	• Fixed damage on-site
	• Return trip required to repair	• Discuss at next agency consultation meeting
	• Other:	
Invasive Species		
Weeding required in treatment areas?	(circle one) Y or N	
If yes,	Identify treatment area(s) where work was performed:	
	Approximate area(s):	

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Kennedy Meadows Streambank Stabilization
Maintenance Datasheet – Until Success Criteria are Met
(Page 3; Date:_____)

Vegetation Condition		
Is the vegetation in good condition? (circle one) Y or N		
If no,	Photograph vegetation (photograph IDs)	
	Identify treatment area with issues:	
	Degree of plant mortality or reduced vigor: (select one)	Severe: 50% or greater mortality within treatment area.
		Moderate: Reduced vigor or mortality of up to 50% of cover; potential to reduce project success.
		Minor: A few individuals with reduced vigor or dead; but minimal effect on overall coverage within treatment area.
	Describe potential cause of plant condition:	
	Actions/Recommendations (circle all that apply)	
	• Irrigation	• Plant protection
	• Additional weeding	• Discuss at next agency consultation meeting
	• Replant as soon as practicable	• Other:
Bioengineered Structures		
Any observed damage to or displacement of bioengineered treatment structures? (circle one) Y or N		
If yes,	Photograph (photograph IDs) Identify treatment area(s) with damage or displacement:	
	Degree of damage or displacement (select)	Severe: Loss of function to stabilize banks
		Moderate: Failure of substantial portion of structure, but function of structure is not threatened
		Minor: Some minor scour of small issues observed but are not considered to be a threat to the structure.
	Cause of failure (choose all that apply)	
	• Toe scour	• Scour behind structure
	• Overtopping	• Scour of vegetation
	• Displacement of wood	• High flows
	• Other meadow uses	• Other:
	Recommendations (circle one)	
	• Detailed examination required – possible repair	
	• Continue to watch – immediate action not	
	• Discuss at next agency annual consultation meeting	

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Kennedy Meadows Streambank Stabilization
Maintenance Datasheet – After Success Criteria are Met
(Page 1; Date:_____)

Name:_____ _____

General Site Conditions & Overall Observations:
Describe:

Photograph Descriptions of Each Treatment Area		
Treatment Area	**Photograph ID**	**Description**
1		
2		
3		
4		
5		
6		
7		

Natural/Fenced Exclusion Structures & Signage:		
Any damage? (circle one) Y or N		
If yes,	Photograph damage (photograph ID)	
	Describe:	
	Potential cause of damage:	
	Actions/Recommendations (circle all that apply)	
	• None required	• Fixed damage on-site
	• Return trip required to repair	• Discuss at next agency consultation meeting
	• Other:	

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(Page 2; Date:_____)

Vegetation Condition		
Is the vegetation in good condition? (circle one) Y or N		
If no,	Photograph vegetation (photograph IDs)	
	Identify treatment area with issues:	
	Degree of plant mortality or reduced vigor: (select one)	Severe: 50% or greater mortality within treatment area.
		Moderate: Reduced vigor or mortality of up to 50% of cover; potential to reduce project success.
		Minor: A few individuals with reduced vigor or dead; but minimal effect on overall coverage within treatment area.
	Describe potential cause of plant condition:	
	Actions/Recommendations (circle all that apply)	
	• Discuss at next agency annual consultation meeting	• Other:
	• None required	
Bioengineered Structures		
Any observed damage to or displacement of bioengineered treatment structures? (circle one) Y or N		
If yes,	Photograph (photograph IDs)	
	Identify treatment area(s) with damage or displacement:	
	Degree of damage or displacement (select)	Severe: Loss of function to stabilize banks
		Moderate: Failure of substantial portion of structure, but function of structure is not threatened
		Minor: Some minor scour of small issues observed but are not considered to be a threat to the structure.
	Cause of failure (choose all that apply)	
	• Toe scour	• Scour behind structure
	• Overtopping	• Scour of vegetation
	• Displacement of wood	• High flows
	• Other meadow uses	• Other:
	Recommendations (circle one)	
	• Detailed examination required – possible repair	
	• Continue to watch – immediate action not	
	• Discuss at next agency annual consultation meeting	

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APPENDIX G - ATTACHMENT B

FOREST SERVICE REGION STREAM CONDITION INVENTORY (SCI) GUIDEBOOK – STREAMBANK STABILITY SURVEY METHODS (FOREST SERVICE 2005)

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Streambank Stability

(Core Attribute)

Importance:

Channel stability is a key indicator of channel condition. Stable streambanks are essential for achieving desired stream channel morphology. Stable banks maintain or help restore low width-depth ratio which in turn helps maintain a high water table, vegetative productivity and favorable habitat for aquatic and riparian dependent wildlife. In many low gradient channels, unstable banks are a major erosion source.

Objectives of This Measurement:

Calculate streambank stability of the sensitive reach.

How Many Observations to Make:

Make 100 observations (50 each bank). Sample points are located at each channel transect.

Where to Take the Measurement:

Streambank stability is a measure of cover that protects streambanks against erosion. Streambanks lie immediately adjacent to the edge of the streambed and are susceptible to the erosive force of water during high flows. Cover consists of perennial vegetation, rock, down wood, or similar erosion resistant material. Cover most commonly occurs above the bankfull stage of stream channels. However, vegetative cover can exist below this level. For example, live plants often grow slightly below bankfull stage along low gradient streams with fine textured streambanks. Where a cover component occurs below bankfull stage record it since it contributes to bank stability.

Streambank stability is measured by observing cover within a plot on the surface of the streambank (Figure 5). The plot is .30 m (12") wide, perpendicular to flow and extends the length of the streambank as defined below.

How to Take the Measurement:

Identify the base of the streambank. It is the point of greatest slope change between the streambed and streambank.

Locate the point on the streambank where vegetative cover is first encountered above the streambed or at bankfull stage, whichever occurs first. Begin the stability plot at that point and extend it upwards as follows:

For channels less than 2% gradient with fine textured streambanks, to the crest of the first convex slope above bankfull stage. This is usually a terrace or an alluvial fan (see Figure 5).

For channels greater than 2% gradient with coarser textured streambanks, to the crest of the first convex slope above bankfull stage or twice maximum bankfull depth, whichever occurs first. Record the following streambank stability class for each plot:

- Stable - Stable streambank plots have 75% or more cover of living plants and/or other stability components that are not easily eroded, and have no indicator of instability.
- Vulnerable - Vulnerable streambank plots have 75% or more cover but have one or more instability indicators.
- Unstable - Unstable streambank plots have less than 75% cover and may have instability indicators. Unstable streambanks are often bare or nearly bare banks composed of particle sizes too small or uncohesive to resist erosion at high flows.

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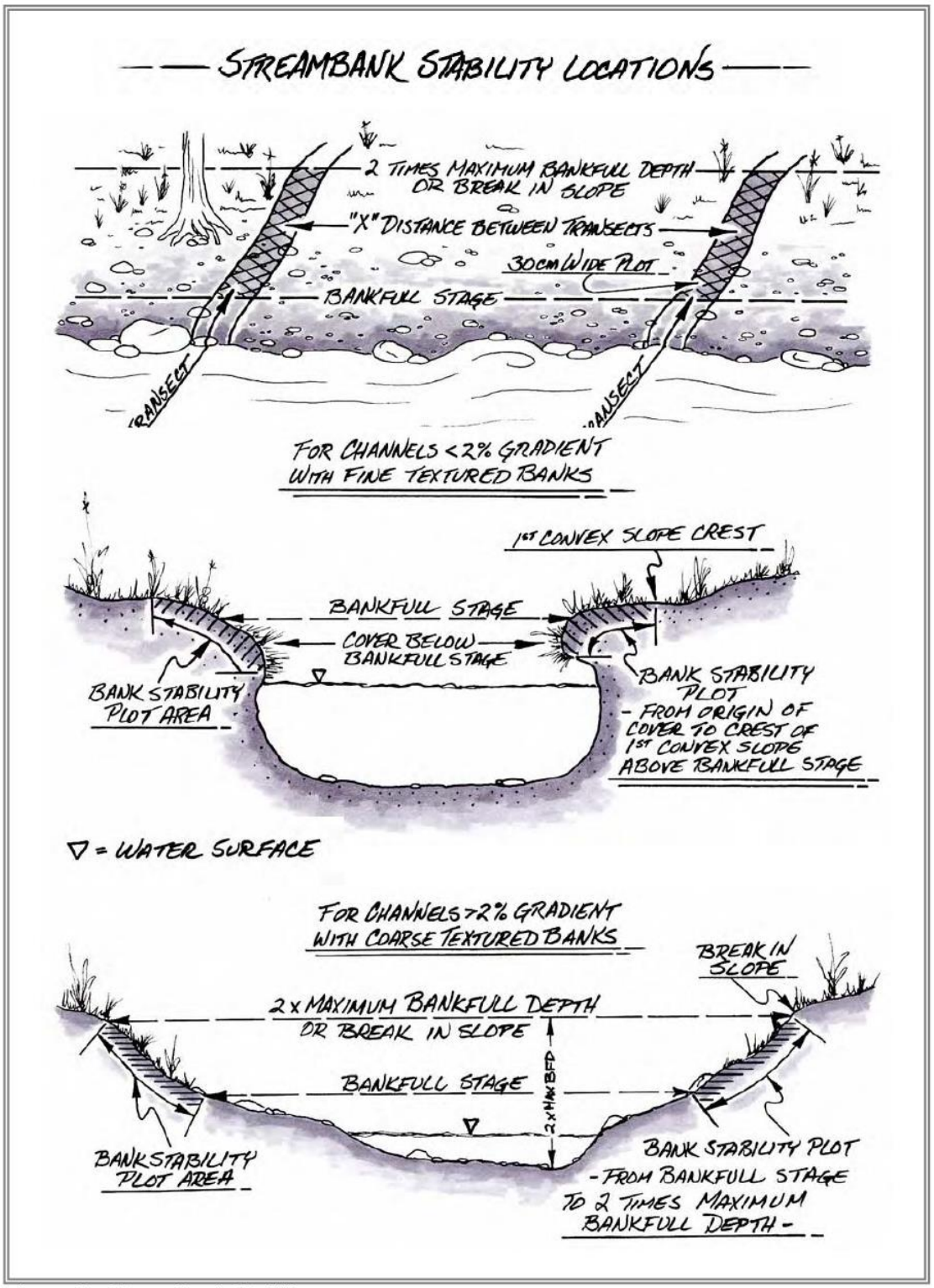

Figure 5 – Streambank Stability

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Remember that there are 100 plots that make up the average bank stability for the reach. Do not spend a lot of time determining individual plot condition. Once familiar with this rating system, streambank stability plots can be rated accurately and quickly. Record the numeric value (1 = stable, 2 = vulnerable or 3 = unstable) on Form 9 and move on to the next plot.

Cover Components:

Live Plants - (1) Perennial herbaceous species, such as grass-sedge-rush; (2) woody shrubs (willows, etc.); (3) broadleaf trees (cottonwood, aspen, alder, etc.); (4) conifer trees, and (5) plant roots that are on or near the surface of the streambank and provide substantial binding strength to the substrate beneath.

Rock - Boulders (>256mm), bedrock, and cobble/boulder aggregates when combined as a stabilizing mass.

Down Wood - Logs that are firmly embedded into stream banks.

Erosion Resistant Streambank Soil – In very limited cases, hardened conglomerate or highly cohesive clay/silt stream banks.

Instability Indicators:

Fracturing, blocking, or slumping – This includes cracks near the top of the streambank (often parallel with flow), slumping banks without cracks, and blocks of soil/plant material, which have fallen off or have been pushed down the bank. Usually associated with streams with gradients <2% and fine-textured banks.

Mass Movement - this includes stream bank failure from deep-seated landslides and gravity erosion of oversteepened slopes adjacent to the channel. Mass movement is usually associated with streams with >2% gradient.

Calculating Streambank Stability:

Tally the number of stable plots recorded. Divide the number of stable plots by the number of total plots and multiply by 100 to obtain percent streambank stability. For example, if a 100 plot survey segment has 85 stable plots, dividing by 100 and multiplying by 100 = 85% streambank stability. Vulnerable plots are not classified as stable because they have instability indicators.

References:

Bauer and Burton 1993

Rosgen 1996

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Geomorphic Conditions Assessment and Streambank Stability Focused Study Component

DRAFT Streambank Stability Datasheet

Study Site:		Date:		Name:		Survey/ Plot Interval (ft):				
Bank	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**
Survey/ Plot No.	**1**		**2**		**3**		**4**		**5**	
Stability Rating[1]:										
Survey/ Plot No.	**6**		**7**		**8**		**9**		**10**	
Stability Rating:										
Survey/ Plot No.	**11**		**12**		**13**		**14**		**15**	
Stability Rating:										
Survey/ Plot No.	**16**		**17**		**18**		**19**		**20**	
Stability Rating:										
Survey/ Plot No.	**21**		**22**		**23**		**24**		**25**	
Stability Rating:										
Survey/ Plot No.	**26**		**27**		**28**		**29**		**30**	
Stability Rating:										
Survey/ Plot No.	**31**		**32**		**33**		**34**		**35**	
Stability Rating:										

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Study Site:		**Date:**		**Name:**		**Survey/ Plot Interval (ft):**				
Bank	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**	**L**	**R**
Survey/ Plot No.	**36**		**37**		**38**		**39**		**40**	
Stability Rating:										
Survey/ Plot No.	**41**		**42**		**43**		**44**		**45**	
Stability Rating:										
Survey/ Plot No.	**46**		**47**		**48**		**49**		**50**	
Stability Rating:										

[1] Stability Rating-: 1: >75% cover; 2: >75% cover with instability elements (cracking, bank failure, etc.), 3: <75% cover.

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APPENDIX G - ATTACHMENT C

LONGITUDINAL TRANSECT (GREENLINE) DATASHEETS

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Riparian Vegetation Focused Study Component

Greenline Datasheet

Stream Segment and Site: _____ **Date:** _____ **Name:** _____

GPS Waypoint: _____ **River Mile:** _____

Left Bank Greenline Length (m): _____ **Left bank transect crosses greenline at (m):**_____ **Left bank: zero = US or DS**

Right Bank Greenline Length (m): _____ **Right bank transect crosses greenline at (m):**_____ **Right bank: zero = US or DS**

L or R Bank	Attribute[1]						Distance on Greenline (m)	Notes[2]
	Dominant Species			Sub-Dominant Species	Other[3]			
	Species	% Cover[4]	Tree Height[5]					
						Start		
						Stop		
						Start		
						Stop		
						Start		
						Stop		
						Start		
						Stop		
						Start		
						Stop		
						Start		
						Stop		

1. Species, community type, or attribute (litter, bare ground, substrate, woody debris, dead vegetation).
2. Fluvial landform, decadence, senescence, grazing, other land use activities.
3. Litter, duff, woody debris, bedrock, boulder, cobble, gravel, sand, fines, dead vegetation.
4. Percent cover for the species.
5. Average tree height of the species.

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APPENDIX G - ATTACHMENT D

PHOTO POINT PROCEDURES

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Photo Point Procedures

Images taken at the photo points will be landscape photographs that will be taken each monitoring period from the same locations. The views in the photographs will be the same so that differences between monitoring periods can be compared.

Photo point locations will be established at each treatment area. The locations will be established at a location from which multiple view photographs could be taken, if possible. Within each view, an identifiable object, such as a large rock, will be included, if possible, to assist with scale and orientation during the monitoring periods. The photo point markers will be located in places that will likely not be eroded easily by high floods or disturbed by other activities, such as vandalism. Markers will be as inconspicuous as possible to minimize the potential for vandalism.

This appendix describes the procedure for documenting the photo point locations and for retaking the photographs each monitoring period. A field datasheet is provided. One datasheet will be filled out for each photo point location. For those locations where more than one view is taken from the same photo point location, all the views can be recorded on the same datasheet.

Documenting Photo Point Locations

A site marker, such as a stake or a permanent feature each treatment area will be selected at each treatment area. During the first monitoring period, the photo point locations will be established, using the following procedure:

- The photographer will stand immediately over the site marker/permanent feature, if possible. If this is not possible, the location of the photographer relative to the marker will be recorded on the datasheet (distance and angle from the marker).
- The time of the photograph, camera type, focus distance, height of the camera above the ground, compass bearing, and vertical angle of the view will be recorded on the datasheet.
- At least one reference point will be established for each photo point location. The reference point will be within 200 feet of the photo point location. A reference point could be a large tree outside of the flood zone or a large rock. The distance, compass bearing, and vertical

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angle will be measured and recorded from the reference point to the photo point location. A marker will be placed on the reference point. The reference point will be described on the datasheet and a site sketch will be drawn showing major landmarks and the locations of the photo points and reference points. The information from the initial sketch with the reference point locations identified, will be transferred to GIS for display over a high-resolution aerial image and stored electronically.

- Additional photographs will be taken of the reference point and the photo point locations. The locations of each will be marked and labeled on the photographs for future use in the field. All information on the location of the photo points and reference points will be stored electronically.
- The locations of the photo and reference points will be recorded with GPS. These locations will be overlain on aerial photographs of each monitoring site to document the approximate locations of the points. The maps will be completed at a scale with sufficient detail to identify obvious landmarks and trees. These maps will be electronically stored for future use.
- Each photo point will be given an identification number, which will be used through the duration of the monitoring.

Repeat Photography

The procedures for the photo points that will be followed during the subsequent monitoring periods are described below:

- For each photo point monitoring period, the field crew will take copies of the original photo point documentation on the locations of the photo and reference point markers, copies of the photographs, and maps. The same camera will be used, if possible. If it is not available, a camera similar to the original one will be used. The new camera type will be noted on the datasheet.
- The photographer will stand at the same place and height as that which the first photographs were taken. The camera will be aligned with the view at the same compass bearing as

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recorded during the initial photographs. The view will be compared with the previous photographs to ensure that it is as close as possible to the original.

- The time of the photograph, camera type, focus distance, height of the camera above the ground, compass bearing and vertical angle of the view will be recorded for this monitoring period.
- If the photo point marker cannot be located, an attempt will be made to locate a new photo point as close as possible to the original location using the reference point documentation, maps, and previous photographs. This will be noted in the summary memorandum.
- The new photographs will be catalogued with the previous photographs and stored electronically. The photographs will be compared with the previous photographs in the summary memorandum.

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Photo Point Datasheet

Site Name: _____Photo Point Identification Number:_____

Date: _____ Time: _____Weather Conditions: _____

GPS Coordinates: _____Photographer:_____

Camera Type:_____

Subject of Photograph and Purpose of Photographs:

Photo 1	**Photo 2**	**Photo 3**
Camera Height (ft):	Camera Height (ft):	Camera Height (ft):
Camera Angle:	Camera Angle:	Camera Angle:
Azimuth: º	Azimuth: º	Azimuth: º
Focus Distance:	Focus Distance:	Focus Distance:
Photo No.:	Photo No.:	Photo No.:
Camera No.:	Camera No.:	Camera No.:
Photo 4	**Photo 5**	**Photo 6**
Camera Height (ft):	Camera Height (ft):	Camera Height (ft):
Camera Angle:	Camera Angle:	Camera Angle:
Azimuth: º	Azimuth: º	Azimuth: º
Focus Distance:	Focus Distance:	Focus Distance:
Photo No.:	Photo No.:	Photo No.:
Camera No.:	Camera No.:	Camera No.:

Reference Point 1	**Sketch of Photo and Reference Point Locations:**
Description:	
Marking:	
Azimuth: º Angle:	
Distance to photo point marker (ft):	
Reference Point 2	
Description:	
Marking:	
Azimuth: º Angle:	
Distance to photo point marker (ft):	
Reference Point 3	
Description:	
Marking:	
Azimuth: º Angle:	
Distance to photo point marker (ft):	

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APPENDIX D

WETLAND DELINEATION INFORMATION

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Aquatic Resource

Wetland Delineation Report

PG&E Relief Reach

Kennedy Meadows Riparian Restoration and Streambank Stabilization Project

Spring-Gap Stanislaus Hydroelectric Project,
Tuolumne County, California

November 2016

Prepared for:

Pacific Gas and Electric Company

For Submittal to:

Sacramento District US Army Corps of Engineers

Prepared by:

Sequoia Ecological Consulting, Inc.
319 Diablo Road, Suite 220
Danville, CA 94526

and

Cardno, Inc.
701 University Ave., Suite 200
Sacramento, CA 95825

EXECUTIVE SUMMARY

A routine-level wetland delineation with onsite inspection and preliminary jurisdictional determination was conducted on behalf of Pacific Gas and Electric Company (PG&E) for PG&E's Spring Gap-Stanislaus Hydroelectric Project (Federal Energy Regulatory Commission [FERC] Project No. 2130) in support of the Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project (Project or Project) located in Tuolumne County, California. The Project is a requirement of PG&E's License for the Spring Gap-Stanislaus Hydroelectric Project that was issued on April 24, 2009.

This report summarizes field surveys conducted in 2010 and 2015 to delineate aquatic resources in the vicinity of the Project area that could be impacted during construction of the Project. The 2015 survey period was the fourth consecutive year of drought for the region, whereas in 2010 the water year was classified as a Normal-Wet year.[1] The information contained in this report is being used to inform design and construction planning for the Project.

The Project proposes to enhance approximately 1,885 feet of streambank (1.2 acres) along a 3,000-foot reach of the river (Project Reach) by implementing bioengineered streambank stabilization and revegetation measures to reduce streambank erosion and enhance the quality of the riparian corridor. The proposed Project will also enhance aquatic habitat within the reach and downstream by improving water quality, providing additional in-stream cover, and canopy cover. PG&E met with the US Army Corp of Engineers (USACE), Sacramento District on October 1, 2015. The meeting was attended by Jordan Krug and Mary Pakenham-Walsh from the USACE. During the meeting, the USACE agreed that a Nationwide Permit 27 (NWP 27; Aquatic Habitat Restoration, Establishment, and Enhancement Activities) would be appropriate for this Project.

A total area of 24 acres was delineated in 2010 and 2015. The delineation survey area encompassed the area in which the Project construction activities will occur, including laydown and staging areas, access areas, and the approximate 3,000-foot Project Reach where the streambank stabilization and revegetation activities will be implemented. All field surveys were conducted in accordance with the 1987 *United States Army Corps of Engineers* (USACE) *Wetland Delineation Manual* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (USACE 2010). Guidance on identification and mapping of variable channel features within the OHWM was taken from *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (USACE 2008).

Field surveys in 2010 and 2015 identified four riverine and four palustrine aquatic resources that are potentially jurisdictional under the Clean Water Act (CWA) due to their hydraulic connectivity to the Stanislaus River, listed by the Sacramento District of the USACE as a "navigable" river. The Middle Fork Stanislaus River is a tributary of the Stanislaus River. Palustrine resources included four Wet Meadows, totaling 6.019 acres within the survey area. These Wet Meadows supported a preponderance of hydrophytic vegetation and positive indicators of hydric soils and wetland hydrology. Riverine resources within the survey area included the Middle Fork Stanislaus River and three tributaries, totaling 7.018 acres (3,211 feet). The boundaries of all riverine features were extended to their Ordinary High Water Mark (OHWM). All aquatic resources were in natural condition and unaltered at the time of delineation, with the exception of one tributary. This tributary heads in a dispersed campground area above the Middle Fork Stanislaus River and

[1] Water year types are based on May 1 inflow to New Melones Reservoir for the Middle Fork Stanislaus River, as reported in PG&E's June 16, 2014 FERC filing: Spring Gap/Stanislaus River Project – FERC No. 2130. Forest Service 4(e) Condition No. 33; 5-Year Water-year Type Summary. FERC eLibrary No. 20140617-5027.

flows through a 30-inch diameter steel culvert under the campground access road and into the Middle Fork Stanislaus River.

Table of Contents

Appendices

Acronyms and Abbreviations

APMM	Avoidance, Protection and Minimization Measure
BMP	Best Management Practices
Cardno, Inc.	Cardno
cfs	cubic feet per second
CWA	Clean Water Act
FERC	Federal Energy Relicensing Commission
GPS	Global Positioning System
NAD	North American Datum
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
OWUS	Other waters of the United States
RPW	Relatively Permanent Water
SEC	Sequoia Ecological Consulting, Inc.
State Water Board	State Water Resources Control Board
TNW	Traditional Navigable Water
US	United States
USACE	United States Army Corps of Engineers
USDA NRCS	United States Department of Agriculture Natural Resource Conservation Service
Forest Service	United States Department of Agriculture Forest Service
USEPA	United State Environmental Protection Agency
USGW	United States Geological Survey

1.0 Introduction

Pacific Gas and Electric Company (PG&E) conducted a routine-level wetland delineation and preliminary jurisdictional determination for PG&E's Spring Gap-Stanislaus Hydroelectric Project (FERC Project No. 2130) in support of the Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization Project (Project or Project). This Project is a requirement of PG&E's License for the Spring Gap-Stanislaus Hydroelectric Project, issued on April 24, 2009.

This report presents the results of all aquatic resource delineation investigations completed in the Project area and provides an assessment of potential jurisdictional aquatic resources potentially subject to jurisdiction by the US Army Corps of Engineers (USACE) under Section 404 of the federal Clean Water Act (CWA).

REPORT SCOPE

The purpose of this Aquatic Resource Delineation Report is to provide a concise summary of existing information about all aquatic features, as well as other known sensitive species and cultural/historical properties in the Project area and vicinity. This document also documents aquatic resource boundary determinations to be used by regulatory authorities. The information provided in this report is being use to avoid and minimize impacts to aquatic resources during the design of the Project.

The survey area was 24 acres and included all areas in which the Project construction activities will occur. Information reported herein is based on two wetland delineation surveys (2010 and 2015)[2] that together encompassed the Project area, and a recent literature review.

This report follows guidance provided by the USACE in *Minimum Standards for Acceptance of Aquatic Resources Delineation Reports* (USACE 2016). According to that guidance, the purpose of this report is to "identify and describe aquatic resources and, to identify known possible sensitive plant, fish, wildlife species, and cultural/historic properties in the survey area" (USACE 2016).

Additional background information and details on the Project design; sensitive plant, aquatic, and wildlife species; and minimization of impacts to aquatic resources are provided in the *Relief Reach Riparian Vegetation Restoration and Streambank Stabilization Project Description 100% Design Level (Project Description)* (PG&E 2016). This report can be provided upon request. Information on biological resources is also provided in the *Relief Reach-Kennedy Meadows Riparian Restoration and Streambank Stabilization Project – Biological Determination*, included in PG&E's CWA Section 404 permit package.

PG&E met with the USACE, Sacramento District on October 1, 2015. The meeting was attended by Jordan Krug and Mary Pakenham-Walsh from the USACE. During the meeting, the USACE agreed that a Nationwide Permit 27 (NWP 27; Aquatic Habitat Restoration, Establishment, and Enhancement Activities) would be appropriate for the Project, and that compensatory mitigation is not required because aquatic enhancement is a requirement for use of this permit. As such,

[2] Parameters evaluated for wetland delineations (presence of wetland vegetation, soils, and hydrology) would not be expected to have changed between 2010 and 2015. Land use and the flow regime remained the same during this time period.

Aquatic Resource Functional Assessment forms are not required for this Project. The Aquatic Resource Excel Sheet is provided in Appendix H.

RESPONSIBLE PARTIES

The Project is located in lands that were previously owned by PG&E. In winter 2013, PG&E donated the Kennedy Meadows parcel to Tuolumne County. PG&E still maintains an easement over the land in order to operate and maintain the Spring Gap Stanislaus Hydroelectric Project, of which the Project is part. The area surrounding the Tuolumne County-owned parcel is the Stanislaus National Forest.

Project design support including delineation surveys were provided by Cardno, Inc. (Cardno) with support from Sequoia Ecological Consulting, Inc. (SEC). Contact information for the 2010 and 2015 delineators is provided below.

Applicant/Owner:
Justin T. Smith, Senior Land Planner
Pacific Gas and Electric Company (PG&E)
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833
JTSg@pge.com, (916) 923-7038

2015 Wetland Delineation:
Chris Thayer, Senior Botanist and Wetland Scientist
Tashi MacMillen, Biologist
Sequoia Ecological Consulting, Inc.
329 Diablo Road, Suite 220
Danville, CA 94526
(925) 855-5500

2010 Wetland Delineation:
John Spranza, Senior Consultant (formally with Cardno)
Rhiannon Klingonsmith (formally with Cardno)
Cardno, Inc.
701 University Avenue, Suite 200
Sacramento, CA 95825
(916) 386-3807

The following section provides general background on the Project.

PROJECT BACKGROUND AND OVERVIEW

The Project is a requirement of PG&E's License for the Spring Gap-Stanislaus Hydroelectric Project to address eroding streambanks and degraded riparian corridor conditions. The requirements derive from Article 401 in the license which implements the United States Department of Agriculture-Forest Service (Forest Service) 4(e) Conditions and conditions contained in the California State Water Resources Control Board's (State Water Board) 401 Certification.

The purpose of the Project is to restore and enhance approximately 1,885 feet of streambank and riparian vegetation within an approximate 3,000-foot reach of the Middle Fork Stanislaus River in Kennedy Meadows. Unstable streambanks and a lack of riparian vegetation were identified during 2001 relicensing studies of the Spring Gap-Stanislaus Hydroelectric Project and subsequent studies conducted in 2009 to 2013 in support of this Project.

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

(1) Construction of streambank stabilization bioengineering design elements in seven treatment areas along the 3,000-foot reach of the Middle Fork Stanislaus River;

(2) Implementation of best management practices (BMPs) and avoidance, protection, and minimization measures (APMMs) to minimize potential construction impacts; and

(3) A maintenance and monitoring plan.

The treatment types recommended to address the streambank instability and lack of riparian vegetation include a combination of bioengineering techniques, such as streambank grading, native vegetation plantings, and large wood and rock placement. The overall design and support for design components, as well as a concise description of the Proposed Action that includes the restoration and enhancement treatments, BMPs and APMMs, and the maintenance and monitoring plan, are provided in the *Project Description* (PG&E 2016). The *Project Description* also evaluates construction activities in relation to delineated waters of the US and wetlands and provides estimates of dredge and fill.

2.0 Project Location

Kennedy Meadows is located in Tuolumne County, California along Highway 108, about 57 miles east of Sonora, six miles east of the town of Dardanelle, and 50 miles south of South Lake Tahoe at an elevation of approximately 6,400 feet. The Project is located in the Sonora Pass United States Geological Survey (USGS) Quadrangle, in Section 2 of Township 5N, Range 20E. The latitude and longitude of the site is 38.302569 North and -119.741307 West (North American Datum [NAD] 83).

Figure B-1 (Appendix B) shows the regional location of the Project and the area that was surveyed for aquatic resources. Figure B-2 (Appendix B) shows the areas where construction activities will occur, including seven specific treatment areas where streambank stabilization and riparian revegetation activities will be implemented.

DIRECTIONS TO THE PROJECT LOCATION

The Project Reach is located 8.65 miles east of the town of Dardanelle and approximately 1.6 miles from the Kennedy Meadows turn off from Highway 108. Access from the highway is along a dirt road, approximately 0.5 miles past the Kennedy Meadows campground general store. The signed statement from PG&E allowing access to the survey area is provided in Appendix G.

SURVEY AREA

The survey area encompassed 24 acres and included the area in which the Project construction activities will occur. The survey area encompassed the 3,000-foot Project Reach of the Middle Fork Stanislaus River where the streambank stabilization and revegetation activities will be implemented, as well as laydown, staging, and access areas located in the adjacent Kennedy Meadows. The survey area is bordered to the east by a dirt road (Kennedy Meadows Road) and is generally bound to the west by the western bank of the Middle Fork Stanislaus River (Figure B-2; Appendix B).

3.0 Methods

Following are the methods utilized to identify aquatic resources within the survey area, including wetlands and Waters of the U.S., describe their characteristics, and map the potential jurisdictional boundaries of each resource.

AQUATIC RESOURCES

Qualified biologists from Cardno and SEC conducted routine-level delineations of all aquatic resources within the survey area on June 30, 2010 and June 29, and July 24, 2015. The 2010 survey was conducted in a portion of the meadow on the east floodplain (river right floodplain, facing downstream). The 2015 survey extended the 2010 survey area to encompass the total area in which all the Project construction activities are anticipated to occur, including laydown and staging areas (Figure B-2; Appendix B). Survey details are provided in the following two technical reports:

- *Wetland Delineation and Preliminary Jurisdictional Determination. Spring-Gap Stanislaus Hydro Electric Project, Tuolumne County, California* (Cardno ENTRIX 2010).
- *Wetland Delineation and Preliminary Jurisdictional Determination. Spring-Gap Stanislaus Project, Tuolumne County, California* (SEC 2015).

Both of these can be provided upon request. A review of the literature was conducted in 2016 including a query of the National Wetland Inventory (NWI), to cross-reference field results (USFWS 2016).

Terminology pertaining to potentially jurisdictional aquatic resources and specific delineation methods described in the following sections is based on guidance provided in:

- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley, and Coast Region (Version 2.0)* (USACE 2010);
- *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007);
- *Rapanos guidance document* (USACE and USEPA 2008); and
- *Regulatory Guidance Letter No. 05-05. Subject: Ordinary High Water Mark Identification* (USACE 2005).

The survey area was evaluated for the presence of jurisdictional waters of the US (as defined by 33 CFR 328.3(a) of the CWA) including other waters such as “intrastate lakes, rivers, intermittent streams, mudflats sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce...” (Federal Register 1986). Following the *Rapanos v. US* and in *Carabell v. US* (referred to as *Rapanos*) decision in 2006, the scope of the definition of waters of the US was further defined to include: Traditional Navigable Waters (TNWs); all wetlands adjacent to TNWs; non-navigable tributaries of TNWs that are relatively permanent (i.e., relatively permanent waterbodies [RPWs] – tributaries that typically flow year-round or have continuous flow at least seasonally); and wetlands that abut such tributaries. In addition, if a significant nexus with a TNW exists, the following waters will also be found jurisdictional: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not RPWs and

wetland adjacent to but that do not directly abut a relatively permanent non-navigable tributary (USACE and USEPA 2007).

Wetlands

The routine-level wetland delineation was conducted in accordance with the *1987 USACE Wetland Delineation Manual* (USACE 1987), the *Jurisdictional Determination Form Instructional Guidebook* (USACE and USEPA 2007), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). A Level 2 Onsite Inspection was conducted (as defined in the *Wetland Delineation Manual*), evaluating three parameters that identify and delineate the boundaries of jurisdictional wetlands, including: (1) the dominance of wetland vegetation; (2) the presence of hydric soils; and (3) hydrologic conditions that result in periods of inundation or saturation on the surface from flooding or ponding. The methods for each are described below.

Data on vegetation, soils, and hydrologic characteristics were recorded in the field on *USACE Western Mountains, Valleys, and Coast – Version 2.0 data forms* (Appendix E). The boundary of each potential jurisdictional wetland area was recorded using a handheld Global Positioning System (GPS) (Spectra Precision Mobile Mapper 20 unit) capable of geo-rectified sub-meter accuracy.

Vegetation

The USACE wetland criterion for vegetation is satisfied if the area is dominated by wetland vegetation.

A visual assessment was made of all plant communities and plants located within and around the areas where construction activities are anticipated to occur, including laydown and staging areas and access routes in order to determine the presence or absence of hydrophytic vegetation. Vegetation communities were classified pursuant to Sawyer et al. (2009), and plants were identified to the species level using the *Jepson Manual: Vascular Plants of California (Second Edition)* (Baldwin et al. 2012). The *Western Mountains, Valleys, and Coast 2014 Regional Wetland Plant List* (Lichvar et al. 2014) was used to determine the wetland indicator status of plants observed during the delineation (Appendix D).

The procedure for determining the presence of hydrophytic vegetation followed the methodology that is identified in USACE (2010). Specifically, it involved the following assessment for each sample plot:

1. Apply Indicator 1 (Rapid Test for Hydrophytic Vegetation).
    a. If the plant community passes the rapid test for hydrophytic vegetation, then the vegetation is hydrophytic and no further vegetation analysis is required.
    b. If the rapid test for hydrophytic vegetation is not met, then proceed to step 2.
2. Apply Indicator 2 (Dominance Test).
    a. If the plant community passes the dominance test, then the vegetation is hydrophytic and no further vegetation analysis is required.
    b. If the plant community fails the dominance test, and indicators of hydric soil and/or wetland hydrology are absent, then hydrophytic vegetation is absent unless the site meets requirements for a problematic wetland situation.
    c. If the plant community fails the dominance test, but indicators of hydric soil and wetland hydrology are both present, proceed to step 3.

3. Apply Indicator 3 (Prevalence Index). This and the following step assume that at least one indicator of hydric soil and one primary or two secondary indicators of wetland hydrology are present.
    a. If the plant community satisfies the prevalence index, then the vegetation is hydrophytic. No further vegetation analysis is required.
    b. If the plant community fails the prevalence index, proceed to step 4.
4. Apply Indicator 4 (Morphological Adaptations) and/or 5 (Wetland Non-Vascular Plants).
    a. If either indicator is satisfied, then the vegetation is hydrophytic.
    b. If none of the indicators is satisfied, then hydrophytic vegetation is absent unless indicators of hydric soil and wetland hydrology are present and the site meets the requirements for a problematic wetland situation.

Wetland indicator species include those listed as Obligate (OBL), Facultative Wetland (FACW), or Facultative (FAC) in Lichvar et al. (2014). Vegetation was described in terms of both species and percent coverage per strata. Sample plots that had vegetation that met the above requirements were identified as hydrophytic.

Soils

The USACE wet soils criterion is satisfied if hydric soils are present, as described below.

The U.S. Department of Agriculture Natural Resource Conservation Service (USDA NRCS) Web Soil Survey (USDA NRCS 2015) and the National List of Hydric Soils were used to identify soil types within the Project vicinity (USDA NRCS 2014).

The NRCS maintains a list of hydric soil indicators that are known to occur in the United States (USDA NRCS 2010). Soil samples were examined by digging a test pit to the depth needed to document an indicator or to confirm the absence of indicators. The determination of hydric soils was based on soil texture, matrix color, and/or the presence of other hydric soil indicators. Indicators that a hydric soil is present include, but are not limited to: histosols, histic epipedon, hydrogen sulfide, depleted below dark surface, sandy redox, loamy gleyed matrix, depleted matrix, redox dark surface, and redox depressions. Soil matrix colors were classified according to the Munsell Soil Color Charts (Munsell 2009). Hydric soils were determined to be present if any of the soil samples met one or more of the hydric soils indicators described by the USDA NRCS (2010).

Hydrology

The USACE jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period of time sufficient to create anoxic soil conditions during the growing season.

Hydrological conditions were determined through the presence of primary hydrologic indicators such as direct observation of inundation, soil saturation in the upper 12 inches of the soil profile, oxidized rhizospheres, surface soil cracking, and the presence of water marks or sediment deposits. The occurrence of one primary indicator is sufficient to conclude that wetland hydrology is present. If no primary indicators are observed, two or more secondary indicators are required to conclude wetland hydrology is present. Secondary hydrologic indicators include, but are not limited to: algal matting, drainage patterns, frost-heave hummocks, FAC-neutral test, and shallow aquitard. The occurrence of at least one primary indicator or two secondary indicators is required to confirm the presence of wetland hydrology.

Waters of the U.S.

Potential "other waters" are seasonal or perennial water bodies, such as lakes, stream channels (including intermittent or ephemeral streams), drainages, ponds, and other surface water features that exhibit an Ordinary High Water Mark (OHWM) but lack positive indicators of one or more of the three wetland parameters (hydrophytic vegetation, wetland hydrology, hydric soils).

In non-tidal "other waters," USACE jurisdiction extends to the OHWM, defined as "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressions on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (Federal Register 1986; USACE 2005).

Guidance on identification and mapping of variable channel features within the OHWM was taken from *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States* (USACE 2008). The OHWM was determined in the field by identifying a number of indicators, including observations of the water marks on rocks, drift/wrack line from streamflow deposition, scour, sediment sorting, natural line impressions on bank, and active channel signatures indicated by physical characteristics and shaped by flow (Appendix F). The banks of the Middle Fork Stanislaus River (a water of the US) and other waters of the US, including tributaries, were inspected for OHWM indicators and GPS coordinates were recorded. The OHWM of the Middle Fork Stanislaus River was delineated using a combination of mapped field observations, aerial photo interpretation, and hydrologic analysis of bankfull flows. Bankfull flow of the Middle Fork Stanislaus River was calculated as approximately 650 cubic feet per second (cfs); the 1.5 year recurrence flow based on a period of record from 1997 to 2013 (PG&E 2016). River stage at bankfull was recorded during the relicensing studies, and plotted along the Project Reach. River stage at bankfull flow was then correlated with mapped field observations of the OHWM, and recent aerial photos of the Project Reach, and the field-verified OHWM was corrected accordingly. Waters of the U.S. were mapped within the OHWM.

4.0 Existing Conditions

The field conditions present during the surveys were normal for the Project Reach. Climatic conditions in 2015 were slightly atypical as it was the fourth consecutive year of drought for the region.[3] 2010 was classified as a Normal-Wet water year.[4] The entire survey area was field-verified. No observed or documented interstate or foreign commerce is associated with the aquatic resources at the Project Reach.

The following sections provide the results of the 24-acre survey including: existing conditions (landscape setting, survey area and site conditions); a description of aquatic resources (wetlands and waters of the U.S.) observed in the survey area; and detailed results for all mapped wetlands and riverine features. A final summary of results includes a tabulation of all aquatic resources in the survey area.

[3] 2012, 2013, 2014, and 2015 were classified as Dry, Normal-Dry, Dry, and Critically Dry water years, based on the California Department of Water Resources forecast for annual unimpaired inflow into New Melones Reservoir.

[4] Water year types are based on May 1 inflow to New Melones Reservoir for the Middle Fork Stanislaus River, as reported in PG&E's June 16, 2014 FERC filing: Spring Gap/Stanislaus River Project – FERC No. 2130. Forest Service 4(e) Condition No. 33; 5-Year Water-year Type Summary. FERC eLibrary No. 20140617-5027.

LANDSCAPE SETTING

The Project Reach 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 elevation of Kennedy Meadows is approximately 6,400 feet above sea level. Relief Dam, constructed in 1910, is on Summit Creek. Kennedy Creek joins Summit Creek approximately one mile downstream from the dam, forming 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. The vegetation surrounding the Project Reach is mixed coniferous forest with rocky outcroppings.

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) have influenced the observed distribution of riparian vegetation within the Project Reach. The channel within the Project Reach consists of riffle-pool sequences. The bed consists of very coarse gravel, with small gravel comprising less than 10 percent of the bed material. The bars are primarily coarse to very coarse gravel.

The Project Reach and vicinity provide important outdoor recreation and wildlife habitat in the remote upper elevations of the Sierra Nevada. Existing land uses within Kennedy Meadows consist of natural open space, with nearby campgrounds and the Kennedy Meadows Pack Station Resort. The meadow is used for recreational purposes such as fishing and hiking, with well-worn walking paths along the tops of the streambanks. 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 also staged in the meadow for approximately one week each year in late September/ early October, 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 2016). Riprap has been placed on the east bank in the upper portion of the Project Reach to protect the existing dirt road.

AQUATIC RESOURCES

This sub-section provides the results of the wetland and waters of the U.S. surveys within the surveyed area.

Wetlands

General vegetation, soils, and hydrologic characteristics for the survey area are summarized first. This is followed by detailed results for all mapped wetlands.

Vegetation

Three main vegetation types were found in the survey area for the Project: wet meadow, ruderal, and riparian woodland. Alliance nomenclature follows Sawyer et al. (2009).

Wet Meadow Habitat, conforming to a mixture of herbaceous Alliances including the *Carex (aquatilis, lenticularis*) Herbaceous Alliance, consists of 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 branchyantherum*), and Kentucky blue grass (*Poa pratensis*).

Ruderal Habitat, not conforming to any natural vegetation classification system, occurred in portions of the survey area 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 wooly 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*).

Riparian Woodland Habitat, conforming to a variety of forested Alliances including the *Alnus rhombifolia* Forest Alliance and *Alnus incana* Shrubland Alliance, occurred along the banks of the Middle Fork Stanislaus River, and was dominated by native riparian trees, including black cottonwood (*Populus trichocarpa*), 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 (*Pinus jeffreyi*), white fir (*Abies concolor*), and incense cedar (*Calocedrus decurrens*).

A list of plant species observed within the survey area, along with their hydrophytic status, is provided in Appendix D.

Soils

The NRCS mapped four soil types within the survey area: 1) Entic Cryumbrepts, 2) Gerle family, 3) Rock outcrop, and 4) Rock outcrop-Fiddletown family (Figure B-3, Appendix B). The area surveyed is primarily comprised of the Entic Cryumbrepts in the lower half of the Project Reach and the Gerle family in the upper half of the Project Reach. The two outcrop soil types occur at the outer margins of the meadow and at the upstream end of the surveyed area. None of these four soils is listed as a hydric soil (USDA NRCS 2014).

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 typically occurring at a depth of 80 inches or greater.

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 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 above and the Fiddletown family. The Fiddletown family series consists of gravelly sandy loam and very gravelly sandy loam underlain by 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.

Hydrology

The Project Reach is within the Middle Fork Stanislaus River Watershed, which flows in a southwesterly direction, converging with the North Fork Stanislaus River 12 miles north of the city of Sonora, becoming the main stem Stanislaus River before flowing approximately two miles into New Melones Lake. The Middle Fork Stanislaus River is a perennial river with year round flow, identified by the USGS as a blue line stream (Figure B-1, Appendix B). The Middle Fork Stanislaus River could be considered a RPW based on its perennial status.

The Stanislaus River is listed by the Sacramento District of the USACE as a “navigable” river in its lower reaches, more than 100 miles downstream from the Project Reach. The Stanislaus River is a tributary of the Lower San Joaquin River, which flows through Stockton and into the Sacramento–San Joaquin River Delta, eventually discharging into the Pacific Ocean, a TNW.

The area receives runoff from the steep mountainside slopes to the east and west of the meadows and seasonal overbanking flow from the river during high flow years. Flows in the Middle Fork Stanislaus River are a combination of flows regulated by PG&E’s Relief Dam on Summit Creek and Kennedy Creek, which is unimpaired. Natural accretion flows from Kennedy Creek contribute a substantial proportion of the spring snowmelt flow into the Project Reach.

Mapped Wetland Features

Four seasonally wet areas were identified adjacent to the Middle Fork Stanislaus River (Wet Meadows A, B, C and D). These wetland areas were identified as waters of the U.S. potentially jurisdictional under the CWA owing to their hydraulic connectivity with the Middle Fork Stanislaus River. The Middle Fork Stanislaus River is a tributary of the North Fork Stanislaus, the Stanislaus River (a navigable river), the Lower San Joaquin River (also listed as navigable), the Delta, and eventually, the Pacific Ocean, a TNW. The mapped boundaries of each feature are shown on Figures A-1 and A-2 in Appendix A.

The hydrophytic vegetation, hydric soils, and surface hydrology recorded at each of these features are discussed below and USACE data forms are included in Appendix E. Representative photographs of the survey area are provided in Appendix C, with photo points shown on Figure A-2 (Appendix A).

A number of sample points were selected in the field to determine the extent of the upland areas adjacent to the wetlands, and to assess dominant plant species, soils, and hydrology indicators. A summary of the sample points is provided in Table 1, and the locations of the sample points are depicted on Figure A-1 (Appendix A).

Within the survey area the NWI (USFWS 2016) has mapped freshwater emergent wetland across a large portion of the east meadow, the downstream half of the Project Reach, as well as portions of the opposite (west) bank (Figure B-4; Appendix B). The NWI classification for this area is PEMC: Palustrine (P), Emergent (EM), with water regime modifier Seasonally Flooded (C). Wet Meadows A, B, C and D, located outside the OHWM of the river were field verified and classified as a palustrine emergent wetland; PEMC or PEME; Palustrine (P); Emergent (EM). The water regime modifier is highly dependent on the water year type, but based on field observations during the growing season, itis most likely Seasonally Flooded/Saturated (E) or Seasonally Flooded (C) (Cowardin et al. 1979).

Table 1. Summary of Wetland Determination Form Sample Points.

Sample Point (SP)	Hydrophytic Vegetation Indicator (Y/N)	Hydric Soil Indicator (Y/N)	Hydrology Indicator (Y/N)	Wetland (Y/N)	Notes
2015					
15-1	Yes (Dominance Test)	Yes (Stripped Matrix, Depleted Dark Surface)	Yes (Drainage Patterns, Geomorphic Position)	Yes	Wet Meadow C
15-2	Yes (Dominance Test)	Yes (Redox Dark Surface)	Yes (Drainage Patterns, Geomorphic Position)	Yes	Wet Meadow C
15-3	No	No	No	No	Upland adjacent to Wet Meadow C
15-4	Yes (Dominance Test)	Yes (Redox Dark Surface)	Yes (Drainage Patterns, Geomorphic Position)	Yes	Wet Meadow C
15-5	Yes (Dominance Test)	Yes (Redox Dark Surface)	Yes (High Water Table, Saturation)	Yes	Wet Meadow C
15-6	Yes (Dominance Test)	Yes (Sandy Redox)	Yes (Saturation)	Yes	Wet Meadow C
15-7	No	No	No	No	Upland adjacent to Wet Meadow D
15-8	Yes (Dominance Test)	Yes (Depleted Dark Surface)	Yes (High Water Table, Saturation)	Yes	Wet Meadow D
15-9	Yes (Dominance Test)	Yes (Other)	Yes (Saturation)	Yes	Wet Meadow D
15-10	Yes (Dominance Test)	Yes (Sandy Redox)	Yes (High Water Table, Saturation)	Yes	Wet Meadow C
2010					
10-1	Yes (Dominance Test)	Yes (Histic Epipedon, Hydrogen Sulfide)	Yes (Surface Water, Saturation)	Yes	Wet Meadow A
10-2	No	Yes (Histic Epipedon, Depleted Matrix)	Yes (High Water Table, Saturation)	No	Upland adjacent to Wet Meadow A
10-3	No	No	No	No	Upland adjacent to Wet Meadow B

Wet Meadow A (0.90 acre)

Wet Meadow A is a seasonal wetland within a riverine floodplain, located in the central part of the survey area (Appendix C; Photographs 12 and 14). The hydrologic sources for Wet Meadow A include direct precipitation, snowmelt, runoff from the surrounding steep side slopes, hydrologic groundwater connection with the river, and overbanking river flows.

Sample Point 10-1 was taken approximately in the center of the wetland and revealed the presence of hydrophytic vegetation, hydric soils, and wetland hydrology (Appendix E). Hydrophytic vegetation was observed at Sample Point 10-1, supporting water sedge (OBL). The top 14 inches of soil had a matrix of 10YR 3/2 with redox features of 7.5YR 4/6 with loamy texture. Observed hydric soil indicators included histic epipedon, hydrogen sulfide odor, and redox depressions, exhibiting conditions of prolonged soil saturation. Surface water and saturation were observed, thereby meeting the wetland hydrology criteria (Appendix C; Photograph 15).

Sample Point 10-2 was taken south of Sample Point 10-1, adjacent to the Middle Fork Stanislaus River, to determine the southern upland boundary of Wet Meadow A. Sample Point 10-2 revealed the presence of hydric soils and wetland hydrology, but lacked hydrophytic vegetation having a Prevalence Index of 4.5 (Appendix E). While several hydrophytic plant species were observed, the dominant species was short hair sedge. The top two inches of soil consisted of a root layer with high organic material, while the core seven inches below the top layer contained a matrix of 10YR 3/3 with redox features of 5YR 5/8. The last five inches of soil contained a reduced matrix of 10YR 4/2 and redox features of 5YR 5/8. Observed hydric soil indicators included histic epipedon, a depleted matrix, and redox depressions (Appendix C; Photograph 16). A high water table and saturation (due to seasonal flooding) were observed at depths between 12 to 14 inches, thereby meeting the wetland hydrology criteria. Since Sample Point 10-2 does not support hydrophytic vegetation, and does not meet the USACE wetland criteria, this upland site was used to locate the southern upland boundary of Wet Meadow A.

Wet Meadow B (0.329 acre)

Wet Meadow B is located to the east of the survey area in a depressed area bordering the dirt road (Appendix C; Photograph 17). The hydrologic sources for Wet Meadow B include direct precipitation, snowmelt, runoff from the surrounding steep side slopes, hydrologic groundwater connection with the river, and overbanking river flows.

Surface water and 100% coverage of hydrophytic vegetation were observed at Wet Meadow B. No soil pits were dug at this location; however, surface saturation and ponded water were observed. Consequently, it was determined that this feature met wetland criteria and it was noted for avoidance flagging purposes during construction. Sample Point 10-3 was taken near the access road to determine the approximate northern upland boundary of Wet Meadow B. This pit did not reveal the presence of hydrophytic vegetation, hydric soils, or wetland hydrology (Appendix E and Appendix C; Photograph 18). Consequently, it was used at the boundary between the uplands within the survey area and the adjacent Wet Meadow B.

Wet Meadow C (4.9 acre)

Wet Meadow C is a seasonal wetland located at the downstream end of the Project Reach on the eastern bank of the Middle Fork Stanislaus River (Appendix C; Photograph1 and 2). Seven delineation sample points were taken within and adjacent to Wet Meadow C. The hydrologic sources for Wet Meadow C include direct precipitation, snowmelt, runoff from the surrounding steep side slopes, hydrologic groundwater connection with the river, and overbanking river flows (Appendix C; Photograph 6).

Wet Meadow C was dominated by a preponderance of hydrophytic vegetation and supports positive indicators of wetland hydrology and hydric soils. The vegetation was dominated by hydrophytic plant species including a dense cover of sedge (FAC-OBL) (Sample Points 15-1, 15-4, 15-5, and 15-6) over most of the meadow, with occasional Mexican rush (FACW) and Kentucky blue grass (FAC) also present. Adjacent upland areas were dominated by upland-classified species such as cheat grass (UPL) (Sample Point 15-3).

Wet Meadow C soils varied in texture between fine textured clay and clay loam (Sample Points 15-1 and 15-4) and silty clay loam (Sample Point 15-2), and coarser textured sandy loam and loamy sand (Sample Points 15-5, 15-6, and 15-10), with a low chroma matrix (10YR 3/2 and 10YR 2/2) and redoximorphic mottles (7.5YR 5/8) frequently present and occurring over 1 to 25 percent of the soil matrix. Positive hydric soil indicators were present, including indicators S6 (Stripped Matrix) and F7 (Depleted Dark Surface) (Sample Point 15-1) and S5 (Sandy Redox) (Sample Points 15-6 and 15-10). Adjacent upland areas had a higher chroma matrix (10YR 3/3) and lacked redoximorphic features (Sample Point 15-3).

Positive wetland hydrology indicators were observed, including drainage patterns (Sample Point 15-1), high water table (Sample Points 15-5 and 15-10) and saturation (Sample Points 15-5, 15-6, and 15-10; Photograph 3 in Appendix C). Adjacent upland areas lacked wetland hydrology indicators (Sample Point 15-3; Photograph 4 in Appendix C). Wet Meadow C is immediately adjacent to and within the floodplain of the Middle Fork Stanislaus River, and therefore has a significant hydrologic nexus with the Middle Fork Stanislaus River.

Wet Meadow D (0.7 acre)

Wet Meadow D is located at the downstream end of the survey area along the western bank of the Middle Fork Stanislaus River (Appendix C; Photograph 5). Three delineation Sample Points were taken within and adjacent to Wet Meadow D. The hydrologic sources for Wet Meadow D include direct precipitation, snowmelt, runoff from the surrounding steep side slopes, hydrologic groundwater connection with the river, and overbanking river flows.

Wet Meadow D was dominated by a preponderance of hydrophytic vegetation and supports positive indicators of wetland hydrology and hydric soils. The vegetation was dominated by hydrophytic plant species including a dense cover of sedge (FAC-OBL) (Sample Points 15-8 and 15-9). Adjacent upland areas were dominated by FACU species such as orchard grass (*Dactylis glomerata*) (Sample Point 15-7).

Wet Meadow D soils generally support a low chroma matrix (10 YR 3/2) with occasional redoximorphic mottles (7.5 YR 4/6) (Sample Point 15-8). Adjacent uplands were similar in matrix chroma but consist of surface gravel and lack redoximorphic features (Sample Point 15-7).

Positive wetland hydrology indicators were observed, including a high water table (Sample Point 15-8) and saturation (Sample Points 15-8 and 15-9). Adjacent upland areas lacked wetland hydrology indicators (Sample Point 15-7). Wet Meadow D is immediately adjacent to, and within the floodplain of the Middle Fork Stanislaus River, and therefore has a significant hydrologic nexus with the Middle Fork Stanislaus River.

Waters of the U.S.

The Middle Fork Stanislaus River and three tributaries to the Middle Fork Stanislaus River within the survey area were identified as waters of the U.S. and are potentially subject to the jurisdiction of the USACE. Figure A-1 (Appendix A) depicts the OHWM of the Middle Fork Stanislaus River and the location of the three mapped tributaries. In each case, the extent of potential jurisdiction was mapped at the OHWM.

The Middle Fork Stanislaus River is tributary to the North Fork Stanislaus River, the Stanislaus River (listed as navigable), the Lower San Joaquin River (navigable), the Delta, and eventually, the Pacific Ocean, a TNW. The three tributaries are intermittent, but maintain hydraulic connectivity to the river. Therefore, these features all have a significant nexus to a TNW and could be considered waters of the US, subject to USACE jurisdiction.

NWI features mapped within the survey area included the downstream portion of the Middle Fork Stanislaus River mapped as R3USC: Riverine (R), Upper Perennial (3), Unconsolidated Shore (US), and Seasonally Flooded (C). The three tributaries were not mapped by the NWI (USFWS 2016). Following field verification, the Cowardin Classification for the Middle Fork Stanislaus River was determined to be R3US1: Riverine (R), Upper Perennial (3), Unconsolidated Shore (US), and subclass Cobble-Gravel (1). Each of the three tributaries was given the Cowardin Classification of R4SB3: Riverine; Intermittent (4), Streambed (SB), and subclass Cobble-Gravel (3). Water regime modifiers for the main stem of the river ranges from Permanently Flooded (H) at the thalweg of the river to Seasonally Flooded/Saturated (C) on the upper banks below the OHWM; the water regime for each of the tributaries is best described as Seasonally Flooded/Saturated (C) (Cowardin et at. 1979).

Middle Fork Stanislaus River (3,000-feet long, 105-feet average width)

The Middle Fork Stanislaus River is a perennial river flowing though the approximate 3,000-foot long Project Reach. The river flows year-round and was flowing at the time of the field visits, and supports a bed, bank, and has OHWM indicators (Appendix C; Photos 6-7). OHWM indicators included sediment sorting, wrack lines, exposed roots, distinct shelving, and breaks in slope. The channel bed and bars consist of unconsolidated sand and gravel alluvium. Vegetation is generally lacking within the channel itself, but patches of riparian woodland occur along the streambanks and bars.

Tributary 1 (38-feet long within the survey area, 5-feet average width)

Tributary 1 is located in the upstream end of the survey area and is upstream of anticipated construction activities. It is an intermittent drainage that flows in a westerly direction into the Middle Fork Stanislaus River (Appendix C; Photo 8). Tributary 1 supports a bed, bank, and has OHWM indicators, including breaks in slope and changes in sediment characteristics. The drainage was dry at the time of the field visits but supports positive indicators of wetland hydrology such as sediment deposits. Soils consist primarily of unconsolidated sand and gravel alluvium, and the channel is generally devoid of vegetation.

Tributary 2 (35-feet long within the survey area, 5-feet average width)

Tributary 2 is located in the upstream portion of the Project Reach within the survey area. It flows in a westerly direction into the river in between two treatment areas where bank stabilization and revegetation techniques will be implemented. This intermittent drainage heads in the dispersed campground area above the river (Appendix C; Photos 9a and b), and flows through a 30-inch diameter steel pipe culvert under the campground access road and into the Middle Fork Stanislaus River (Appendix C; Photos 9c and d). Tributary 2 supports a bed, bank, and has OHWM indicators, including erosion and change in sediment from sand to cobble. The drainage was dry at the time of the field visits but positive indicators of wetland hydrology such as sediment deposits were observed. Soils consist primarily of unconsolidated sand and gravel alluvium, and the channel was generally devoid of vegetation.

Tributary 3 (138-feet long within the surveyed area, 4.5-feet average width)

Tributary 3 is located in the downstream portion of the survey area, and is an overflow channel of the Middle Fork Stanislaus River (Figure A-1; Appendix A). It is likely perennial in most years and (Appendix C; Photo 10). Tributary 3 supports a bed, bank, and had OHWM indicators, including undercutting of the banks, changes in vegetation characteristics, and sediment deposition. The lower reach of Tributary 3 had several inches of flowing water at the time of the field visits, while the upper portion was wet in June and dry in July. Tributary 3 supports positive indicators of wetland hydrology such as surface water and sediment deposits. Soils consist primarily of unconsolidated sand and gravel alluvium, and the channel is generally devoid of vegetation.

SUMMARY OF AQUATIC RESOURCES

Based on the areas delineated in 2010 and 2015, aquatic features within the 24-acre survey area that are potentially jurisdictional under the CWA include:

- the Middle Fork Stanislaus River;
- three ephemeral tributaries to the Middle Fork Stanislaus River; and
- four wet meadows (abutting and/or adjacent to the Middle Fork Stanislaus River).

The Middle Fork Stanislaus River and the three tributaries contain bed, bank, and OHWM indicators. The Middle Fork Stanislaus River could be considered a RPW and is hydraulically connected to the Stanislaus River, listed by the Sacramento District of the USACE as a “navigable” river more than 100 miles downstream from the Project Reach. The Stanislaus River is a tributary of the Lower San Joaquin River (also listed as navigable), which flows through Stockton and into the Sacramento–San Joaquin River Delta, eventually discharging into the Pacific Ocean, a TNW.

The four wetlands features exhibited wetland vegetation, hydric soils, and primary hydrology indicators. These wetland features are within the historic floodplain of the river, and receive overbank flows from the Middle Fork Stanislaus River. At a minimum, these adjacent wetlands could also be considered to have a significant biological nexus to the Middle Fork Stanislaus River due to groundwater connectivity.

Table 2 summarizes the wetlands and waters of the U.S. surveyed in the Project Reach. Table 2 provides the site ID, Cowardin Classification, the size if the feature (acres), linear feet of stream channels, and survey notes. These features are shown in Figure A-1 and A-2 (Appendix A).

Table 2. Summary of Aquatic Resources within the Kennedy Meadows Survey Area.

Aquatic Resource ID	Cowardin Classification	Location (Lat/Long)	Aquatic Resource Size (acres) Required for All Resources	Aquatic Resource Size (linear feet) Required for Only Stream Channels	Notes
Wetlands					
Wet Meadow A	Palustrine Emergent Wetland (PEM)	38.303377 -119.742051	0.09	-	Area on the east floodplain adjacent to anticipated staging area
Wet Meadow B	PEM	38.303311 -119.741042	0.329	-	Area on the east floodplain bordering the dirt road
Wet Meadow C	PEM	38.304001 -119.742894	4.9	-	Area at the downstream end of the Project Reach on the east floodplain
Wet Meadow D	PEM	38.305254 -119.744662	0.7	-	West floodplain near Treatment Area 7
Total Wetland Resources			**6.019**		
Waters of the US					
Middle Fork Stanislaus River	R3US1	38.302593 -119.741790	7.0	3,000	
Tributary 1	R4SB3	38.299711 -119.740806	0.004	38	Located upstream of Project treatment areas and construction activities
Tributary 2	R4SB3	38.300743 -119.740420	0.004	35	Located between two treatment areas; flows through a culvert and into the Middle Fork Stanislaus River
Tributary 3	R4SB3	38.304669 -119.744908	0.01	138	Located adjacent to, but not within, a treatment area
Total Waters of the US			**7.018**	**3,211**	
Total Aquatic Resources			**13.037**		

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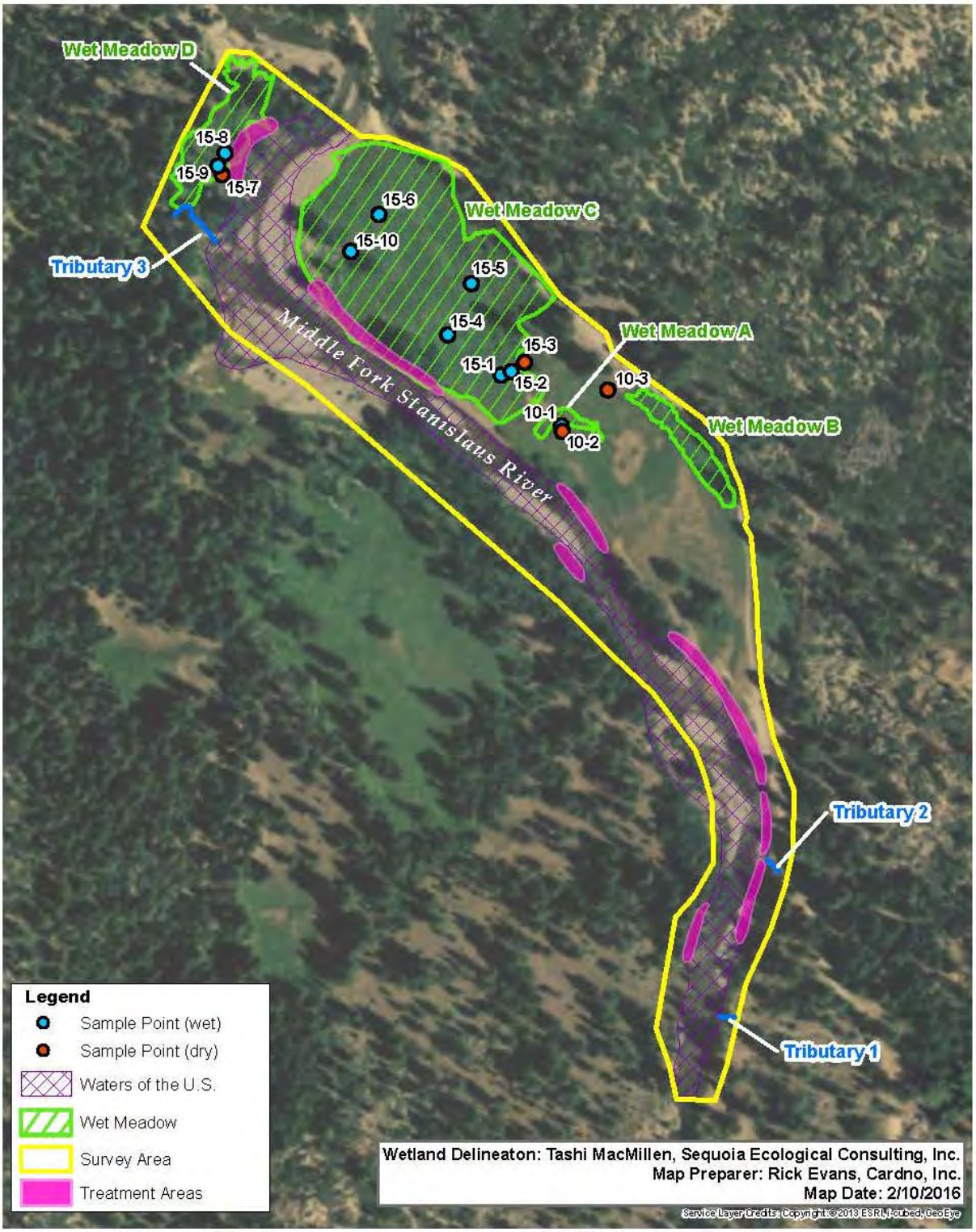
Appendix A - Aquatic Resource Delineation Maps

Figure A-1. Spring Gap Stanislaus Project: Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization - Wetland Delineation and Other Waters of the U.S.

Figure A-2. Spring Gap Stanislaus Project: Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization - Wetland Delineation and Other Waters of the U.S. Photo Point Locations.



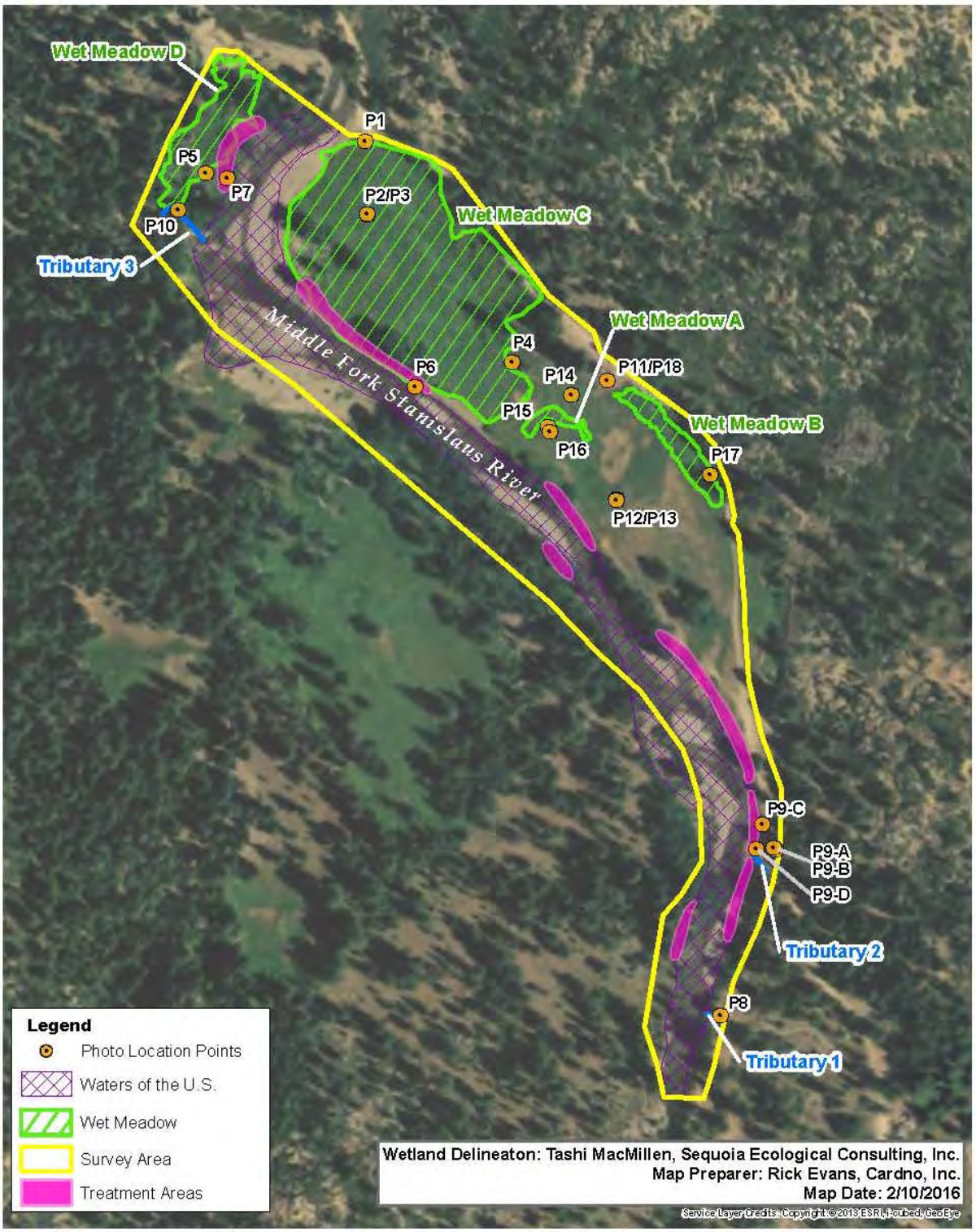
0 250 500
1 inch = 300 feet

N

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

Cardno
Shaping the Future

Figure A-1
Wetland Delineation and Other Waters of the U.S.



0 250 500
1 inch = 300 feet

N

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

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Figure A-2
Wetland Delineation and Other Waters of the U.S.
Photo Point Locations

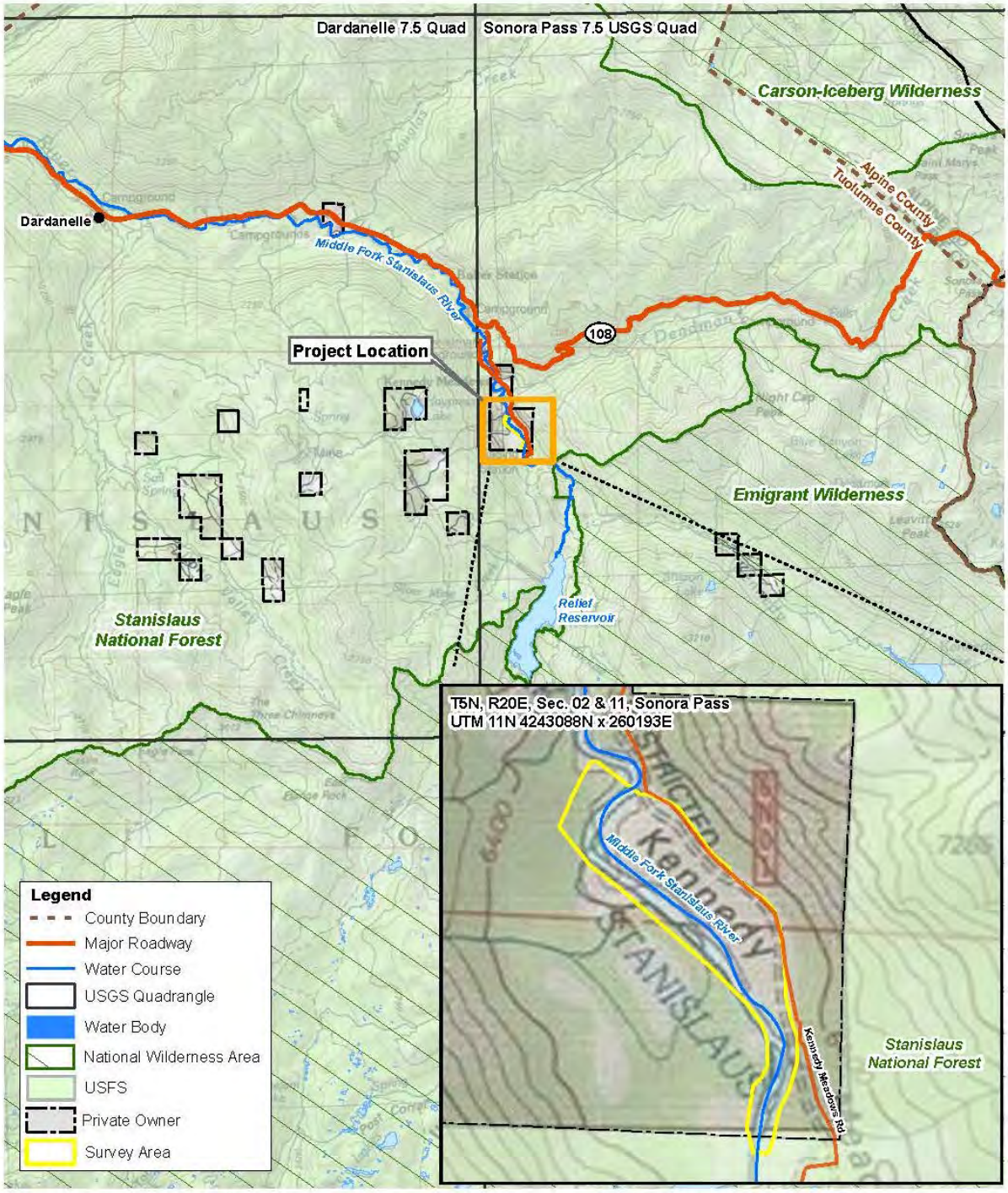
Appendix B - Supporting Maps

Figure B-1. Project Location and Survey Area

Figure B-2. Spring Gap Stanislaus Project: Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization - Work Areas and Areas to be Dewatered

Figure B-3. Spring Gap Stanislaus Project: Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization – Soils Map in the Vicinity of the Project Reach

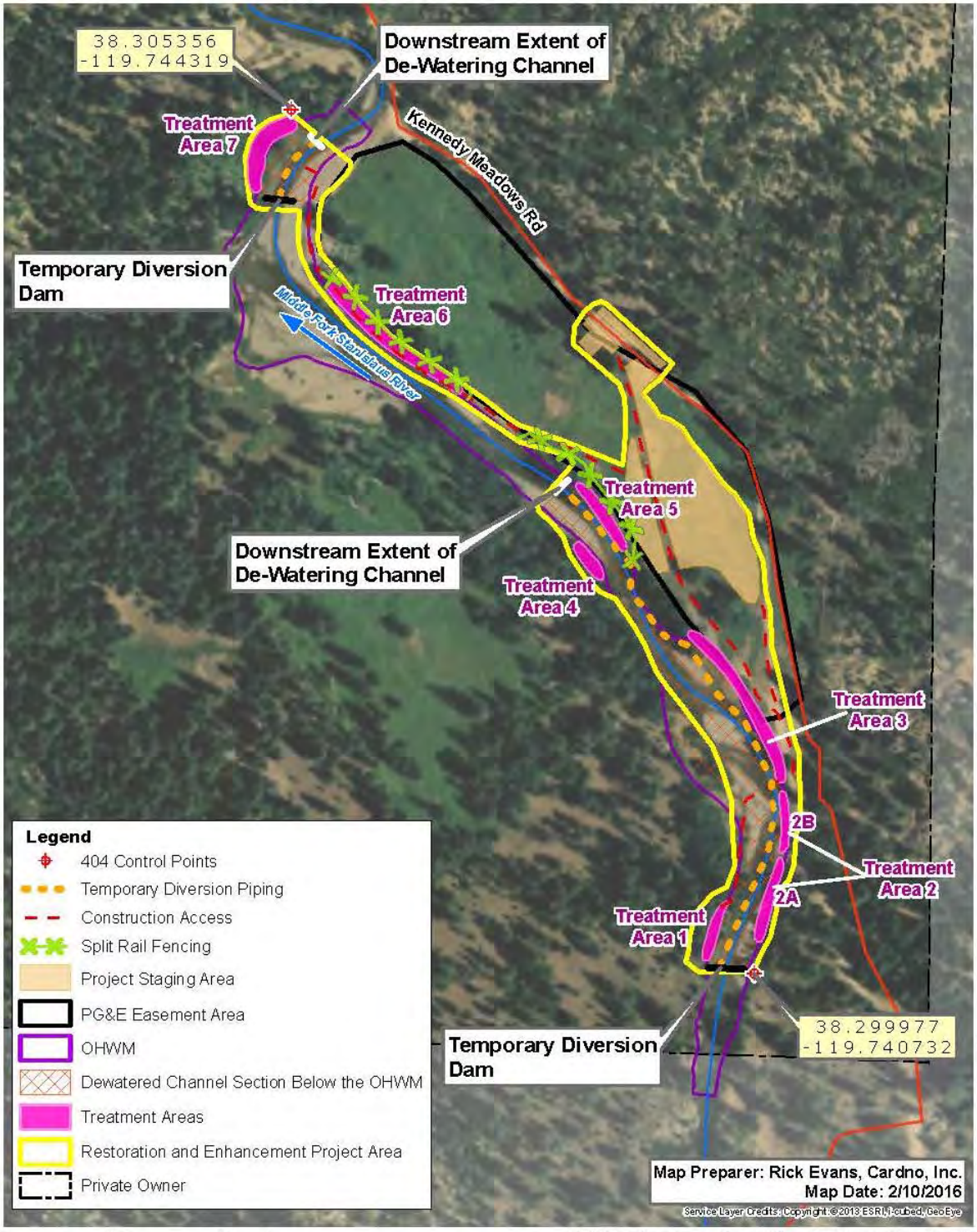
Figure B-4. Spring Gap Stanislaus Project: Relief Reach – Kennedy Meadows Riparian Restoration and Streambank Stabilization - National Wetlands Inventory Data



0 1 2 Miles
1 in = 1 miles
N

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

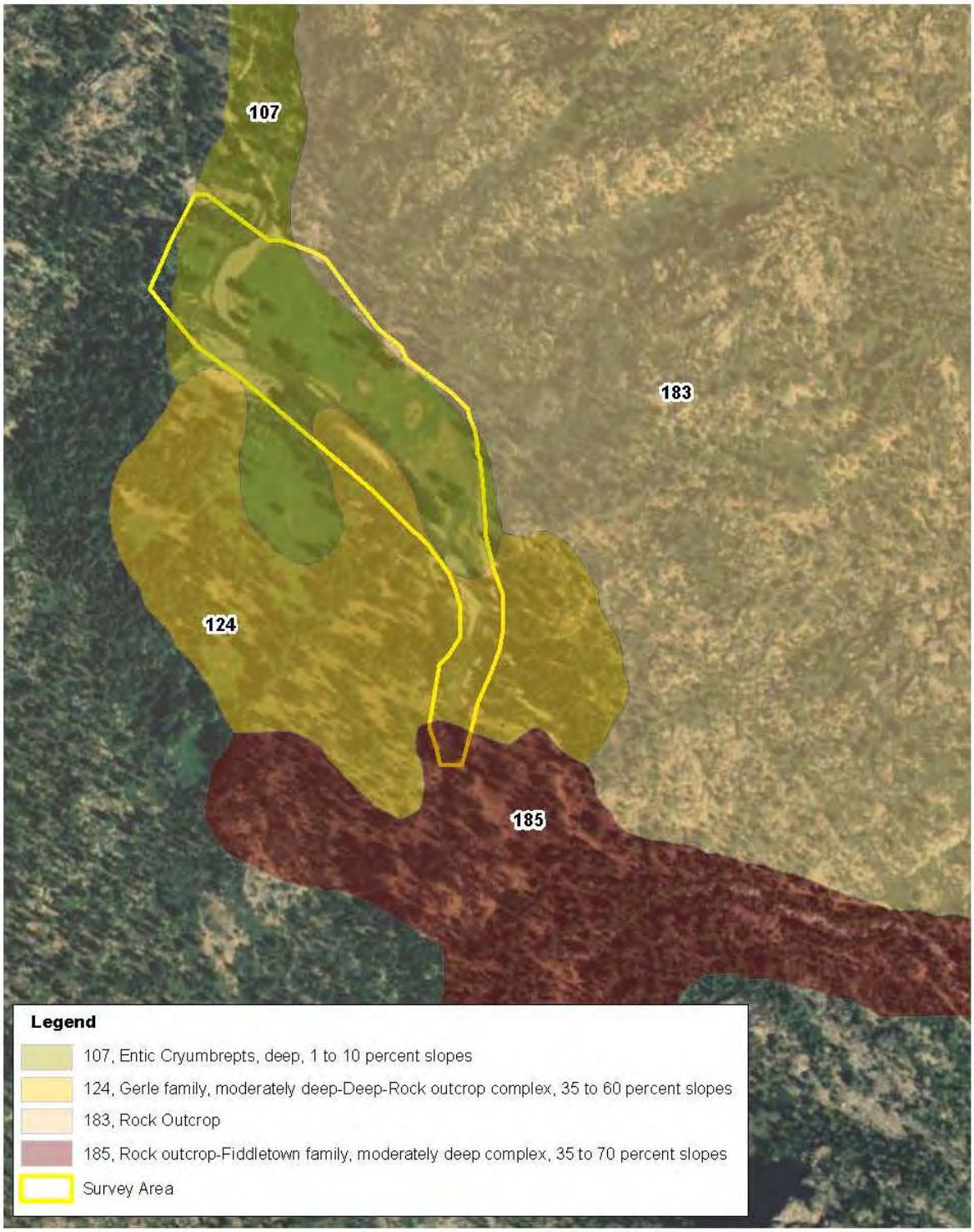
Figure B-1
Project Location and Survey Area



0 250 500
1 inch = 300 feet
N

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

Figure B-2
Work Areas and Areas to be Dewatered

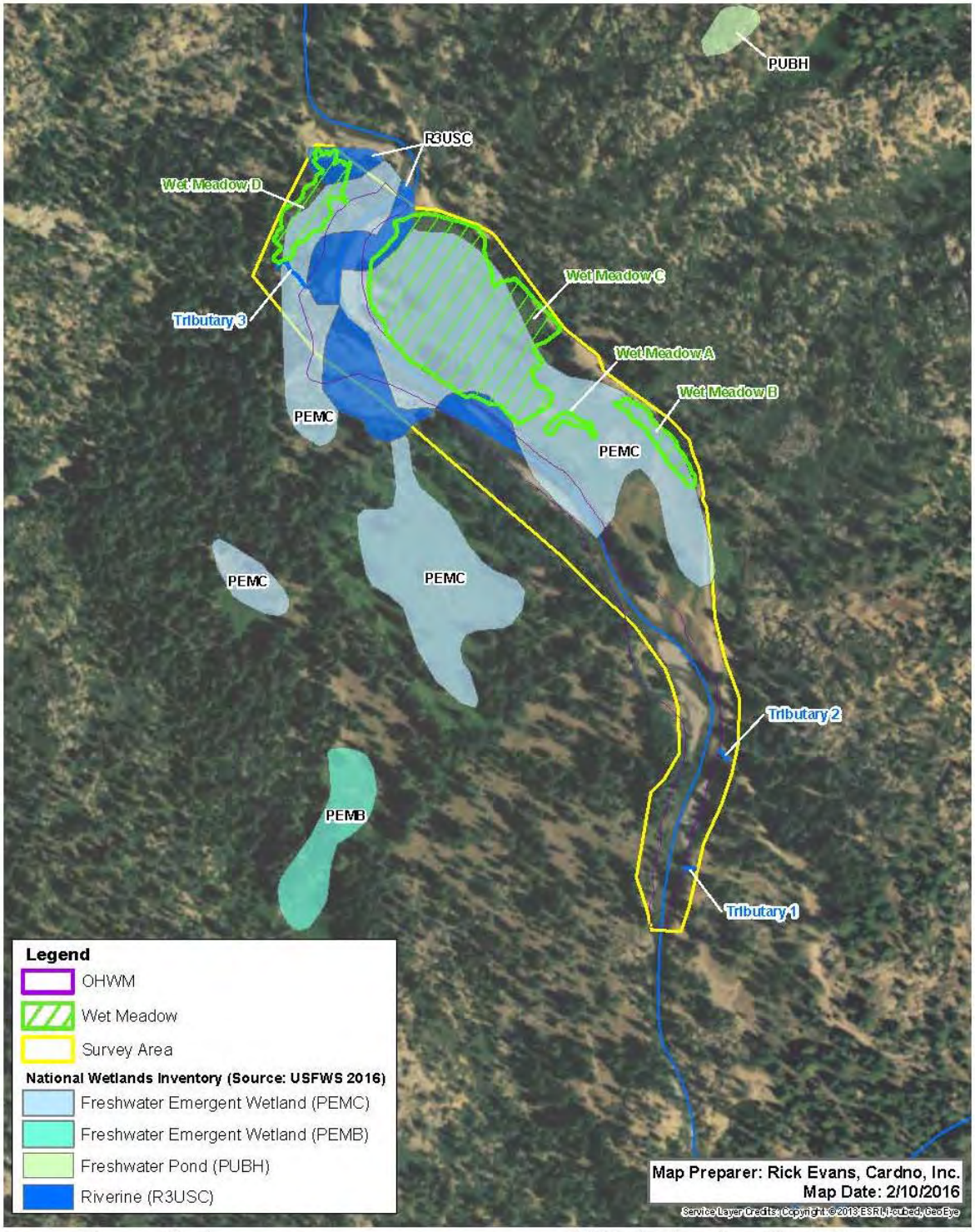


0 500 1,000
1 inch = 550 feet
N

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

Cardno
Shaping the Future

Figure B-3
Soils Map in the Vicinity of the Project Reach



0 250 500
1 inch = 400 feet
N

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

Figure B-4
National Wetlands Inventory Data

Appendix C - Photographs

2015

	**Photograph 1.** Wet Meadow C, Looking south.
	**Photograph 2.** Wet Meadow C, Looking north.

	**Photograph 3.** Sample Point 15-6, this sample point did meet the USACE wetland criteria.
	**Photograph 4.** Sample Point 15-3 in upland area adjacent to Wet Meadow C. This sample point did not meet the USACE wetland criteria. Rounded grey item in pit is small rock.

Photograph 5.

Wet Meadow D, looking northwest and downstream along Middle Fork Stanislaus River.

Photograph 6.

Looking north along Middle Fork Stanislaus River adjacent to Wet Meadow C.

Photograph 7.

Looking north along Middle Fork Stanislaus River adjacent to Wet Meadow D.

Photograph 8.

Tributary 1, at the upstream end of the area surveyed, looking east.

Photograph 9a.

Tributary 2 drainage upstream of the confluence with the Middle Fork Stanislaus River.

Photograph 9b.

Tributary 2 drainage upstream of the confluence with the Middle Fork Stanislaus River.

Photograph 9c.

Tributary 2, at the confluence with the Middle Fork Stanislaus River.

Photograph 9d.

Tributary 2, at the confluence with the Middle Fork Stanislaus River.

Photograph 10.

Tributary 3, at the downstream end of the survey area, adjacent to Wet Meadow D. Looking south towards Middle Fork Stanislaus River.

2010

Photograph 11.

Access route into meadow facing southeast.

Photograph 12.

Disturbed habitat facing north, Wet Meadow A in background.

	**Photograph 13.** Disturbed habitat facing south.
	**Photograph 14.** Wet Meadow A facing southeast.

Photograph 15.

Wet Meadow A, Sample Point 10-1. This sample site did meet the Army Corp of Engineers wetland criteria.

Photograph 16.

Sample Pit Point 10-2. This sample site did not meet the Army Corp of Engineers wetland criteria.

	**Photograph 17.** Wet Meadow B facing north.
	**Photograph 18.** Sample Point 10-3. This sample site did not meet the Army Corp of Engineers wetland criteria.

Appendix D - Plant List

2015

Species Name	Common Name	Wetland Indicator Status
Abies concolor	white fir	-
Achillea millefolium	yarrow	FACU
Acmispon nevadensis var. nevadensis	Sierra Nevada trefoil	-
Aconitum columbianum	monkshood	FACW
Allium campanulatum	yellow onion	-
Alnus incana ssp. tenuifolia	mountain alder	FACW
Alnus rhombifolia	White alder	FACW
Amsinckia intermedia	common fiddleneck	-
Angelica breweri	Brewer's angelica	-
Antennaria rosea	pussy toes	-
Apocynum androsaemifolium	bitter dogbane	FACU
Aquilegia formosa	red columbine	FAC
Arctostaphylos patula	greenleaf manzanita	-
Arnica chamissonis	Chamisso arnica	FACW
Artemisia douglasiana	mugwort	FACW
Artemisia dracunculus	tarragon	-
Artemisia tridentata ssp. tridentata	big sagebrush	-
Bromus carinatus var. carinatus	California brome	-
Bromus madritensis ssp. rubens	red brome	FACU
Bromus tectorum	cheat grass	-
Calocedrus decurrens	incense-cedar	-
Calyptridium umbellatum (=Cistanthe umbellata)	pussypaws	-
Capsella bursa-pastoris	shepherd's purse	FACU
Carex aquatilis var. aquatilis	water sedge	OBL
Carex filifolia var. erostrata	short hair sedge	
Carex scopulorum var. bracteosa	mountain sedge	OBL
Castilleja applegatei ssp. pallida	sticky paintbrush	-
Ceanothus cordulatus	mountain whitethorn	-
Cirsium scariosum	meadow thistle	FAC
Cirsium vulgare	bull thistle	FACU
Claytonia perfoliata	miner's lettuce	FAC
Collinsia heterophylla	varied-leaf collinsia	-
Collomia heterophylla	variable-leaf collomia	-
Collomia linearis	narrow-leaf mountain trumpet	FACU

Species Name	Common Name	Wetland Indicator Status
Cornus sericea	western dogwood	-
Cryptantha sp.	cryptantha	-
Cryptogramma acrostichoides	American parsley fern	-
Cyperus sp.	nutsedge	-
Dactylis glomerata	orchard grass	FACU
Delphinium sp.	larkspur	-
Descurainia sophia	tansy-mustard	-
Eleocharis sp.	spike-rush	-
Elymus elymoides ssp. elymoides	squirreltail	FACU
Elymus glaucus ssp. glaucus	blue wildrye	FACU
Elymus repens (= Elytrigia repens)	quackgrass	FAC
Epilobium ciliatum	willow herb	FACW
Equisetum laevigatum	smooth scouring rush	FACW
Erigeron sp.	fleabane	-
Eriogonum sp. (annual - no flowers)	buckwheat	FACU
Galium triflorum	sweet-scented bedstraw	FACU
Gayophytum heterozygum	varied-seeded gayophytum	-
Geranium richardsonii	Richardson geranium	FAC
Geum triflorum var. ciliatum	prairie smoke	-
Heracleum maximum	cow parsnip	FAC
Heuchera rubescens	alumroot	UPL
Hordeum brachyantherum	meadow barley	FACW
Hypericum anagalloides	tinker's penny	OBL
Ipomopsis aggregata	scarlet gilia	-
Iris missouriensis	western blue flag	FACW
Juncus cf. ensifolius	swordleaf rush	-
Juncus mexicanus	Mexican rush	FACW
Lupinus breweri	Brewer's lupine	-
Lupinus spp.	lupine	-
Maianthemum stellatum	false Solomon's seal	FAC
Microsteris gracilis	slender phlox	FACU
Muhlenbergia richardsonis	matted muhly	FAC
Nasturtium officinale	water cress	OBL
Orobanche sp.	broom-rape	-
Penstemon laetus var. laetus	beardtongue	-
Phacelia heterophylla ssp. virgata	varileaf phacelia	FACU
Phleum pratense	Timothy	FAC
Pinus contorta	lodgepole pine	FAC
Pinus jeffreyi	Jeffrey pine	-
Platanthera leucostachys	white-flowered bog-orchid	-

Species Name	Common Name	Wetland Indicator Status
Poa pratensis	Kentucky bluegrass	FAC
Populus tremuloides	quaking aspen	FACU
Populus trichocarpa	black cottonwood	-
Potentilla gracilis	slender cinquefoil	FAC
Prunus emarginata	bitter cherry	FACU
Ranunculus alismifolius	plantain-leaved buttercup	FACW
Ribes sp.	gooseberry	-
Rumex acetosella	sheep sorrel	FACU
Rumex crispus	curly dock	FAC
Salix exigua	narrow-leaved willow	FACW
Salix sp.	willow	-
Scirpus microcarpus	small-fruited rush	OBL
Senecio integerrimus	ragwort	FACU
Senecio triangularis	arrowleaf ragwort	FACW
Sisyrinchium bellum	California blue-eyed grass	FACW
Sphenosciadium capitellatum	ranger's buttons	FACW
Symphoricarpos mollis	creeping snowberry	FACU
Taraxacum officinale	common dandelion	FACU
Thalictrum fendleri var. polycarpum	Fendler's meadow-rue	FAC
Tragopogon porrifolius	salsify	-
Trifolium hirtum	rose clover	-
Trifolium longipes	long-stalked clover	FAC
Trifolium repens	white clover	FAC
Triteleia ixioides	pretty face	FAC
Triticum aestivum	cultivated wheat	-
Urtica dioica	stinging nettle	FAC
Veratum californicum var. californicum	Corn lily	-
Verbascum thapsus	woolly mullein	FACU
Viola sp.	violet	-
Wyethia mollis	woolly mule's ear	-

- Plant was not identified to species level or not present on USACE list; insufficient information to determine wetland indicator status.

Wetland Indicator Status:
UPL – Upland
FACU – Facultative Upland
FAC – Facultative
FACW – Facultative Wetland
OBL – Obligate

2010

Species Name	Common Name	Wetland Indicator Status
Arnica mollis	Hairy arnica	FAC
Artemisia tridentata	Common sage brush	--
Bromus tectorum	Cheat grass	--
Carex aquatilis var. aquatilis	Water sedge	OBL
Carex filifolia var. erostrata	Short hair Sedge	--
Cichorium intybus	Chicory	--
Eleocharis macrostachya	Common spike rush	OBL
Eremocarpus setigerus	Dove weed	--
Hordeum branchyantherum	Meadow barley	FACW
Poa bulbosa	Bulbous blue grass	--
Poa pratensis	Kentucky blue grass	FAC
Ranunculus muricatus	Spiny fruit buttercup	FACW
Ranunculus occidentalis	Western buttercup	FACW
Rumex crispus	Curly dock	FACW

-- Not enough information to determine native or wetland indicator status since plant was not identified to species level

Wetland Indicator Status:
UPL – Upland
FACU – Facultative Upland
FAC – Facultative
FACW – Facultative Wetland
OBL - Obligate

Appendix E - Wetland Data Sheets

2010 Datasheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Spring Gap-Stanislaus / Kennedy Meadows City/County: Kennedy Meadows/Tuolumne Sampling Date: 6/30/2010

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: Soil pit 1

Investigator(s): John Spranza, Rhiannon Klingonsmith Section, Township, Range: CA Section 2, Township 5 North, Range 20 East

Landform (hillslope, terrace, etc.): Meadow Local relief (concave, convex, none): concave Slope (%): < 1%

Subregion (LRR): MLRA 22A in LRR D Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Stanislaus National Forest, California, Parts NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Riverine floodplain seasonal wetland with areas that may be perennial.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. none			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. *Carex aquatilis* var. *aquatils*	100	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 1m²)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 100 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

100% hydrophytes

US Army Corps of Engineers Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: Soil pit 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	98%	7.5YR 4-6	1-2%	D	M	Loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- X Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:

Saturated at surface, slight H2S smell.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): 0"

Water Table Present? Yes x No ___ Depth (inches): 0"

Saturation Present? (includes capillary fringe) Yes x No ___ Depth (inches): 0"

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturated to surface.

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Spring Gap-Stanislaus / Kennedy Meadows City/County: Kennedy Meadows/Tuolumne Sampling Date: 6/30/2010

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: Soil pit 2

Investigator(s): John Spranza, Rhiannon Klingonsmith Section, Township, Range: CA Section 2, Township 5 North, Range 20 East

Landform (hillslope, terrace, etc.): Meadow Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): MLRA 22A in LRR D Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Stanislaus National Forest, California, Parts NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. none			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. *Carex filifolia* var. *erostrata*	75	Yes	UPL
2. *Arnica mollis*	5		FAC
3. *Ranunculus occidentalis*	5		FACW
4. *Ranunculus muricutis*	5		FACW
5. Poa prantensis	5		FAC
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 1m²)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	75	x 5 =	375
Column Totals:	95 (A)		425 (B)

Prevalence Index = B/A = 4.5

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

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SOIL

Sampling Point: Soil pit 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	root layer							high organic material
2-9"	10YR 3/3	99	5YR 5/8	1	C	M		
9-14"	10YR 4/2	60	5YR 5/8	40	RM	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- x Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5) (**LRR C**)
- __ 1 cm Muck (A9) (**LRR D**)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1)
- __ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- __ 1 cm Muck (A9) (**LRR C**)
- __ 2 cm Muck (A10) (**LRR B**)
- __ Reduced Vertic (F18)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

Hydric Soils Criteria Met, Large

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- __ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __ Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- __ Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Plowed Soils (C6)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water Marks (B1) (**Riverine**)
- __ Sediment Deposits (B2) (**Riverine**)
- __ Drift Deposits (B3) (**Riverine**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Thin Muck Surface (C7)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes X No ____ Depth (inches): 14"

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 12-14"

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Adjacent to the Stanislaus River and located in an area of high water table and seasonal flooding

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Spring Gap-Stanislaus / Kennedy Meadows City/County: Kennedy Meadows/Tuolumne Sampling Date: 6/30/2010

Applicant/Owner: Pacific Gas and Electric State: CA Sampling Point: Soil pit 3

Investigator(s): John Spranza, Rhiannon Klingonsmith Section, Township, Range: CA Section 2, Township 5 North, Range 20 East

Landform (hillslope, terrace, etc.): Meadow Local relief (concave, convex, none): concave Slope (%): < 1%

Subregion (LRR): MLRA 22A in LRR D Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Stanislaus National Forest, California, parts NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	

Remarks:
No Hydric Soils

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 1m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 1m²)			
1. none			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 1m²)			
1. *Carex filifolia* var. *erostrata*	48	Yes	UPL
2. *Carex aquatilis* var. *aquatilis*	5		OBL
3. *Ranunculus muricatus*	5		FACW+
4. *Rumex crispus*	2		FACW-
5. *Bromus tectorum*	5		UPL
6. *Eremocarphus setigerus*	2		UPL
7. *Poa prantensis*	3		FAC
8.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 1m²)			
1. none			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	7	x 2 =	14
FAC species	3	x 3 =	9
FACU species		x 4 =	
UPL species	55	x 5 =	275
Column Totals:	70 (A)		303 (B)

Prevalence Index = B/A = 4.3

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

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SOIL

Sampling Point: Soil pit 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	95%	NONE				Loamy sand	homogeneous to 14"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5) (**LRR C**)
- __ 1 cm Muck (A9) (**LRR D**)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)
- __ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- __ 1 cm Muck (A9) (**LRR C**)
- __ 2 cm Muck (A10) (**LRR B**)
- __ Reduced Vertic (F18)
- __ Red Parent Material (TF2)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** __X__

Remarks:

No primary indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1) (**Nonriverine**)
- __ Sediment Deposits (B2) (**Nonriverine**)
- __ Drift Deposits (B3) (**Nonriverine**)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Water-Stained Leaves (B9)
- __ Salt Crust (B11)
- __ Biotic Crust (B12)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Plowed Soils (C6)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water Marks (B1) (**Riverine**)
- __ Sediment Deposits (B2) (**Riverine**)
- __ Drift Deposits (B3) (**Riverine**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Thin Muck Surface (C7)
- __ Crayfish Burrows (C8)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No __X__ Depth (inches): _____

Water Table Present? Yes _____ No __X__ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No __X__ Depth (inches): _____

Wetland Hydrology Present? **Yes** ___ **No** __X__

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Inland site away from more frequently flooded areas. Slightly elevated (0.5 ft) above areas exhibiting wetland characteristics. No primary or secondary indicators.

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2015 Datasheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Km 17.8 Bill 20060 City/County: Kennedy meadows, Tuolumne Sampling Date: 6-17-15
Applicant/Owner: PG&E State: CA Sampling Point: P#1
Investigator(s): Chris Thayer, Tashi macmillen Section, Township, Range: CA Section 2 Town 5 North, Range 20 E (S)
Landform (hillslope, terrace, etc.): Shallow Basin Local relief (concave, convex, none): CONCAVE Slope (%): 0
Subregion (LRR): W. Mountain, MRA 22A in LRR D Lat: 119.74252 Long: 38.30370 Datum:
Soil Map Unit Name: Stanislaus National Forest, Parts NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	Is the Sampled Area within a Wetland?	Yes X No ____
Hydric Soil Present?	Yes X No ____		
Wetland Hydrology Present?	Yes X No ____		

Remarks: Hydrophytic veg presumed → CA Drought is in 4th year, leading to Dried climatic/hydro conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1. Ø			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. Ø			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 15' radius)			
1. Carex sp (FAC-obl)	95	Yes	FAC-obl
2. Poa	10		
3.			
4.			
5.			
6. (P-2 same)			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ (assumed) No ____

Remarks: Climatic conditions AHYSICAL. 2014 is 4th year of Drought. Hole is 21" Deep
P25 → Surface elevation is 18" Below P-2.

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: P. 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/2	100					clay loam	[illegible]
18-21	10YR 2/2	75	7.5YR 5/8	25			clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- ✓ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No NO Depth (inches): —

Water Table Present? Yes ____ No NO Depth (inches): —

Saturation Present? (includes capillary fringe) Yes ____ No No Depth (inches): —

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 0-18' soil is moist clay loam, 18-21 soil moist clay but no evidence of saturation at present. Basin topography.

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: KM Reclamation Stabilization City/County: Calaveras County Sampling Date: 6-17-15
Applicant/Owner: PG&E State: CA Sampling Point: P-2
Investigator(s): Theater, MacMillen Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): Nearly level Slope (%): 1
Subregion (LRR): MLRA 23A in LRR-D Lat: Long: Datum:
Soil Map Unit Name: Gian National forest Roads NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?**	Yes X No ___
Hydric Soil Present?	Yes X No ___		
Wetland Hydrology Present?	Yes X No ___		

Remarks: Year Not CA Drought.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15' Radius)			
1. ABEX	75	Yes	FAC-obl
2. POA	10		
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1.			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum ___			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: Elevation is 18" Above P-1 + 24" Below P-3.

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SOIL Sampling Point: P-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100	N/A Ø	Ø	Ø	Ø	Silty clay loam	moist
12-24	10 YR 3/2	85	7.5YR 5/8	15	D	M	Silty clay loam	mottle is 1/2"-1" in Diameter
24-25	10 YR 3/2	100	Ø	Ø	Ø	Ø	fine sandy sand	Bottom 1' of Hole

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No No Depth (inches): –
Water Table Present? Yes ____ No No Depth (inches): –
Saturation Present? (includes capillary fringe) Yes ____ No No Depth (inches): –

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Km Restoration WD City/County: Tuolumne, Kennedy meadows Sampling Date: 6-17-15
Applicant/Owner: PG+E State: CA Sampling Point: P-3
Investigator(s): CT + TM Section, Township, Range: 18 Section 2, Township, Range 20 East
Landform (hillslope, terrace, etc.): Flat, near Slight Slope Local relief (concave, convex, none): none Slope (%): Ø
Subregion (LRR): MLRA 22B in LRR D Lat: Long: Datum:
Soil Map Unit Name: Stanislaus National Forest, CA Parks NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Year of Drought

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Bromus Tectorum	85	Yes	UPL
2. Poa	10	no	
3. Geranium	1	no	
4. Carex spp.	3	no	
5. Equisetum spp.	1	no	
6.			
7.			
8.			
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Subplot Elevated to P-2 by 24" to East. Hole Depth is 8", → Conditions are in Year of Drought.

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SOIL

Sampling Point: P-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100	Ø	Ø	Ø	Ø	Fine Sandy loam	No Redox, Soil color uniform

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Ø Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- Ø Sandy Gleyed Matrix (S4)
- Ø Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- Ø Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- Ø 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- Ø Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Ø
Depth (inches): Ø

Hydric Soil Present? Yes ___ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Ø Surface Water (A1)
- Ø High Water Table (A2)
- Ø Saturation (A3)
- Ø Water Marks (B1)
- Ø Sediment Deposits (B2)
- Ø Drift Deposits (B3)
- Ø Algal Mat or Crust (B4)
- Ø Iron Deposits (B5)
- Ø Surface Soil Cracks (B6)
- Ø Inundation Visible on Aerial Imagery (B7)
- Ø Sparsely Vegetated Concave Surface (B8)
- Ø Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- Ø Salt Crust (B11)
- Ø Aquatic Invertebrates (B13)
- Ø Hydrogen Sulfide Odor (C1)
- Ø Oxidized Rhizospheres along Living Roots (C3)
- Ø Presence of Reduced Iron (C4)
- Ø Recent Iron Reduction in Tilled Soils (C6)
- Ø Stunted or Stressed Plants (D1) **(LRR A)**
- Ø Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Earthworm in soil. P-3 is clearly outside of boundary of wetland C (where P-1 and P-2 are)

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy City/County: Tuolumne, Kennedy Meadows Sampling Date: 6/17/13
Applicant/Owner: PG&E State: CA Sampling Point: P-4
Investigator(s): Thayer McMillan Section, Township, Range: CA Section 2 T5S North, Range 20 East
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): 0 Slope (%): 0
Subregion (LRR): MLRA 22A in LRR-D Lat: Long: Datum:
Soil Map Unit Name: Stan National Forest NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No ✓ (If no, explain in Remarks.)
Are Vegetation NO, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ___
Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** ___
Hydric Soil Present?	Yes ✓ No ___		
Wetland Hydrology Present?	Yes X No ___		

Remarks: No saturation at 25" presumed Year of California Drought. However, meadow likely has not reed normal snowmelt due to drout

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2. Ø			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: 15' radius)			
1. Carex sp	80	Yes	fac-OBL
2. Aruncus ?	2		
3. Poa	1		
4. phleum	1		
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	84 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
	___ = Total Cover		
% Bare Ground in Herb Stratum 16			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks: No Saturation at 25"

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SOIL Sampling Point: P-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
2	—							Stable material *
2-25	10YR 3/2	95	7.5YR 5/8	5	small			Clay Loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:
* Horse manure & bedding straw are spread over meadow in fall
High clay content. Soil very moist at 16".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): —
Water Table Present? Yes ____ No X Depth (inches): —
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): —

Wetland Hydrology Present? Yes X (Presumed) No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No saturation at 25" presumed water table below — lower than in normal year's precip, including snow melt

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy meadows City/County: Tuolumne, Kennedy meadows Sampling Date: 6-18-15
Applicant/Owner: PG+E State: CA Sampling Point: P-5
Investigator(s): Thayer, MacMillen Section, Township, Range: CA Section 2, Town 5 South, Range 20 East
Landform (hillslope, terrace, etc.): low rise meadow Local relief (concave, convex, none): convex Slope (%): <2
Subregion (LRR): MLRA 22A in LRR D Lat: Long: Datum:
Soil Map Unit Name: Stanislaus National Forest, CA Parts NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation No, Soil No, or Hydrology no naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	Is the Sampled Area within a Wetland? Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Year 4 of Drought. Dry conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2. Ø			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3. Ø			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 15' radius)			
1. Carex #2	70	Yes	FACOB
2. Achillea	10		
3. Poa	2		
4.	1		
5. Arnica			
6. Carex #1	15		
7.			
8.			
9.			
10.			
11.			
	98 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1. Ø			
2.			
	2 = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes Confirmed ____ No ____

Remarks: Location is 24" elevated above meado 20' to West

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SOIL Sampling Point: A-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20 30	10YR 3/2	95	7.5YR 5/8	5	small		gritty;	sandy loam
20-30								sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: Unk
Depth (inches): > 30

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): None
Water Table Present? Yes X No ____ Depth (inches): 26
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 25

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water at 29-30 - 3" deep after 1/2 hour.

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy Meadows City/County: Tuolumne Sampling Date: [redacted]
Applicant/Owner: PG+E State: CA Sampling Point: [illegible]
Investigator(s): CT, I. Morrison Section, Township, Range: [illegible]
Landform (hillslope, terrace, etc.): Flat meadow Local relief (concave, convex, none): Level Slope (%): 0
Subregion (LRR): MLRA 22A in LRR D Lat: Long: Datum:
Soil Map Unit Name: [illegible] NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No
Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	Is the Sampled Area within a Wetland? Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks: Year 4 of CA Drought

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. 0			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1. 0			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 15' Radius)			
1. Carex #1	80	Yes	FAC-obl
2. Carex #2	20	Yes	FAC-obl
3. Poa Poa	1		
4.			
5. Taraxicum	1		
6.			
7.			
8.			
9.			
10.			
11.			
	102 = Total Cover		
Woody Vine Stratum (Plot size:)			
1. 0			
2.			
	= Total Cover		
% Bare Ground in Herb Stratum			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No

Remarks:

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SOIL

Sampling Point: P-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	99	7.5YR 3/5	1			Loamy Sand	
	Faint redox in Sandy matrix							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- X Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) (**LRR A**)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) (**LRR A**)
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____

Water Table Present? Yes ____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 28

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturated at 28"

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy Meadows City/County: Tuolumne Sampling Date: 6/18/15
Applicant/Owner: PG&E State: CA Sampling Point: P-10
Investigator(s): MacMillan, Thayer Section, Township, Range: CA Section 2, Tavares Mtn, Range 20 East
Landform (hillslope, terrace, etc.): Low Rise Local relief (concave, convex, none): convex Slope (%): 2
Subregion (LRR): MRA 22A in LRRD Lat: Long: Datum:
Soil Map Unit Name: Stanislaus variant Montane Forest, Phase 5 NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ___ No X (If no, explain in Remarks.)
Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No ___
Are Vegetation Yes, Soil Yes, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes Y No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present?	Yes Y No ___	
Wetland Hydrology Present?	Yes Y No ___	

Remarks: Year 4 of CA Drought. Dry conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ___)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	___ = Total Cover		
Sapling/Shrub Stratum (Plot size: ___)			
1.			
2.			
3.			
4.			
5.			
	___ = Total Cover		
Herb Stratum (Plot size: ___)			
1. Juncus mexic	60	Yes	FACW
2. Poa pratensis	50	Yes	FAC
3. Arnica	5		
4. Duct glom	10		
5. Trifol repens	5		
6.			
7.			
8.			
9.			
10.			
11.			
	130 = Total Cover		
Woody Vine Stratum (Plot size: ___)			
1. Ø			
2.			
	___ = Total Cover		

% Bare Ground in Herb Stratum ___

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ 5 - Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegotation Present? Yes ✓ No ___

Remarks: Vegetation is dense

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SOIL Sampling Point: P-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-32	10YR 3/2	95	7.5YR 3/5	5				Faint small oxidized zones in matrix
	Sandy loam							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ∅
Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- ✓ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____
Water Table Present? Yes X No ____ Depth (inches): 30
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 28

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Standing water 2" deep at 32"

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Year amended 7/24/15

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy Meadows City/County: Kennedy meadows Tuolumne Sampling Date: 6/18/15
Applicant/Owner: PG+E State: CA Sampling Point: P-7
Investigator(s): THAYER MACMILLEN Section, Township, Range: CA Section 2, Twn 5 North, Range 20 East
Landform (hillslope, terrace, etc.): Terrace/meadow Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): MLRA 22A in LRR D Lat: Long: Datum:
Soil Map Unit Name: Stem National Forest, CA Parts NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	Is the Sampled Area within a Wetland? Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks: Year 4 of statewide drought

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: 15' rad)	Absolute % Cover	Dominant Species?	Indicator Status
1. Solidago	40	Yes	FACW?
2. Mentha	10	—	FACW
3. Achillea	10	—	FACW
4. Bact alomerata	20	Yes	FACW
5. Carex sp	2		
6.			
7. Poa pratensis	2		
8. Gaillardia	1		
9. Lupinus	2		
10. Erigeron	10		
11.			
		= Total Cover	

Woody Vine Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 0 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
__ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

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SOIL

Sampling Point: Pt 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	FINE	GRAVEL						NO Redox
2-22	10 YR 3/2		-0-					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No Y Depth (inches): -

Water Table Present? Yes _____ No Y Depth (inches): -

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 22

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Soil is dry in upper 12", moist only at 22"

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

Veg amend A
7/24/15

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy Meadows City/County: Kennedy Meadows/Tuolumne Sampling Date: 6/18/15
Applicant/Owner: PG&E State: CA Sampling Point: P-8
Investigator(s): Chris Thayer - TRC Section, Township, Range: CA Section 2 T4N R19E, Range 20 EBM
Landform (hillslope, terrace, etc.): meadow Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): MLRA 22A in LRR D Lat: Long: Datum:
Soil Map Unit Name: Stanislaus National Forest, CA, Parts NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)
Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____
Are Vegetation NO, Soil NO, or Hydrology NO naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: Year 4 of Drought in California, Dry Conditions

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15' RAD)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15' RAD)			
1.			
2.			
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: 15' rad)			
1. Dact glom or	15		
2. Carex sp.	45	YES	FAC-OB
3.			
4. Equi setum	10		
5. Hord lecty	1		
6.			
7. Ranu aqua	10		
8. Plantago sp.	1		
9. Poa pratensis			
10. Ranunculus	3		
11. Equisetum	10		
	Achillea 10 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		
% Bare Ground in Herb Stratum ____			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
__ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ 5 - Wetland Non-Vascular Plants[1]
__ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

SOIL Sampling Point: P-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-25	10YR 3/2	99	7.5YR 4/6	1	small		clay	distinct (2-8 cm)

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- X Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No ____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): —
Water Table Present? Yes ____ No X Depth (inches): —
Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 23"

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturated at 23"

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Was Amended 7/24/15

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Kennedy meadows City/County: Kennedy meadows, Tuolumne County Sampling Date: 6/18

Applicant/Owner: PG&E State: CA Sampling Point: Pr 9

Investigator(s): Thayer, MacMillan Section, Township, Range: CA Section 2 Town: Rodel Range 20 E

Landform (hillslope, terrace, etc.): Wet meadow Local relief (concave, convex, none): Concave Slope (%): 1%

Subregion (LRR): MLRA 22A in LRR D Lat: Long: Datum:

Soil Map Unit Name: Stanislaus Meadow loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Year 4 of CA Drought. Dry conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: --)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3. Ø			
4.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: --)			
1.			
2.			
3. Ø			
4.			
5.			
	= Total Cover		

Herb Stratum (Plot size: 1st Replicate)			
1. Carex sp. (Sample at P.8)		Yes	60% (Fac-OBL)
2. Veratrum	10		
3. Mimulus	20		
4. Achillea	5		
5.			
6.			
7. Poa	1		
8. Dock Alone	10		
9. Eleocharis	20		
10.			
11.			
	= Total Cover		

Woody Vine Stratum (Plot size: --)			
1. Ø			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

US Army Corps of Engineers — Western Mountains, Valleys, and Coast – Version 2.0

SOIL

Sampling Point: P-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-23	10 YR 3/2		—					
23-25	10 YR 3/2							Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ____

Remarks: Positioned to be in hydric transitional area between Pits 7 and 8.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- ✓ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): —

Water Table Present? Yes ____ No X Depth (inches): —

Saturation Present? (includes capillary fringe) Yes X No ____ Depth (inches): 23

Wetland Hydrology Present? Yes X No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturated at sand/gravel layer at bottom

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Appendix F - OHWM Data Sheets

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

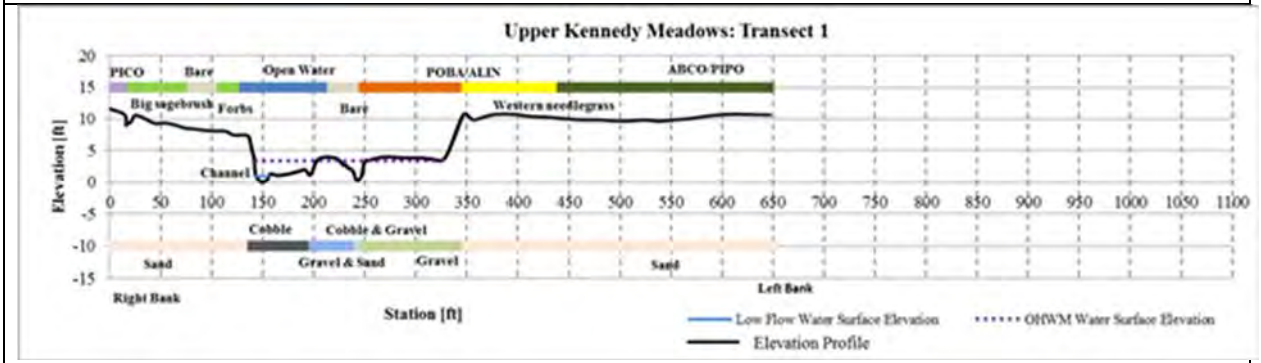
One cover sheet is provided for the four Waters of the U.S. features identified in the survey area. Individual data sheets for provided for the Middle Fork Stanislaus River and each of the three tributaries.

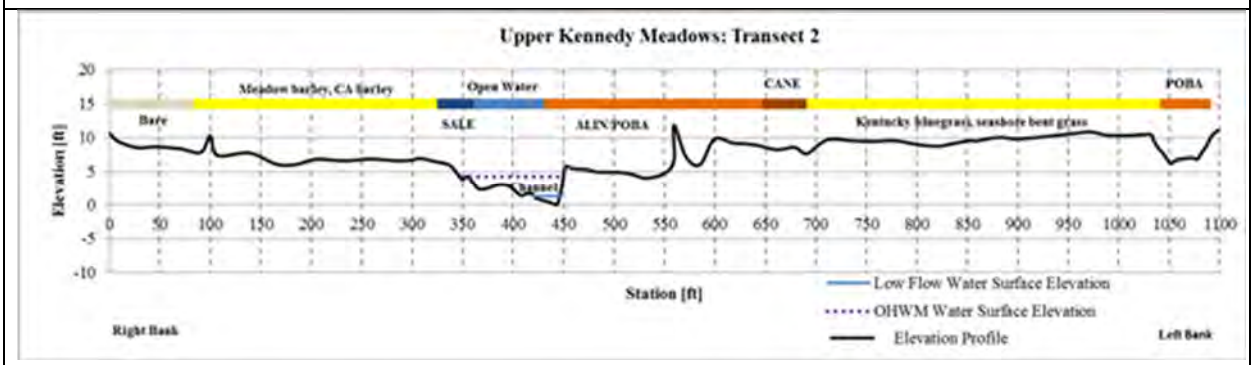
Project: PG&E's Spring Gap-Stanislaus Relief Reach Vegetation and Streambank Stabilization Project	**Date:** June and July 2015
Location: Kennedy Meadows, CA in Tuolumne County, 5.6 air-miles southeast of the town of Dardanelle.	**Investigator:** Christopher Thayer and Tashi MacMillen
Project Description: The purpose of the Project is to restore and enhance approximately 1,885 feet of streambank and riparian vegetation within an approximate 3,000-foot reach of the Middle Fork Stanislaus River in Kennedy Meadows. Unstable streambanks and a lack of riparian vegetation were identified during previous studies.	
Describe the river or stream's condition (disturbances, in-stream structures, etc.): The Middle Fork Stanislaus River is a perennial river flowing though the approximate 3,000-foot long Project Reach. The river flows year-round and was flowing at the time of the field visits, and supports a bed, bank, and has OHWM indicators. OHWM indicators included sediment sorting, wrack lines, exposed roots, distinct shelving, and breaks in slope. The channel bed and bars consist of unconsolidated sand and gravel alluvium. Vegetation is generally lacking within the channel itself, but patches of Riparian Woodland occur along the streambanks and bars.	
<u>Off Site Information</u>	
Remotely sensed image(s) acquired? Yes _x_ or No __ [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description: See attached	
Hydrologic/hydraulic information acquired? Yes _x_ or No __ [If yes, attach information to datasheet(s) and describe below.] Description: Yes, Middle Fork Stanislaus River hydrology, including recent hydrographs and peak flows are summarized in PG&E (2016).	
List and describe any other supporting information received/acquired: N/A	

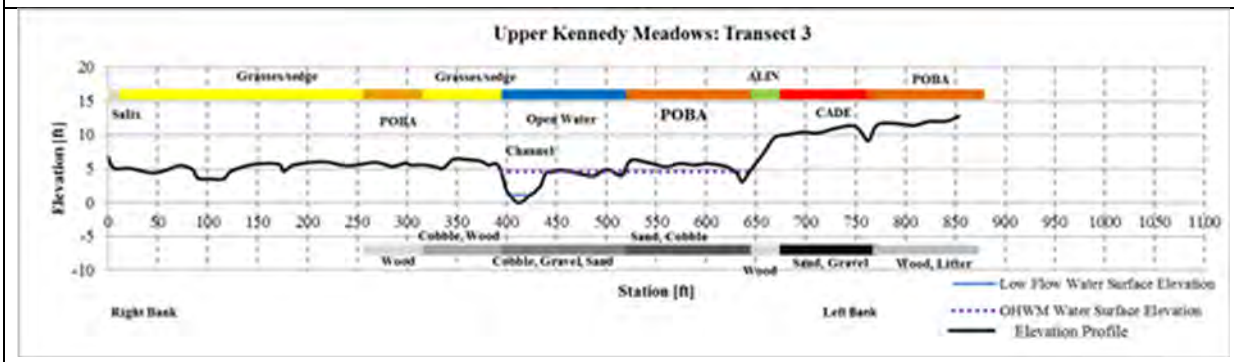
Middle Fork Stanislaus River, Datasheet #: __1_____

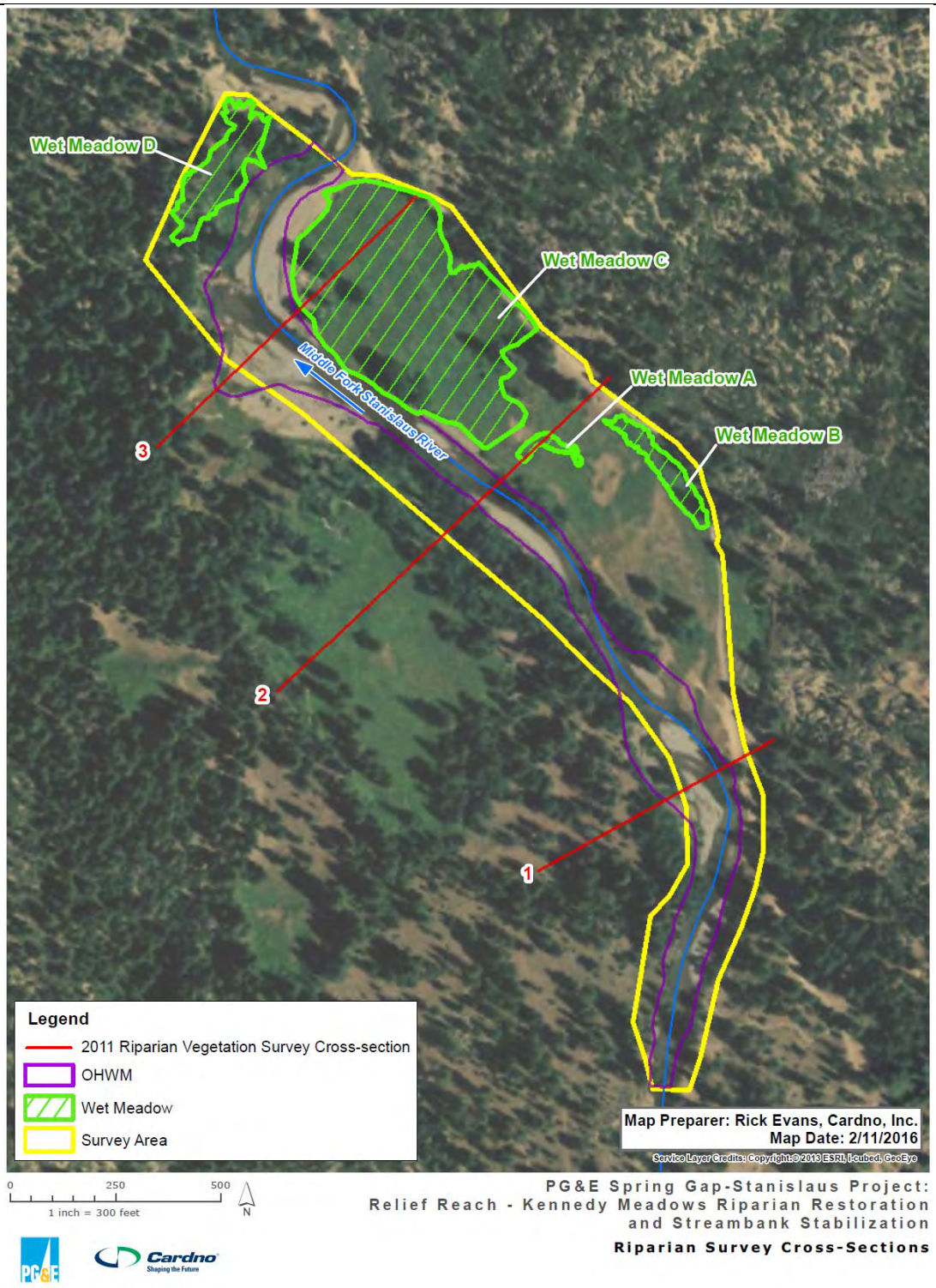
Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length).

Three cross-sections were surveyed in 2011 as part of the Relief Reach – Riparian Restoration and Streambank Stabilization studies. These surveyed cross-sections, with vegetation community locations and the OHWM are shown below. A map, with the aerial imagery, shows the locations of these cross-section in relation to the mapped wetland features within the survey area.









Break in Slope at OHWM: __Sharp (> 60%) _x_Moderate (30–60%) __Gentle (< 30%) __None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM.

	Clay/Silt <0.05mm (%)	Sand 0.05 - 2mm (%)	Gravel 2mm - 1cm (%)	Cobbles 1 - 10cm (%)	Boulders >10cm (%)	Developed Soil Horizons (Y/N)
Above OHWM (Transect 1)	0	90	5	5	0	Y
Below OHWM (Transect 1)	0	15	55	30		N
Above OHWM (Transect 3)	0	15	15	10	0	Y
Below OHWM (Transect 3)	0	40	20	40		N
Notes/Description: See cross section surveys for approximate location of sediment texture. No sediment measurements were taken at Transect 2. Transect 3, above OHWM has about 60% wood/litter/sand as substrate.						

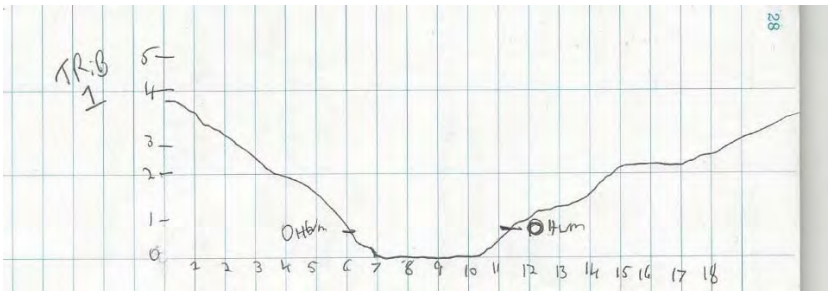
Vegetation: Estimate absolute cover to describe general vegetation characteristics.

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM (Transect 1)	50	10	30	10
Below OHWM (Transect 1)	0	40	0	60
Above OHWM (Transect 2)	5	30	60	5
Below OHWM (Transect 2)	0	15	0	85
Above OHWM (Transect 3)	15	45	40	0
Below OHWM (Transect 3)	0	0	45	55
Notes/Description: See cross section surveys for approximate location of vegetation.				

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation.

Tributary 1, Datasheet #: ___2____

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length).



Break in Slope at OHWM: __Sharp (> 60%) __Moderate (30–60%) _x_Gentle (< 30%) __None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm (%)	Sand 0.05 - 2mm (%)	Gravel 2mm - 1cm (%)	Cobbles 1 - 10cm (%)	Boulders >10cm (%)	Developed Soil Horizons (Y/N)
Above OHWM	-	10	10	-	-	Yes
Below OHWM	0	15	20	15	5	No
Notes/Description:						

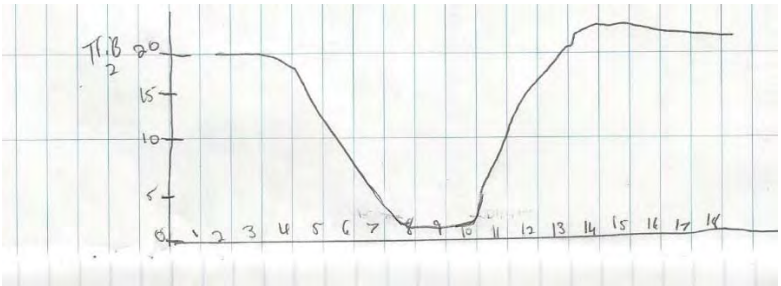
Vegetation: Estimate absolute cover to describe general vegetation characteristics

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	-	15	20	65
Below OHWM	-	-	20	80
Notes/Description:				

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Tributary 2, Datasheet #: ____3___

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length).



Break in Slope at OHWM: __Sharp (> 60%) __Moderate (30–60%) _x_Gentle (< 30%) __None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm (%)	Sand 0.05 - 2mm (%)	Gravel 2mm - 1cm (%)	Cobbles 1 - 10cm (%)	Boulders >10cm (%)	Developed Soil Horizons (Y/N)
Above OHWM	-	25	25	-	-	Yes
Below OHWM	0	25	70	5	-	No
Notes/Description:						

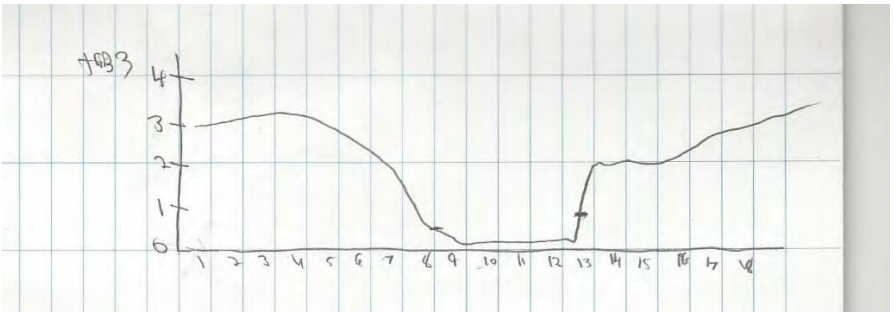
Vegetation: Estimate absolute cover to describe general vegetation characteristics

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	-	5	15	80
Below OHWM	-	-	10	90
Notes/Description:				

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

Tributary 3, Datasheet #: ___4____

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length).



Break in Slope at OHWM: __Sharp (> 60%) __Moderate (30–60%) _x_Gentle (< 30%) __None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM.

	Clay/Silt <0.05mm (%)	Sand 0.05 - 2mm (%)	Gravel 2mm - 1cm (%)	Cobbles 1 - 10cm (%)	Boulders >10cm (%)	Developed Soil Horizons (Y/N)
Above OHWM	-	30	30	-	-	Yes
Below OHWM	0	30	70	-	-	No
Notes/Description:						

Vegetation: Estimate absolute cover to describe general vegetation characteristics.

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	5	5	60	30
Below OHWM	-	-	10	90
Notes/Description:				

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation.

Appendix G - Signed Statement from Property Owner(s) Allowing Access

County Administrator's Office

Craig L. Pedro
County Administrator

Tuolumne County Administration Center
2 South Green Street
Sonora, CA 95370
Phone (209) 533-5511
Fax (209) 533-5510
www.tuolumnecounty.ca.gov

October 25, 2016

Justin Smith
Senior Land Planner
PG&E
2730 Gateway Oaks Drive, Suite 220
Sacramento, CA 95833

Dear Mr. Smith:

As the owner of Kennedy Meadows, Tuolumne County has a vested interest in making sure any onsite activities are done safely and use best practices. Kennedy Meadows is a beautiful and historic place deserving of careful attention to preserve its character. Tuolumne County acknowledges that PG&E is exercising their reserved rights under the Grant Deed by which the County took possession of Kennedy Meadows.

This letter serves as Tuolumne County's authorization allowing the Corps of Engineers to access the Kennedy Meadows parcel as described in the attached Wetland Delineation for the sole purpose of verifying the wetland delineation map prepared for PG&E's Relief Reach Streambank Stabilization Project.

Under the Conservation Easement, this letter serves as notice to the Mother Lode Land Trust.

Sincerely,

DANIEL M. RICHARDSON
Deputy County Administrator

Cc: Mother Lode Land Trust

Appendix H - Aquatic Resource Excel Sheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway	Similarity_Situated	Sim_Situated_Aggregated_SPOE	Adjcent_Waters_Sbjct_33USC1344	OHWM_Chg_In_Plant_Community	OHWM_Bed_And_Banks	OHWM_Break_In_Slope	OHWM_Chg_In_Character_Of_Soil	OHWM_Chg_In_Veg_Density_Maturity	OHWM_Chg_In_Sediment_Texture	OHWM_Line_Impressed_On_Bank	OHWM_Destr_Of_Terrestrial_Veg	OHWM_Leaf_Litter_Disturbed	OHWM_Multiple_Flow_Events	OHWM_Scour	OHWM_Sediment_Deposition	OHWM_Sediment_Sorting	OHWM_Shelving	OHWM_Litter_and_Debris_Present	OHWM_Wrack_Line_Present	OHWM_Veg_Matted_Bent_Or_Absent	OHWM_Water_Staining	OHWM_Other
Wet Meadow A	CA	PEM	RIVERINE	Area	0.09	ACRE	A6N2WB	38.303377	-119.742051	Midde Fork Stanislaus River																						
Wet Meadow B	CA	PEM	RIVERINE	Area	0.329	ACRE	A6N2WB	38.303311	-119.741042	Midde Fork Stanislaus River																						
Wet Meadow C	CA	PEM	RIVERINE	Area	4.9	ACRE	A6N1WB	38.304001	-119.74289	Midde Fork Stanislaus River																						
Wet Meadow D	CA	PEM	RIVERINE	Area	0.7	ACRE	A6N1WB	38.305254	-119.74466	Midde Fork Stanislaus River																						
Middle Fork Stanislaus River	CA	R3US1	RIVERINE	Linear	3000	FOOT	A5	38.302593	-119.74179	Midde Fork Stanislaus River	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
Tributary 1	CA	R4SB3	RIVERINE	Linear	38	FOOT	A5	38.299711	-119.74081	Midde Fork Stanislaus River	NO	NO	NO	NO	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO	NO	NO	NO
Tributary 2	CA	R4SB3	RIVERINE	Linear	35	FOOT	A5	38.300743	-119.74042	Midde Fork Stanislaus River	NO	NO	NO	YES	YES	YES	YES	NO	YES	NO	NO	NO	NO	NO	YES	YES	NO	YES	NO	NO	NO	NO
Tributary 3	CA	R4SB3	RIVERINE	Linear	138	FOOT	A5	38.304669	-119.74491	Midde Fork Stanislaus River	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES	YES	YES	YES	YES	NO	YES	NO	NO