

**Placer County Water Agency Middle Fork
American River Project
(FERC No. 2079)**

FINAL

**LAND 1 – TRANSPORTATION SYSTEM
TECHNICAL STUDY REPORT – 2008**



Placer County Water Agency
P.O. Box 6570
Auburn, CA 95604

August 2009

TABLE OF CONTENTS

	Page
1.0 Introduction.....	1
2.0 Study Objectives.....	1
3.0 Study Implementation.....	2
3.1 Study Elements Completed	2
3.2 Variances from the LAND 1 – TSP	3
3.3 Outstanding Study Elements	3
3.4 Proposed Modifications to the LAND 1 – TSP	3
4.0 Extent of Study Area.....	4
5.0 Study Approach.....	4
5.1 Existing Project Roads and Trails	4
5.1.1 Identification and Use of Project Roads and Trails.....	4
5.1.2 Field Assessment of Project Roads and Trails.....	4
5.1.3 Inventory of Safety, Traffic Control and Informational Signs and Access Control Features on Project Roads and Trials.....	5
5.1.4 Identification of Natural Resources along Project Roads and Trails	6
5.1.5 Identification of Potential Traffic Safety Concerns along Project Roads and Trails	6
5.1.6 Characterization of Maintenance Practices, Schedules, and Responsibilities on Project Roads and Trails	6
5.1.7 Identification of Existing Easements and Right-of-way Agreements on Project Roads and Trails	7
5.1.8 Locations Potentially at Risk to Damage from Natural Events	7
5.2 Potential Change in Level or timing of Vehicle Use on Project roads and trails	7
5.2.1 Existing Project	7
5.2.2 Potential Project Betterments.....	7
5.3 New Roads or Trails Associated with Potential Project Betterments	8
5.4 Identification of the Location and Condition of Helicopter Landing Sites ...	8
6.0 Study Results	8
6.1 Existing Project Roads and Trails	8
6.1.1 Identification and Use of Project Roads and Trails.....	8
6.1.2 Field Assessment of Project Roads and Trails.....	9
6.1.3 Inventory of Safety and Traffic Signs and Control Devices on Project Roads and Trails.....	9
6.1.4 Identification of Natural Resources along Project Roads and Trails	10

6.1.5	Potential Traffic Safety Concerns along Project Roads and Trails	10
6.1.6	Maintenance Practices, Schedule, and Responsibilities for Project Roads and Trails	10
6.1.7	Locations Potentially at Risk to Damage from Natural Events	11
6.2	Potential Change in Level or Timing of Vehicle Use	11
6.2.1	Existing Project	11
6.2.2	Betterment-related Construction	11
6.3	New Roads or Trails Associated with Potential Project Betterments	12
6.4	Location and Condition of Helicopter Landing Sites	13
7.0	Literature Cited	13

List of Tables

Table LAND 1-1.	Existing Project Roads and Trails.
Table LAND 1-2.	Roads Associated with the Potential Project Betterments.
Table LAND 1-3.	Primary Contacts for the LAND 1 Interviews and Data Gathering Effort.
Table LAND 1-4.	Characterization of Project Roads and Trails.
Table LAND 1-5.	Potential Access Roads for Dispersed Concentrated Use Areas.
Table LAND 1-6.	Inventory of Safety, Traffic Control, and Informational Signs and Access Control Features.
Table LAND 1-7.	Occurrence of Natural Resources along Project Roads and Trails.
Table LAND 1-8.	Project Roads and Trails Maintenance and Maintenance Agreements.

List of Figures

Figure LAND 1-1.	LAND 1 – Transportation System Study Objectives and Related Study Elements and Reports.
------------------	---

List of Maps

Map LAND 1-1.	Project and Non-Project Roads and Trails, Project Facilities, Project Recreation Facilities, and Dispersed Concentrated Use Areas (includes 6 sheets).
Map LAND 1-2a.	Hell Hole Reservoir Seasonal Storage Increase.
Map LAND 1-2b.	Hell Hole Reservoir Seasonal Storage Increase.
Map LAND 1-2c.	French Meadows Powerhouse Capacity Upgrade.
Map LAND 1-2d.	Ralston Powerhouse Capacity Upgrade.

List of Appendices

Appendix A.	Road and Trail Survey Data Feature Codes.
Appendix B.	Description of Potential Project Betterments.
Appendix C.	Project Roads and Trails Survey Data.
Appendix D.	Project Roads and Trails Survey Photo Log.
Appendix E.	Road Condition Description by Segment.
Appendix F.	Forest Road Agreement 07-RO-11051754-006.
Appendix G.	Betterment Road Survey Data.
Appendix H.	Betterment Road Survey Photo Log.

1.0 INTRODUCTION

This report describes the transportation studies conducted by the Placer County Water Agency (PCWA) in accordance with the LAND 1 – Transportation System Technical Study Plan (LAND 1 – TSP). The LAND 1 – TSP was included in Supporting Document (SD) H of the Pre-Application Document (PAD) for the Middle Fork American River Project (MFP or Project) (PCWA 2007). Specifically, this report provides a detailed description of the methods and results of transportation studies completed in 2008.

The LAND 1 – TSP was developed by PCWA in collaboration with stakeholders as one of 28 technical study plans included in the PAD. The PAD was filed by PCWA with the Federal Energy Regulation Commission (FERC or Commission) on December 13, 2007. On July 18, 2008, the FERC issued a study plan determination. In the study plan determination, FERC excluded from the LAND 1 – TSP, elements of the TSP that pertained to non-Project General Access roads. The FERC contended that the non-Project General Access roads are not part of the Project as they are not roads used primarily for Project purposes.

This report includes the FERC-approved study elements. Information on non-Project General Access roads will be collected by PCWA in accordance with the stakeholder-approved TSP included in the PAD and provided to stakeholders in a separate non-FERC report.

2.0 STUDY OBJECTIVES

The FERC-related transportation system study objectives described in the LAND 1 – TSP are:

- Identify and characterize Project roads and trails including condition (road assessment), season of use and access, and maintenance practices and responsibilities.
- Describe any existing agreements related to Project roads and trails including maintenance agreements, easements, special use permits, and right-of-ways.
- Identify the location, condition, use and maintenance of any helicopter landing sites used to operate and maintain the MFP.
- Identify the locations along Project roads that may limit access to Project facilities from landslides or rockfall.
- Identify and describe new roads or trails necessary to construct or access potential Project betterments.
- Identify if access or the level or timing of use on Project roads or trails and non-Project General Access roads will change as a result of planned changes in future operations or maintenance of the MFP, or during construction of potential Project betterments.

Figure LAND 1-1 shows the original LAND 1 – TSP study objectives (FERC and non-FERC) and the study elements and activities that relate to each objective. It also shows how information developed through the transportation system studies will be documented.

3.0 STUDY IMPLEMENTATION

The Transportation System Technical Study was initiated in 2008 and completed in 2009. Study elements that have been completed are discussed in the following subsections.

3.1 STUDY ELEMENTS COMPLETED

Project Roads and Trails

- Identified, listed, and mapped the Project roads and trails used by PCWA to access Project facilities, including developed Project recreation facilities.
- Identified, listed, and mapped Project roads and trails used by the public to access dispersed concentrated use areas.
- Conducted a road assessment to characterize the current condition of Project roads and trails, and their associated drainage features.
- Inventoried and photographed the location and condition of safety, traffic control, and informational signs and access control features.
- Identified potential natural resource issues that occur along Project roads and trails, such as stream crossings and riparian areas.
- Identified and characterized potential traffic safety concerns on Project roads.
- Identified and characterized current maintenance practices, schedules, and responsibilities for Project roads and trails including road and trail maintenance agreements between PCWA and the USDA-FS, and their associated termination dates.
- Identified and mapped the locations of existing legal easements and right-of-ways associated with Project roads and trails. This information was developed and reported as part of the LAND 4 – FERC Project Boundary and Authorizations TSP.
- Identified the location and condition of helicopter landing sites that are used to operate and maintain the MFP. Characterized the frequency and seasonality of their use, and described associated Project-related maintenance activities.
- Identified, described, and mapped the locations along Project roads that may limit access to Project facilities from landslides and rockfall.
- Identified, described, and developed a GIS map showing the location of new roads or trails or modification to existing roads or trails that would be necessary to construct or access potential Project betterments.

- Describe if access or the level or timing of use on Project or non-Project General Access roads or trails will change as a result of planned changes in future operations or maintenance of the MFP, or during construction of potential Project betterments.

3.2 VARIANCES FROM THE LAND 1 – TSP

Four variances from the FERC-approved LAND 1 – TSP occurred during the study including:

- The study schedule included in the LAND 1 – TSP identified a draft study report distribution date of March 2009 for review by the LAND Management Technical Working Group (TWG). Additional time was required to conduct research into the status of road maintenance agreements and to conduct field studies and analyze road data. This work was completed and the results are included in this report.
- The road assessment was completed on all Project roads, with the exception of Brushy Creek Adit Road and Hell Hole Dam Leakage Weir Road. Brushy Canyon Adit Road was not surveyed because large sections of the road are either washed out or covered by a landslide precluding safe access. Hell Hole Dam Leakage Weir Road was not surveyed due to the road being overgrown and not well defined.
- Potential traffic safety concerns on Project roads were identified through interviews with USDA-FS staff as an alternative to being identified in the field with USDA-FS staff, as described in the LAND 1 – TSP.
- Estimation of the useful remaining lifespan of surface treatments and erosion and drainage features on Project roads and trails was eliminated from the road assessment. In its place, a description of the condition of individual drainage features and road surface by road segment was provided. This modification to the TSP was discussed and agreed to by USDA-FS road specialists from the Tahoe National Forest (TNF) and Eldorado National Forest (ENF). It was determined that estimation of the useful remaining lifespan of surface treatments and erosion and drainage features was very subjective and could change dramatically depending on the severity of local conditions (i.e., heavy equipment road use or severe storm effects).

3.3 OUTSTANDING STUDY ELEMENTS

There are no outstanding study elements to the FERC-approved LAND 1 – TSP.

3.4 PROPOSED MODIFICATIONS TO THE LAND 1 – TSP

There are no proposed modifications to the LAND 1 –TSP.

4.0 EXTENT OF STUDY AREA

The study area includes the existing Project roads and trails identified on Table LAND 1-1. Roads and trails associated with potential Project betterments are identified in Table LAND 1-2. Roads and trails that are situated within the boundaries of an existing Project recreation facility will be addressed as part of the facilities assessment described in REC 1 – Recreation Use and Facilities Assessment Technical Study Plan (TSP).

5.0 STUDY APPROACH

This section describes the technical approaches used to conduct transportation studies on the existing Project roads and trails, new roads associated with the potential Project betterments, and helicopter landing sites. Entities that provided information for various study elements are identified, below, and individuals interviewed are listed in Table LAND 1-3.

5.1 EXISTING PROJECT ROADS AND TRAILS

5.1.1 Identification and Use of Project Roads and Trails

Project roads and trails used by PCWA to access Project facilities, including Project recreational facilities, were initially identified and mapped in 2007 and included in Supporting Document (SD) B of the PAD (PCWA 2007). A list of existing Project roads and trails was also included in the LAND 1 – TSP. In 2008, the list was updated by PCWA as part of this study. Field verification of the location of existing Project roads and trails (from the updated list) occurred during the 2008 Project roads and trails assessment, described below. Updated GIS maps of the Project roads and trails were developed based on the survey data. GIS data layers will be provided to the USDA-FS upon request.

Project roads and trails that may be used by the public to access dispersed concentrated use areas were identified by recreational technicians who conducted vehicle counts at the dispersed concentrated use areas, and through the review of GIS maps and interviews with PCWA staff. The vehicle counts were conducted in association with the REC 1 – Recreation Use and Facilities Assessment TSP. Non-Project roads that provide access to dispersed concentrated use areas were also identified during these efforts.

5.1.2 Field Assessment of Project Roads and Trails

A field assessment to characterize the current condition of Project roads and trails, including their associated drainage features, was conducted in 2008 as part of LAND 1 – TSP. The survey method was developed in coordination with the USDA-FS based on requirements of the LAND 1 – TSP and USDA-FS road survey protocols. Instructions regarding the use of the USDA-FS road survey protocols were received during discussions and site visits with USDA-FS road specialists from the TNF and ENF.

Data collected during the road and trail assessment included:

- Length and width of roads and trails;
- Type of surface treatment (e.g., paved, aggregate, native) and condition;
- Location, size, and condition of culverts and other drainage features;
- Location of bridge crossings;
- Location and condition of erosion control features;
- Location and condition of safety, traffic control, and informational signs; and
- Location and condition of access control features such as gates and other closure methods such as boulders.

Pedestrian surveys were completed along Project roads and trails. A minimum of two individuals conducted each survey, walking the roads and trails, looking for features on or adjacent to the Project roads and trails. Each road and trail and their associated features were mapped using a Trimble GeoXT 2008 Series GPS device, fitted with a Trimble Hurricane Antenna. A beginning termini was established for each road and trail. In accordance with USDA-FS protocols, USDA-FS Road Log Data Collection Feature Codes were recorded for specific road features observed during the surveys. Surveyed features were assigned codes adapted from the USDA-FS protocol. These codes are provided in Appendix A.

In addition, at each road feature, the surveyors recorded the corresponding GPS point, and other descriptive supplemental information such as size and condition of the feature. The coordinates of each feature were attributed with an associated mile designation along the road or trail, with mile 0.0 starting at the terminus of each Project road and trail.

- During 2008, surveys were performed at all the Project roads and trails with two exceptions. Brushy Canyon Adit Road was not surveyed because large sections of the road are either washed out or covered by a landslide precluding safe access. Hell Hole Dam Leakage Weir Road was not surveyed due to the road being overgrown and not well defined.

5.1.3 Inventory of Safety, Traffic Control and Informational Signs and Access Control Features on Project Roads and Trails

Safety, traffic control, and informational signs and access control features (i.e., gates) and other closure devices (i.e., boulders) were inventoried and photographed during the 2008 field assessment of Project roads and trails described in Section 5.1.2. GPS coordinates of each of these features were taken, and the location of each identified gate (or other closure device) was mapped. The condition of each feature was also noted during the surveys.

5.1.4 Identification of Natural Resources along Project Roads and Trails

Information on natural and cultural resources along Project roads and trails, such as stream crossings, riparian areas, sensitive biological resources, noxious weeds, and cultural resources were identified from the following sources:

- USGS maps (“blueline” features);
- Project road and trail field assessment (Section 5.1.2);
- TERR 1 – Vegetation Communities and Wildlife Habitat Technical Study Report (PCWA 2008);
- TERR 2 – Special-Status Plants Technical Study Report (PCWA 2009);
- TERR 3 – Noxious Weeds Technical Study Report (PCWA 2009);
- TERR 4 – Special-Status Wildlife Technical Study Report (PCWA 2009);
- TERR 6 – Special-Status Bats Technical Study Report (PCWA 2008); and
- CUL 1 – Cultural Resources Technical Study Reports (PCWA 2007; PCWA 2008).

This natural and cultural resource information was compiled and summarized in a table. Confidential cultural resource information was excluded from the table.

5.1.5 Identification of Potential Traffic Safety Concerns along Project Roads and Trails

Potential traffic safety concerns along Project roads, such as blind spots, poor sight distance, inadequate signage, and hazard trees were identified through interviews with PCWA staff and USDA-FS staff from the TNF and ENF with detailed knowledge and driving experience on the Project roads. Additionally, during the Project road and trail assessment, the surveyors recorded potential safety hazards.

5.1.6 Characterization of Maintenance Practices, Schedules, and Responsibilities on Project Roads and Trails

Current maintenance practices, schedule, and responsibilities for Project roads and trails were identified through interviews with PCWA staff and USDA-FS staff from the TNF and ENF. Executed maintenance agreements between the USDA-FS and PCWA were reviewed to determine (1) which roads/trails are covered under such agreements; (2) what provisions are in place to allow for the maintenance of the roads/trails; and (3) the termination dates for existing agreements. The current schedule and location of maintenance activities related to the following items were identified:

- Surface maintenance (grading or re-paving);
- Snow removal;
- Erosion control features (culverts/ditches/water bars);

- Access control structures (gates or boulders); and
- Vegetation trimming.

5.1.7 Identification of Existing Easements and Right-of-way Agreements on Project Roads and Trails

Existing legal easements and right-of-way agreements along Project roads and trails were evaluated as part of implementation of the LAND 4 – FERC Project Boundary and Authorizations Study Plan (PCWA 2007). This information is reported in the LAND 4 – FERC Project Boundary and Authorizations TSR distributed to the LAND Technical Working Group (TWG) in March 2009 (PCWA 2009).

5.1.8 Locations Potentially at Risk to Damage from Natural Events

Locations along Project roads potentially at risk to damage from natural events, such as landslides or rockfall, were identified through interviews with PCWA staff and USDA-FS staff from TNF and ENF. Each “potentially at risk” area along Project roads was described.

5.2 POTENTIAL CHANGE IN LEVEL OR TIMING OF VEHICLE USE ON PROJECT ROADS AND TRAILS

5.2.1 Existing Project

Potential changes in the level or timing of vehicle use of Project roads and trails associated with continued operation and maintenance of the MFP were determined through interviews with PCWA staff. Potential changes in this analysis were limited to those anticipated or planned by PCWA to conduct routine operation and maintenance activities over the course of the next Project license period (30-50 years), assuming current license conditions. The assessment did not attempt to speculate on future changes (use or timing) related to implementation of potential new license conditions that have not been identified.

5.2.2 Potential Project Betterments

Potential changes in the level or timing of vehicle use of Project roads and trails associated with routine operation and maintenance of the potential Project betterments were determined through interviews with PCWA staff and their engineering consultants. These potential changes were limited to those anticipated to conduct routine operation and maintenance activities associated with the new betterments over the course of the next Project license period (30-50 years), assuming current license conditions. The assessment did not attempt to speculate on future changes related to implementation of potential new license conditions that have not been identified.

The assessment did not include an evaluation of changes in the use of existing roads associated with construction of the potential Project betterments. At this time, preliminary engineering design of the betterments is in progress including development

of the overall construction approaches and associated schedules. As this information is developed, it will be presented to the Plenary and LAND TWG in draft memos prior to the discussion on new license conditions. A complete discussion of this information will be included in the Application for New License.

5.3 NEW ROADS OR TRAILS ASSOCIATED WITH POTENTIAL PROJECT BETTERMENTS

Three potential Project betterments/improvements were identified and described in detail in SD C of the PAD (PCWA 2007). A brief description of the potential Project betterments is provided in Appendix B. The three proposed Project betterments include:

- Hell Hole Reservoir Seasonal Storage Increase Betterment;
- French Meadows Powerhouse Capacity Upgrade Betterment; and
- Ralston Powerhouse Capacity Upgrade Betterment.

A list of proposed Project facilities (including roads and trails) associated with the betterments was provided in Table SD C-1 of the PAD. The PAD also included GIS maps illustrating the locations of all proposed betterment facilities and lands necessary for construction of the betterments in relation to the current FERC Project boundary (MAP SD C-1a, SD C-1b, SD C-2, and SD C-3).

As part of the current LAND 1 study, PCWA reviewed and updated, as appropriate, the information included in the PAD. In addition, PCWA augmented information contained in the SD C of the PAD including incorporation of land ownership information into GIS maps of the potential Project betterments.

5.4 IDENTIFICATION OF THE LOCATION AND CONDITION OF HELICOPTER LANDING SITES

Helicopter landing sites routinely used to operate and maintain the MFP were identified through interviews with PCWA and PG&E staff.

6.0 STUDY RESULTS

6.1 EXISTING PROJECT ROADS AND TRAILS

6.1.1 Identification and Use of Project Roads and Trails

An updated list of Project roads and trails used by PCWA to access Project facilities, including developed Project recreation facilities, is included in Table LAND 1-1. The Project road list was updated based on further evaluation of land ownership and access in the vicinity of the Project. It was determined that some of the roads previously identified as Project roads did not meet FERC's definition for Project roads as they are not used solely for Project purposes or our road segments located on private lands. Data associated with these roads (or segments thereof) that are no longer considered Project roads has been included in this report for reference; however the current status has been noted in Table LAND 1-1. Map LAND 1-1 identifies the location of Project

roads and trails in relation to current Project facilities and features, Project-related recreation facilities, stakeholder-identified dispersed concentrated use areas, FERC Project boundary and land ownership.

Eight Project roads are potentially used by the public to access dispersed concentrated use areas as indicated in Table LAND 1-5. However, most of the dispersed concentrated use areas can also be accessed from non-Project General Access roads. Non-Project General Access roads potentially used to access dispersed concentrated use areas have been identified in Table LAND 1-5. The location of dispersed concentrated use areas, Project roads, and non-Project General Access roads are identified in Map LAND 1-1.

6.1.2 Field Assessment of Project Roads and Trails

A field assessment of Project roads and trails, based on the LAND 1 – TSP and USDA-FS protocols, was completed in 2008. The survey results were compiled and have been included in Appendix C.

The condition of features located on and along the roads and trails, including signs, gates, and culverts have been categorized as good, fair, or poor (Appendix C). Descriptions of other features, such as ditches, water bars, evidence of ponding water, and vegetation encroachment have been included in Appendix C as supplemental information.

Surveyed features, including signs and closure devices (gates and boulders), and areas of significant road damage were photographed (Appendix D). The locations of observed features, surveyed via GPS, have been provided in X/Y coordinates (NAD83Decimal Degrees) and by road mile, defined as distance from beginning termini. The condition of Project roads by segment and the overall condition of each road is described and ranked good, fair, or poor in Appendix E.

During a field visit with USDA-FS staff, it was noted that a common issue related to the long-term stability of roads in the watershed is the development of berms on the edge of the roads. The berms, which may range from a few inches to a foot in height, can concentrate stormwater flow at low points along the edge of the roads and cause rilling and erosion. Existing rills and erosion problems on Project roads were identified during the survey and described in Appendix C. Evidence of past overtopping was noted and included in Appendix C.

6.1.3 Inventory of Safety and Traffic Signs and Control Devices on Project Roads and Trails

Table LAND 1-6 includes an inventory and description (including condition) of safety, traffic control, and informational signs; access control features (i.e., gates); and other closure devices (e.g., boulders) located on Project roads and trails. Photographs of these signs, features, and devices are included in Appendix D. Access control features and closure devices are included in Map LAND 1-1.

6.1.4 Identification of Natural Resources along Project Roads and Trails

Natural and cultural resources identified along Project roads and trails, including stream crossings, riparian areas, sensitive biological resources, and noxious weeds are provided in Table LAND 1-7. Confidential cultural resource information is not presented in this report.

6.1.5 Potential Traffic Safety Concerns along Project Roads and Trails

Based on observations during the road assessment and interviews with PCWA staff and road specialists for the TNF and ENF, no traffic safety concerns related to blind spots, poor sight distances, or inadequate signage were identified on Project roads. These roads are almost exclusively used by PCWA for operations and maintenance of the Project, with little to no public traffic. Approximately 58% of the Project roads are located behind locked gates or other closure devices. A description of site distances at the intersection of Project roads and non-Project General Access roads are provided in Appendix C.

Hazard trees present a common and ongoing issue along Project roads. Once identified, these hazard trees are typically removed or trimmed by the USDA-FS or PCWA, depending on maintenance responsibility.

6.1.6 Maintenance Practices, Schedule, and Responsibilities for Project Roads and Trails

Road maintenance activities on Project roads and trails are primarily conducted by PCWA. Table LAND 1-8 identifies the type and frequency of maintenance for each Project road and trail. Typical maintenance activities include:

- Surface maintenance such as grading and re-paving;
- Snow removal;
- Repair of culverts, ditches, and water bars;
- Repair of gates and other closure devices; and
- Vegetation trimming with hand tools.

Occasionally other types of maintenance may be required, such as removal of felled trees using heavy equipment, or removal of rockfall debris.

One Project road, the Middle Fork Interbay Dam and Powerhouse Road, has been designated a Maintenance Level 3 road by the USDA-FS. Roads designated Maintenance Level 3 through 5 are subject to the Highway Safety Act of 1966 (23 U.S.C. 402). Regulations resulting from the Act require that the USDA-FS identify traffic safety hazards and address the hazards on an ongoing basis. Specifically, for the Middle Fork Interbay Dam and Powerhouse Road, the USDA-FS is required to (1) maintain the road surface annually as needed for user safety; (2) remove vegetation to maintain site distance; (3) maintain drainage; (4) install and maintain route markers,

warning, regulatory, and guide signs; and (5) remove hazard trees. PCWA has repaved portions of the road several times following heavy vehicle use related to non-routine special projects (e.g., removal and transport of captured sediments from the Middle Fork Interbay).

PCWA and the USDA-FS have entered into various agreements related to the maintenance and use of Project roads located in the TNF and ENF. Currently, one agreement, executed on April 9, 2007, is in effect for five Project roads, as indicated in Table LAND 1-8. The agreement provides for formal meetings and informal consultation between PCWA and the USDA-FS to discuss and agree on actions related to the regular maintenance of these Project roads and coordinated assignment of maintenance responsibilities. The agreement also provides for the development of Project agreements in which improvement of a road under the jurisdiction of one party is to be financed in whole or in part from funds or resources provided by the other party. The current agreement expires on December 31, 2011. A copy of this agreement is provided in Appendix F.

PCWA has also undertaken road improvement projects in accordance with the provisions of Project-specific Special Use Permits (SUPs) issued by the USDA-FS. Projects subject to SUPs have included the repair, modification and/or installation of Project facilities and removal of sediments from Project reservoirs and diversion pools.

6.1.7 Locations Potentially at Risk to Damage from Natural Events

Based on the interviews with PCWA and USDA-FS staff and information collected during the road assessment, only one “potentially at risk” area along Project roads was identified. Rockfall activity has been observed in the past along portions of the Middle Fork Interbay Dam and Powerhouse Road (approximately 0.6-mile stretch north of Middle Fork Interbay Dam) on very steep terrain associated with the Middle Fork American River canyon. However, at this location, historical rockfall activity along the stretch has been limited to small rocks that can be easily removed from the road in a short amount of time.

6.2 POTENTIAL CHANGE IN LEVEL OR TIMING OF VEHICLE USE

6.2.1 Existing Project

There are no planned changes in level or timing of vehicle use of Project roads or trails associated with continued operation and maintenance of the MFP.

6.2.2 Betterment-related Construction

Temporary changes in type of use and frequency of use on Project roads and non-Project General Access roads may occur during the construction of Project betterments. Such changes may be related to:

- Temporary road closures;

- Frequency of vehicle trips;
- Size and type of vehicle accessing road; and
- Season of use.

A detailed description of these potential changes will be developed following completion of the preliminary engineering design of the betterments. The description will include an estimate of the type of vehicles, number of trips, seasonality of road use, and the need for temporary road closures on a Project-specific basis. As this information is developed, it will be presented to the MFP Plenary and LAND TWG in draft memos prior to the discussion on new license conditions. A complete discussion of this information will be included in the Application for New License

6.3 NEW ROADS OR TRAILS ASSOCIATED WITH POTENTIAL PROJECT BETTERMENTS

New roads and road improvements necessary to access or construct potential Project betterments are identified in Table LAND 1-2 and Map LAND 1-2. The following provides a brief description of roads associated with each potential Project betterment.

Hell Hole Reservoir Seasonal Storage Increase Betterment

The Hell Hole Seasonal Storage Increase Betterment would require one temporary construction road within the existing bed of the reservoir to install crest gates at the Hell Dam spillway. This road (Hell Hole Dam Spillway Crest Gates Construction Road) would be approximately 665 feet with a subgrade and surface designed to support the equipment used for the construction of the betterment project.

French Meadows Powerhouse Capacity Upgrade Betterment

The French Meadows Powerhouse Capacity Upgrade Betterment would require one new permanent road, the French Meadows-Hell Hole Tunnel Surge Shaft or Pipeline Road, which would be approximately 875 feet with a subgrade and surface designed to support the ongoing operations and maintenance of the facility.

To allow for construction of the betterment, improvements to an existing non-Project road, Forest road 14N09A (currently 4-wheel drive OHV road) may be required. The improvements may be required to allow access to lands necessary for construction of the surge shaft and surge shaft access road. Road assessment survey results for the segment of Forest road 14N09A potentially effected by construction activities are provided in Appendix G. The current condition of Forest road 14N09A ranged from fair to poor condition depending on the specific road segment. Generally, the road is not suitable for most types of passenger vehicles. Photographs taken during the survey are included in Appendix H.

Ralston Powerhouse Capacity Upgrade Betterment

No new roads or road improvements are proposed as part of the Ralston Powerhouse Capacity Upgrade Betterment. Further, no change in level or timing of vehicle use of

Project roads or trails would occur related to routine operation and maintenance of the MFP with the addition of this Project betterment.

6.4 LOCATION AND CONDITION OF HELICOPTER LANDING SITES

No officially designated helicopter landing sites (Federal Aviation Administration or any other authority) are present in the vicinity of the MFP. Routine operations and maintenance activities of the MFP do not involve the use of helicopters. Helicopters have been used infrequently by PCWA to assist during non-routine maintenance activities. During these activities, the helicopters may land at informal landing sites in the vicinity of the MFP.

7.0 LITERATURE CITED

Placer County Water Agency (PCWA). 2007. CUL 1 – Cultural Resources Technical Study Report. 2007.

PCWA. 2007. Pre-Application Document (PAD) for the Middle Fork American River Project. 2007.

PCWA. 2008. TERR 1 - Vegetation Communities and Wildlife Habitat Technical Study Report. June 2008.

PCWA. 2008. TERR 6 – Special-Status Bats Technical Study Report. 2008.

PCWA. 2009. CUL 1 – Cultural Resources Technical Study Report – 2008. March 2009.

PCWA. 2009. LAND 4 – FERC Project Boundary and Authorizations Technical Study Report. 2009.

PCWA. 2009. TERR 2 – Special-Status Plants Technical Study Report. 2009.

PCWA. 2009. TERR 3 – Noxious Weeds Technical Study Report. May 2009.

PCWA. 2009. TERR 4 – Special-Status Wildlife Technical Study Report. 2009.

TABLES

Table LAND 1-1. Existing Project Roads and Trails.

Existing Project Roads and Access Points
Duncan Creek Area
Duncan Creek Diversion Intake Road and Diversion Pool Access Point
Duncan Creek Diversion Dam Road
Duncan Creek Diversion Pool Road and Access Point
French Meadows Area
Duncan Creek - Middle Fork Tunnel Portal Road and Spillway Access Point
French Meadows - Hell Hole Tunnel Gatehouse Road
French Meadows Dam Outlet Works and Leakage Weirs Road
Middle Fork American River Gage and Weir below French Meadows Dam Road^a
French Meadows Dam Staging Area Road
Hell Hole Area
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point
Rubicon River Gage and Weir below Hell Hole Dam Road
Hell Hole Dam Leakage Weir Road
Hell Hole Dam Spillway Northern Access Point
French Meadows - Hell Hole Tunnel Portal Road
French Meadows Powerhouse Road
Hell Hole - Middle Fork Tunnel Gatehouse Road
Dormitory Facility Road
Hell Hole Dam Spillway Discharge Channel Road
Long Canyon Area
North Fork Long Canyon Diversion North Road
North Fork Long Canyon Diversion South Road
North Fork Long Canyon Diversion Drop Inlet Road
South Fork Long Canyon Diversion and Drop Inlet Road
North Fork Long Canyon Crossing Removable Section North Road and Parking Area
North Fork Long Canyon Crossing Removable Section South Road^b
Middle Fork Interbay Area
Middle Fork Powerhouse Butterfly Valve House Road^c
Middle Fork Powerhouse Penstock and Butterfly Valve House Road
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points
Middle Fork Powerhouse Upper Switchyard Road
Ralston-Oxbow Area
Brushy Canyon Adit Road (Project road segment is damaged and closed due to landslide)^d
Oxbow Powerhouse Road
Ralston Powerhouse Butterfly Valve House Road
Ralston - Oxbow Tunnel Intake Road
Ralston Afterbay Road and Boat Ramp
Ralston Afterbay Dam Road and Afterbay Access Point
Ralston Afterbay Sediment Removal Access Point

Table LAND 1-1. Existing Project Roads and Trails (continued).

Existing Project Trails
Duncan Creek Area
Duncan Creek Diversion Dam North Trail
Duncan Creek Diversion Dam South Trail
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail
Duncan Creek Gage and Weir above Diversion Trail
Duncan Creek Gage and Weir below Diversion Trail
French Meadows Area
Middle Fork American River Gage and Weir below French Meadows Dam Trail
Middle Fork Interbay Area
Middle Fork American River Gage above Middle Fork Powerhouse Trail
Passive Microwave Reflector Station above Middle Fork Interbay Trail
Ralston Afterbay Area
Passive Microwave Reflector Station above Ralston Afterbay Trail
Middle Fork American River Gage below Oxbow Powerhouse Trail

^aThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use road on private property based on additional data gathering

^bThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on Eldorado National Forest property outside the FERC Project boundary and the second segment designated as a Project road within the FERC Project boundary on PCWA land

^cThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on private property outside the FERC Project boundary and the second segment designated as a Project road with the majority of the road located on Eldorado National Forest property outside the FERC Project boundary

^dThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on private and Eldorado National Forest property outside the FERC Project boundary (NOTE: also a portion within FERC boundary) and the second segment designated as a Project road within Eldorado National Forest property outside the FERC Project boundary

Table LAND 1-2. Roads Associated with the Potential Project Betterments.

Hell Hole Reservoir Seasonal Storage Increase Betterment

Hell Hole Dam
Hell Hole Dam Spillway Crest Gates Construction Road (temporary road)

French Meadows Powerhouse Capacity Upgrade Betterment

French Meadows Powerhouse
French Meadows - Hell Hole Tunnel Surge Shaft or Pipeline Road (permanent Project road)
Forest Road 14N09A (Non-Project road - modification)
French Meadows Reservoir
French Meadows - Hell Hole Tunnel Intake Trash Rack Construction Road (temporary road)

Ralston Powerhouse Capacity Upgrade Betterment

Ralston-Oxbow Area
No new roads proposed

Table LAND 1-3. Primary Contacts for the LAND 1 Interviews and Data Gathering Effort.

Primary LAND 1 Contact, Title	Study Element						
	Road and Trail Assessment	Traffic Safety Concerns	Road Maintenance Practices	Road Maintenance Agreements	Locations at Risk from Natural Events	Potential Changes in Use	Helicopter Landing Sites
PCWA							
Andy Fecko, Resource Planning Administrator				X		X	X
Steve Jones, Power Systems Manager		X		X	X		
Marc Wyatt, Maintenance Supervisor		X	X		X		X
Forest Service							
R. Scott Husmann (TNF), Road Manager	X	X	X		X		
Paul Sanders (ENF), Road Manager	X						
Tom Koler, Northern Sierra Province Geologist					X		
John Jue (ENF), District Resource Officer		X					
PG&E							
Ken Amaral, Helicopter Coordinator							X

Table LAND 1-4. Characterization of Project Roads and Trails.

Name	Start	End	Length/Width (Approximate) 8-12 ft. = single lane 20 ft. = one and one half lane 24 ft. = double lane	Surface Treatment	Overall Condition	Bridge Crossing Locations (road mile)	Comments
Project Roads and Access Points							
Duncan Creek Area							
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	Forest Road 96.52	Duncan Creek–Middle Fork Tunnel Intake	0.17 mi./10-12 ft.	Aggregate/Native	Good	N/A	An access point from the road to the diversion pool is located adjacent to the tunnel intake
Duncan Creek Diversion Dam Road	Forest Road 96.52	North End of Duncan Creek Diversion Dam	0.05 mi./10 ft.	Native	Good	N/A	This road provides access to the vicinity of the diversion dam
Duncan Creek Diversion Pool Road and Access Point	Forest Road 96.52	North Side of Duncan Creek Diversion Pool	0.06 mi./10 ft.	Native	Poor	N/A	An access point to the diversion pool occurs at the end of the road
French Meadows Area							
Duncan Creek–Middle Fork Tunnel Portal Road and Spillway Access Point	Forest Road 96.69	Duncan Creek–Middle Fork Tunnel Portal	0.29 mi./10 ft.	Aggregate/Native	Poor	N/A	Near the end if the road is an access point to the reservoir side of the dam spillway
French Meadows–Hell Hole Tunnel Gatehouse Road	Forest Route 96	French Meadows–Hell Hole Tunnel Gatehouse	0.17 mi./12 ft.	Native	Fair	N/A	
French Meadows Dam Outlet Works and Leakage Weirs Road	Forest Route 22	French Meadows Dam Outlet Works and Leakage Weirs	0.53 mi./12 ft.	Aggregate	Good - Good/Fair	N/A	Access to the French Meadows Dam outlet works and the leakage weir are located along the dam face
French Meadows Dam Staging Area Road	Forest Route 96	French Meadows Dam Staging Area	0.07 mi./10 ft.	Aggregate	Good	N/A	Access to the French Meadows Dam Staging Area is adjacent to the French Meadows Dam Spillway
Middle Fork American River Gage and Weir below French Meadows Dam Road^a	Forest Route 22	Trail to Middle Fork American River Gage and Weir below French Meadows Dam	0.43 mi./12 ft.	Native	Good–Fair	N/A	
Hell Hole Area							
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	Hell Hole Dam Boat Ramp	Hell Hole Powerhouse and Outlet Works	0.95 mi./12-24 ft.	Aggregate/Native/ Paved	Good	0.18 - 0.26	Provides access to the reservoir side of the dam spillway; to the outlet works, and to Hell Hole Powerhouse, both of which are located at the base of Hell Hole Dam
Rubicon River Gage and Weir below Hell Hole Dam Road	Hell Hole Dam and Powerhouse Road	Rubicon River Gage and Weir below Hell Hole Dam	0.07 mi./10 ft.	Aggregate	Fair	N/A	
Hell Hole Dam Leakage Weir Road	Hell Hole Dam and Powerhouse Road	Hell Hole Dam Leakage Weir below Hell Hole Dam	0.05 mi./12 ft.	Aggregate	Poor	N/A	
Hell Hole Dam Spillway and Northern Access Point	Hell Hole Boat Ramp Road	Hell Hole Dam Spillway	0.02 mi./10 ft.	Native	Poor	N/A	Road is near the Hell Hole Boat Ramp and the reservoir side of the spillway
French Meadows–Hell Hole Tunnel Portal Road	Forest Route 2	French Meadows Powerhouse Penstock and Butterfly Valve House	0.61 mi./12 ft.	Native	Good/Fair	N/A	Road provides access to the French Meadows Powerhouse Penstock and Butterfly Valve House
French Meadows Powerhouse Road	Forest Route 2	French Meadows Powerhouse	1.28 mi./24 ft.	Aggregate	Good	N/A	
Hell Hole–Middle Fork Tunnel Gatehouse Road	Forest Route 2	Hell Hole–Middle Fork Tunnel Gatehouse	0.37 mi./12 ft.	Native	Good/Fair	N/A	
Dormitory Facility Road	Forest Route 2	Hell Hole Dormitory Facility	0.13 mi./20 ft.	Aggregate	Good	N/A	
Hell Hole Dam Spillway Discharge Channel Road	Forest Route 2	Hell Hole Dam Spillway Discharge Channel below the spillway and dam	0.6 mi./8-10 ft.	Native	Poor	N/A	
Long Canyon Area							
North Fork Long Canyon Diversion North Road	Forest Road 14N42.1	North Fork Long Canyon Diversion (north approach)	0.14 mi./15 ft.	Native	Good - Good/Fair	N/A	
North Fork Long Canyon Diversion South Road	Forest Route 2	North Fork Long Canyon Diversion (south approach)	0.62 mi./12 ft.	Native	Good	N/A	

Table LAND 1-4. Characterization of Project Roads and Trails (continued).

Name	Start	End	Length/Width (Approximate) 8-12 ft. = single lane 20 ft. = one and one half lane 24 ft. = double lane	Surface	Overall Condition	Bridges (road mile)	Comments
Project Roads and Access Points (continued)							
Long Canyon Area (continued)							
North Fork Long Canyon Diversion Drop Inlet Road	Forest Route 2	North Fork Long Canyon Diversion Drop Inlet	0.08 mi./10 ft.	Native	Good - Poor	N/A	A portion of this road also provides access to PG&E's 60 kV transmission line right-of-way between French Meadows Powerhouse and Middle Fork Powerhouse.
South Fork Long Canyon Diversion and Drop Inlet Road	Forest Route 2	South Fork Long Canyon Diversion and Diversion Drop Inlet	0.11 mi./20 ft.	Native	Good - Good/Fair	N/A	
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	Forest Route 2	North Fork Long Canyon Crossing Removable Section and parking area	0.15 mi./10 ft.	Native	Good/Fair - Fair	N/A	An unpaved parking area is adjacent to the removable section
North Fork Long Canyon Crossing Removable Section South Road ^b Note: A portion of the road was incorrectly identified as Project road in the PAD. Data is listed for the multi-use non-Project road segment and the Project road segment. A portion of the Project road segment was overgrown, therefore not surveyed.	Multi-use Non-Project Road Segment:						
	Forest Road 14N16	Forest Road 14N16A at Eldorado National Forest Boundary	0.26 mi./12 ft.	Native	Good - Fair	N/A	
	Project Road Segment:						
	Forest Road 14N16A at Eldorado National Forest Boundary	North Fork Long Canyon Crossing Removable Section (southern access)	0.11 mi.	Native	Poor	N/A	
Middle Fork Interbay Area							
Middle Fork Powerhouse Butterfly Valve House Road ^f Note: A portion of the road was incorrectly identified as Project road in the PAD. Survey data is listed for both the multi-use non-Project road segment and the Project road segment.	Multi-use Non-Project Road Segment:						
	Forest Road 14N31	14N55 at Eldorado National Forest Boundary	0.358 mi./20 ft.	Aggregate	Good	N/A	
	Project Road Segment:						
	14N55 at Eldorado National Forest Boundary	Middle Fork Powerhouse Butterfly Valve House and Hell Hole-Middle Fork Tunnel Removable Section	0.743 mi./20 ft.	Aggregate	Good	N/A	
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	Middle Fork Powerhouse	Middle Fork Powerhouse Butterfly Valve House and Hell Hole-Middle Fork Tunnel Removable Section	1.83 mi./12 ft.	Paved/Chip seal/Aggregate/Native	Good/Fair - Fair	N/A	
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	Forest Route 96	Middle Fork Powerhouse	4.85 mi./12-24 ft.	Paved/Aggregate	Good	N/A	Two access points to the Middle Fork Interbay are also located along this road. The first is at the Middle Fork Interbay Day and the second is located adjacent to the intersection with the Middle Fork Powerhouse Upper Switchyard Road.
Middle Fork Powerhouse Upper Switchyard Road	Forest Road 96.17 (Middle Fork Interbay Dam and Powerhouse Road)	Middle Fork Powerhouse Upper Switchyard	0.12 mi./12 ft.	Paved/Aggregate	Good/Fair	N/A	

Table LAND 1-4. Characterization of Project Roads and Trails (continued).

Name	Start	End	Length/Width (Approximate) 8-12 ft. = single lane 20 ft. = one and one half lane 24 ft. = double lane	Surface	Overall Condition	Bridges (road mile)	Comments
Project Roads and Access Points (continued)							
Ralston - Oxbow Area							
Brushy Canyon Adit Road ^d Note: A portion of the road was incorrectly identified as Project road in the PAD. Data is listed for the multi-use non-Project road segment and the Project road segment, however, the Project road segment is damaged and closed due to landslide activity, therefore was not surveyed.	Multi-use Non-Project Road Segment:						
	Forest Road 14N30	14N30 at Eldorado National Forest Boundary	1.1 mi./12 ft.	Native	Poor	N/A	The road is blocked approximately one mile from the adit due to a road failure
	Project Road Segment:						
	14N30 at Eldorado National Forest Boundary	Brush Canyon Adit (Middle Fork-Ralston Tunnel)	0.48 mi./12 ft.	Native	Poor	N/A	
Oxbow Powerhouse Road	Forest Road 23.02	Oxbow Powerhouse	0.14 mi./20 ft.	Paved	Good	N/A	
Ralston Powerhouse Butterfly Valve House Road	Forest Route 23	Ralston Powerhouse Butterfly Valve House and Middle Fork-Ralston Tunnel Removable Section at the top of the powerhouse penstock	0.32 mi./10 ft.	Native	Good	N/A	The road provides access to the Ralston Powerhouse Butterfly Valve House and Middle Fork-Ralston Tunnel Removable Section at the top of the powerhouse penstock
Ralston - Oxbow Tunnel Intake Road	Forest Road 23.02	Ralston-Oxbow Tunnel Intake	0.07 mi./single-lane	Aggregate	Good	N/A	
Ralston Afterbay Road and Boat Ramp	Forest Road 23.02	Ralston Afterbay Boat Ramp	0.04 mi./single-lane	Aggregate	Good	N/A	
Ralston Afterbay Dam Road and Afterbay Access Point	Forest Road 23.02	Ralston Afterbay Reservoir (south approach)	0.21 mi./single-lane	Native (crest across the dam improved)	Good	N/A	
Ralston Afterbay Sediment Removal Access Point	Forest Route 23	Ralston Afterbay Reservoir	.02 mi.	Aggregate	Good	N/A	The access point is located off of Forest Route 23
Project Trails							
Duncan Creek Area							
Duncan Creek Diversion Dam North Trail	Duncan Creek Diversion Dam Road	Duncan Creek Diversion Dam (north end)	0.01 mi./N/A	Native	Good	N/A	
Duncan Creek Diversion Dam South Trail	Duncan Creek Diversion Intake Road	Duncan Creek Diversion Dam (south end)	0.03 mi./N/A	Native	Good	N/A	
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	Forest Road 96.52	Duncan Creek Gage above the Diversion Dam	0.02 mi./N/A	Native	Good	N/A	
Duncan Creek Gage and Weir above Diversion Trail	Duncan Creek Diversion Intake Road	Duncan Creek Gage and Weir above Diversion Dam	0.02 mi./N/A	Native	Good	N/A	
Duncan Creek Gage and Weir below Diversion Trail	Forest Road 96.52	Duncan Creek Gage and Weir below Diversion Dam	0.17 mi./N/A	Native	Good	N/A	
French Meadows Area							
Middle Fork American River Gage and Weir below French Meadows Dam Trail	Middle Fork American River Gage and Weir below French Meadows Dam Road	Middle Fork American River Gage and Weir	0.02 mi./N/A	Native	Good	N/A	

Table LAND 1-4. Characterization of Project Roads and Trails (continued).

Name	Start	End	Length/Width (Approximate) 8-12 ft. = single lane 20 ft. = one and one half lane 24 ft. = double lane	Surface	Overall Condition	Bridges (road mile)	Comments
Project Trails (continued)							
Middle Fork Interbay Area							
Middle Fork American River Gage above Middle Fork Powerhouse Trail	Middle Fork Powerhouse Penstock and Butterfly Valve House Road	Cable crossing of the Middle Fork American River	0.07 mi./N/A	Native	Good	N/A	The trail also includes a 40 ft. metal walkway
Passive Microwave Reflector Station above Middle Fork Interbay Trail	Forest Road 16.26	Passive Microwave Reflector Station above Middle Fork Interbay	0.08 mi./N/A	Native	Good	N/A	
Ralston Afterbay Area							
Passive Microwave Reflector Station above Ralston Afterbay Trail	Forest Route 23	Passive Microwave Reflector Station above Ralston Afterbay	0.09 mi./N/A	Native	Poor	N/A	Trail largely undefined - heavy vegetation
Middle Fork American River Gage below Oxbow Powerhouse Trail	Forest Road 96.6	Middle Fork American River Gage below Oxbow Powerhouse	0.01 mi./N/A	Metal	Good	N/A	The trail consists of a gangplank and ladder to the gage

N/A = Not applicable

^aThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use road on private property based on additional data gathering

^bThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on Eldorado National Forest property outside the FERC Project boundary and the second segment designated as a Project road within the FERC Project boundary on PCWA land

^cThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on private property outside the FERC Project boundary and the second segment designated as a Project road with the majority of the road located on Eldorado National Forest property outside the FERC Project boundary

^dThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments, with the first segment being designated as a multi-use road on private and Eldorado National Forest property (majority of segment outside the FERC Project boundary) and the second segment designated as a Project road within Eldorado National Forest property (majority of segment also outside the FERC Project boundary)

Table LAND 1-5. Potential Access Roads for Dispersed Concentrated Use Areas.

Dispersed Concentrated Use Areas	Project Roads and Access Points										Non-Project Roads														
	Duncan Creek Area	Duncan Creek Diversion Intake Road and Diversion Pool Access Point	Duncan Creek Diversion Dam Road ^a	Duncan Creek Diversion Pool Road and Access Point ^a	French Meadows Area	French Meadows Dam Outlet Works and Leakage Weirs Road ^a	French Meadows Dam Staging Area Road	Hell Hole Area	Hell Hole Dam Spillway Northern Access Point ^a	Long Canyon Area	South Fork Long Canyon Diversion and Drop Inlet Road	Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	Ralston - Oxbow-Area	Oxbow Powerhouse Road	Ralston Powerhouse Butterfly Valve House Road	FR 96 (Mosquito Ridge Road)	FR 23 (Ralston Ridge Road)	Blacksmith Flat Road	FR-2	FR-22 (17N12)	Forest road 96.52	Forest road 23.2	14N09A	Forest road 96.69	14N17
French Meadows Reservoir Area																									
Area near French Meadows-Hell Hole Tunnel Gatehouse																									
Area immediately downstream of French Meadows Dam (both sides of river)																									
Area located immediately northwest of French Meadows Dam																									
Area near bridge over the Middle Fork American River, upstream French Meadows Reservoir																									
Duncan Creek Diversion Dam Area																									
Area on north side of Duncan Creek Diversion Dam																									
Area near Duncan Creek Gage and Weir, upstream of Duncan Creek Diversion Dam																									
Area near new bridge crossing Duncan Canyon on the road to the Grizzly, etc.																									
Hell Hole Reservoir Area																									
Area on west side of Hell Hole Reservoir, between dam and Hell Hole Boat Ramp																									
Grey Horse Area																									
Long Canyon Area																									
Area surrounding South Fork Long Canyon Diversion Dam																									
Areas along South Fork Long Canyon Creek, downstream of South Fork Long Canyon Diversion Dam																									
Middle Fork Interbay Area																									
Shoreline area surrounding Middle Fork Interbay																									
Ralston Afterbay Area																									
Ralston Afterbay Sediment Disposal Area																									
Shoreline area surrounding Ralston Afterbay																									
Area along Middle Fork American River, between Ralston Picnic Area and the new gage																									
Area at confluence of North Fork of the Middle Fork American River and Middle Fork American River																									
Indian Bar, Willow Bar, and Junction Bar Areas																									

^aRoad is behind locked gate or other closure device and provides pedestrian access only.

Table LAND 1-6. Inventory of Safety, Traffic Control, and Informational Signs and Access Control Features.

Name	Assumptions	Road Log Data Collection Feature Codes	Type	Road Mile	GPS Coordinates (NAD83 DD)		Condition	Photo Number	Supplemental Information
					Longitude	Latitude			
Project Roads and Access Points									
Duncan Creek Area									
Duncan Creek Diversion Dam Road		76	Road Closure Device, Rock	0.012	-120.481583	39.135022	Good	DCDDR02	Closed with large boulders. Road closure devices are in good condition.
Duncan Creek Diversion Pool Road and Access Point		76	Road Closure Device, Rock	0.000	-120.479646	39.136285	Good	DCDPRAP01	Closed with large boulders and one large downed log. Road closure devices are in good condition.
French Meadows Area									
Duncan Creek–Middle Fork Tunnel Portal Road and Spillway Access Point		71	Steel Gate ^a	N/A ^a	-120.474711	39.116277	Good - Fair	DCMFTPR02-A	Rd. closed off FR-96, gate slightly rusted but in good-fair condition.
		64	Regulatory, Right ^a				Fair	DCMFTPR02-B	PCWA and USFS handmade sign. Made of particle board.
French Meadows–Hell Hole Tunnel Gatehouse Road		71	Steel Gate	0.009	-120.434768	39.107265	Good	FMHHTGR02	Road closed. Gate in good condition.
French Meadows Dam Outlet Works and Leakage Weirs Road		71	Steel Gate	0.008	-120.470541	39.107696	Good	FMDOWLWR02	Road closed with steel gate off of FR 96. In good condition.
Middle Fork American River Gage and Weir below French Meadows Dam Road^b		71	Steel Gate	0.264	-120.477968	39.105814	Fair	MFARGWBEMDR03	Road Closed by a steel gate. In good condition, although slightly rusted.
Hell Hole Area									
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point		71	Steel Gate	0.048	-120.413635	39.059744	Good	HHDPRSSAP02	Gate on road to spillway closed and slightly rusted.
Hell Hole Dam Spillway and Northern Access Point		74	Cable and Log Barrier	0.000	-120.413360	39.061188	Fair	HHDSNAP01	Road closed by log and cable (rocks). Road closure in fair condition.
French Meadows - Hell Hole Tunnel Portal Road		71	Steel Gate	0.004	-120.414372	39.073280	Good	FMHHTPR02	Gate closed, in good condition
French Meadows Powerhouse Road		71	Steel Gate	1.218	-120.407316	39.077415	Good	FMPR48	Gate open and in good condition.
		66	Warning, Right	1.212	-120.407316	39.077415	Good	FMPR53	Warning sign on the right before powerhouse. In good condition.
Hell Hole–Middle Fork Tunnel Gatehouse Road		71	Steel Gate	0.034	-120.416357	39.060818	Good	HMFHTGR05	Steel Gate closure on road, open and in good condition.
Dormitory Facility Road		71	Steel Gate	0.127	-120.415461	39.058875	Good	DFR06	Gate at dormitory
Middle Fork Interbay Area									
Middle Fork Powerhouse Penstock and Butterfly Valve House Road		71	Steel Gate	0.000	-120.596847	39.024439	Good	MFIDPRIAP166B	Gate next to the powerhouse, off of Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points.
		95-3	Underground Powerline	1.434	-120.586797	39.018926	Fair	MFPPBVHR44	Underground powerline. The marker is in fair condition and is peeling. Made of aluminum.

Table LAND 1-6. Inventory of Safety, Traffic Control, and Informational Signs and Access Control Features (continued).

Name	Assumptions	Road Log Data Collection Feature Codes	Type	Road Mile	GPS Coordinates (NAD83 DD)		Condition	Photo Number	Supplemental Information
					Longitude	Latitude			
Project Roads and Access Points									
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points		60	Non-specified Sign	0.003	-120.616195	39.051745	Good	MFIDPRIAP02	Stop sign. In good condition. Made of aluminum.
		66	Warning, Right	0.006	-120.616124	39.051684	Fair	MFIDPRIAP03	Warning sign at the start of the road, (by intersection with FR96), In fair condition (paint is peeling) Made of metal.
		63	Regulatory, Left	0.025	-120.616339	39.051438	Fair	MFIDPRIAP04	PCWA Interbay Dam sign. Made of aluminum.
		69	Poster	4.407	-120.603311	39.026653	Good	MFIDPRIAP148	Interbay, PCWA sign
		66	Warning, Right	4.410	-120.603311	39.026653	Good	MFIDPRIAP149	Warning sign before Interbay Dam. In good condition. Made of aluminum.
		65	Warning, Left	4.454	-120.602530	39.026369	Fair	MFIDPRIAP152	In fair condition. Made of aluminum.
		65, 65	Warning, Left	4.838	-120.597111	39.024473	Good - Fair	MFIDPRIAP165 A&B	Warning signs on fence by the creek. One is in good condition, the other is in fair condition (words are peeling and hard to read). Made of aluminum.
Middle Fork Powerhouse Upper Switchyard Road		65, 65	Warning, Left	4.854	-120.596847	39.024439	Good	MFIDPRIAP166 A&B	Warning signs on the fence around the powerhouse. All in good condition. Made of aluminum.
		71	Steel Gate	0.125	-120.596516	39.024272	Good	MFPUSR01A&B	Gate enclosing the upper switchyard.
		65	Warning, Left	0.125	-120.596516	39.024272	Fair	MFPUSR01A	Sign on gate at the upper powerhouse. Sign is metal and in fair condition. It's hard to read because the paint is peeling.
		66	Warning, Right	0.125	-120.596516	39.024272	Good	MFPUSR01B	Sign is on the gate at the upper powerhouse. Sign is metal and in good condition.
Long Canyon Area									
North Fork Long Canyon Crossing Removable Section North Road and Parking Area		71	Steel Gate	0.007	-120.516071	39.029469	Good	NFLCCRSNRPA02	Steel gate closure for roadway
Ralston - Oxbow Area									
Oxbow Powerhouse Road		71	Steel Gate	0.137	-120.746554	39.006258	Good		Steel gate closure on roadway. In good condition.
Ralston Powerhouse Butterfly Valve House Road		76	Road Closure Device, Rock	0.059	-120.721036	39.005477	Good	RPBVHR02	Road closure - road around sediment disposal area.
		71	Steel Gate	0.118	-120.722103	39.005337	Good	RPBVHR03	Steel gate closure on roadway, ~ half way down road.
Ralston - Oxbow Tunnel Intake Road		71	Steel Gate	0.015	-120.746257	39.005081	Good	ROTIR02	Steel gate. In good condition.
Ralston Afterbay Road and Boat Ramp		71	Steel Gate	0.009	-120.746662	39.004266	Good	RARBR03	Closed and in good condition.
Ralston Afterbay Dam Road and Afterbay Access Point		71	Steel Gate	0.012	-120.746725	39.003920	Good	RADRAAP01	Gate at north end of dam.
		71	Steel Gate	0.119	-120.746168	39.002567	Good	RADRAAP02	Gate at south end of dam.
		66	Warning, Right	0.205	-120.745033	39.003164	Fair	RADRAAP03	"No Boats Past This Point"

95-3 - Underground powerline/telephone line

^aGate/sign not located on Project segment of road, but restricts access to Project road

^bThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use road on private property based on additional data gathering

Table LAND 1-7. Occurrence of Natural Resources along Project Roads and Trails.

Name	Stream Crossings (USGS "Blue Line" Features)	Riparian Areas ¹ (Information from TERR 1 TSR)	Special-Status Plants ² (Information from TERR 2 TSR)	Special-status Wildlife and/or Habitat ³ (Information from TERR 1 TSR and 4 TSR)	Special-status Bat Roosting Habitat ⁴ (Information from TERR 6 TSR)	Noxious Weeds ⁵ (Information from TERR 3 TSR)
Project Roads and Access Points						
Duncan Creek Area						
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	N/A	Present	N/A	California spotted owl PAC; Northern goshawk PAC	N/A	2 species present (<i>Cirsium vulgare</i> , <i>Verbascum thapsus</i>)
Duncan Creek Diversion Dam Road	N/A	N/A	N/A	Northern goshawk PAC	N/A	1 species present (<i>Bromus tectorum</i>)
Duncan Creek Diversion Pool Road and Access Point	N/A	Present	N/A	Northern goshawk PAC	N/A	2 species present (<i>Cirsium vulgare</i> , <i>Verbascum thapsus</i>)
French Meadows Area						
Duncan Creek–Middle Fork Tunnel Portal Road and Spillway Access Point	N/A	N/A	N/A	Osprey nest	N/A	7 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Dactylis glomerata</i> , <i>Melilotus albus</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Verbascum thapsus</i>)
French Meadows–Hell Hole Tunnel Gatehouse Road	1 Intermittent	N/A	N/A	California spotted owl HRCA; Osprey nest	N/A	4 species present (<i>Cirsium vulgare</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Verbascum thapsus</i>)
French Meadows Dam Outlet Works and Leakage Weirs Road	N/A	Present	N/A	California spotted owl HRCA	N/A	7 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Hypericum perforatum</i> , <i>Melilotus albus</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Verbascum thapsus</i>)
French Meadows Dam Staging Area Road	N/A	N/A	N/A	Osprey nest	N/A	4 species present (<i>Cirsium vulgare</i> , <i>Dactylis glomerata</i> , <i>Melilotus albus</i> , <i>Plantago lanceolata</i>)
Middle Fork American River Gage and Weir below French Meadows Dam Road⁶	N/A	Present	N/A	N/A	N/A	2 species present (<i>Rumex acetosella</i>, <i>Hypericum perforatum</i>)
Hell Hole Area						
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	N/A	N/A	N/A	N/A	N/A	9 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Hypericum perforatum</i> , <i>Melilotus officinalis</i> , <i>Verbascum thapsus</i> , <i>Vulpia myuros</i>)
Rubicon River Gage and Weir below Hell Hole Dam Road	N/A	Present	N/A	N/A	N/A	3 species present (<i>Bromus tectorum</i> , <i>Taeniatherum caput-medusae</i> , <i>Vulpia myuros</i>)
Hell Hole Dam Leakage Weir Road	N/A	N/A	N/A	N/A	N/A	7 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Hirschfeldia incana</i> , <i>Melilotus officinalis</i> , <i>Torilis arvensis</i> , <i>Verbascum thapsus</i> , <i>Vulpia myuros</i>)
Hell Hole Dam Spillway and Northern Access Point	N/A	N/A	N/A	N/A	N/A	N/A
French Meadows–Hell Hole Tunnel Portal Road	N/A	N/A	<i>Phacelia stebbinsii</i> (2 populations)	N/A	N/A	3 species present (<i>Bromus tectorum</i> , <i>Cynosurus echinatus</i> , <i>Vulpia myuros</i>)

Table LAND 1-7. Occurrence of Natural Resources along Project Roads and Trails (continued).

Name	Stream Crossings (USGS "Blue Line" Features)	Riparian Areas ¹ (Information from TERR 1 TSR)	Special-Status Plants ² (Information from TERR 2 TSR)	Special-status Wildlife and/or Habitat ³ (Information from TERR 1 TSR and 4 TSR)	Special-status Bat Roosting Habitat ⁴ (Information from TERR 6 TSR)	Noxious Weeds ⁵ (Information from TERR 3 TSR)
Project Roads and Access Points (continued)						
Hell Hole Area (continued)						
French Meadows Powerhouse Road	1 Perennial	N/A	<i>Phacelia stebbinsii</i> (3 populations)	Osprey nest	N/A	5 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Hypericum perforatum</i> , <i>Vulpia myuros</i>)
Hell Hole–Middle Fork Tunnel Gatehouse Road	1 Perennial	N/A	<i>Phacelia stebbinsii</i> (1 population)	Osprey nest	N/A	5 species present (<i>Bromus tectorum</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Hypericum perforatum</i> , <i>Vulpia myuros</i>)
Dormitory Facility Road	N/A	N/A	N/A	N/A	N/A	3 species present (<i>Bromus tectorum</i> , <i>Hypericum perforatum</i> , <i>Vulpia myuros</i>)
Hell Hole Dam Spillway Discharge Channel Road	N/A	N/A	<i>Phacelia stebbinsii</i> (6 populations)	N/A	N/A	8 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hypericum perforatum</i> , <i>Plantago lanceolata</i> , <i>Verbascum thapsus</i> , <i>Vulpia myuros</i>)
Long Canyon Area						
North Fork Long Canyon Diversion North Road	N/A	N/A	N/A	N/A	N/A	4 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Rumex acetosella</i> , <i>Verbascum thapsus</i>)
North Fork Long Canyon Diversion South Road	N/A	N/A	N/A	California spotted owl PAC	N/A	3 species present (<i>Cirsium vulgare</i> , <i>Hypericum perforatum</i> , <i>Rumex acetosella</i>)
North Fork Long Canyon Diversion Drop Inlet Road	N/A	N/A	N/A	California spotted owl PAC	N/A	3 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Rumex acetosella</i>)
South Fork Long Canyon Diversion and Drop Inlet Road	N/A	Present	N/A	California spotted owl PAC / HRCA	N/A	3 species present (<i>Bromus tectorum</i> , <i>Rumex acetosella</i> , <i>Vulpia myuros</i>)
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	1 Perennial	Present	N/A	N/A	N/A	8 species present (<i>Bromus tectorum</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hypericum perforatum</i> , <i>Melilotus albus</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Verbascum thapsus</i>)
North Fork Long Canyon Crossing Removable Section South Road ⁷	N/A	Present	N/A	California spotted owl PAC	N/A	9 species present (<i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cynosurus echinatus</i> , <i>Hypericum perforatum</i> , <i>Lepidium latifolium</i> , <i>Melilotus albus</i> , <i>Plantago lanceolata</i> , <i>Rubus discolor</i> , <i>Rumex acetosella</i>)

Table LAND 1-7. Occurrence of Natural Resources along Project Roads and Trails (continued).

Name	Stream Crossings (USGS "Blue Line" Features)	Riparian Areas ¹ (Information from TERR 1 TSR)	Special-Status Plants ² (Information from TERR 2 TSR)	Special-status Wildlife and/or Habitat ³ (Information from TERR 1 TSR and 4 TSR)	Special-status Bat Roosting Habitat ⁴ (Information from TERR 6 TSR)	Noxious Weeds ⁵ (Information from TERR 3 TSR)
Project Roads and Access Points (continued)						
Middle Fork Interbay Area						
Middle Fork Powerhouse Butterfly Valve House Road ⁷	1 Intermittent	N/A	N/A	California spotted owl PAC	N/A	6 species present (<i>Agrostis stolonifera</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cynosurus echinatus</i> , <i>Torilis arvensis</i> , <i>Vulpia myuros</i>)
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	16 Perennial, same stream	N/A	N/A	California spotted owl HRCA	N/A	11 species present (<i>Agrostis stolonifera</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cirsium arvense</i> , <i>Hirschfeldia incana</i> , <i>Hypericum perforatum</i> , <i>Rubus discolor</i> , <i>Rumex acetosella</i> , <i>Torilis arvensis</i> , <i>Verbascum thapsus</i> , <i>Vulpia myuros</i>)
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	7 Perennial, 5 streams	Present	N/A	California spotted owl HRCA	N/A	14 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Hypericum perforatum</i> , <i>Melilotus albus</i> , <i>Melilotus officinalis</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Torilis arvensis</i> , <i>Vulpia myuros</i>)
Middle Fork Powerhouse Upper Switchyard Road	N/A	N/A	N/A	California spotted owl PAC / HRCA	N/A	6 species present (<i>Cirsium vulgare</i> , <i>Dactylis glomerata</i> , <i>Hirschfeldia incana</i> , <i>Melilotus officinalis</i> , <i>Rubus discolor</i> , <i>Verbascum thapsus</i>)
Ralston - Oxbow Area						
Brushy Canyon Adit Road ⁷	1 Intermittent	N/A	<i>Phacelia stebbinsii</i> (2 populations)	California spotted owl PAC / HRCA	N/A	13 species present (<i>Agrostis stolonifera</i> , <i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Dactylis glomerata</i> , <i>Hypericum perforatum</i> , <i>Plantago lanceolata</i> , <i>Rumex acetosella</i> , <i>Torilis arvensis</i> , <i>Verbascum thapsus</i> , <i>Vulpia myuros</i>)
Oxbow Powerhouse Road	N/A	N/A	N/A	N/A	N/A	9 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cynosurus echinatus</i> , <i>Hirschfeldia incana</i> , <i>Hypericum perforatum</i> , <i>Plantago lanceolata</i> , <i>Torilis arvensis</i> , <i>Vulpia myuros</i>)

Table LAND 1-7. Occurrence of Natural Resources along Project Roads and Trails (continued).

Name	Stream Crossings (USGS "Blue Line" Features)	Riparian Areas ¹ (Information from TERR 1 TSR)	Special-Status Plants ² (Information from TERR 2 TSR)	Special-status Wildlife and/or Habitat ³ (Information from TERR 1 TSR and 4 TSR)	Special-status Bat Roosting Habitat ⁴ (Information from TERR 6 TSR)	Noxious Weeds ⁵ (Information from TERR 3 TSR)
Project Roads and Access Points (continued)						
Ralston - Oxbow Area (Continued)						
Ralston Powerhouse Butterfly Valve House Road	N/A	N/A	N/A	N/A	N/A	9 species present (<i>Ailanthus altissima</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Cynosurus echinatus</i> , <i>Hypericum</i> <i>perforatum</i> , <i>Melilotus officinalis</i> , <i>Rubus</i> <i>discolor</i> , <i>Torilis arvensis</i> , <i>Vulpia</i> <i>myuros</i>)
Ralston - Oxbow Tunnel Intake Road	N/A	Present	N/A	N/A	N/A	2 species present (<i>Bromus diandrus</i> , <i>Vulpia myuros</i>)
Ralston Afterbay Road and Boat Ramp	N/A	Present	N/A	N/A	N/A	5 species present (<i>Bromus diandrus</i> , <i>Cynosurus echinatus</i> , <i>Hypericum</i> <i>perforatum</i> , <i>Plantago lanceolata</i> , <i>Torilis</i> <i>arvensis</i>)
Ralston Afterbay Dam Road and Afterbay Access Point	1 Perennial	Present	N/A	N/A	N/A	7 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Chondrilla juncea</i> , <i>Hypericum perforatum</i> , <i>Plantago</i> <i>lanceolata</i> , <i>Rubus discolor</i> , <i>Vulpia</i> <i>myuros</i>)
Ralston Afterbay Sediment Removal Access Point	N/A	Present	N/A	N/A	N/A	7 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Carduus</i> <i>pycnocephalus</i> , <i>Cynosurus echinatus</i> , <i>Hirschfeldia incana</i> , <i>Plantago</i> <i>lanceolata</i> , <i>Rubus discolor</i>)
Project Trails						
Duncan Creek Area						
Duncan Creek Diversion Dam North Trail	N/A	N/A	N/A	Northern goshawk PAC	N/A	1 species present (<i>Bromus tectorum</i>)
Duncan Creek Diversion Dam South Trail	N/A	N/A	N/A	Northern goshawk PAC	N/A	N/A
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	N/A	N/A	N/A	Northern goshawk PAC	N/A	2 species present (<i>Cirsium vulgare</i> , <i>Verbascum thapsus</i>)
Duncan Creek Gage and Weir above Diversion Trail	N/A	Present	N/A	Northern goshawk PAC	N/A	2 species present (<i>Cirsium vulgare</i> , <i>Verbascum thapsus</i>)
Duncan Creek Gage and Weir below Diversion Trail	N/A	Present	N/A	N/A	N/A	N/A
French Meadows Area						
Middle Fork American River Gage and Weir below French Meadows Dam Trail	N/A	Present	N/A	N/A	N/A	3 species present (<i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Hypericum</i> <i>perforatum</i>)
Middle Fork Interbay Area						
Middle Fork American River Gage above Middle Fork Powerhouse Trail	1 Perennial	Present	N/A	California spotted owl HRCA	N/A	7 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Cirsium vulgare</i> , <i>Cynosurus echinatus</i> , <i>Rubus discolor</i> , <i>Torilis arvensis</i> , <i>Verbascum thapsus</i>)
Passive Microwave Reflector Station above Middle Fork Interbay Trail	N/A	N/A	N/A	N/A	N/A	2 species present (<i>Cirsium vulgare</i> , <i>Vulpia myuros</i>)

Table LAND 1-7. Occurrence of Natural Resources along Project Roads and Trails (continued).

Name	Stream Crossings (USGS "Blue Line" Features)	Riparian Areas ¹ (Information from TERR 1 TSR)	Special-Status Plants ² (Information from TERR 2 TSR)	Special-status Wildlife and/or Habitat ³ (Information from TERR 1 TSR and 4 TSR)	Special-status Bat Roosting Habitat ⁴ (Information from TERR 6 TSR)	Noxious Weeds ⁵ (Information from TERR 3 TSR)
Project Trails (continued)						
Ralston Afterbay Area						
Passive Microwave Reflector Station above Ralston Afterbay Trail	1 Intermittent	N/A	N/A	N/A	N/A	4 species present (<i>Bromus diandrus</i> , <i>Chondrilla juncea</i> , <i>Cynosurus echinatus</i> , <i>Torilis arvensis</i>)
Middle Fork American River Gage below Oxbow Powerhouse Trail	N/A	Present	N/A	N/A	N/A	6 species present (<i>Bromus diandrus</i> , <i>Bromus tectorum</i> , <i>Cynosurus echinatus</i> , <i>Hypericum perforatum</i> , <i>Torilis arvensis</i> , <i>Vulpia myuros</i>)

N/A = Not applicable

¹Includes riparian areas intersecting roads and trails

²Includes special-status plant populations located within 30 feet of existing roads or within 10 feet of existing trails

³Special-status wildlife habitat includes nests, protected activity centers (PAC), home range core areas (HRCA), dens, etc. within 660 feet (1/8 mile) of trails and roads. Incidental wildlife observations are not included

⁴Includes documented bat roosts within 30 feet of existing roads or within 10 feet of existing trails

⁵Includes noxious weed populations located within 30 feet of existing roads or within 10 feet of existing trails

⁶ This road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use road on private property based on additional data gathering

⁷Portion of this road, previously designated Project road, is now designated as a multi-use road

Table LAND 1-8. Project Roads and Trails Maintenance and Maintenance Agreements.

Name	Existing Maintenance Agreements (date of issue - date of expiration)	Road Maintenance Activities Conducted by PCWA				
		Surface Maintenance (grading or re-paving)	Snow Removal	Erosion Control Features (Culverts/Ditches/ Water Bars)	Access Control Structures (gates, boulders, etc.)	Vegetation Trimming by Hand
Project Roads and Access Points						
Duncan Creek Area						
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	Forest Road Agreement (4/9/07-12/31/11)					A
Duncan Creek Diversion Dam Road						A
Duncan Creek Diversion Pool Road and Access Point						A
French Meadows Area						
Duncan Creek–Middle Fork Tunnel Portal Road and Spillway Access Point					X	
French Meadows–Hell Hole Tunnel Gatehouse Road	Forest Road Agreement (4/9/07-12/31/11)				X	A
French Meadows Dam Outlet Works and Leakage Weirs Road					X	A
French Meadows Dam Staging Area Road						A
Middle Fork American River Gage and Weir below French Meadows Dam Road ^b		†		†	X	A
Hell Hole Area						
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point					X	A
Rubicon River Gage and Weir below Hell Hole Dam Road						A
Hell Hole Dam Leakage Weir Road						A
Hell Hole Dam Spillway and Northern Access Point					X	A
French Meadows–Hell Hole Tunnel Portal Road					X	A
French Meadows Powerhouse Road					X	A
Hell Hole–Middle Fork Tunnel Gatehouse Road					X	A
Dormitory Facility Road						A
Hell Hole Dam Spillway Discharge Channel Road						A
Long Canyon Area						
North Fork Long Canyon Diversion North Road						A
North Fork Long Canyon Diversion South Road						A
North Fork Long Canyon Diversion Drop Inlet Road						A
South Fork Long Canyon Diversion and Drop Inlet Road						A
North Fork Long Canyon Crossing Removable Section North Road and Parking Area					X	A
North Fork Long Canyon Crossing Removable Section South Road ^b	Forest Road Agreement (4/9/07-12/31/11)					A

Table LAND 1-8. Project Roads and Trails Maintenance and Maintenance Agreements (continued).

Name	Existing Maintenance Agreements (date of issue - date of expiration)	Road Maintenance Activities Conducted by PCWA				
		Surface Maintenance (grading or re-paving)	Snow Removal	Erosion Control Features (Culverts/Ditches/ Water Bars)	Access Control Structures (gates, boulders, etc.)	Vegetation Trimming by Hand
Middle Fork Interbay Area						
Middle Fork Powerhouse Butterfly Valve House Road ^f	Forest Road Agreement (4/9/07-12/31/11)	I		I		A
Middle Fork Powerhouse Penstock and Butterfly Valve House Road		I		I	X	A
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	Forest Road Agreement (4/9/07-12/31/11)	I	A	I		A
Middle Fork Powerhouse Upper Switchyard Road		I		I		A
Ralston - Oxbow-Area						
Brushy Canyon Adit Road (Project road segment is damaged and closed due to landslide) ^g						
Oxbow Powerhouse Road		I	I	I	X	A
Ralston Powerhouse Butterfly Valve House Road		I		I	X	A
Ralston - Oxbow Tunnel Intake Road		I		I	X	A
Ralston Afterbay Road and Boat Ramp		I		I	X	A
Ralston Afterbay Dam Road and Afterbay Access Point					X	A
Ralston Afterbay Sediment Removal Access Point						
Project Trails						
Duncan Creek Area						
Duncan Creek Diversion Dam North Trail		I				A
Duncan Creek Diversion Dam South Trail		I				A
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail		I				A
Duncan Creek Gage and Weir above Diversion Trail		I				A
Duncan Creek Gage and Weir below Diversion Trail		I				A
French Meadows Area						
Middle Fork American River Gage and Weir below French Meadows Dam Trail		I				A
Middle Fork Interbay Area						
Middle Fork American River Gage above Middle Fork Powerhouse Trail		I				A
Passive Microwave Reflector Station above Middle Fork Interbay Trail		I				A

Table LAND 1-8. Project Roads and Trails Maintenance and Maintenance Agreements (continued).

Name	Existing Maintenance Agreements (date of issue - date of expiration)	Road Maintenance Activities Conducted by PCWA				
		Surface Maintenance (grading or re-paving)	Snow Removal	Erosion Control Features (Culverts/Ditches/ Water Bars)	Access Control Structures (gates, boulders, etc.)	Vegetation Trimming by Hand
Ralston Afterbay Area						
Passive Microwave Reflector Station above Ralston Afterbay Trail		I				A
Middle Fork American River Gage below Oxbow Powerhouse Trail		I				A

A = Activity occurs on an annual basis

I = Activity occurs on an infrequent basis

X = Ancillary facility is present and maintenance occurs on an as-needed basis

^aThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use road on private property based on additional data gathering

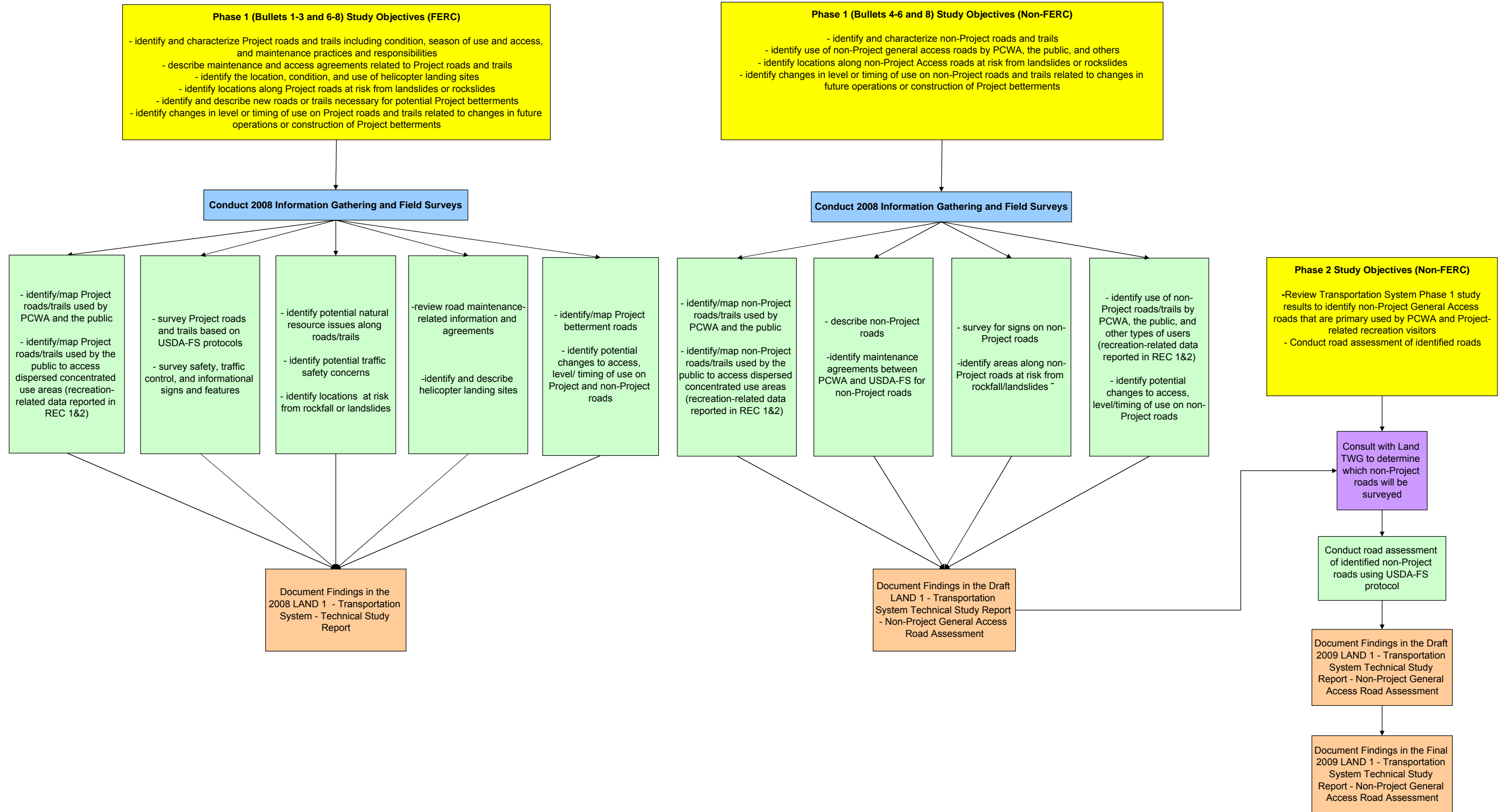
^bThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on Eldorado National Forest property outside the FERC Project boundary and the second segment designated as a Project road within the FERC Project boundary on PCWA land

^cThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on private property outside the FERC Project boundary and the second segment designated as a Project road with the majority of the road located on Eldorado National Forest property outside the FERC Project boundary

^dThis road was originally designated as a Project road in the PAD. The road is currently divided into two segments with the first segment being designated as a multi-use road on private and Eldorado National Forest property outside the FERC Project boundary (NOTE: also a portion within FERC boundary) and the second segment designated as a Project road within Eldorado National Forest property outside the FERC Project boundary

FIGURE

Figure LAND 1-1. LAND 1 – Transportation System Objectives and Related Study Elements and Reports.



MAPS

APPENDIX A
Road and Trail Survey Data Feature Codes

Appendix A. Road and Trail Survey Data Feature Codes.

Road Log Data Collection - Feature Codes

(from USDA-FS Road Log Data Collection Form)

00 * INTERSECTING ROADS, BEG. TERM	10 SURFACE CHANGE	20 WIDTH CHANGE
01 NONSYSTEM ROAD, LEFT	11 PRIMITIVE	21 LESS THAN SINGLE LANE
02 NONSYSTEM ROAD, RIGHT	12 NATIVE	22 SINGLE LANE
03 SYSTEM ROAD, LEFT (OPEN)	13 AGGREGATE	23 ONE AND ONE HALF LANE
04 SYSTEM ROAD, RIGHT (OPEN)	14 PAVED	24 DOUBLE LANE
05 SYSTEM ROAD, LEFT (CLOSED)	15	25
06 SYSTEM ROAD, RIGHT (CLOSED)	16 SPOT AGGREGATE	26
07	17 PIT RUN	27
08	18 CINDERS	28
09	19 CHIP SEAL	19
30 LANDOWNERSHIP CHANGE	40 DRAINAGE	50 DITCH
31 SEC LINE, ENTER N.F. LANDS	41 18" CMP	51 START DITCH, LEFT
32 SEC LINE, ENTER PRIVATE	42 24" CMP	52 START DITCH, RIGHT
33 INTERNAL, ENTER N.F. LANDS	43 30" CMP	53 END DITCH, LEFT
34 INTERNAL, ENTER PRIVATE	44 38" CMP	54 END DITCH, RIGHT
35	45 >36" CMP	55 LEAD OFF DITCH, LEFT
36	46 CMP ARCH	56 LEAD OFF DITCH, RIGHT
37	47 MULTIPLATE	57
38	48 ROLLING DIP	58 BEGIN PMP
39	49 WATERBAR	59 END PMP
60 NONSPECIFIED SIGN	70 ROAD CLOSURE DEVICE	80 MISCELLANEOUS
61 DIRECTIONAL, LEFT	71 STEEL GATE	81 BRIDGE
62 DIRECTIONAL, RIGHT	72 POWDER RIVER GATE	82 CATTLEGUARD
63 REGULATORY, LEFT	73 GUARDRAIL BARRICADE	83 TURNOUT, LEFT
64 REGULATORY, RIGHT	74 LOG AND EARTH BARRIER	84 TURNOUT, RIGHT
65 WARNING, LEFT	75 EARTH BERM	85 RAILROAD CROSSING
66 WARNING, RIGHT	76 ROCK	86 FOREST/DISTRICT BOUNDARY
67 ROUTE MARKER, LEFT	77	87 JURISIDCTION CHANGE
68 ROUTE MARKER, RIGHT	78	88 COUNTY LINE
69 POSTER	79	89 MILEPOST
90 MISCELLANEOUS		
91 WATER SOURCE		
92 BORROW SOURCE		
93 DISPOSAL SITE		
94 LANDING		
95 REMARK		
96 GEOGRAPHIC LANDMARK		
97 BURIED PIPELINE CROSSING		
98 END SURVEY ROAD CONTINUES		
99 END TERMINI		

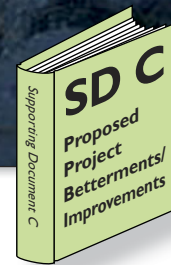
**Additional Feature Codes used for PCWA
MFP Project Road and Trail Survey**

95-1 ROAD DAMAGE
95-2 STREAM CROSSING
95-3 OVERHEAD POWERLINE/TELEPHONE LINE

APPENDIX B
Description of Potential Project Betterments



HELL HOLE RESERVOIR SPILLWAY



Project Betterments/ Improvements

IN PREPARATION FOR THE RELICENSING OF THE MFP, PCWA conducted an assessment to identify potential modifications or additions (betterments) to existing Project facilities that would improve operations or maintenance of the Project, and result in an increase in net or peaking generation. As a result of this assessment, PCWA is including the following three potential Project betterments in the PAD:

- Hell Hole Reservoir Seasonal Storage Increase
- French Meadows Powerhouse Capacity Upgrade
- Ralston Powerhouse Capacity Upgrade

PCWA intends to further evaluate these potential betterments during relicensing with respect to their engineering and economic feasibility and the potential protection, mitigation, or enhancement measures that may be necessary to address potential effects on environmental and cultural resources. The specific Project betterments to be included in the License Application will be determined after reviewing the results of on-going engineering, economic, cultural, and environmental studies in relation to potential future license conditions.

HELL HOLE RESERVOIR SEASONAL STORAGE INCREASE

The purpose of this betterment would be to seasonally increase the storage capacity of Hell Hole Reservoir. The betterment would utilize a portion of the existing flood control pool, above the present normal maximum operating water level, to store additional water during the spring and summer after the peak of the runoff period. An approximate ~~9,750 ac-ft to 12,000 ac-ft~~ increase in seasonal storage in the reservoir would be achieved by installing ~~8-10~~ foot high crest gates on the existing dam spillway. The crest gates would be raised when needed to increase reservoir storage. Operation of the crest gates would also seasonally increase the reservoir's inundation area within the existing flood pool by approximately 37 acres.

7,600

6

6



Installation of spillway gates on Hell Hole Reservoir will increase seasonal storage and power generation.

In years when either French Meadows or Hell Hole reservoirs would have spilled, this betterment would allow the MFP to capture additional water in storage in Hell Hole Reservoir which can later be used to increase net annual energy generation. In all but the driest years, the betterment would also allow the MFP to shift the timing of some generation from the spring run-off period to the summer peak energy demand period. While the shift in the timing of the generation will not increase total annual MFP generation, it will increase the benefit of the Project by increasing generation during the peak energy demand period. This betterment would require a new water right to allow for additional storage at Hell Hole Reservoir.

This betterment would require the following modifications to existing Project facilities:

- Hell Hole Dam Spillway - install ~~8-10~~ foot-high crest gates on the existing concrete spillway
- ~~Hell Hole Dam - install 2 foot high parapet walls on each end of the existing dam to maintain minimum freeboard requirements, if 10 foot high crest gates are installed~~
- ~~French Meadow Powerhouse - install 4 foot-high parapet wall at the powerhouse to avoid inundation from wave action when the reservoir is at its maximum water surface elevation~~
- ~~Hell Hole - Middle Fork Tunnel Gatehouse - install 4 foot high parapet wall around the gatehouse to avoid inundation from wave action~~
- ~~South Fork Long Canyon Diversion Dam - install 3 foot-high crest gates on the diversion dam or a check valve at the drop inlet to avoid the backflow of water from the Hell Hole - Middle Fork Tunnel into South Fork Long Canyon Creek when Middle Fork Powerhouse is not operating~~

The betterment would also require construction of ~~three~~ **two** new Project facilities including:

- Hell Hole Dam Spillway Crest Gates Control Building - construct a small control building adjacent to the spillway to provide power to operate the spillway crest gates
- Hell Hole Dam Spillway Crest Gates Control Building Powerline - construct a short spur line (approximately 525 feet) from the control building to an existing powerline to provide power for spillway crest gate operations
- ~~South Fork Long Canyon Diversion Dam Generator Building - construct a control building with a generator to provide power to operate the crest gate~~

FRENCH MEADOWS POWERHOUSE CAPACITY UPGRADE

The purpose of this betterment would be to increase the generating capacity of the existing French Meadows Powerhouse from 15.3 MW to approximately 30 MW. Generating capacity would be increased by adding a second powerhouse immediately adjacent to the existing powerhouse. The existing French Meadows Powerhouse is only able to utilize approximately one-half of the maximum hydraulic capacity of the French Meadows - Hell Hole Tunnel. The addition



FRENCH MEADOWS POWERHOUSE

The addition of a second French Meadows Powerhouse will allow PCWA to increase peaking generation.

of a second unit would allow the maximum hydraulic capacity of the tunnel to be used to transport more water over a shorter period of time from French Meadows Reservoir to Hell Hole Reservoir, thereby increasing the MFP's peaking generation capabilities. This betterment would require a new water right to allow for an increase in the permitted direct diversion rate from French Meadows Reservoir to Hell Hole Reservoir.

The new powerhouse would also increase the capability of the MFP to supply electrical grid support services. The new generating unit could be operated simultaneously or independently of the existing generating unit. The existing PG&E 60-kV French Meadows - Middle Fork Transmission Line will be used to interconnect the new powerhouse with the PG&E transmission system.

This betterment would require the following modifications to existing Project facilities:

- French Meadows - Hell Hole Tunnel Intake Trash Rack - possible replacement of the existing cylindrical trash rack with a larger trash rack to reduce head losses and allow greater volume of water to flow into the tunnel
- French Meadows Powerhouse Switchyard - expand the existing switchyard to include additional buswork, transformers, and electrical switching equipment necessary to convey the additional power generated at the new powerhouse
- Middle Fork Powerhouse Upper Switchyard - upgrade the transformers and switchgear at the existing 60kV substation at Middle Fork Interbay to handle the additional power transfer

This betterment would also require construction of the following new Project facilities:

- French Meadows Powerhouse - construct a second powerhouse with installed generating capacity of approximately 15 MW immediately adjacent to existing powerhouse
- French Meadows Powerhouse Penstock - construct a second penstock, parallel to the existing penstock, to provide water to the new powerhouse
- Additional Surge Capacity Facility - develop additional surge capacity through construction of a surge shaft, surge shaft and tank, or surge pipeline located above the French Meadows - Hell Hole Tunnel Portal, or installation of a bypass valve in the new powerhouse
- French Meadows - Hell Hole Tunnel Surge Shaft or Pipeline Access Road - construct a new Project road from an existing Forest Service road to the surge shaft or pipeline and temporarily improve the existing Forest Service road

RALSTON POWERHOUSE CAPACITY UPGRADE

The purpose of this betterment is to improve the operating efficiency of the Middle Fork - Ralston system by increasing the hydraulic capacity of Ralston Powerhouse to match Middle Fork Powerhouse throughput, plus accretions at Middle Fork Interbay. This betterment would allow the MFP to maximize peaking generation during periods of high energy demand, thereby increasing the overall benefit of the MFP. This betterment would only require upgrades to electrical and mechanical equipment within the Ralston Powerhouse. This betterment may result in the ability of Ralston Powerhouse to utilize more than 1,000 cfs, in which case a new water right will be needed.



RALSTON POWERHOUSE

The Ralston Powerhouse upgrade will increase peaking generation opportunities.

APPENDIX C
Project Roads and Trails Survey Data

Appendix C. Project Road and Trail Survey Data.

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)			
			longitude	latitude										
Project Roads and Access Points														
Duncan Creek Area														
Duncan Creek Diversion Intake Road and Diversion Pool Access Point		0.000	-120.478152	39.135869	0 0	Begin Termini	Data point from ANDREGG survey.							
					13	Aggregate								
					22	Single Lane	~ 10-12 ft wide							
					51	Start Ditch, Left	Ditch in good condition							
	DCDIRDPAP04	0.036	-120.478730	39.135676	10	Surface Change								
					12	Native	End aggregate, begin native							
	DCDIRDPAP05	0.122	-120.479959	39.134897	41	18" CMP	Culvert on Left: In good condition. Slight (5-10%) blockage at the mouth. Culvert slightly bent but still able to convey flows.			Good				
				53	End Ditch, Left									
DCDIRDPAP06	0.122	-120.480032	39.134945	41	18" CMP	Culvert on right: In fair condition. 1/2 smashed and filled with sediment (50-70%). Little rip-rap at mouth. Channel at mouth very vegetated.			Fair					
DCDIRDPA07	0.173	-120.480682	39.134404	99	End Termini									
Duncan Creek Diversion Dam Road														
DCDDR01	0.000	-120.481553	39.135195	0 0	Begin Termini	Begin road off of FR 96.58, before reaching bridge. Road access closed.								
				22	Single Lane Road	Rd ~ 10 ft wide								
				12	Native									
DCDDR02	0.012	-120.481583	39.135022	76	Road Closure Device, Rock	Closed with large boulders. Road closure devices are in good condition.		Good		DCDDR02				
DCDDR03	0.049	-120.481688	39.134590	12	Native									
				99	End Termini									
Duncan Creek Diversion Pool Road and Access Point														
DCDPRAP01	0.000	-120.479646	39.136285	0 0	Begin Termini	Begin off of FR 96.58 before reaching bridge. Road access closed								
				76	Road Closure Device, Rock	Closed with large boulders and one large downed log. Road closure devices are in good condition.		Good		DCDPRAP01				
				12	Native	Road has lots of rills and slightly over-grown. Not drivable, and narrow.								
				22	Single Lane Road	Road ~ 10 ft. wide								
DCDPRAP02	0.063	-120.480331	39.135563	99	End Termini									
French Meadows Area														
Duncan Creek-Middle Fork Tunnel Portal Road and Spillway Access Point														
DCMFTPR06	0.000	-120.472827	39.115758		Begin Termini									
					Single Lane	~ 10 ft wide								
				12	Native									
				95-1	Road Damage	Rills abundant throughout the roadway, (~ 10 ft wide) Here the road becomes over-grown								
				DCMFTPR07	0.069	-120.471638	39.115388	95-1	Road Damage	Rd. turns to very poor condition. Road over-grown and cobble size rocks are in the roadway, as well as downed logs.				DCMFTPR07
				DCMFTPR08	0.099	-120.471104	39.115237	51	Start Ditch, Left	Narrow, (~1 -1.5 ft), and deep (~1 ft). Ditch is full of rocks and debris.				
								95-1	Road Damage	Big tire ditches on right and left of road, ~2" deep.				
DCMFTPR09	0.148	-120.470293	39.114981	53	End Ditch, Left	Ditch disappears and water appears to go over the road.								
DCMFTPR10	0.179	-120.469623	39.114462	95	Remark	Staff gage by French Meadows Spillway								
DCMFTPR11	0.179	-120.469789	39.114745	95-1	Road Damage	Road becomes completely un-drivable - remainder to DCMFT Portal recorded as line								
	0.289	-120.467953	39.115164	99	End Termini	Indistinguishable portion of road ends at DCMFT Portal								

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
French Meadows–Hell Hole Tunnel Gatehouse Road	FMHHTGR01	0.000	-120.434931	39.107213	0 0	Begin Termini	Off of FR 96, on South side of French Meadows Reservoir. Visibility: ~300 ft. each way, good.				
					14	Paved					
					22	Single Lane	Road ~ 12ft wide				
	FMHHTGR02	0.009	-120.434768	39.107265	10	Surface Change					
					12	Native	End paved, begin native				
					71	Steel Gate	Road closed. Gate in good condition.		Good		FMHHTGR02
					95-1	Road Damage	The dirt road has ~3" deep tire ruts along either side of the single lane road. Water could easily pond in the ruts during a heavy rain.				
	FMHHTGR03	0.048	-120.434080	39.107316	50	Ditch	Ditch begins				
	FMHHTGR04	0.069	-120.433732	39.107447	95	Remark	Ditch becomes deeper to ~2 ft				
	FMHHTGR05	0.083	-120.433474	39.107468	95-1	Road Damage	Tire ruts begin to disappear				
	FMHHTGR06	0.128	-120.432692	39.107486	54	End Ditch, Right					
					52	Start Ditch, Right	Ditch in good condition				
					95-1	Road Damage	Large, (~4" deep), ruts from tires on either side of roadway. Tire ruts run up until the next point.				
	FMHHTGR07	0.129	-120.432654	39.107497	45	>36" CMP	Culvert on right: 42" CMP. Running water from creek thought culvert. No blockage and the channel is clear. No ponding occurring.			Good	
FMHHTGR08	0.132	-120.432666	39.107556	45	>36" CMP	Culvert on left: 42" CMP. Running water, and no ponding. Rip-rap is present at the mouth. Little bit of sediment is present, (~2-3" deep), at the bottom of the culvert. Channel has big downed logs crisscrossing it, possibly causing obstruction of water.			Good		
FMHHTGR09	0.166	-120.432302	39.107946	54	End Ditch, Right						
				99	End Termini	End road to Gatehouse					
FMHHTGR10	0.166	-120.432239	39.107889	42	24" CMP	Culvert on right: Culvert is rusted and cracked. Rocks, (2-3" deep) line the bottom. Possible ponding at the mouth, (there is a 3'x3' depression, ~ 2ft deep). There is also possible ponding occurring above the mouth of the culvert.			Poor-Fair		
FMHHTGR11	0.166	-120.432311	39.107975	42	24" CMP	Culvert on left: Culvert is rusted and cracked. ~80% blocked with sediment and rocks. No rip-rap at the mouth. 3-5" of sediment line the bottom. No ponding or running water present.			Poor-Fair		
FMHHTGR12	0.166	-120.432092	39.107808	95	Remark	Gatehouse					
FMHHTGR13	0.166	-120.432162	39.107992	95	Remark	Radio tower by the gatehouse					

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
French Meadows Dam Outlet Works and Leakage Weirs Road	FMDOWLWR01	0.000	-120.470641	39.107715	0 0	Begin Termini	Begin road off of FR 22, right below French Meadows Dam. Visibility: good left (~500'), and poor right (~200').					
					13	Aggregate						
					22	Single Lane Road						
	FMDOWLWR02	0.007	-120.470566	39.107733	71	Steel Gate	Road closed with steel gate off of FR 96. In good condition.		Good		FMDOWLWR02	
	FMDOWLWR03	0.023	-120.470333	39.107835	95-1	Road Damage	Rills and tire ruts on the left side of the road ~1/2' wide and run into the next point.					
	FMDOWLWR04	0.038	-120.470156	39.108023	84	Turnout, Right	60' x 100'. Aggregate is in good condition.					
	FMDOWLWR05	0.084	-120.471018	39.107887	51	Start Ditch, Left	Ditch shallow but in good condition (~1/2' deep)					
	FMDOWLWR06	0.123	-120.471696	39.107949	53	End Ditch, Left	Ditch runs off into the woods. No culverts.					
	FMDOWLWR07	0.130	-120.471845	39.108063	83	Turnout, Left	60' x 20'. In good condition.					
	FMDOWLWR08	0.185	-120.470842	39.108384	52	Start Ditch, Right	Ditch in good condition. ~1/2' deep x 1' wide. Small amounts of debris in the channel.					
					95-1	Road Damage	Rills ~ 3' wide and 1' deep runs from the right to the left and off the side of the road.					
	FMDOWLWR09	0.278	-120.470708	39.109595	95-1	Road Damage	10' ahead of this point are tire ruts on the right side of the road ~1/2' deep. Small rills are abundant throughout the road.					
	FMDOWLWR10	0.298	-120.470911	39.109808	54	End Ditch, Right						
					51	Start Ditch, Left	Ditch is in good condition but deep (~2-3' deep x 1' wide)					
	FMDOWLWR11	0.337	-120.471199	39.110294	53	End Ditch, Left						
	FMDOWLWR12	0.335	-120.471167	39.110269	41	18" CMP	Culvert on right: In good condition. No water/ponding/blockage.				Good	
	FMDOWLWR13	0.338	-120.471222	39.110300	41	18" CMP	Culvert on left: In good condition. Slightly rusted. Rip-rap present. No blockage.				Good	
	FMDOWLWR14	0.360	-120.471484	39.110535	84	Turnout, Right	30' x 15'. In good condition.					
					52	Start Ditch, Right	Ditch is in good condition but deep (~3'), and a weir is located ~5 feet ahead of this point.					
	FMDOWLWR15	0.373	-120.471552	39.110709	54	End Ditch, Right						
FMDOWLWR16	0.370	-120.471515	39.110686	41	18" CMP	Culvert on right: In good condition. Water present and flowing through culvert. No blockage/sediment.				Good		
FMDOWLWR17	0.370	-120.471596	39.110676	41	18" CMP	Culvert on left: In good condition. Slight sediment blockage (~10%). No rip-rap present.				Good		
FMDOWLWR18	0.415	-120.471706	39.111214	95-1	Road Damage	Big rills (~2' deep x 1' wide) in the center of the road. Large rocks buried in the road. Tire tracks running down both sides of the road.						
FMDOWLWR19	0.474	-120.472468	39.111281	95-1	Road Damage	Rill (~2' wide x 1/2' deep) and runs across the road.						
FMDOWLWR20	0.532	-120.471799	39.110999	99	End Termini	End termini at the loop intersection after passing by the weir.						
French Meadows Dam Staging Area Road	FMDSAR01	0.000	-120.474811	39.115736	0 0	Begin Termini	Begin road before crossing over French Meadows Dam, off of FR-96. Visibility: 200 ft. left, 300 ft. right.					
					13	Aggregate						
					22	Single Lane		Road ~ 10 ft wide				
	FMDSAR02	0.026	-120.474390	39.115574	44	36" CMP	Culvert on left: Major ponding is occurring and water is present. Pond is between 2-3 ft. deep, 5 ft wide by 7 ft long. Culvert ~ 30% clogged by rocks/sediment.				Fair	
	FMDSAR03	0.027	-120.474392	39.115530	44	36" CMP	Culvert on right: Standing water in culvert/channel. No rip-rap at mouth. Culvert ~ 90% clogged with sediment/vegetation.				Fair	
FMDSAR04	0.070	-120.474169	39.114992	99	End Termini							

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
<p>Middle Fork American River Gage and Weir below French Meadows Dam Road^a</p> <p>Note: Road was incorrectly identified as a Project road in the PAD. Road is currently designated as a multi-use non-project road.</p>	MFARGWBFMDR-01	0.000	-120.478356	39.105600	0 0	Begin Termini	Begin Road off of FR-22. Visibility: Good ~500' in both directions.					
					12	Native						
					22	Single Lane	Road ~ 12 ft wide					
		MFARGWBFMDR-02	0.264	-120.477968	39.105814	71	Steel Gate	Road Closed by a steel gate. In good condition, although slightly rusted.		Fair		MFARGWBFMDR-03
						52	Start Ditch, Right	Ditch in fair condition. Over-grown and shallow (less than 1/2' deep).				
						95-1	Road Damage	Tire ruts on both sides of the road (less than 1/2' deep).				
		MFARGWBFMDR-03	0.075	-120.477203	39.106191	54	End Ditch, Right					
		MFARGWBFMDR-04	0.074	-120.477217	39.106176	41	18" CMP	Culvert on right: Plastic and in good condition. Channel ahead is jammed with debris and sediment. Water would probably pond before reaching the culvert. No blockage in culvert.			Good	
		MFARGWBFMDR-05	0.077	-120.477192	39.106219	41	18" CMP	Culvert on left: Plastic and in good condition. No rip-rap present. No blockage and channel is clear.			Good	
		MFARGWBFMDR-06	0.123	-120.476742	39.106639	51	Start Ditch, Left	Ditch in good condition. ~1/2' deep x 1' wide. Small amounts of debris in the channel.				
		MFARGWBFMDR-07	0.137	-120.476993	39.106683	53	End Ditch, Left					
		MFARGWBFMDR-08	0.138	-120.477014	39.106665	41	18" CMP	Culvert on right: Plastic. ~20% buried but in good condition. No blockage/ponding/water.			Good	
	MFARGWBFMDR-09	0.137	-120.476995	39.106689	41	18" CMP	Culvert on left: Plastic and in good condition. No rip-rap present. No blockage and channel is clear.			Good		
	MFARGWBFMDR-10	0.189	-120.477925	39.106826	95-1	Road Damage	Small rills and bumps are abundant throughout the road.					
	MFARGWBFMDR-11	0.384	-120.480347	39.108816	95-1	Road Damage	Road overgrown and bumpy.				MFARGWBFMDR-12	
		0.433	-120.480776	39.109384	99	End Termini	Road ends at the start of the trail to the weir.					
Hell Hole Area												
<p>Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point</p>	HHDPRSSAP01	0.000	-120.413384	39.060402	0 0	Begin Termini	Begin road off of the end of FR 2, before heading down Hell Hole Boat Ramp. Visibility: good left ~300' poor right ~50' onto B.R.					
					13	Aggregate						
					22	Single Lane	12' wide road.					
	HHDPRSSAP02	0.048	-120.413635	39.059744	10	Surface Change						
					12	Native	End aggregate, begin native					
					20	Width change	Width changes to 24'					
					24	Double Lane	24' double lane					
	HHDPRSSAP03	0.080	-120.413700	39.059302	71	Steel Gate	Gate on road to spillway closed and slightly rusted.		Good		HHDPRSSAP02	
	HHDPRSSAP04	0.114	-120.413821	39.058803	95	Remark	Boulders along shoulder of right side of the road. Road looks recently graded.					
	HHDPRSSAP05	0.180	-120.413620	39.057873	10	Surface Change						
					14	Paved	End native, begin paved					
					81	Bridge	Begin spillway bridge (good condition)					
HHDPRSSAP06	0.260	-120.412240	39.057750	81	Bridge	End bridge. Begin aggregate road.						
HHDPRSSAP07	0.274	-120.411976	39.057780	10	Surface Change							
				13	Aggregate	End paved, begin aggregate						
				20	Width change	Width changes from 24' to 12'						
HHDPRSSAP08	0.289	-120.411977	39.057573	22	Single Lane	Road changes from double to single lane						
HHDPRSSAP09	0.309	-120.412076	39.057298	95-1	Road Damage	Slight rill 8' behind this point. 1' wide x 4" deep. Water would collect and run from right to left of road. ~6' long rill on left of road dissipates in center. Boulders begin to line right side of road.						

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point (continued)	HH DPRSSAP10	0.356	-120.411763	39.056613	84	Turnout, Right	20' x 20' aggregate				
					10	Surface Change	Surface changes from aggregate to paved				
	HH DPRSSAP11	0.396	-120.411536	39.057198	95-1	Road Damage	2' wide x 3" - 5" deep tire ruts in road right before surface change.				
					14	Paved	End aggregate, begin paved				
					95	Remark	Boulders on right side of road end.				
	HH DPRSSAP12	0.429	-120.411385	39.057607	95-1	Road Damage	Slight cracking throughout pavement ~1" - 2" wide. Appeared to have been patched at one point.				
	HH DPRSSAP13	0.438	-120.411240	39.057550	95	Remark	Metal guardrail from 5' ahead of last point to this point. ~1.5' high.				
	HH DPRSSAP14	0.451	-120.411238	39.057363	10	Surface Change					
					13	Aggregate	End paved, begin aggregate				
					52	Start Ditch, Right	2' wide x 1' deep, and in good condition			Good	
	HH DPRSSAP15	0.488	-120.411141	39.056838	95	Remark	Old/closed dirt road off right ~150' long. No road closure but cut off by ditch.				
	HH DPRSSAP16	0.525	-120.410990	39.056316	95	Remark	Ditch becomes wider and shallower ~3' x 6" deep. Water could run over road in large rain event.				
	HH DPRSSAP17	0.587	-120.411221	39.055452	95	Remark	Ditch becomes deeper and narrow again (1.5' by 1' deep)				
	HH DPRSSAP18	0.602	-120.411393	39.055279	10	Surface Change					
					14	Paved	End aggregate, begin paved				
					54	End Ditch, right	Ditch runs off right of road and curves down. Doesn't follow road after this point.				
	HH DPRSSAP19	0.630	-120.411199	39.055109	10	Surface Change					
					13	Aggregate	End paved, begin aggregate				
					95-1	Road Damage	Pothole on left edge of road 6' behind this point. 4' long x 3' wide x 2" deep				
	HH DPRSSAP20	0.666	-120.410870	39.055565	95-3	Overhead powerline/telephone line	Overhead powerline cross road perpendicular running NW to SE ~ 20' ahead of this point				
					10	Surface Change					
					14	Paved	End aggregate, begin paved				
	HH DPRSSAP21	0.674	-120.410753	39.055619	95-1	Road Damage	Pavement in good to fair condition. Slight cracking ~1" runs across road.				
							Pothole on left edge of pavement ~5' ahead of point 2' x 2' x 6" deep. Alligator cracking in center of road ~2' wide and vegetation coming through subgrade failure between this point and the next point.				
	HH DPRSSAP22	0.702	-120.410740	39.055238	95-3	Overhead powerline/telephone line	Overhead powerline cross again perpendicular to road.				
	HH DPRSSAP23	0.733	-120.410837	39.054801	95-1	Road Damage	4' long x 4" wide crack on left side of road leading from left to center.				
	HH DPRSSAP24	0.738	-120.410787	39.054745	95-1	Road Damage	Squirrel hole on left of road - looks like it is tunneling under road.				
51					Start Ditch, Left	2' wide x 6" - 1' deep. Slightly vegetated.			Good		
95					Remark	Road appears to be in better condition.					
HH DPRSSAP25	0.823	-120.409693	39.055495	53	End Ditch, Left	Ditch disappears - water would be on left side of road in high flow events					
HH DPRSSAP26	0.854	-120.409269	39.055792	95-1	Road Damage	.5" wide crack runs across road.					
				95-3	Overhead powerline/telephone line	Overhead powerline cross again perpendicular to road. Right to left running W to E.					
HH DPRSSAP27	0.948	-120.408099	39.056446	99	End Termini	End of road at the Hell Hole Powerhouse					

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Rubicon River Gage and Weir below Hell Hole Dam Road	RRGWBHHDR01	0.000	-120.408341	39.055813	0 0	Begin Termini	Begins off of Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point				
					95-1	Road Damage	4" - 5" tire grooves on left and right of road due to loose soft gravel on road.				
					13	Aggregate					
					22	Single Lane	10' wide road				
	RRGWBHHDR02	0.029	-120.408625	39.055467	95-1	Road Damage	10' x 4' rock taking up 60% of road. Still able to be driven over ~2' high				
	RRGWBHHDR03	0.058	-120.408951	39.055210	95	Remark	Loop point				
RRGWBHHDR04	0.073	-120.409086	39.055017	95-3	Overhead powerline/telephone line	Power lines cross road from the right to the left					
Hell Hole Dam Leakage Weir Road		0.000	-120.408777	39.055867	0 0	Begin Termini	Road off of Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point. Start point taken from orthophoto.				
					13	Aggregate					
					22	Single Lane	12' wide road				
					99	End Termini	End road at leakage weir. End point taken from orthophoto.				
	0.051	-120.408329	39.056477	99	End Termini	End road at leakage weir. End point taken from orthophoto.					
Hell Hole Dam Spillway and Northern Access Point	HHDSNAP01	0.000	-120.413360	39.061188	0 0	Begin Termini	Road connected to Upper Hell Hole Boat Ramp Parking Area				
					12	Native					
					22	Single Lane	10' wide road in fair to poor condition.				
					74	Cable and Log Barrier	Road closed by log and cable (rocks). Road closure in fair condition.		Fair	HHDSNAP01	
	HHDSNAP02	0.007	-120.413239	39.061238	95-1	Road Damage	Predominantly rip-rap - almost not drivable.				
HHDSNAP03	0.018	-120.413059	39.061225	99	End Termini	Road just ends. Large amount of rip-rap and driftwood. Ends around high water mark.					
French Meadows-Hell Hole Tunnel Portal Road	FMHHTPR01	0.000	-120.414448	39.073282	0 0	Begin Termini	Road condition good to fair. Poor visibility: 100' left and 150' right.				
					12	Native					
					22	Single Lane	12' wide single lane road.				
	FMHHTPR02	0.004	-120.414372	39.073280	51	Start Ditch, Left	2' wide by 2.5' deep, good condition				
					71	Steel Gate	Gate closed, in good condition		Good	FMHHTPR02	
	FMHHTPR03	0.019	-120.414074	39.073258	84	Turnout, Right	Native / Aggregate. 25' long x 12' wide. In good condition				
	FMHHTPR04	0.049	-120.413576	39.073450	95-1	Road Damage	10' up road from this point, ditch leads into road in form of rill. Rill is ~1.5' wide and runs to center off right of road until it dissipates. Ditch still continues on left.				
	FMHHTPR05	0.062	-120.413420	39.073592	95-1	Road Damage	Rills ~1' wide on left side of road are abundant.				
	FMHHTPR06	0.090	-120.413231	39.073971	53	End Ditch, Left					
					51	Start Ditch, Left	1.5' wide x 1' deep. Rip-rap lined. Ditch in good condition				
	FMHHTPR07	0.090	-120.413267	39.073982	42	24" CMP	Culvert on left: Smashed down 1" - 2" and 90% clogged at mouth with debris. No water. Small amount of ponding will occur in 2' x 2' x ~1" deep depression.			Poor	
					95-1	Road Damage	Culvert on right: 3' off ground. No blockage. Rip-rap present. Two squirrel holes to the left of the culvert in center of road.		Good		
	FMHHTPR08	0.090	-120.413199	39.073963	53	End Ditch, Left					
51					Start Ditch, Left	2' wide x 1' deep, in good condition					
95					Remark	Road mostly fine dirt					
FMHHTPR09	0.171	-120.412671	39.075048	51	Start Ditch, Left	2' wide x 1' deep, in good condition					
				95	Remark	Road mostly fine dirt					
FMHHTPR10	0.171	-120.412689	39.075048	42	24" CMP	Culvert on left: Smashed on right side. Large boulder in mouth blocking 50% of culvert. No water. Ponding at mouth in 2' x 2' x 6" deep depression.			Fair		
FMHHTPR11	0.173	-120.412634	39.075062	42	24" CMP	Culvert on right: 20% buried. Cobble blocking 30% of mouth. Smashed. Rip-rap present.			Fair		
FMHHTPR12	0.199	-120.412468	39.075417	95-1	Road Damage	Pothole to right. 3' x 3' x 6" deep.					

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
French Meadows-Hell Hole Tunnel Portal Road (continued)	FMHHTPR13	0.246	-120.411940	39.075962	42	24" CMP	Culvert on left: No blockage. No ponding. No water.			Good		
					53	End Ditch, Left						
					51	Start Ditch, Left						2' wide x 1' deep. Rip-rap lined, in good condition
	FMHHTPR14	0.247	-120.411717	39.076109	42	24" CMP	Culvert on right: 2' off ground. No blockage. No ponding. No water. Rip-rap present.			Good		
					95-1	Road Damage						Squirrel hole (1' x 1') in center of road 10' in front of culvert.
	FMHHTPR15	0.276	-120.411594	39.076293	41	18" CMP	Culvert on left: Smashed down ~1". Debris at mouth blocks 30% - 40% of culvert entrance. No water. Ponding will occur by mouth in 3' x 3' x 1.5' depression.			Fair		
					53	End Ditch, Left						
					51	Start Ditch, Left						2' wide x 1' deep. Rip-rap, vegetation present, good condition
	FMHHTPR16	0.276	-120.411556	39.076280	41	18" CMP	Culvert on right: No blockage. No ponding. ~5' off ground. Rip-rap present.			Good		
	FMHHTPR17	0.339	-120.410835	39.076990	53	End Ditch, left						
					51	Start Ditch, left						2' wide x 1' deep. Rip-rap present. Good condition
					95-3	Overhead powerline/telephone line						Appears on right of Road
	FMHHTPR18	0.339	-120.410846	39.077006	41	18" CMP	Culvert on left: 50% blocked by large boulder in mouth. Slightly rusted. No water. Ponding could occur in 1' x 1' x 1' depression at mouth.			Fair		
	FMHHTPR19	0.341	-120.410793	39.076991	41	18" CMP	Culvert on right: 10' x 10' retaining wall surrounds pipe. No blockage. No water. Rip-rap present.			Good		
	FMHHTPR20	0.370	-120.410359	39.077250	53	End Ditch, Left						
					51	Start Ditch, Left						2' wide x 1' deep. Rip-rap present. Good Condition
					95-3	Overhead powerline/telephone line						Powerline cross perpendicular to road and head southeast to powerhouse.
	FMHHTPR21	0.370	-120.410370	39.077258	42	24" CMP	Culvert on left: Slightly rusted. No blockage. No water. Ponding at mouth in 3' x 2' x 2' deep depression.			Good		
	FMHHTPR22	0.373	-120.410289	39.077264	42	24" CMP	Culvert on right: Rip-rap present. Slightly rusted. No blockage.			Good		
	FMHHTPR23	0.424	-120.409758	39.077873	53	End Ditch, Left						
					51	Start Ditch, Left						2' x 1.5' deep, in good condition.
	FMHHTPR24	0.424	-120.409762	39.077876	42	24" CMP	Culvert on left: Slight blockage ~10% debris. No standing water. No ponding would occur at mouth.			Good		
					53	End Ditch, Left						
					51	Start Ditch, Left						2' x 1.5' deep, in good condition, rip-rap present
	FMHHTPR25	0.425	-120.409715	39.077865	42	24" CMP	Culvert on right: Slight blockage ~5% debris. No water. Rip-rap present.			Good		
	FMHHTPR26	0.440	-120.409502	39.078004	84	Turnout, Right	10' wide x 20' long. Native, in good condition.					
	FMHHTPR27	0.470	-120.409147	39.078343	95-1	Road Damage	1' rills ~3" deep - about 10' behind this point.					
	FMHHTPR28	0.470	-120.409144	39.078353	42	24" CMP	Culverts on left: 2, 24" culverts on left. Slightly rusted on bottom. No water. Slight debris on bottom ~15% - 20%			Good		
					53	End Ditch, Left						
					51	Start Ditch, Left						2' x 1' deep, in good condition, rip-rap present
	FMHHTPR29	0.472	-120.409093	39.078345	42	24" CMP	Culverts on right: 2, 24" culverts on right. Slightly rusted on bottom. Slight debris on bottom ~15%			Good		
	FMHHTPR30	0.507	-120.408539	39.078600	44	36" CMP	Culvert on left: No blockage. No water. No ponding. Slightly rusted.			Good		
					53	End Ditch, Left						
FMHHTPR31	0.511	-120.408462	39.078552	44	36" CMP	Culvert on right: No blockage. Rip-rap present. (Another 24" CMP is 20' ahead not marked as a point - same characteristics as this point)			Good			
FMHHTPR32	0.535	-120.407986	39.078547	84	Turnout, Right	20' wide x 60' long. Native. Rills throughout - possible ponding - 6" high/deep ~5%, good condition						
FMHHTPR33	0.548	-120.407796	39.078680	51	Start Ditch, Left	2' wide x 1.5' deep. Rip-rap lined. Vegetated. Good condition						

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
French Meadows-Hell Hole Tunnel Portal Road (continued)	FMHHTPR34	0.569	-120.407505	39.078877	42	24" CMP	Culvert on left: Looks new. No water. No ponding.			Good	
					53	End Ditch, Left					
					51	Start Ditch, Left					
	FMHHTPR35	0.571	-120.407430	39.078867	42	24" CMP	Culvert on right: 5' off ground. Rip-rap present.			Good	
	FMHHTPR36	0.590	-120.407195	39.079070	42	24" CMP	Culvert on left: Rusted. No debris/blockage. No ponding. No water			Good	
					53	End Ditch, Left					
FMHHTPR37	0.591	-120.407158	39.079057	42	24" CMP	Culvert on right: Slightly rusted. No debris/blockage. No ponding. No water			Good		
FMHHTPR38	0.613	-120.406922	39.079243	99	End Termini	End at building and butterfly valve.					
French Meadows Powerhouse Road	FMPR01	0.000	-120.419003	39.063072	0 0	Begin Termini	Begin off FR 2. Visibility: poor (~100') each direction				
					13	Aggregate					
					24	Double lane					
	FMPR02	0.012	-120.418829	39.063171	51	Start Ditch, Left	2' wide x 1.5' deep. Little debris/vegetation, good condition				
					52	Start Ditch, Right	2' wide x .5' to 1' deep. Little debris/vegetation, good condition				
	FMPR03	0.112	-120.418475	39.064532	54	End Ditch, Right	Both ditches, (left and right), run away from the road. No culverts for either could be found, although it appears as if the culverts had been at the ends of the ditches at one point.				
					53	End Ditch, Left	Both ditches, (left and right), run away from the road. No culverts for either could be found, although it appears as if the culverts had been at the ends of the ditches at one point.				
	FMPR04	0.135	-120.418368	39.064850	51	Start Ditch, Left	Ditch in good condition, and will convey water.				
	FMPR05	0.161	-120.418002	39.065088	45	> 36" CMP	Culvert on left: Culvert ~48" CMP. No sediment or debris clogging culvert. No ponding would occur. No evidence of standing water.			Good	
					53	End Ditch, left					
	FMPR06	0.162	-120.417952	39.065063	45	> 36" CMP	Culvert on right: Culvert ~48" CMP. No sediment or debris clogging culvert. No ponding would occur. No evidence of standing water. No rip-rap at mouth			Good	
	FMPR07	0.166	-120.417899	39.065109	51	Start Ditch, Left	1' wide x .5' - 1' deep. In good condition				
	FMPR08	0.229	-120.417135	39.065798	53	End Ditch, Left	1' wide x 1.5' deep. Rip-rap lined, in good condition.				
					51	Start Ditch, Left					
	FMPR09	0.229	-120.417163	39.065814	41	18" CMP	Culvert on left: ~5% filled with sediment/debris - slightly rusted. Ponding could occur at depression at mouth (2' wide x 2' deep x 1.5' deep)			Good	
	FMPR10	0.231	-120.417086	39.065797	41	18" CMP	Culvert on right: ~5% filled with sediment/debris. No rip-rap present. 3'-4' off of the ground.			Good	
FMPR11	0.306	-120.416130	39.066603	53	End Ditch, Left	Ditch ends running from both directions along road.					
FMPR12	0.306	-120.416160	39.066613	44	36" CMP	Culvert on left: Slightly crushed and rusted. Mouth jammed 50% by cobbles and sediment. No water - ponding could occur at mouth due to blockage			Fair		
FMPR13	0.307	-120.416091	39.066594	44	36" CMP	Culvert on right: Not blocked ~5% off ground. Rip-rap present			Good		
FMPR14	0.434	-120.414900	39.068167	51	Start Ditch, Left	2' wide x 2' deep. Rip-rap lined. Ditch appears in both directions running on the left hand side of the road.					
				95-3	Overhead powerline/telephone line	Powerline cross road - just appeared off right and go to left running parallel to road.					
FMPR15	0.432	-120.414812	39.068087	84	Turnout, Right	Aggregate turnout 100' long x 40' wide. 5' x 5' rock pile in middle of turnout - should be moved					
FMPR16	0.461	-120.414642	39.068506	53	End Ditch, Left	Ditch on left ends coming from up and down the roadway.					
				51	Start Ditch, Left	In good condition.					

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
French Meadows Powerhouse Road (continued)											
	FMPR17	0.468	-120.414641	39.068608	42	24" CMP	Culvert on left: No sediment / debris blockage. No standing water. Ponding could occur in depression at mouth (3' long x 3' wide x ~.5' deep)			Good	
					53	End Ditch, Left					
					51	Start Ditch, Left	Good condition				
	FMPR18	0.472	-120.414503	39.068642	42	24" CMP	Culvert on right: Culvert not found.			Poor	
	FMPR19	0.527	-120.414346	39.069450	42	24" CMP	Culvert on right: 1' - 1.5' wide x .5' deep. No standing water. No blockage. Ponding could occur at mouth (5' long x 3' wide x 6" deep depression)			Good	
	FMPR20	0.529	-120.414253	39.069447	42	24" CMP	Culvert on left: 98% blocked by rocks . Grading road causes rocks to fall into culvert mouth. Rip-rap present. Barely any water could pass.			Poor	
					53	End Ditch, Left					
					51	Start Ditch, Left	2' wide x 1' deep. Rip-rap lined, in good condition				
	FMPR22	0.589	-120.413888	39.070283	44	36" CMP	Culvert on left: Rusted, smashed and cracked. Large boulder blocking 50 -60% of culvert. Ponding will occur to left of culvert because mouth of culvert is sloped and blocked.			Fair	
	FMPR23	0.589	-120.413819	39.070244	44	36" CMP	Culvert on right: 6' - 8' above ground. Rip-rap present. ~5% sediment on bottom.			Good	
	FMPR24	0.604	-120.413675	39.070437	84	Turnout, Right	Aggregate 10' wide x 60' long, in good condition				
					53	End Ditch, Left					
					51	Start Ditch, Left	1' wide x 1' deep slightly vegetated, but in good condition				
	FMPR26	0.634	-120.413224	39.070681	42	24" CMP	Culvert on left: 5% sediment / rock blockage. No standing water. Slight ponding could occur. 2' long x 2' wide x 5" deep depression at mouth.			Good	
	FMPR27	0.634	-120.413157	39.070646	42	24" CMP	Culvert on right: No blockage. Culvert on ground.			Good	
	FMPR28	0.653	-120.412962	39.070873	95-3	Overhead powerline/telephone line	Overhead powerline cross from right to left of road and then run parallel to roadway.				
					53	End Ditch, Left					
					51	Start Ditch, Left	2' wide x .5' - 1' deep. Very vegetated, in fair condition. Water could be blocked from flowing by vegetation.				
	FMPR30	0.733	-120.411810	39.071560	42	24" CMP	Culvert on left: No blockage. No standing water and no possible ponding.			Good	
	FMPR31	0.734	-120.411711	39.071511	42	24" CMP	Culvert on right: 95% blocked at mouth. Little water could get through. Rip-rap present. Ponding would occur in 5' x 4' x 2'-3' deep depression.			Fair - Poor	
	FMPR32	0.769	-120.411386	39.071951	95-3	Overhead powerline/telephone line	Overhead powerline cross road left to right then run parallel.				
					53	End Ditch, Left					
					51	Start Ditch, Left	2' wide x 1' deep. Densely vegetated, in fair condition. Water could be blocked by vegetation.				
	FMPR34	0.791	-120.411213	39.072241	41	18" CMP	Culvert on left: Rusted on bottom. No blockage. Rip-rap present. No Ponding.			Fair	
	FMPR35	0.790	-120.411132	39.072193	41	18" CMP	Culvert on right: No blockage. Rip-rap present. No ponding.			Good	
					41	18" CMP	Culvert on left: Smashed down 1" to 2" No blockage. Slightly buried (1" - 2") No standing water - no possible ponding.			Fair	
					53	End Ditch, Left					
					41	18" CMP	Culvert on right: Rusted bottom. No blockage. Rip-rap present. No ponding			Good	
					51	Start Ditch Left	2' wide x 1' deep. Rip-rap lined, in good condition				
					42	24" CMP	Culvert on left: Smashed down ~2". Mouth ~40% buried under cobbles. No standing water - no possible ponding.			Fair	
					53	End Ditch, Left					
					51	Start Ditch, Left	In good condition.				
	FMPR39	0.908	-120.410334	39.073776	42	24" CMP	Culvert on right: No rip-rap. ~3" - 4" above ground. No blockage.			Good	
					50	Ditch	2' - 3' wide x 2' deep and in good condition.				
					53	End Ditch, left					
					51	Start Ditch, right	2' wide x 1' deep. In good condition				
					95-3	Overhead powerline/telephone line	Powerline cross over road from right to left and stay parallel to roadway.				

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
French Meadows Powerhouse Road (continued)	FMPR41	0.986	-120.409927	39.074859	42	24" CMP	Culvert on left: Rusted on bottom 50% of pipe. No standing water. No blockage. No ponding.			Good	
	FMPR42	0.989	-120.409820	39.074868	42	24" CMP	Culvert on right: Densely vegetated channel. No rip-rap present			Good	
	FMPR43	1.055	-120.409234	39.075701	53	End Ditch, Left					
	FMPR44	1.055	-120.409265	39.075742	51	Start Ditch, left	1' wide x .5' deep. Rip-rap lined, in good condition.				
	FMPR45	1.056	-120.409188	39.075693	44	36" CMP	Culvert on left: No standing water. No blockage. No ponding.			Good	
	FMPR46	1.074	-120.408958	39.075892	44	36" CMP	Culvert on right: ~2' off ground. No blockage. No ponding. Rip-rap present.			Good	
	FMPR47	1.189	-120.407577	39.077151	95	Remark	Road slightly worsens. Increased bumps and rocks.				
	FMPR48	1.212	-120.407316	39.077415	84	Turnout, Right	50' long x 50' wide. Turnout by transformer.				
	FMPR48	1.212	-120.407316	39.077415	71	Steel Gate	Gate open and in good condition.		Good		FMPR48
	FMPR49	1.219	-120.407209	39.077483	42	24" CMP	Culvert on left: Looks new. 5% rocks on bottom. No water. No ponding.			Good	
					53	End Ditch, Left					
					51	Start Ditch, Left	2' wide x 1' deep, in good condition.				
	FMPR50	1.261	-120.406685	39.077788	95	Remark	Culvert on right: Assuming it's new pipe like on the left, but not found.				
	FMPR50	1.261	-120.406685	39.077788	45	> 36" CMP	Culvert on left: 60" CMP. 10% blocked by debris. No water. No ponding.			Good	
	FMPR51	1.261	-120.406645	39.077734	45	> 36" CMP	Culvert on right: 60" CMP. Slightly rusted. No blockage. Rip-rap present.			Good	
	FMPR52	1.275	-120.406462	39.077895	41	18" CMP	Culvert on left: Smashed 2" - 3". Split down middle. 90% mouth covered by rocks and barriers.			Poor	FMPR52
					53	End Ditch, Left					
	FMPR53	1.275	-120.406425	39.077854	41	18" CMP	Culvert on right: 2' to 3' off ground. No blockage. Rip-rap present.			Good	
					66	Warning, Right	Warning sign on the right before powerhouse. In good condition.	Good		FMPR53	
	FMPR54	1.280	-120.406373	39.077916	99	End Termini	End road at gate enclosing powerhouse.				FMPR54
Hell Hole-Middle Fork Tunnel Gatehouse Road	HHMFTGR01	0.000	-120.416315	39.060415	0 0	Begin Termini	Begin off FR-2 across from H.H. General Parking Area. Visibility: good in both directions ~ 150-200'				
					12	Native					
					22	Single Lane	12' wide road.				
	HHMFTGR02	0.005	-120.416451	39.060448	44	36" CMP	Culverts on left: 2 Culverts on left. Rusted on bottoms. Slightly smashed down 3". No blockage. No water. No ponding. Channel vegetated and rip-rap lined.			Good	
	HHMFTGR03	0.005	-120.416423	39.060462	44	36" CMP	Culverts on right: 2 Culverts on right. Channel is creek bed. No rip-rap but rocky bottom. No blockage. No water. Ponding could occur at mouths of both (4' x 4' x 3' deep depression).			Good	
					95-3	Overhead powerline/telephone line	Powerline run parallel on left side of road.				
	HHMFTGR04	0.016	-120.416459	39.060632	51	Start Ditch Left	2' wide x 1' deep. Densely vegetated, in good condition.				
	HHMFTGR05	0.030	-120.416357	39.060818	71	Steel Gate	Steel Gate closure on road, open and in good condition.		Good		HHMFTGR05
	HHMFTGR06	0.060	-120.415934	39.061103	95	Remark	Ditch becomes wider, deeper (3' x 2' deep).				
	HHMFTGR07	0.115	-120.415420	39.061776	53	End Ditch, Left					
					95-1	Road Damage	Rills abundant				
	HHMFTGR08	0.114	-120.415442	39.061771	41	18" CMP	Culvert on right: Slightly rusted. No standing water. No ponding. No blockage.			Good	
	HHMFTGR09	0.116	-120.415397	39.061787	41	18" CMP	Culvert on left: Slightly rusted. No standing water. No ponding. No blockage. ~6" off ground. Rip-rap present.			Good	
	HHMFTGR10	0.144	-120.415375	39.062200	51	Start Ditch, Left	1.5' x 6" deep. Rip-rap lined. In good Condition				
	HHMFTGR11	0.190	-120.415318	39.062859	95-1	Road Damage	Small ~1' x 1' potholes throughout roadway.				
	HHMFTGR12	0.210	-120.415435	39.063131	41	18" CMP	Culvert on left: Slightly buried ~1" - 2". No blockage. No water.			Good	
53					End Ditch, Left						
HHMFTGR12	0.210	-120.415435	39.063131	51	Start Ditch Left	1.5' x 6" deep. Rip-rap lined. In good condition.					
HHMFTGR13	0.211	-120.415399	39.063161	41	18" CMP	Culvert on right: 2' off ground. No water. No ponding. Rip-rap present.			Good		

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Hell Hole-Middle Fork Tunnel Gatehouse Road (continued)	HHMFTGR14	0.249	-120.415597	39.063686	95-1	Road Damage	Squirrel holes 2' in front and back of point. Subgrade failure (.5' x .5').				
	HHMFTGR15	0.249	-120.415624	39.063691	41	18" CMP	Culvert on left: Smashed 4" and buried 2". Large boulder at mouth. Filled 50% with sediment.			Poor	
					53	End Ditch, left					
					51	Start Ditch, left	2' wide x 1' deep, in good condition.				
	HHMFTGR16	0.249	-120.415567	39.063695	41	18" CMP	Culvert on right: 1' off ground. Rip-rap present.			Good	
	HHMFTGR17	0.307	-120.415521	39.064523	41	18" CMP	Culvert on left: No longer in use. Ponding.			Poor	
	HHMFTGR18	0.317	-120.415461	39.064666	42	24" CMP	Culvert on left: ~30% crushed. Rusted. Slight blockage at mouth (10% - 15%) No water. No ponding will occur.			Poor	
					95	Remark	Culvert on right: not found.				
					53	Ditch End, Left	Ditch ends. No culvert present. Water will run over road.				
	HHMFTGR19	0.370	-120.414823	39.065117	99	End Termini	Road ends at gatehouse building.				
00					Begin Termini	Road begins off FR 2. Visibility: fair ~200' in both directions.					
13					Aggregate						
Dormitory Facility Road	DFR01	0.000	-120.416995	39.057711	23	One and One Half Lane	20' wide road.				
					53	End Ditch, Left	Ditch runs into FR-2 and goes down toward B.R.				
					54	End Ditch Right	Ditch runs down hill off side of the road.				
	DFR03	0.058	-120.416068	39.058058	95-3	Overhead powerline/telephone line	Overhead powerline run from right to left perpendicular to road (N-S)				
	DFR04	0.077	-120.415900	39.058307	95	Remark	Road appears to be recently graded				
	DFR05	0.096	-120.415604	39.058446	51	Start Ditch, Left	Begin at turnout to helipad. 1' wide x 6" deep. Rip-rap lined. Good condition.				
					52	Start Ditch, Right	Begin at turnout to helipad. 1' wide x 6" deep. Rip-rap lined and in good condition.				
	DFR06	0.127	-120.415461	39.058875	71	Steel Gate	Gate at dormitory		Good		DFR06
					99	End Termini	Road ends at gate to dorms.				
	Hell Hole Dam Spillway Discharge Channel Road	HHSDCR01	0.000	-120.417130	39.057592	00	Begin Termini	Road begins off of FR 2, and is right next to the dormitory facility road. Visibility: fair- 150' left and 200' right. Not graded. Rocky and becoming overgrown.			
12						Native					
22						Single Lane	10' wide road.				
HHSDCR02		0.039	-120.416419	39.057522	95-3	Overhead powerline/telephone line	Overhead powerline appear on right side of road and continue going south.				
HHSDCR03		0.050	-120.416198	39.057444	83	Turnout, Left	60' wide x 100' long. Native - debris (tree limbs and trees) take up ~40% of turnout				
HHSDCR04		0.055	-120.416235	39.057346	95-1	Road Damage	Road condition worsens. Rocky and many rills and depressions on left side of road (one is 3' wide x 10' long).				HHSDCR04
HHSDCR05		0.087	-120.416622	39.057008	95	Remark	Gravel road off left of point leads up 500' to gravel pit. Gravel road is in good condition and there is room to turn around.				HHSDCR05
HHSDCR06		0.097	-120.416713	39.056873	95	Remark	No ditches so far. Water could easily run and pond over road.				
HHSDCR07		0.114	-120.416817	39.056643	95-1	Road Damage	Road condition worsens. 2' wide x 10' long x 3"-5" deep rill across road. Road becomes overgrown.				HHSDCR07
HHSDCR08		0.128	-120.416841	39.056454	95-1	Road Damage	Water seems to be running down large rill (1'-2' wide) in center of road. Spans to next point.				
HHSDCR09		0.182	-120.416420	39.055750	95	Remark	Road not drivable.				HHSDCR09
HHSDCR10		0.201	-120.416105	39.055635	84	Turnout, Right	200' long x 80' wide. Rip-rap and rills abundant.				
HHSDCR11		0.237	-120.415489	39.055748	95-1	Road Damage	Big rill off right ~1' wide and 2' deep. Runs for ~30' off left side of road.				
HHSDCR12		0.346	-120.415322	39.054561	95-1	Road Damage	Large rill off left side of road runs across road into a large (4' wide) water-made ditch.				
HHSDCR13		0.488	-120.412929	39.055170	95	Remark	Road condition slightly improves. End at parking area - road continues to curve down at next shot.				
	95-3				Overhead powerline/telephone line	Overhead powerline cross from left to right perpendicular to road running SW.					
HHSDCR14	0.462	-120.413309	39.054905	20	Width change	Width change in road to 8'. Road now in fair condition. Remainder of road collected as a line.					
		0.602	-120.412614	39.054305	99	End Termini	Road ends at spillway				

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Long Canyon Area											
North Fork Long Canyon Diversion North Road	NFLCDNR 01	0.000	-120.483378	39.049279	0 0	Begin Termini	Visibility: poor on left ~100', and fair on the right ~200'				
					12	Native					
					22	Single Lane	~15' wide				
					51	Start Ditch, Left	Ditch in good condition, shallow ~ 1/2' and ~2' wide. Minor vegetation in channel.				
	NFLCDNR 02	0.015	-120.483082	39.049328	84	Turnout right	100' long x 50' wide. Turnout in good condition and native surface.				
	NFLCDNR 03	0.037	-120.482860	39.049618	95-1	Road Damage	Pot hole/depression (1.5'x1.5', ~4" deep) off the right.				
	NFLCDNR 04	0.057	-120.482666	39.049867	53	End Ditch, Left	Ditch on left ends in both directions along the roadside.				
					95	Remark	Large downed logs (~20' pile) that are along the right edge of the roadway. This pile could block water from going down hill.				
	NFLCDNR 05	0.056	-120.482703	39.049865	42	24" CMP	Culvert on left: In fair condition. 3/4 is buried with debris and sediment and culvert is rusted. Water in low flows could hardly make it through the culvert. The ditch ends really deep ~ 4-5' and water will pool at the mouth. Vegetation is prominent in the channel.			Fair	
	NFLCDNR 06	0.060	-120.482627	39.049894	42	24" CMP	Culvert on right: Culvert in good condition, not rusted. ~65% filled with sediment and debris. Culvert is located ~ 1' above ground. No rip-rap and lots of debris at the mouth.			Good	
NFLCDNR 07	0.115	-120.482169	39.050613	51	Start Ditch, Left	Ditch in good condition, ~1' wide x ~1/2' deep. Slight debris in channel.					
NFLCDNR 08	0.143	-120.481816	39.050917	53	End Ditch, Left	No Culvert at end of ditch. Ditch runs down over the top of road.					
				99	End Termini	End at the dam.					
NFLCDNR 09	0.144	-120.481772	39.050917	95	Remark	West corner of Long Canyon Dam.					
NFLCDNR 10	0.144	-120.481464	39.050911	95	Remark	East corner of Long Canyon Dam.					
North Fork Long Canyon Diversion South Road	NFLCDSR 01	0.000	-120.485075	39.043143	0 0	Begin Termini	Road (17N02D) begins at the intersection with FR 2, across from the North Fork Long Canyon Diversion Drop Inlet Road.				
					12	Native					
					22	Single Lane	~12' wide				
	NFLCDSR 02	0.037	-120.485544	39.043535	95-1	Road Damage	Pothole located 2' behind point in the center of the roadway. Pothole ~3' long x 1.5' wide, ~.5" deep.				
	NFLCDSR 03	0.118	-120.484909	39.044454	95-1	Road Damage	Tire Rill on left of road (~12' long, ~1"-2" deep).				
NFLCDSR 04	0.237	-120.483926	39.045924	95-1	Road Damage	Tire Rills on both side of the road, ~10' long and ~.5" deep. Water could flow to the flow points in these tire tracks and pool.					
NFLCDSR 05	0.618	-120.481458	39.050703	99	End Termini	End roadway at the dam.					
North Fork Long Canyon Diversion Drop Inlet Road	NFLCDDIR 07	0.000	-120.485039	39.043072	0 0	Begin Termini	Beginning of road at the intersection of FR 2.				
	NFLCDDIR 06	0.434	-120.484327	39.042774	95-4	Water Bar	~1.5' tall, runs across road.				
					20	Width Change	Width changes from 10' to 15'.				
	NFLCDDIR 05	0.053	-120.484287	39.042516	95-4	Water Bar	~.5' tall, runs across road.				
	NFLCDDIR 04	0.059	-120.484160	39.042562	95-4	Water Bar	~1' high and spans the entire roadway (all water bars seem fairly uniform).				
					95-4	Water Bar	~1' high and spans the entire roadway.				
	NFLCDDIR 03	0.066	-120.484062	39.042495	95-3	Overhead powerline/telephone line	Running East to West and runs perpendicular to the road.				
					95-4	Water Bar	~1' high and spans the entire roadway.				
	NFLCDDIR 02	0.069	-120.484006	39.042495	95-4	Water Bar	~1' high and spans the entire roadway.				
	NFLCDDIR01	0.081	-120.483849	39.042365	99	End Termini	End road at the tunnel. Visibility: good both ways, ~250' in either direction.				
12					Native	Lots of vegetation and debris throughout the roadway.					
22					Single Lane	~10' wide					
95-4					Water Bar	~1' high and spans the entire roadway.					
	0.081	-120.483820375	39.042347	95	Remark	Tunnel at the end of road					

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
South Fork Long Canyon Diversion and Drop Inlet Road	SFLCDDIR01	0.000	-120.471730	39.051566	0 0	Begin Termini	Good to fair road condition. Visibility: ~300' in both directions. A little rocky. Gate not for this road - it's a cattle grate on FR-2.				
					12	Native					
					23	One and One Half Lane	20' wide road.				
	SFLCDDIR02	0.034	-120.471137	39.051660	95	Remark	Very shallow ditch to left of road. In a storm event, water would run over road.				
	SFLCDDIR03	0.046	-120.470936	39.051623	95	Remark	Begin loop.				
	SFLCDDIR04	0.053	-120.470800	39.051594	95	Remark	Next to solar panel by dam.				
	SFLCDDIR05	0.053	-120.470656	39.051665	84	Turnout, Right	50' x 60' wide. Native, in good condition.				
	SFLCDDIR06	0.069	-120.471077	39.051782	95	Remark	End loop				
	SFLCDDIR07	0.066	-120.470969	39.051878	95	Remark	Road off loop up to FR-2				
SFLCDDIR08	0.083	-120.471000	39.052108	99	End Termini	End at FR-2. Visibility: good ~300', in both directions.					
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	NFLCCRSNRPA 01	0.000	-120.516167	39.029528	0 0	Begin Termini	Begin road off of FR 2. Visibility: Poor in both directions ~100'				
					12	Native					
					22	Single Lane	10' wide				
					95	Remark	Halfway between first and second points, Pac Bell utility cable running perpendicular to road.				
	NFLCCRSNRPA 02	0.007	-120.516071	39.029469	71	Steel Gate	Steel gate closure for roadway		Good		NFLCCRSNRPA 02
	NFLCCRSNRPA 03	0.048	-120.515433	39.029151	95-3	Overhead powerline/telephone line	Powerline running East to West, perpendicular to the road.				
	NFLCCRSNRPA 04	0.072	-120.515310	39.028825	95	Remark	Old closed road on the right of road. No closure but road looks rarely used.				
	NFLCCRSNRPA 05	0.076	-120.515234	39.028851	95	Remark	Corner of parking area off the left side of the road.				
	NFLCCRSNRPA 06	0.076	-120.515112	39.028814	95	Remark	Corner of parking area off the left side of the road.				
	NFLCCRSNRPA 07	0.076	-120.514848	39.029019	95	Remark	Corner of parking area off the left side of the road.				
	NFLCCRSNRPA 08	0.076	-120.514884	39.029169	95	Remark	Corner of parking area off the left side of the road.				
NFLCCRSNRPA 09	0.088	-120.515028	39.028781	95-1	Remark	Road condition worsens, becoming more overgrown. Tire ruts appear ~.5' deep at most. No ditches on road. Water could easily run over top of roadway.					
NFLCCRSNRPA 10	0.123	-120.514474	39.029044	95	Remark	Middle of hairpin turn					
NFLCCRSNRPA 11	0.145	-120.514558	39.028733	99	End Termini	Ends at Penstock. Road doesn't connect as may appear on map - just comes to an end.				NFLCCRSNRPA 07	
North Fork Long Canyon Crossing Removable Section South Road ^b	Multi-use Non-Project Road Segment:										
	NFLCCRSSR01	0.000	-120.515556	39.023593	0 0	Begin Termini	Begin off FR 14N16.				
					13	Aggregate					
					22	Single Lane	12' wide				
	NFLCCRSSR02	0.067	-120.515856	39.024513	50	Ditch	2' wide, 6" deep running perpendicular to road.				
	NFLCCRSSR03	0.073	-120.515844	39.024601	95-1	Road Damage	Pothole 5' long x 2' wide x 4" deep (to right of point).				
	NFLCCRSSR04	0.078	-120.515861	39.024685	83	Turnout, Left	60' long x 10' wide. Good condition. Aggregate with some vegetation growing throughout.				
	NFLCCRSSR05	0.113	-120.515669	39.025157	95-1	Road Damage	Road becomes overgrown on ~1' - 2' on either side.				
	NFLCCRSSR06	0.177	-120.515763	39.026086	95-1	Road Damage	Depression 10' wide x 20' long spanning entire road. No standing water but evidence of ponding.				
	NFLCCRSSR07	0.190	-120.515771	39.026288	83	Turnout, Left	100' long x 20' wide. Downed tree branches and overgrown vegetation in turnout (~30% of entire area).				
	NFLCCRSSR08	0.211	-120.515617	39.026558	95-1	Road Damage	Depression 40' long x 10' wide. No standing water but evidence of ponding (3" - 5" deep).				
					95-1	Road Damage	Two large rolling dips, each 12' long x 12' wide x ~3' deep. First is slanted northward at ~30 degree slopes off right of road. Water seems to pond to right of road but no ditch present. Second dip slants south at ~10 degree slope. Water seems to pond to left of second ditch. Bank is eroding and cracking for ~20'.				
	NFLCCRSSR09	0.235	-120.515527	39.026897	95	Remark	Road transitions to parking area				
	NFLCCRSSR10	0.235	-120.515496	39.026904	95	Remark	SE corner of the parking area.				
	NFLCCRSSR11	0.238	-120.515575	39.026959	95	Remark	SW corner of the parking area.				
Project Road Segment:											
	0.261	-120.515319	39.027250	95	Remark	Begin Project road segment.					
				32	Land ownership change	Enter private lands.					
NFLCCRSSR12	0.286	-120.515167	39.027599	95	Remark	NW corner of the parking area.					
NFLCCRSSR13	0.286	-120.515051	39.027542	95	Remark	NE corner of the parking area.					
				95	Remark	Parking area ends and road becomes overgrown, survey ends.					
	0.373	-120.514531	39.028684	99	End Termini	Approximate end of road, not surveyed.					

Note: A portion of the road was incorrectly identified as Project road in the PAD. Data is listed for the multi-use non-Project road segment and the Project road segment, however, a portion of the Project road segment was overgrown, therefore not surveyed. The location of the unsurveyed Project road segment was approximated based on general field observations.

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Interbay Area											
Middle Fork Powerhouse Butterfly Valve House Road^b											
Multi-use Non-Project Road Segment:											
<p>Note: A portion of the road was incorrectly identified as Project road in the PAD. The survey data is listed for the multi-use non-Project road segment and the Project road segment.</p>	MFPBVHR01	0.000	-120.596566	39.009039	0 0	Begin Termini ^a	Begin Road				
					23	One and One Half Lane ^a	Width ~ 20'				
					13	Aggregate ^a	Road in good condition and appears recently graded.				
					52	Start Ditch, Right ^a	Some vegetation in the channel, but in good condition. (~1/2' deep x 1.5' wide)				
	MFPBVHR02	0.124	-120.595834	39.010653	54	End Ditch, Right ^a	Ditch ends on right.				
					52	Start Ditch, Right ^a	In good condition. Shallow, ~1/2' deep x 1' wide.				
	MFPBVHR05	0.124	-120.595798	39.010627	42	24" CMP ^a	Culvert on right: In good condition. No blockage. Top slightly smashed down. Ponding before mouth in 2'x1' (1/2' deep) depression.			Good	
	MFPBVHR06	0.124	-120.595852	39.010653	42	24" CMP ^a	Culvert on left: In good condition. No blockage/ponding/water present. No rip-rap at mouth.			Good	
	MFPBVHR07	0.125	-120.595783	39.010705	83	Turnout Left ^a	10'x100', in good condition				
	MFPBVHR08	0.198	-120.594924	39.011521	54	End Ditch, Right ^a	Ditch ends and runs into road. No culverts present, although no evidence of water over-topping the road.				
	MFPBVHR09	0.208	-120.594840	39.011654	83	Turnout, Left ^a	10'x70'. In good condition.				
	MFPBVHR10	0.232	-120.594498	39.011881	52	Start Ditch, Right ^a	In good condition. Less than 1/2' deep x 1' wide.				
	MFPBVHR11	0.234	-120.594472	39.011888	42	24" CMP ^a	Culvert on right: In fair condition. Rusted and ~10% smashed. No blockage. Ponding possible at mouth in 4' x 5' x 1' deep depression. Lots of erosion from bank around culvert.			Fair	
	MFPBVHR12	0.234	-120.594522	39.011936	42	24" CMP ^a	Culvert on left: In fair condition. 100% rusted. No blockage and ponding. No rip-rap present.			Fair	
MFPBVHR13	0.330	-120.592939	39.012621	54	End Ditch, Right ^a	Ditch ends.					
				42	24" CMP ^a	Culvert on right: In fair condition. ~50% rusted and beginning to fall apart. Rock on top of the culvert has punctured through. ~5% blocked by sediment. Ponding possible in 3'x1.5'x1.5' deep depression at mouth. Lots of erosion from adjacent bank, filling the channel at the mouth of the culvert.			Fair		
MFPBVHR14	0.333	-120.592938	39.012663	42	24" CMP ^a	Culvert on left: In good condition. No rip-rap present, eroding banks around the mouth of the culvert. Could eventually cover the culvert. No water present and no ponding.			Good		
Project Road Segment:											
		0.358	-120.592579	39.012888	95	Remark	Begin Project road segment.				
					31	Land ownership change	Enter ENF Lands.				
	MFPBVHR15	0.444	-120.591268	39.013609	52	Start Ditch, Right	Ditch is shallow and in fair condition (less than 1/2' deep and 1' wide). Water could easily over-top the road.				
	MFPBVHR16	0.424	-120.591569	39.013439	42	24" CMP	Culvert on right: In good condition. No blockage or water present. Lots of erosion from adjacent bank. The channel is 90% at the mouth of the culvert. Ponding could occur in the 1'x1'x1/2' deep depression at the culvert mouth.			Good	
	MFPBVHR17	0.424	-120.591594	39.013472	42	24" CMP	Culvert on left: In fair condition. ~50% smashed. 10% blocked with debris and sediment. No rip-rap/ponding/water.			Fair	
	MFPBVHR18	0.498	-120.590661	39.014261	54	End Ditch, Right	Ditch ends in culverts.				
					52	Start Ditch, Right	Ditch is shallow and in good condition. (less than 1/2' deep x 1' wide).				
	MFPBVHR19	0.502	-120.590630	39.014268	42	24" CMP	Culvert on right: In good condition. Slightly rusted. Lots of erosion from the adjacent bank (~20% of channel filled at the mouth). Ponding possible in 4'x3'x1' deep depression at the mouth.			Good	
	MFPBVHR20	0.502	-120.590668	39.014319	42	24" CMP	Culvert on left: In good condition. No rip-rap present. ~10% blocked with sediment. Ponding at mouth possible due to sediment deposits.			Good	
	MFPBVHR21	0.715	-120.588038	39.016093	54	End Ditch, Right	Ditch ends.				
					52	Start Ditch, Right	Ditch in good condition. 1' deep x 1.5' wide.				
	MFPBVHR22	0.715	-120.588000	39.016009	43	32" CMP	Culvert on right: In good condition. Little water flowing. No ponding and ~5% sediment on bottom of the culvert. Channel leading to culvert is filled with vegetative debris, but water is still flowing.			Good	

Appendix C. Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Powerhouse Butterfly Valve House Road (continued)	MFPBVHR23	0.715	-120.588044	39.016203	43	32" CMP	Culvert on left: In good condition. Water flowing. Appears to be a spring next to the culvert that is coming out of PVC pipe. Little rip-rap present. No ponding possible.			Good	
	MFPBVHR24	0.734	-120.589704	39.016541	54	End Ditch, Right	Ditch runs into culverts.				
					52	Start Ditch, Right	Ditch is shallow and in good condition. (less than 1/2' deep x1' wide).				
	MFPBVHR25	0.826	-120.589701	39.016620	42	24" CMP	Culvert on right: In good condition. Slightly rusted. Water flowing through culvert. No ponding or blockage. Channel leading up to culvert in good condition with good bank slope.			Good	
	MFPBVHR26	0.826	-120.589723	39.016593	42	24" CMP	Culvert on left: In good condition. Slightly rusted. No rip-rap present. Water is flowing. No ponding present.			Good	
	MFPBVHR27	0.980	-120.589812	39.017473	54	End Ditch, Right	Ditch runs into culverts.				
					42	24" CMP	Culvert on right: Fair to poor condition. ~30% smashed. Ponding water at mouth in a 4'x4'x1/2' depression.			Fair - Poor	
					52	Start Ditch, Right	Ditch the same as previous (shallow but in good condition).				
	MFPBVHR28	0.980	-120.589841	39.017510	42	24" CMP	Culvert on left: In good condition. No blockage or ponding. Rip-rap present. Mouth ~5' above the ground off the side of a hill.			Good	
	MFPBVHR29	1.043	-120.589060	39.018188	54	End Ditch, Right	Ditch runs into culverts.				
					52	Start Ditch, Right	Ditch is the same as the previous ditches. Shallow and water can easily over-top the roadway.				
	MFPBVHR30	1.043	-120.589046	39.018143	42	24" CMP	Culvert on right: In good condition. ~2% blocked with sediment on the bottom of the culvert. No water present and no ponding.			Good	
MFPBVHR31	1.043	-120.589095	39.018202	42	24" CMP	Culvert on left: In good condition. No rip-rap present. No blockage/ponding/water present. ~2' off the ground and runs of the side of a hill.			Good		
MFPBVHR32	1.101	-120.588148	39.018407	99	End Termini	Road ends at the butterfly house.					
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	MFPPBVHR01	0.000	-120.596847	39.024439	0 0	Begin Termini	Begin Road on other side of gate next to the powerhouse, off of Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points.				
					22	Single Lane	Width ~12'				
					14	Paved	Road in good condition.				
	MFPPBVHR02	0.050	-120.596098	39.024799	10	Surface Change	Road surface changes from paved to chip seal.				
					19	Chip Seal	Pavement ends, chip seal begins. Chip seal in good to fair condition.				
	MFPPBVHR03	0.110	-120.595596	39.024797	54	End Ditch, Right	End ditch on the right. There is no culvert, so water would run over the side of the road.				
					95-3	Overhead Powerline	Electric line is running W to E.				
	MFPPBVHR04	0.146	-120.595414	39.024571	10	Surface Change	Road surface changes from chip seal to aggregate.				
					13	Aggregate	Chip seal ends, aggregate begins. Aggregate in good/fair condition. Leaves and debris in roadway.				
	MFPPBVHR05	0.195	-120.594547	39.024435	45	>36" CMP	~5' big. Culverts on both sides are in good condition. No blockage, no ponding and no water present. No rip-rap off the left culvert.			Good	
	MFPPBVHR06	2.040	-120.594378	39.024480	52	Start Ditch, Right	Ditch in fair condition. Vegetation and debris in channel. ~ 2' wide x 1/2' deep.				
					54	End Ditch, Right					
41					18" CMP	Good condition on both sides, no water and no ponding. Left culvert: ~50% blocked at mouth. No rip-rap present. Right culvert: looks new.			Good		
MFPPBVHR07	0.240	-120.593916	39.024880	83	Turnout, Left	30'x60' in good condition					
MFPPBVHR08	0.291	-120.593889	39.024725	53	End Ditch, Left	Ditch just ends. There is no culvert. Water will run off the left side of the road.					

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Powerhouse Penstock and Butterfly Valve House Road (continued)	MFPPBVHR09	0.247	-120.593864	39.024086	10	Surface Change	Road surface changes from aggregate to native.				
					12	Native	Aggregate ends, native begins. Native surface in fair/poor condition. Very bumpy surface with debris in road. All corners on the road are still aggregate.				
	MFPPBVHR10	0.311	-120.593978	39.023817	53	End Ditch, Left					
					51	Start Ditch, Left	In good condition. 1' deep x 2' wide.				
	MFPPBVHR11	0.338	-120.594383	39.023587	44	36" CMP	Culvert on right: In retaining wall. In good condition. No water or ponding. Rip-rap present. ~2' off ground. Culvert on Left: In retaining wall. No blockage/water/ponding. In good condition.			Good	
					54	End Ditch, Right					
	MFPPBVHR12	0.375	-120.593701	39.023565	95-1	Road Damage	Road softens. Washout on right of road ~8" deep x 1' wide. Tire ruts appear and last until next point.				
					52	Start Ditch, Right	Ditch in both directions, in fair condition. Debris in channel. ~1/2' deep x 2' wide.				
	MFPPBVHR13	0.429	-120.592908	39.023955	54	End Ditch Right					
					52	Start Ditch, Right	Ditch in same condition as previous.				
	MFPPBVHR14	0.467	-120.593221	39.023468	95-1	Road Damage	Rill on the right of the road. ~15' long x 10' 1' wide.				
					84	Turnout, Right	100' x 10' wide. Native surface and in good/fair condition.				
	MFPPBVHR15	0.467	-120.593157	39.023479	54	End Ditch, Right					
					52	Start Ditch, Right	Ditch same as previous.				
	MFPPBVHR16	0.492	-120.592709	39.023538	95-1	Road Damage	Rill on the right of the road. ~1/2' wide x 10' long. All corners of the road are slightly washed out.				
					52	Start Ditch, Right	Ditch same as previous.				
	MFPPBVHR17	5.050	-120.592738	39.023344	53	End Ditch, Left	Ditch runs off the side of the road.				
					95-1	Road Damage	Rill on left of road. ~15' long x 1/2' wide. Tire track ruts ~4" deep on either side of the roadway. Tire ruts last until next point.				
	MFPPBVHR18	0.542	-120.592859	39.022824	54	End Ditch, Right					
					51	Start Ditch, Left	Ditch in good condition. ~1.5-2' deep x 2' wide. Water is flowing.				
					41	18" CMP	Culvert on left: Culvert in a retaining wall. In good condition. No blockage/ponding/water present.			Good	
MFPPBVHR19	0.567	-120.592521	39.023077	41	18" CMP	Culvert on right: In good condition. No blockage/ponding/water. No rip-rap present.			Good		
				95-1	Road Damage	Road worsens until next point. Lots of small rills throughout road. Tire ruts on either side of the road ~ 4" deep.					
MFPPBVHR20	0.584	-120.592404	39.022979	53	End Ditch, Left						
MFPPBVHR21	0.622	-120.592482	39.022435	41	18" CMP	A series of culverts on the right of the road lead from the penstock to the road.					
				41	18" CMP	Culvert on right: There is an open pipe on the right in good condition. Water is running through the pipe. No ponding.			Good		
				41	18" CMP	Culvert on right: After the open pipe there is another pipe that is closed and in good condition. No blockage and no ponding. Water is flowing.			Good		
				41	18" CMP	Culvert on right: Culvert next to the road is in good condition. Water is flowing. No blockage or ponding.			Good		
				41	18" CMP	Culvert on right: The culvert running underneath the road is 10% blocked at the mouth of the culvert. Water is still flowing and there is no ponding. The culvert is in a retaining wall.			Fair		
41	18" CMP	Culvert on left: In fair condition. ~50% blocked by sediment and smashed down. Little rip-rap in the channel. Water is flowing and there is no ponding. The channel after the culvert leads to a weir (~50' ahead of the culvert on the left of the road).			Fair						

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Powerhouse Penstock and Butterfly Valve House Road (continued)	MFPPBVHR22	0.646	-120.592273	39.022392	42	24" CMP	Culvert on right: Culvert is conveying a creek. In good condition. No blockage/ponding/water. ~5% sediment on the bottom of the culvert. Culvert in a retaining wall.			Good	
					42	24" CMP	Culvert on left: In fair condition. ~50% filled with sediment and rusted. No rip-rap/ponding/water.			Fair	
					95-1	Road Damage	Tire ruts ~3" deep on either side of the road.				
	MFPPBVHR23	0.685	-120.591889	39.022880	51	Start Ditch, Left	Ditch ~ 1.5' deep x 1' long.				
					52	Start Ditch, Right	Ditch same as previous.				
					95-1	Road Damage	Road becomes worse and slightly over grown. Larger rocks become present in roadway.				
	MFPPBVHR24	0.762	-120.591703	39.021923	53	End Ditch, Left					
					51	Start Ditch, Left	Ditch in fair condition, but shallow. It's less than 1/2' deep x 1' wide. Lots of debris in the channel.				
					44	36" CMP	Culvert on left: Conveys creek. In good condition. In a retaining wall. ~ 30% blocked at the mouth. No water or ponding present.			Good	
	MFPPBVHR25	0.781	-120.592028	39.021780	44	36" CMP	Culvert on right: In fair condition. ~70% blocked at the mouth. No rip-rap present. No ponding or water.			Fair	
					52	Start Ditch, Right	Penstock ~30' ahead. Run-off in channel coming from the penstock down to the road. Ditch runs right off the right side of the road. In good condition.				
					95-3	Overhead Powerline	Electric line is running N to S.				
	MFPPBVHR26	0.820	-120.591309	39.021751	54	End Ditch, Right					
					41	18" CMP	Culvert on right: Conveys creek. In fair/good condition. ~50% blocked. In a retaining wall. No ponding and no water present.			Good - Fair	
					41	18" CMP	Culvert on left: Poor/Fair condition. Can't find culvert. Assuming 100% blocked with sediment/erosion. No rip-rap present.			Fair - Poor	
	MFPPBVHR27	0.839	-120.591260	39.022081	51	Start Ditch, Left	Ditch in good condition. 2' deep x 2' wide.				
					53	End Ditch, Left					
					51	Start Ditch Left	Ditch same as previous.				
	MFPPBVHR28	0.893	-120.591081	39.021433	42	24" CMP	Culvert on left: In poor condition. Located in a retaining wall. ~70% blocked at the mouth. No water and no ponding.			Poor	
					42	24" CMP	Culvert on right: 100% buried/smashed. Poor condition. No rip-rap present.			Poor	
	MFPPBVHR29	0.897	-120.591212	39.021169	95-1	Road Damage	Concrete run-off drainage flows from Penstock to the a ditch and right off the road. The road worsens and there are lots of small rills and debris in the road.				
					54	End Ditch, Right					
					42	24" CMP	Culvert on right: In good condition. Located in a retaining wall. Conveys a creek. No water and no ponding. ~10% blocked with sediment.			Good	
	MFPPBVHR30	0.930	-120.590717	39.021250	42	24" CMP	Culvert on left: In fair condition. ~30% blocked at the mouth by vegetation. No water and no ponding. No rip-rap at the mouth.			Fair	
	MFPPBVHR31	0.982	-120.590522	39.021962	49	Water bar	~2' high and runs across the road ~ 2' wide.				
	MFPPBVHR32	1.010	-120.590399	39.022360	49	Water bar	~3' high x 2' wide and runs across the road.				
	MFPPBVHR33	1.063	-120.590027	39.022864	51	Start Ditch, Left	Ditch in good condition. ~1' deep x 2' wide.				
	MFPPBVHR34	1.232	-120.589450	39.020512	52	Start Ditch, Right					
	MFPPBVHR35	1.264	-120.589253	39.020929	49	Water bar	~2' high x 2' wide and runs across the road.				
	MFPPBVHR36	1.292	-120.588886	39.021220	53	End Ditch, Left	Ditch runs into the woods on the left side of the road.				
					95-1	Road Damage	Tire ruts on either side of the road. 4" deep.				
					54	End Ditch, Right					
	MFPPBVHR37	1.347	-120.588676	39.020530	51	Start Ditch, Left	Ditch very shallow and in fair condition. Less than 1/2' deep x 1' wide.				
49					Water bar	2.5' high x 2.5' wide and runs across the road.					

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Powerhouse Penstock and Butterfly Valve House Road (continued)	MFPPBVHR38	1.393	-120.589078	39.019944	42	24" CMP	Culvert on left: In poor/fair condition. 90% buried by debris. Located in a retaining wall. No water and no ponding. Conveying creek.			Fair - Poor	
					42	24" CMP	Culvert on left: In fair condition. ~30% buried at the mouth. Small plastic PVC pipe running along side of the culvert. Could be conveying spring water. No rip-rap present and no water or ponding.			Fair	
	MFPPBVHR39	1.471	-120.588651	39.019590	42	24" CMP	Culvert on right: In fair/good condition. Conveys the creek. Little water flowing. ~20% blocked by debris at the mouth. Located in a retaining wall. No ponding.			Good - Fair	
					42	24" CMP	Culvert on left: In fair/poor condition. ~85% blocked at the mouth, but still conveying flow. No rip-rap present. No ponding. Slightly crushed and rusted.			Fair - Poor	
	MFPPBVHR40	1.512	-120.588354	39.020124	49	Water bar	2.5' high x 2' wide and runs across the road.				
	MFPPBVHR41	1.719	-120.586887	39.020300	49	Water bar	2.5' high x 2/5' wide located ~ 100' behind this point.				
	MFPPBVHR42	1.739	-120.586747	39.020071	53	End Ditch, Left	Ditch runs off the left side of the road into the woods.				
	MFPPBVHR43	1.788	-120.586890	39.019401	41	18" CMPs	A series of culverts runs parallel to the left side of the road, underneath an old road no longer used. Both in good condition. No water and no ponding.			Good	
	MFPPBVHR44	1.822	-120.586797	39.018926	95-3	Overhead Powerline	Underground powerline. The marker is in fair condition and is peeling. Made of aluminum.	Fair			MFPPBVHR44
		1.825	-120.587957	39.018438	51	Start Ditch, Left	Ditch in good condition 1' deep by 1.5' wide.				
					99	End Termini	Road ends at the butterfly house. Road in good condition at this section of road.				
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	MFIDPRIAP01	0.000	-120.616165	39.051782	0 0	Begin Termini	Begin off of FR 96. Visibility: good ~ 200-300' each direction.				
					24	Double Lane	24' wide road.				
					14	Paved					
	MFIDPRIAP02	0.003	-120.616195	39.051745	60	Non-specified Sign	Stop sign. In good condition. Made of aluminum.	Good			MFIDPRIAP02
	MFIDPRIAP03	0.006	-120.616124	39.051684	66	Warning, Right	Warning sign at the start of the road, (by intersection with FR96). In fair condition (paint is peeling) Made of metal.	Fair			MFIDPRIAP03
	MFIDPRIAP04	0.025	-120.616339	39.051438	63	Regulatory, Left	PCWA Interbay Dam sign. Made of aluminum.	Fair			MFIDPRIAP04
	MFIDPRIAP05	0.025	-120.616309	39.051429	84	turnout right	90' x 80' pull off, in good condition				
	MFIDPRIAP06	0.014	-120.616427	39.051629	51	Start Ditch, Left	Ditch in good condition				
	MFIDPRIAP07	0.019	-120.616241	39.051523	41	18" CMP	In good condition. No blockage or standing water. Ponding could occur in 1'x2'x1/2' deep depression at the mouth.			Good	
					53	End Ditch, Left					
	MFIDPRIAP08	0.203	-120.616344	39.048866	41	18" CMP	~40% filled with sediment. No rip-rap at the mouth. Culvert in good condition. Ponding could occur at 3'x3'x1/2' deep depression at mouth.			Good	
	MFIDPRIAP09	0.203	-120.616227	39.048843	51	Start Ditch, Left	Ditch in good condition.				
	MFIDPRIAP10	0.310	-120.616630	39.047405	41	18" CMP	Good condition. No sediment blockage or standing water. Erosion from adjacent bank is slowly filling channel. Ponding could occur in 2'x2'x1' deep depression at mouth.			Good	
					53	End Ditch, Left					
					50	Ditch	Start ditch 20' ahead of this point.				
	MFIDPRIAP11	0.310	-120.616763	39.047367	41	18" CMP	Completely blocked. Poor condition.			Poor	
	MFIDPRIAP12	0.393	-120.616222	39.046266	96	Geographic Landmark	Begin rock slide area on left of road				
					83	Turnout, Left	Turnout				
MFIDPRIAP13	0.437	-120.615405	39.046351	40	Drainage	Culvert end not found 100% blocked on right of road.					
MFIDPRIAP14	0.441	-120.615352	39.046274	41	18" CMP	Culvert on left: Good condition. No blockage or standing water. Erosion from bank is filling channel. No possible ponding.			Good		
MFIDPRIAP15	0.483	-120.614668	39.046043	96	Geographic Landmark	End of rock slide area on left of road.					
MFIDPRIAP16	0.523	-120.614042	39.045639	84	Turnoff Right	Turnoff, dirt. Good condition					
MFIDPRIAP17	0.530	-120.613923	39.045684	41	18" CMP	Culvert on right: Good condition. No rip-rap. 2-3' off ground. No blockage, no ponding, no water. Culvert on Left not found. 100% blocked by landslide/eroding banks.			Good		
				51	Start Ditch, Left						
				53	End Ditch, Left						
MFIDPRIAP18	0.530	-120.613900	39.045598	41	18" CMP	Culvert on right: Poor condition. 90% blocked. No rip-rap, no water, no ponding.			Poor		

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points (continued)	MFIDPRIAP19	0.602	-120.612545	39.045704	41	18" CMP	Culvert on left: Poor condition. 95% blocked at mouth and smashed down ~40%. No standing water and ponding could occur at the mouth.			Poor	
					51	Start Ditch, Left					
					53	End Ditch, Left					
	MFIDPRIAP20	0.602	-120.612559	39.045549	41	18" CMP	Culvert on left: Poor condition. 90% blocked at the mouth. Rusted and mashed down by ~20%. No water standing water. Ponding could occur in channel before culvert. Culvert on right not found. 100% buried.			Poor	
	MFIDPRIAP21	0.622	-120.612225	39.045615	84	Turnout Right	Dirt, good condition				
	MFIDPRIAP22	0.680	-120.611131	39.045620	41	18" CMP	Culvert on right: Fair condition. Blocked 100%. Lots of debris in channel. Ponding possible. No standing water.			Poor - Fair	
					51	Start Ditch, Left	Ditch in good condition.				
					53	End Ditch, Left					
	MFIDPRIAP23	0.682	-120.611109	39.045568	41	18" CMP	Culvert on left: 100% buried, no rip-rap. Poor Condition.			Poor	
	MFIDPRIAP24	0.691	-120.610924	39.045526	83	Turnout Left	Dirt, good condition				
	MFIDPRIAP25	0.725	-120.610416	39.045303	95-2	Stream Crossing	Dry creek crossing under road				
					53	Ditch	End ditch				
					51	Ditch	Start ditch				
	MFIDPRIAP26	0.750	-120.610544	39.044963	84	Turnout Right	Dirt, good condition				
	MFIDPRIAP27	0.754	-120.610615	39.044972	41	18" CMP	Culvert on right: Condition fair/poor. 60% smashed/blocked. No rip-rap, no water, no possible ponding.			Fair - Poor	
					53	End Ditch, Left					
					51	Start Ditch, Left	Ditch in good condition				
	MFIDPRIAP28	0.815	-120.611550	39.044434	41	18" CMP	Culvert on left: 100% blocked. Poor Condition.			Poor	
	MFIDPRIAP29	0.909	-120.612947	39.043663	41	18" CMP	Culvert on left: Poor condition. 100% blocked. Culvert on the right is not found.			Poor	
					53	End Ditch, Left	End ditch				
					51	Start Ditch Left	Ditch in good condition				
	MFIDPRIAP30	0.916	-120.613095	39.043664	40	Drainage	Culvert ends				
	MFIDPRIAP31	0.931	-120.613272	39.043496	84	Turnout Right	Turnout ~ 20' x 40'				
	MFIDPRIAP32	1.004	-120.612613	39.042557	41	18" CMP	Culvert on left: 100% blocked. Poor Condition.			Poor	
					53	End Ditch, Left					
					51	Start Ditch, Left	Ditch in good condition.				
	MFIDPRIAP33	1.012	-120.612667	39.042409	41	18" CMP	Culvert on right: Not found. Probably 100% blocked.			Poor	
	MFIDPRIAP34	1.078	-120.611764	39.041691	84	Turnout Right	Turnout ~30' x 50'				
	MFIDPRIAP35	1.111	-120.611123	39.041720	84	turnout right	Turnout ~ 15 x 30'				
	MFIDPRIAP36	1.137	-120.610669	39.041887	41	18" CMP	Culvert on left: Good condition. No rip-rap, 5% sediment on bottom, no water/possible ponding.			Good	
					51	Start Ditch, Left	Ditch in good condition.				
					53	End Ditch, Left					
	MFIDPRIAP37	1.138	-120.610596	39.041804	41	18" CMP	Culvert on left: Not found.			Poor	
	MFIDPRIAP39	1.199	-120.608790	39.041917	41	18" CMP	Culvert on right: In good condition. No ponding, no blockage and no water.			Good	
					53	End Ditch, Left					
					51	Start Ditch, Left					
	MFIDPRIAP40	1.251	-120.608790	39.041875	41	18" CMP	Culvert on right: 2-3' off the ground. In good condition. No water, no ponding, and no rip-rap.			Good	
	MFIDPRIAP41	1.263	-120.608559	39.041831	96	Geographic Landmark	Begin rock slide area on left of road				
	MFIDPRIAP42	1.234	-120.608125	39.041725	84	Turnout Right	~20' x ~ 40'				
					83	Turnout Left	~15' x 30'				
					91	Water Source	Flowing creek				
					53	End Ditch, Left	End ditch				
					51	Start Ditch, Left	Ditch in good condition.				
	MFIDPRIAP44	1.327	-120.607543	39.041769	95-2	Stream Crossing	Culvert crossing - 10' diameter. Both culverts in good condition.				
	MFIDPRIAP46	1.331	-120.607458	39.041761	13	Aggregate	End pavement, begin gravel road.				
	MFIDPRIAP47	1.414	-120.608610	39.041191	84	Turnout Right	~15' x ~30'				
	MFIDPRIAP48	1.429	-120.608810	39.041020	41	18" CMP	Culvert on left: Poor Condition. 90% smashed, rusted and blocked. No water, and no ponding.			Poor	
					53	End Ditch, Left					
51					Start Ditch, Left						

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points (continued)	MFIDPRIAP49	1.429	-120.608898	39.041088	41	18" CMP	Culvert on right: Appears new, in good condition. No blockage, no water, no possible ponding, and no rip-rap.			Good	
	MFIDPRIAP50	1.430	-120.609691	39.040720	42	24" CMP	Culvert on left: Good Condition. Ponding could occur in 1'x1'x1' deep depression. No water, no blockage.			Good	
					53	End Ditch, Left					
	MFIDPRIAP51	1.482	-120.609744	39.040808	42	24" CMP	Culvert on right: Good condition. No rip-rap, no water, no possible ponding.			Good	
	MFIDPRIAP53	1.610	-120.611649	39.039737	51	Start Ditch, Left					
	MFIDPRIAP54	1.625	-120.611726	39.039530	84	Turnout Right	Pull off 100' x 100'				
	MFIDPRIAP55	1.656	-120.612235	39.039257	80	Miscellaneous	Pull off - gravel - road				
	MFIDPRIAP56	1.675	-120.612465	39.039086	76	Rock	Gravel road blocked				
	MFIDPRIAP61	1.689	-120.612568	39.038870	0 0	Begin Termini	Continue Interbay road				
					14	Paved					
					24	Double Lane					
	MFIDPRIAP62	1.698	-120.612729	39.038818	52	Start Ditch, Right	Ditch in good condition				
	MFIDPRIAP63	1.815	-120.614571	39.038651	41	18" CMP	Culvert on right: In good condition. Slightly rusted. No blockage, no water, no possible ponding.			Good	
					54	End Ditch, Right					
	MFIDPRIAP64	1.760	-120.614622	39.038572	41	18" CMP	Culvert on left: Fair condition. Rusty and ~80% blocked. No rip-rap, no water, no ponding.			Fair	
	MFIDPRIAP65	1.763	-120.614646	39.038648	52	Start Ditch, Right	Ditch in good condition.				
	MFIDPRIAP66	1.809	-120.615497	39.038853	83	Turnout, Left	~10' x ~15', surface is gravel and in good condition.				
					54	End Ditch, Right					
	MFIDPRIAP67	1.856	-120.615629	39.039495	41	18" CMP	Culvert on right: In good condition. Ponding could occur at mouth in 4'x2'x1' deep depression. No blockage.			Good	
					41	18" CMP	Culvert on left: Culvert not found. Assume 100% blocked.			Poor	
	MFIDPRIAP68	1.854	-120.615736	39.039496	41	18" CMP					
	MFIDPRIAP69	1.855	-120.615661	39.039495	52	Start Ditch, Right	In good condition.				
	MFIDPRIAP70	1.979	-120.616047	39.039988	84	Turnout, Right	~10' x ~15'				
	MFIDPRIAP71	1.974	-120.616017	39.040076	54	End Ditch, Right					
	MFIDPRIAP72	1.979	-120.615942	39.039962	51	Start Ditch, Left	In good condition.				
	MFIDPRIAP73	2.064	-120.616221	39.038766	41	18" CMP	Culvert on left: Fair condition. Smashed ~70%. Debris filled. Ponding will occur in high flows. No water running.			Fair	
	MFIDPRIAP74	2.066	-120.616324	39.038740	41	18" CMP	Culvert on right: Open culvert. Pipe is 1/2 way open. In good condition. No blockage, no rip-rap.			Good	
	MFIDPRIAP75	2.159	-120.615835	39.037478	42	24" CMP	Culvert on left: Fair condition. Still able to convey water. 30% smashed and 50% filled with sediment. Ponding at mouth would occur in 1'x1'x1/2' deep depression at mouth.			Fair	
	MFIDPRIAP76	2.159	-120.615881	39.037438	42	24" CMP	Culvert on right: In good condition. 2-3' off ground. No rip-rap or ponding.			Good	
	MFIDPRIAP77	2.214	-120.614606	39.036870	41	18" CMP	Culvert on left: Poor condition Smashed and ripped up. 20% blocked. No water. Ponding could occur in 2'x2'x1/2' deep depression.			Poor	
	MFIDPRIAP78	2.244	-120.614564	39.036760	41	18" CMP	Culvert on right: Poor Condition. 100% blocked.			Poor	
	MFIDPRIAP79	2.348	-120.612758	39.036639	41	18" CMP	Culvert on left: Good condition. No blockage. Possible ponding could occur at mouth of culvert.			Good	
	MFIDPRIAP80	2.350	-120.612710	39.036615	41	18" CMP	Culvert on right: Fair condition. Mouth is blocked by 80% with debris. Water would sit in pipe due to blockage. No rip-rap.			Fair	
MFIDPRIAP81	2.429	-120.611248	39.036716	41	18" CMP	Culvert on left: Eroding bank. Good to fair condition. Culvert is crumpled and rusted. Ponding is possible in 5'x4'x1/2' deep depression. No blockage.			Good - Fair		
MFIDPRIAP82	2.432	-120.611242	39.036602	41	18" CMP	Culvert on right: Not found. Appears to be ~ 40% blocked. Seems in good to fair condition from the other culvert.			Good - Fair		
MFIDPRIAP83	2.557	-120.609148	39.036025	44	36" CMP	Culvert on left: Good condition. No blockage. Conveying creek. No water present.			Good		
MFIDPRIAP84	2.558	-120.609213	39.035962	44	36" CMP	Culvert on right: Good condition. No blockage. Conveying creek. No water. Rip-rap present.			Good		
MFIDPRIAP85	2.621	-120.609605	39.035365	84	Turnout, Right	50' x 100'					
MFIDPRIAP86	2.634	-120.609738	39.035141	53	End Ditch, Left						
MFIDPRIAP87	2.631	-120.609650	39.035211	52	Start Ditch, Right	In good condition.					

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Project Roads and Access Points											
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points (continued)	MFIDPRIAP88	2.677	-120.610210	39.035609	42	24" CMP	Culvert on right: Good condition. No water. No ponding. No blockage. Slightly (~5%) smashed on top.			Good	
					44	36" CMP	Culvert on right: Good condition. Looks new. Conveying creek. No water. No rip-rap. No blockage.			Good	
					54	End Ditch, Right					
	MFIDPRIAP89	2.677	-120.610233	39.035615	52	Start Ditch, Right	In good condition.				
	MFIDPRIAP90	2.681	-120.610388	39.035586	42	24" CMP	Culvert on left: 80% blocked with sediment at the mouth. Otherwise, in good condition.			Good - Fair	
					44	36" CMP	Culvert on left: Good condition. Looks new. Conveys creek. No water. No blockage.			Good	
					83	Turnout, Left	Turn out in good condition with aggregate substrate				
	MFIDPRIAP92	2.768	-120.611866	39.035374	41	18" CMP	Culvert on right: Good condition. Slightly smashed. 5-10% blocked. No ponding, no water.			Good	
	MFIDPRIAP93	2.770	-120.611903	39.035300	41	18" CMP	Culvert on left: In good condition. 3' above ground. No rip-rap, no ponding, no water.			Good	
	MFIDPRIAP94	2.871	-120.612516	39.034078	41	18" CMP	Culvert on right: In good condition. No blockage, no water, no ponding. No rip-rap.			Good	
	MFIDPRIAP95	2.871	-120.612436	39.034090	41	18" CMP	Culvert on left: In good condition. No blockage, no water, no ponding.			Good	
	MFIDPRIAP96	2.885	-120.612296	39.033914	83	Turnout, Left					
	MFIDPRIAP97	2.890	-120.612352	39.033816	51	Start Ditch, Left	In good condition.				
	MFIDPRIAP98	2.969	-120.613563	39.034077	54	End Ditch, Right					
	MFIDPRIAP99	2.969			84	Turnout, Right	~10 x ~20'				
	MFIDPRIAP100	2.969			55	End Ditch, Left					
	MFIDPRIAP101	3.008	-120.614242	39.033777	51	Start Ditch, Left	In good condition.				
	MFIDPRIAP102	3.068	-120.615242	39.033368	83	Turnout, Left	~30' 40'				
	MFIDPRIAP103	3.073	-120.615378	39.033392	53	End Ditch, Left					
					83	Turnout, Left	30' x 50', surface is native and in good condition.				
	MFIDPRIAP105	3.133	-120.615543	39.034312	96	Geographic Landmark	Rock slide area				
					96	Geographic Landmark	Rock slide area				
					54	End Ditch, Right					
	MFIDPRIAP106	3.153	-120.615980	39.034162	84	Turnout, Right	Aggregate				
					83	Turnout, Left	Aggregate				
	MFIDPRIAP109	3.184	-120.616042	39.033727	41	18" CMP	Culvert on left: In good condition. No blockage, no water, no ponding.			Good	
					53	End Ditch, Left					
	MFIDPRIAP110	3.184	-120.616099	39.033733	41	18" CMP	Culvert on right: In good condition. No water, no ponding, no blockage, and no rip-rap.			Good	
MFIDPRIAP111	3.193	-120.615970	39.033603	83	Turnout, Left						
MFIDPRIAP112	3.205	-120.616029	39.033438	51	Start Ditch, Left						
MFIDPRIAP113	3.316	-120.614793	39.032268	41	18" CMP	Culvert on left: Conveying creek. In good condition. No blockage. Little bit of water flowing. No ponding.			Good		
MFIDPRIAP114	3.318	-120.614840	39.032201	41	18" CMP	Culvert on right: In good condition. No blockage. Little water flowing. No ponding. Rip-rap present.			Good		
MFIDPRIAP115	3.457	-120.612502	39.031462	53	End Ditch, Left						
MFIDPRIAP116	3.505	-120.613090	39.031170	41	18" CMP	Culvert on right: 3' above ground. No blockage, no rip-rap. No ponding and no water. In good condition.			Good		
MFIDPRIAP117	3.505	-120.613119	39.031111	41	18" CMP	Culvert on left: Fair condition. 20% smashed down and 10% blocked. Ponding could occur at mouth, and culvert is slightly rusted.			Fair		
				83	Turnout, Left	Large and Native substrate					
MFIDPRIAP119	3.536	-120.613606	39.031336	52	Start Ditch, Right	In good condition.					
MFIDPRIAP120	3.536	-120.613636	39.031287	51	Start Ditch, Left						
MFIDPRIAP121	3.599	-120.613990	39.030752	54	End Ditch, Right						
MFIDPRIAP122	3.631	-120.613440	39.030573	41	18" CMP	Culvert on right: Good condition. No blockage, and no water. Ponding could occur in 2'x3'x2' deep depression at the mouth. No water present.			Good		
MFIDPRIAP123	3.633	-120.613443	39.030490	41	18" CMP	Culvert on left: 100% blocked. Not found. Poor condition. No rip-rap present.			Poor		
MFIDPRIAP124	3.708	-120.612091	39.030707	41	18" CMP	Culvert on left: Fair condition. No water, no ponding, blocked 100% about 10' down the pipe. The pipe itself is in good condition.			Fair		

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points (continued)	MFIDPRIAP125	3.708	-120.612056	39.030647	41	18" CMP	Culvert on right: In good condition. Culvert extended by 40' extra piping off the side of the hill. No blockage. Not sure if there is rip-rap or not, (since the pipe runs off the side of a cliff).			Good		
					84	Turnout, Right	Aggregate					
	MFIDPRIAP131	3.783	-120.610781	39.031027	44	36" CMP	Culvert on left: In good condition. Conveying creek. Little bit of flow being conveyed.			Good		
	MFIDPRIAP133	3.790	-120.610618	39.031034	53	End Ditch, Left						
					83	Turnout, Left						
	MFIDPRIAP134	3.790	-120.610667	39.030935	44	36" CMP	Culvert on right: In good condition. Conveying creek. Little flow occurring. Rip-rap present.			Good		
	MFIDPRIAP135	3.813	-120.610332	39.030734	96	Geographic Landmark	Begin rock slide area on left of road					
	MFIDPRIAP136	3.935	-120.608602	39.029999	41	18" CMP	Culvert on left: Fair condition. Slightly smashed (10%), blocked ~80% with sediment, around 1/2 way down the pipe.			Fair		
	MFIDPRIAP137	3.935	-120.608603	39.029956	41	18" CMP	Culvert on right: In good condition. Extended with additional pipe around 40'. Rip-rap present. No water and no ponding.			Good		
	MFIDPRIAP138	3.935	-120.608603	39.029956	96	Geographic Landmark	Rock slide area end					
	MFIDPRIAP139	3.935	-120.608603	39.029956	84	Turnout, Right						
	MFIDPRIAP140	4.103	-120.605639	39.029534	41	18" CMP	Culvert on left: In good condition. No water, no ponding, no blockage. 10% sediment on bottom.			Good		
	MFIDPRIAP141	4.184	-120.604368	39.029509	41	18" CMP	Culvert on right: ~ 1/2-1' off ground. No blockage. ~10% sediment on bottom of culvert. In good condition. No rip-rap present.			Good		
	MFIDPRIAP142	4.242	-120.603661	39.028885	41	18" CMP	Culvert on left: Fair condition. Smashed by 50%. Ponding in 5'x3'x1/2' deep depression.			Poor		
	MFIDPRIAP143	4.242	-120.603716	39.028862	41	18" CMP	Culvert on right: Poor condition. 100% blocked.			Poor		
	MFIDPRIAP144	4.338	-120.603521	39.027532	41	18" CMP	Culvert on left: Poor condition. Ripped up and rusted. ~95% filled with sediment. Ponding will occur. Lots of erosion from bank in channel.			Good		
	MFIDPRIAP145	4.339	-120.603616	39.027516	41	18" CMP	Culvert on right: Fair condition. Rusty. No blockage, no water or ponding. Rip-rap present.			Fair		
	MFIDPRIAP146	4.383	-120.603683	39.026874	84	Turnout, Right						
	MFIDPRIAP147	4.404	-120.603358	39.026701	84	Turnout, Right						
	MFIDPRIAP148	4.407	-120.603311	39.026653	69	Poster	Interbay, PCWA sign	Good			MFIDPRIAP148	
	MFIDPRIAP149	4.410	-120.603311	39.026653	66	Warning, Right	Warning sign before Interbay Dam. In good condition. Made of aluminum.	Good			MFIDPRIAP149	
	MFIDPRIAP150	4.415	-120.603149	39.026708	41	18" CMP	Culvert on right: Pipe is ~20' off of the ground. No rip-rap present. Runs off side of cliff. In good condition.			Good		
	MFIDPRIAP151	4.415	-120.603175	39.026640	41	18" CMP	Culvert on left: Poor condition. ~40% smashed. Rusted and 90% filled with sediment. Ponding will occur at the mouth of the culvert.			Poor		
	MFIDPRIAP152	4.449	-120.602620	39.026396	81	Bridge	Begin spillway bridge					
	MFIDPRIAP153	4.454	-120.602530	39.026369	65	Warning, Left	In fair condition. Made of aluminum.	Fair			MFIDPRIAP152	
	MFIDPRIAP154	4.503	-120.602516	39.025639	81	Bridge	End spillway bridge at Interbay Dam.					
	MFIDPRIAP155	4.531	-120.601985	39.025636	95-3	Overhead Powerline	Overhead powerline running East to West.					
	MFIDPRIAP156	4.609	-120.600586	39.025786	20	Width Change	Width lane changes from double lane to single lane.					
					22	Single Lane	Width: ~12'					
					54	End Ditch, Right						
					52	Start Ditch, Right	Ditch in good condition, ~1/2' deep x 1' wide.					
MFIDPRIAP157	4.609	-120.600601	39.025789	42	24" CMP	Culvert on right: In good condition. No ponding/water. Slight bank erosion and ~5% blockage of sediment in culvert.			Good			
MFIDPRIAP158	4.609	-120.600568	39.025824	42	24" CMP	Culvert on left: In good condition. No blockage/ponding/water. Water flows right into interlay reservoir.			Good			
MFIDPRIAP159	4.689	-120.599667	39.024905	95-1	Road Damage	The right half of the road's pavement is broken up and has become gravel instead.						
MFIDPRIAP160	4.749	-120.598739	39.024413	42	24" CMP	Culvert on right: In fair condition. Lots of vegetation in the mouth. Rusted and slightly smashed. Partially blocked (20-30%) and ponding could occur at the mouth in a 4'x4'x1.5' deep depression.			Fair			
MFIDPRIAP161	4.746	-120.598742	39.024511	42	24" CMP	Culvert on left: In good condition. No blockage/ponding/water. Water flows right into interlay reservoir.						

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points (continued)	MFIDPRIAP163	4.838	-120.597113	39.024476	45, 45	<36" CMP	Culverts on right: Two culverts on the right side of the road. One is ~4' and the other is ~3'. Both are in good condition, but slightly smashed. Little blockage (~10%). Water is flowing from a spring/creek. No ponding.			Good		
	MFIDPRIAP164	4.834	-120.597198	39.024519	45, 45	<36" CMP	Culverts on left: Two culverts on the left side of the road. One is ~4' and the other is ~3'. In good condition. One is ~5' above ground. No blockage. Water flows right into Interbay reservoir. No rip-rap present.			Good		
	MFIDPRIAP165	4.838	-120.597111	39.024473	65, 65	Warning, Left	Warning signs on fence by the creek. One is in good condition, the other is in fair condition (words are peeling and hard to read). Made of aluminum.	Good - Fair			MFIDPRIAP165 A&B	
		4.854	-120.596847	39.024439	65, 65	Warning, Left	Warning signs on the fence around the powerhouse. All in good condition. Made of: aluminum.	Good			MFIDPRIAP166 A&B	
Middle Fork Powerhouse Upper Switchyard Road	MFPUSR01	Trimble was unable to receive a signal. Notes were taken on the road and culvert conditions.	0 0	Begin Termini	Road begins off of the Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points road. It begins right after the dam.							
			21	Less Than Single Lane	Width ~12' wide.							
			14	Paved	Road in good to fair condition.							
			54	End Ditch, Right	Ditch in good condition. 1.5' deep x 1.5' wide. Ditch ends with no culverts.							
			45	> 36" CMP	Culvert on right: ~4' high. In good condition. ~10% debris in the mouth of the culvert. Water is flowing. Slight ponding at the mouth. Culvert located in a retaining wall.				Good			
			45	> 36" CMP	Culvert on left: ~4' high. In good condition. No blockage and no ponding. Water is flowing. There is a little rip-rap present but water flows mostly onto granite. Culvert located in a retaining wall.				Good			
			10	Surface Change	Road surface changes from paved to aggregate.							
			13	Aggregate	End pavement, begin aggregate in the last 150' of the road. The pavement appears to be breaking apart. Road turns from good to fair in the last 150'.							
			95-3	Overhead Powerline	Powerline runs across road, (N to S) ~ 100' before the gate at the top of the road.							
			71	Steel Gate	Gate enclosing the upper switchyard.				Good		(see photos below)	
			99	End Termini	Road ends at the gate at the upper powerhouse. Road in over-all good condition.							
			65	Warning, Left	Sign on gate at the upper powerhouse. Sign is metal and in fair condition. It's hard to read because the paint is peeling.				Fair		MFPUSR01A	
66	Warning, Right	Sign is on the gate at the upper powerhouse. Sign is metal and in good condition.				Good		MFPUSR01B				
Ralston - Oxbow Area												
Brushy Canyon Adit Road^o												
<p>Note: A portion of the road was incorrectly identified as Project road in the PAD. Data is listed for the multi-use non-Project road segment and the Project road segment, however, the Project road segment is damaged and closed due to landslide activity, therefore was not surveyed. The location of the Project road segment was approximated using 2005 digital ortho photo.</p>	Multi-use Non-Project Road Segment:											
	BCAR01	0.000	-120.655255	39.006432	0 0	Begin Termini	Road off of 14N30 by cattle guard.					
					95-1	Road Damage	Road has rills and ruts throughout; however they are small and do not effect roadway. Road in good to fair condition.					
					12	Native						
	BCAR02	0.059	-120.655718	39.007205	22	Single Lane	~12' wide					
					52	Start Ditch, Right	1.5' wide x 1.5' deep. Channel is vegetated and filled with debris. Ditch in fair condition.					
	BCAR03	0.085	-120.655883	39.007567	95	Remark	Gate at entrance has been removed about 20' ahead of this point.				BCAR02	
					95-4	Water Bar	2.5' wide x 2' deep water bar across width of road					
	BCAR04	0.117	-120.655815	39.008036	95-1	Road Damage	Condition of road worsens - from fair to poor. Large rill next to water bar.					
					52	Start Ditch, Right	Large downed tree on left taking up 60% of road.					
	BCAR05	0.131	-120.655603	39.008165	54	End Ditch, Right						
					95-4	Water Bar	2' wide x 2' deep across road - water clearly crosses from ditch across road to the right.					
BCAR06	0.161	-120.655044	39.008174	95-4	Water Bar	2' wide x 3' deep						
				95-1	Road Damage	Many rills and potholes.						
BCAR07	0.213	-120.654110	39.008132	95-4	Water Bar	1.5' wide x 1.5' deep.						
		-120.654110	39.008132	95-1	Road Damage	3" deep tire ruts on right and left side of road.						
BCAR08	0.243	-120.653672	39.008459	95	Remark	Rill between water bars ~2' wide x 6" deep.						

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)	
			longitude	latitude								
Project Roads and Access Points												
Brushy Canyon Adit Road ^p (continued) Note: A portion of the road was incorrectly identified as Project road in the PAD. Data is listed for the multi-use non-Project road segment and the Project road segment, however, the Project road segment is damaged and closed due to landslide activity, therefore was not surveyed. The location of the Project road segment was approximated using 2005 digital ortho photo.	Multi-use Non-Project Road Segment (continued):											
	BCAR09	0.257	-120.653405	39.008432	51	Start Ditch, Left	Shallow ditch ~ 1' wide x 3" - 6" deep. Runs over road at water bars. Ditch in good condition.					
					95-4	Water Bar	1.5' wide x 2' deep.					
					95	Remark	Other than water bar and larger rills, road in fair condition					
	BCAR10	0.288	-120.653196	39.008623	95-4	Water Bar	1' wide x 2' deep.					
	BCAR11	0.333	-120.654014	39.008731	95-4	Water Bar	1.5' wide x 2' deep.					
	BCAR12	0.348	-120.654291	39.008797	41	18" CMP	Culvert on left: 100% buried/clogged by rocks, sediment, and vegetation. Ponding would occur.				Poor	
	BCAR13	0.348	-120.654241	39.008831	41	18" CMP	Culvert on right: ~5' off ground. No water. No ponding. No Blockage. No rip-rap.				Good	
	BCAR14	0.386	-120.654628	39.009292	95-4	Water Bar	2' wide x 2' deep.					
					95	Remark	Ditch on left still in poor condition. Keeps over-topping road at every water bar.					
	BCAR15	0.433	-120.655325	39.009702	95-4	Water Bar	1.5' wide x 3' deep.					
	BCAR16	0.467	-120.655214	39.010211	84	Turnout, Right	10' wide x 20' long					
	BCAR17	0.480	-120.655358	39.010386	95-4	Water Bar	2' wide x 2' deep.					
					95	Remark	Ditch on left becomes deeper and narrower (~1.5' x 1.5')					
	BCAR18	0.531	-120.654873	39.010914	95-4	Water Bar	1.5' wide x 2' deep.					
	BCAR19	0.566	-120.654193	39.011080	83	Turnout, Left	50' wide x 100' long. Native. Debris and logs in turnout					
	BCAR20	0.576	-120.654211	39.010814	95-4	Water Bar	2' wide x 2.5' deep. A lot of debris ~10' high on right of road.					
					98	End Road Survey	Survey ended here. Similar poor condition of road continues.					
	Project Road Segment:											
		1.098	-120.658694	39.013213	95	Remark	Begin Project road segment, not surveyed.					
					31	Land ownership change	Enter ENF Lands					
	1.581	-120.657403	39.013944	99	End Termini	Approximate end of road, not surveyed.						
Oxbow Powerhouse Road												
OPR01	0.000	-120.746952	39.004344	0 0	Begin Termini							
				14	Paved							
				23	One and One Half Lane	Width ~ 20' wide.						
				52	Start Ditch, Right	Ditch in good condition. ~1' deep x 1' wide.						
				41	18" CMP	Culvert on left: In good condition. No blockage/ponding/water.				Good		
OPR02	0.127	-120.746600	39.006134	54	End Ditch, Right							
				41	18" CMP	Culvert on right: In good condition. No blockage/ponding/water.				Good		
OPR03	0.135	-120.746634	39.006282	71	Steel Gate	Steel gate closure on roadway. In good condition.				Good		
				99	End Termini							
OPR04	0.137	-120.746554	39.006258	83	Turnout, Left	Turnout is aggregate and in good condition.						
Ralston Powerhouse Butterfly Valve House Road												
RPBVHR01	0.000	-120.720061	39.005794	0 0	Begin Termini	Ralston Powerhouse Butterfly Valve House Rd. begins off FR 23						
				12	Native							
				22	Single Lane	10' Wide Road						
				41	18" CMP	Culvert on right: No Rip-Rap at mouth of culvert. Culvert takes water from off of FR 23. In good condition, no clogging.				Good		
				95-1	Road Damage	6" ruts, beginning of 2" to 3" rill						
RPBVHR02	0.020	-120.720363	39.005642	51	Start Ditch, Left	In good condition - water would flow down. Shallow ditch. End 2" to 3" rill.						
RPBVHR03	0.059	-120.721036	39.005477	76	Road Closure Device, Rock	Road closure - road around sediment disposal area.				Good	RPBVHR02	
RPBVHR04	0.119	-120.722103	39.005337	71	Steel Gate	Steel gate closure on roadway, ~ half way down road.				Good	RPBVHR03	
RPBVHR05	0.134	-120.722384	39.005302	42	24" CMP	Culvert on left: In good condition, although hard to reach.					Good	
				95	Remark							
				53	End Ditch, Left							
				51	Start Ditch, Left							
				40	Drainage	Culvert not found, off right of road.						
RPBVHR06	0.195	-120.723541	39.005312	84	Turnout, Right	~20' x 20'						
RPBVHR07	0.243	-120.723285	39.004659	96	Geographic Landmark	Rock slide						
RPBVHR08	0.290	-120.722846	39.004088	41	18" CMP	Culvert on left: 12" rocks and debris clogging half the intake.					Fair	
RPBVHR09	0.292	-120.722903	39.004051	41	18" CMP	Culvert on right: 12" rocks, 3/4 clogged with rock and sediment. No rip-rap - active down cutting.					Fair	
RPBVHR10	0.316	-120.722791	39.003715	95-3	Remark	Overhead powerline. Line leads perpendicular to roadway - ends at building - goes down to powerhouse.						
RPBVHR11	0.322	-120.722609	39.003706	95	Remark	Penstock butterfly valve.						
				95	Remark	Tunnel						
				99	End Termini							
RPBVHR12	0.312	-120.722855	39.003759	84	Turnout, Right	30" long x 10" wide						

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Ralston - Oxbow Tunnel Intake Road	ROTIR01	0.000	-120.746415	39.004902	0 0	Begin Termini					
					13	Aggregate					
	ROTIR02	0.015	-120.746257	39.005081	71	Steel Gate	Steel gate. In good condition.		Good		ROTIR02
	ROTIR03	0.045	-120.745859	39.005394	84	Turnout, Right					
	ROTIR04	0.074	-120.745576	39.005754	99	End Termini					
Ralston Afterbay Road and Boat Ramp	RARBR01	0.000	-120.746771	39.004168	0 0	Begin Termini					
					22	Single Lane	Width: ~12'				
	RARBR02	0.002	-120.746771	39.004222	51	Start Ditch, Left					
	RARBR03	0.009	-120.746662	39.004266	71	Steel Gate	Closed and in good condition.		Good		RARBR03
	RARBR04	0.043	-120.746304	39.004659	99	End Termini					
Ralston Afterbay Dam Road and Afterbay Access Point		0.000	-120.746844	39.004210	0 0	Begin Termini					
					13	Aggregate					
		0.010	-120.746796	39.004071	51	Start Ditch, Left					
	14				Paved	Good Condition					
		0.012	-120.746724	39.004054	22	Single Lane	Width: ~12'				
	53				End Ditch, Left						
		0.021	-120.746721	39.003918	71	Steel Gate	Closed and in good condition.		Good		RADRAAP01
	71				Steel Gate	Closed and in good condition.		Good		RADRAAP02	
		0.119	-120.746164	39.002567	12	Native					
	12				Native						
	0.121	-120.746150	39.002543	84	Turnout, Right	Begin					
84				Turnout, Right	End						
	0.188	-120.745195	39.002948	84	Turnout, Right	End					
84				Turnout, Right	End						
	0.205	-120.745061	39.003172	99	End Termini	End of access road at afterbay					
99				End Termini	End of access road at afterbay						
	0.205	-120.745033	39.003164	66	Warning, Right	"No Boats Beyond This Point"	Fair				RADRAAP03
66				Warning, Right	"No Boats Beyond This Point"	Fair					
Project Trails											
Duncan Creek Area											
Duncan Creek Diversion Dam North Trail	DCDDNT01	0.000	-120.481614	39.134625	0 0	Begin Termini					
	DCDDNT02	0.014	-120.481528	39.134564	12	Native					
Duncan Creek Diversion Dam South Trail	DCDDST01	0.000	-120.480806	39.134324	0 0	Begin Termini	Begin south trail at the end of Duncan Creek Diversion Intake Road and Diversion Pool Access Point.				
					12	Native	In good condition.				
	DCDDST02	0.027	-120.481204	39.134098	99	End Termini	Trail ends at dam				
	DCDDST03	-	-120.481210	39.134085	95	Remark	South corner of Duncan Dam.				
	DCDDST04	-	-120.481542	39.134566	95	Remark	North corner of Duncan Dam.				
DCDDST05	-	-120.480770	39.134330	95	Remark	Intake and rockslide by south side of Duncan Dam.					
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	PPPCGADDT01	0.000	-120.479582	39.136279	0 0	Begin Termini					
	PPPCGADDT02	0.012	-120.479524	39.136117	12	Native					
	PPPCGADDT03	0.022	-120.479336	39.136123	95	Remark	Solar Panel				
Duncan Creek Gage and Weir above Diversion Trail	DCGWADT01	0.000	-120.478982	39.135601	0 0	Begin Termini	from FR 96.52				
	DCGWADT02	0.004	-120.479062	39.135622	12	Native					
	DCGWADT03	0.020	-120.479173	39.135782	99	End Termini					
	DCGWADT04	-	-120.479199	39.135793	95	Remark	Corner of weir				
	DCGWADT05	-	-120.479208	39.135895	95	Remark	Corner of weir				
	DCGWADT06	0.020	-120.479194	39.135761	95	Remark	Gage				
Duncan Creek Gage and Weir below Diversion Trail	DCGWBDT01	0.000	-120.485404	39.133888	0 0	Begin Termini					
	DCGWBDT02	0.156	-120.484481	39.132707	12	Native					
	DCGWBDT03	0.174	-120.484143	39.132762	95	Remark	Solar Panel				
	DCGWBDT04	0.174	-120.484095	39.132700	99	End Termini					
					95	Remark	Gage				
French Meadows Area											
Middle Fork American River Gage and Weir below French Meadows Dam Trail	MFARGWBFMDT01	0.000	-120.480776	39.109384	0 0	Begin Termini	Trail				
	MFARGWBFMDT02	0.022	-120.481003	39.109615	12	Native					
	MFARGWBFMDT03	-	-120.481052	39.109611	99	End Termini					
	MFARGWBFMDT04	-	-120.481169	39.109676	95	Remark	PV				
	MFARGWBFMDT05	-	-120.481138	39.109860	95	Remark	South end of weir				
					95	Remark	North end of weir				

Appendix C - Project Road and Trail Survey Data (continued).

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Road Log Data Collection Feature Codes (see Appendix A)	Description	Supplemental Information	Sign Condition	Gate Condition	Culvert Condition	Photo Number (see Appendix D)
			longitude	latitude							
Middle Fork Interbay Area											
Middle Fork American River Gage above Middle Fork Powerhouse Trail	MFARGAMFPT01		recorded as a line		0 0	Begin Termini	Trail begins at the start of the Middle Fork Powerhouse Penstock and Butterfly Valve House Road.				
					12	Native	Good condition.				
					21	Less than single lane	Width:~6-8'				
					95	Remark	Rockslide ~50' into trail off of the right bank.				
					99	End Termini	Trail ends at the hand-rail to the gage.				
Passive Microwave Reflector Station above Middle Fork Interbay Trail	PMRSAMFIT01	0.000	-120.575572	39.035914	0 0	Begin Termini					
	PMRSAMFIT02	0.020	-120.575855	39.035726	12	Native	Trail to microwave tower				
	PMRSAMFIT03	0.047	-120.576138	39.035440	95	Remark	Change from trail to 10' wide closed road.				
	PMRSAMFIT04	0.083	-120.576801	39.035447	96	Geographic Landmark	GLM microwave tower off FR16-26				
	PMRSAMFIT05				99	End Termini					
Ralston Afterbay Area											
Passive Microwave Reflector Station above Ralston Afterbay Trail		0.000	-120.717571	38.996987	0 0	Begin Termini	Trailhead to reflector at bend in road				
					95	Remark	Trail to reflector (trail undefined: bushwhacked majority of trail)				
					99	End Termini	Reflector at trail terminus				
Middle Fork American River Gage below Oxbow Powerhouse Trail	MFARGBOPT02	0.000	-120.759623	39.006554	0 0	Begin Termini	"Trail" actually consists of gangplank and ladder leading to gage				
		0.011	-120.759442	39.006548	0.01	End Termini					

95 - Remark

95-1 - Road damage

95-2 - Stream crossing

95-3 - Overhead powerline/telephone line

^aThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use non-Project road on private property based on additional data gathering.

^bThis entire road was originally designated as a Project road in the PAD. A portion of road is currently designated as a multi-use non-Project road due to additional data gathering.

APPENDIX D
Project Roads and Trails Survey Photo Log

Appendix D. Project Roads and Trails Survey Photo Log.

Additional information related to features identified on Project roads and trails is included in Appendix C.



DCDDR02 - Duncan Creek Diversion Dam Road at Road Mile 0.012



DCDPRAP01 - Duncan Creek Diversion Pool Road and Access Point at Road Mile 0.000



DCMFTPR02-A - Duncan Creek–Middle Fork Tunnel Portal Road (gate not located on Project road, but restricts access to Project road)



DCMFTPR02-B - Duncan Creek–Middle Fork Tunnel Portal Road (sign not located on Project road but restricts access to Project road)



DCMFTPR07 - Duncan Creek–Middle Fork Tunnel Portal Road and Spillway Access Point at Road Mile 0.069



FMHHTPR02 - French Meadows–Hell Hole Tunnel Portal Road at Road Mile 0.004



FMDOWLWR02 – French Meadows Dam Outlet Works and Leakage Weirs Road at Road Mile 0.007



MFARGWBFMDR03 – Middle Fork American River Gage and Weir below French Meadows Dam Road at Road Mile 0.264 (road designated multi-use non-Project road)



MFARGWBFMDR12 – Middle Fork American River Gage and Weir below French Meadows Dam Road at Road Mile 0.384 (road designated multi-use non-Project road)



HH DPRSSAP02 – Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point at Road Mile 0.048



HHDSNAP01 – Hell Hole Dam Spillway and Northern Access Point at Road Mile 0.000



FMPR48 – French Meadows Powerhouse Road at Road Mile 1.212



FMPR52 – French Meadows Powerhouse Road at Road Mile 1.275



FMPR53 – French Meadows Powerhouse Road at Road Mile 1.275



FMPR54 – French Meadows Powerhouse Road at Road Mile 1.280



HHMFTGR05 – Hell Hole–Middle Fork Tunnel Gatehouse Road at Road Mile 0.030



DFR06 – Dormitory Facility Road at Road Mile 0.127



HHSDCR04 – Hell Hole Dam Spillway Discharge Channel Road at Road Mile 0.055



HHSDCR05 – Hell Hole Dam Spillway Discharge Channel Road at Road Mile 0.087



HHSDCR07 – Hell Hole Dam Spillway
Discharge Channel Road at Road Mile
0.114



HHSDCR09 – Hell Hole Dam Spillway
Discharge Channel Road at Road Mile
0.182



NFLCCRSNRPA02 – North Fork Long
Canyon Crossing Removable Section
North Road and Parking Area at Road
Mile 0.007



NFLCCRSNRPA07 – North Fork Long Canyon Crossing Removable Section North Road and Parking Area at Road Mile 0.145



MFPPBVHR44 – Middle Fork Powerhouse Penstock and Butterfly Valve House Road at Road Mile 1.822



MFIDPRIAP02 - Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 0.003



MFIDPRIAP03 - Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 0.006



MFIDPRIAP04 – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 0.025



MFIDPRIAP148 – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.407



MFIDPRIAP149 – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.410



MFIDPRIAP152 – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.454



MFIDPRIAP165A – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.838



MFIDPRIAP165B – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.838



MFIDPRIAP166A – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.854



MFIDPRIAP166B – Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points at Road Mile 4.854



MFPUSR01A – Middle Fork Powerhouse Upper Switchyard Road (no Road Mile data collected)



MFPUSR01B – Middle Fork Powerhouse Upper Switchyard Road (no Road Mile data collected)



BCAR02 – Brushy Canyon Adit Road at Road Mile 0.059



RPBVHR02 – Ralston Powerhouse Butterfly Valve House Road at Road Mile 0.059



RPBVR03 – Ralston Powerhouse
Butterfly Valve House Road at Road Mile
0.119



ROTIR02 - Ralston - Oxbow Tunnel
Intake Road at Road Mile 0.015



RARBR03 – Ralston Afterbay Road and
Boat Ramp at Road Mile 0.009



RADRAAP01 – Ralston Afterbay Dam
Road and Afterbay Access Point at
Road Mile 0.021



RADRAAP02 – Ralston Afterbay Dam
Road and Afterbay Access Point at Road
Mile 0.119



RADRAAP03 – Ralston Afterbay Dam
Road and Afterbay Access Point at
Road Mile 0.205

APPENDIX E
Road Condition Description by Segment

Appendix E. Road Condition Description by Segment.

Road Name	Point ID	Road Miles Start	Road Miles Finish	Length (Miles)	Condition	Notes	Overall Road (Segment) Condition - Percent/miles				
							Good	Good/Fair	Fair	Fair/Poor	Poor
Duncan Creek Area											
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	BRIDGE - FX	0.000	0.173	0.173	Good		100% 0.173				
Duncan Creek Diversion Dam Road	GO-GS	0.000	0.049	0.049	Good		100% 0.049				
Duncan Creek Diversion Pool Road and Access Point	GG - GH	0.000	0.010	0.010	Fair / Poor	Rills and an overgrown roadway.				16% 0.010	84% 0.053
	GH - GJ	0.010	0.063	0.053	Poor	Uneven road surface and non drivable roadway.					
French Meadows Area											
Duncan Creek--Middle Fork Tunnel Portal Road and Spillway Access Point	JN - JP	0.000	0.069	0.069	Fair	Rills and road becoming overgrown.					
	JP - JU	0.069	0.179	0.110	Poor	Overgrown and debris in the roadway.				24% 0.069	76% 0.219
	JU - END	0.179	0.289	0.110	Very Poor	Insufficient ditches (water may overtop the road in high flows), uneven and overgrown road surface.					
French Meadows--Hell Hole Tunnel Gatehouse Road	GU - GV	0.000	0.010	0.010	Good	Paved	6% 0.010		94% 0.156		
	GV - HE	0.010	0.166	0.156	Fair	Tire ruts, rills, and uneven road surface.					
French Meadows Dam Outlet Works and Leakage Weirs Road	AC - AE	0.000	0.022	0.022	Good	Roadway appears to be recently graded.					
	AE - AF	0.022	0.040	0.018	Good / Fair	Rills and tire ruts.					
	AF - AI	0.040	0.083	0.043	Good						
	AI - AJ	0.083	0.122	0.039	Good / Fair	Insufficient ditches (water may overtop the roadway) and uneven surfaces.	30% 0.158	39% 0.211	26% 0.136	5% 0.027	
	AJ - AN	0.122	0.215	0.093	Good						
	AN - AO	0.215	0.279	0.064	Good / Fair	Road overgrown, and soft loose large gravel surface.					
	AO - AY	0.279	0.415	0.136	Fair	Loose gravel surface, rills, and potholes.					
	AY - AZ	0.415	0.442	0.027	Fair / Poor	Big rills and debris in the roadway.					
AZ - BD	0.442	0.532	0.090	Good / Fair	Soft surface gravel and small rills.						
French Meadows Dam Staging Area Road	IT - IZ (8/12)	0.000	0.070	0.070	Good		100% 0.070				
Middle Fork American River Gage and Weir below French Meadows Dam Road ^a Note: Road was incorrectly identified as a Project road in the PAD. Road is currently designated as a multi-use non-Project road.	BE - BF	0.000	0.026	0.026	Good						
	BF - BG	0.026	0.075	0.049	Good / Fair	Rills and insufficient ditches (water may be able to overtop the roadway).					
	BG - BL	0.075	0.137	0.062	Good		33% 0.144	11% 0.049	34% 0.146	22% 0.094	
	BL - BQ	0.137	0.283	0.146	Fair	Rills, bumpy/uneven surface, overgrown and debris in the roadway.					
	BQ - BR	0.283	0.339	0.056	Good						
	BR - END	0.339	0.433	0.094	Fair / Poor	Bumpy/uneven surface and overgrown roadway.					
Hell Hole Area											
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	AN - AX	0.000	0.308	0.308	Good	Road appears to have been recently graded.					
	AX - BD	0.308	0.418	0.110	Fair	Rills and tire ruts.					
	BD - BE	0.418	0.427	0.009	Good						
	BE - BG	0.427	0.450	0.023	Good/Fair	Broken pavement.	71% 0.675	2% 0.023	27% 0.250		
	BG - BN	0.450	0.630	0.180	Good						
	BN - BV	0.630	0.770	0.140	Fair	Pavement cracking, potholes, and alligator cracking (maybe due to subgrade failure).					
	BV - END	0.770	0.948	0.178	Good						
Rubicon River Gage and Weir below Hell Hole Dam Road	CE - CI	0.000	0.073	0.073	Fair	Damages include: Tire ruts and debris in the roadway.			100% 0.073		
Hell Hole Dam Leakage Weir Road	START - END	0.000	0.051	0.051	Poor	This road was overgrown and not surveyed.					100% 0.051
Hell Hole Dam Spillway and Northern Access Point	CL - CM	0.000	0.008	0.008	Fair / Poor	Road closed by log and wire making it overgrown and not drivable.				44% 0.008	56% 0.010
	CM - CN	0.008	0.018	0.010	Poor	Surface is rip-rap (not gravel) and debris in roadway. Road is non drivable.					
French Meadows--Hell Hole Tunnel Portal Road	FB- GU	0.000	0.613	0.613	Good / Fair	Damages include: Rills, potholes, and squirrel holes (indicating possible subgrade failure).		100% 0.613			

Appendix E. Road Condition Description by Segment (continued).

Road Name	Point ID	Road Miles Start	Road Miles Finish	Length (Miles)	Condition	Notes	Overall Road (Segment) Condition - Percent/miles				
							Good	Good/Fair	Fair	Fair/Poor	Poor
Hell Hole Area (continued)											
French Meadows Powerhouse Road	CO - EQ	0.000	1.080	1.080	Good		84%	16%			
	EQ - FA	1.080	1.280	0.200	Good / Fair	Rocky, bumpy and uneven surface.	1.080	0.200			
Hell Hole-Middle Fork Tunnel Gatehouse Road	CO - CU	0.000	0.102	0.102	Good		28%	72%			
	CU - DL	0.102	0.370	0.268	Good / Fair	Rills, small potholes, and squirrel holes (possibly indicating subgrade failure).	0.102	0.268			
Dormitory Facility Road	A - H	0.000	0.127	0.127	Good	Road appears to be recently graded.	100%				
Hell Hole Dam Spillway Discharge Channel Road	I - M (8/28/09)	0.000	0.055	0.055	Fair	Bumpy/uneven and overgrown surface.					
	M - N	0.055	0.086	0.031	Fair / Poor	Rocky surface, large rills and depressions (indicating possible ponding).			13%	5%	82%
	N - R	0.086	0.181	0.095	Poor	Insufficient ditches (water could easily overtop the road), overgrown surface, rills and tire ruts.			0.080	0.031	0.490
	R - AD	0.181	0.487	0.306	Very Poor	Rills, rip-rap and overgrown surface.					
	AD - AE	0.487	0.512	0.025	Fair	Overgrown road.					
	AE - END	0.512	0.602	0.090	Poor	This section not surveyed but is reportedly overgrown.					
Long Canyon Area											
North Fork Long Canyon Diversion South Road	Y - AB (8/27)	0.000	0.037	0.037	Good						
	AB - AC	0.037	0.046	0.009	Good / Fair	Potholes.					
	AC - AG	0.046	0.118	0.072	Good						
	AG - AH	0.118	0.135	0.017	Good / Fair	Rills and tire ruts.	91%	9%			
	AH - AL	0.135	0.237	0.102	Good		0.561	0.056			
	AL - AM	0.237	0.268	0.031	Good / Fair	Rills and tire ruts.					
	AM - BA	0.268	0.618	0.350	Good						
North Fork Long Canyon Diversion North Road	A - E (8/27)	0.000	0.037	0.037	Good						
	E - K	0.037	0.115	0.078	Good / Fair	Potholes and poor ditches (water could possibly overtop the roadway).	46%	54%			
	K - L	0.115	0.144	0.029	Good		0.066	0.078			
North Fork Long Canyon Diversion Drop Inlet Road	P - V (8/27)	0.000	0.048	0.048	Poor	Damages include: vegetation and debris in the roadway, oversized water bars, and uneven surface.	41%				59%
	V - X	0.048	0.081	0.033	Good		0.033				0.048
South Fork Long Canyon Diversion and Drop Inlet Road	CE - CI	0.000	0.053	0.053	Good / Fair	Rocky surface and insufficient ditches.	50%	50%			
	CI - CM	0.053	0.106	0.053	Good		0.053	0.053			
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	BB - BL	0.000	0.087	0.087	Good / Fair	Uneven surface.		60%	40%		
	BL - BN	0.087	0.145	0.058	Fair	Insufficient ditches (may cause water to overtop the roadway), and tire ruts.		0.087	0.058		
North Fork Long Canyon Crossing Removable Section South Road ^b	Multi-use Non-Project Road Segment:										
	BO - BU	0.000	0.113	0.113	Good						
	BU - BX	0.113	0.192	0.079	Fair	Overgrown roadway, and depressions (evidence of ponding).	43%	10%	30%	17%	
	BX - BZ	0.192	0.235	0.043	Fair / Poor	Depressions (evidence of ponding), rolling dips, uneven surfaces, eroding banks, and rills.	0.113	0.026	0.079	0.043	
		0.235	0.261	0.026	Good / Fair	Parking area.					
	Project Road Segment:										
		0.261	0.286	0.025	Good / Fair	Parking area.		22%			78%
	BZ - END	0.286	0.373	0.087	Poor	This section was overgrown and not surveyed.		0.025			0.087
Middle Fork Powerhouse Butterfly Valve House Road ^b	Multi-use Non-Project Road Segment:										
	A - P	0.000	0.358	0.358	Good	The road appears to be recently graded.	100%				
	Project Road Segment:										
	P - AP	0.358	1.101	0.743	Good	The road appears to be recently graded.	100%				
							0.743				

Appendix E. Road Condition Description by Segment (continued).

Road Name	Point ID	Road Miles Start	Road Miles Finish	Length (Miles)	Condition	Notes	Overall Road (Segment) Condition - Percent/miles				
							Good	Good/Fair	Fair	Fair/Poor	Poor
Middle Fork Interbay Area											
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	BI - BK	0.000	0.053	0.053	Good		17%	22%	51%	8%	2%
	BK - BL	0.053	0.093	0.040	Good / Fair	Chip-seal surface in fair/good condition.					
	BL - BM	0.093	0.126	0.033	Good	Road is steep but in good condition.					
	BM - BV	0.126	0.318	0.192	Good / Fair	Debris in the roadway.					
	BV - BZ	0.318	0.435	0.117	Fair	Road is uneven/bumpy. More debris is in the roadway. The road softens and washouts have occurred on all the corners.					
	BZ - CE	0.435	0.538	0.103	Good / Fair	Rills and washouts on the corners.					
	CE - CG	0.538	0.577	0.039	Fair / Poor	Many rills and washouts along the roadway.					
	CG - CI	0.577	0.616	0.039	Poor	Poor roadway surface due to washouts, rills and uneven surfaces.					
	CI - CU	0.616	0.970	0.354	Fair	Rills, tire ruts, and roadway being overgrown.					
	CU - CV	0.970	0.998	0.028	Fair / Poor	Debris in roadway due to rockslide and rills abundant.					
	CV - CX	0.998	1.077	0.079	Fair	Large water bars present in the roadway.					
	CX - DC	1.077	1.301	0.224	Good						
	DC - DL	1.301	1.598	0.297	Fair	Large water bars present, along with rills and tire ruts.					
DL - DN	1.598	1.668	0.070	Fair / Poor	Large water bars, rills and uneven road surface.						
DN - DP	1.668	1.751	0.083	Fair							
DP - END	1.751	1.825	0.074	Good / Fair	Rills and ruts abundant, but roadway in good condition at the end.						
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	A - AZ	0.000	4.690	4.690	Good		99%	4.790		1%	0.060
	AZ - BA	4.690	4.750	0.060	Fair / Poor	Broken pavement.					
	BA - END	4.750	4.854	0.104	Good						
Middle Fork Powerhouse Upper Switchyard Road	START - END	0.000	0.125	0.125	Good / Fair	Broken pavement (last 150' of the road).		100%	0.125		
Ralston - Oxbow—Area											
Brushy Canyon Adit Road ^b	Multi-use Non-Project Road Segment:										
		0.000	1.098	1.098	Poor	Road is full of large water bars, rills and potholes.					100%
	Project Road Segment:										
		1.098	1.581	0.483	Poor	Not surveyed. Observed by others.					100%
Oxbow Powerhouse Road	All Road	0.000	0.137	0.137	Good		100%				
Ralston Powerhouse Butterfly Valve House Road	A - C (8/11)	0.000	0.020	0.020	Good / Fair	Small rills and tire ruts.	94%	6%			
	C - R	0.020	0.322	0.302	Good		0.302	0.020			
Ralston - Oxbow Tunnel Intake Road	All Road	0.000	0.074	0.074	Good		100%				
Ralston Afterbay Road and Boat Ramp	All Road	0.000	0.043	0.043	Good		100%				
Ralston Afterbay Dam Road and Afterbay Access Point	All Road	0.000	0.205	0.205	Good		100%				
Ralston Afterbay Sediment Removal Access Point	All Road	0.000	0.000	0.000	Good		100%				
							N/A				

^aThis road was originally designated as a Project road in the PAD. The road is currently designated as a multi-use non-Project road on private property based on additional data gathering.

^bThis entire road was originally designated as a Project road in the PAD. A portion of road is currently designated as a multi-use non-Project road based on additional data gathering.

APPENDIX F

Forest Road Agreement 07-RO-11051754-006

FS Agreement No.
Cooperator Tax ID No.
Cooperator Agreement No.

07-RO-11051754-006

94-1552786

1/19/07

FOREST ROAD AGREEMENT

BETWEEN THE

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

ELDORADO NATIONAL FOREST AND TAHOE NATIONAL FOREST

AND

PLACER COUNTY WATER AGENCY

Parties to Agreement: This agreement, made and entered into this the 9th day of April, 2007, by and between the Forest Service, and the Placer County Water Agency of Placer County, California hereinafter called the "cooperator."

Purpose of Agreement: The purpose of this agreement is to set forth the general terms and conditions, acceptable to the parties hereto, for the cooperative planning, survey, design, construction, reconstruction, improvement, and maintenance of certain Forest Development Roads in Placer county, State of California, pursuant to the provisions of 16 U.S.C. 532-538, 23 U.S.C. 205, and the regulations issued by the Secretary of Agriculture.

The Congress has, from time to time, authorized and appropriated funds for "Forest Development Roads," which are defined as "those Forest roads of primary importance for the protection, administration, and utilization of the National Forests, or where necessary, for the use and development of the resources upon which communities within or adjacent to the National Forests are dependent." Recognizing that substantial benefits will accrue to the Nation and to the State from the construction, reconstruction, improvement, maintenance, and use of certain Forest development roads and roads on the State or local road system over which the cooperator has jurisdiction, and further that such roads carry substantial volumes of public service traffic as well as National Forest traffic, and further that the cooperator has road construction, reconstruction, improvement, maintenance, and right-of-way acquisition facilities available to assist in the accomplishment of the work, it is accordingly deemed fitting and desirable to the parties hereto to express by this instrument the general terms of their mutual cooperation in that regard to achieve the maximum benefits therefrom in the public interest.

1. Intent to Cooperate. It is the intention of the parties under this agreement to cooperate as follows:
 - a. Agree that certain roads under the jurisdiction of the cooperator or the Forest Service which serve the National Forest and also carry traffic which is properly the responsibility of the cooperator should be maintained and, if necessary, improved to a standard adequate to accommodate safely and economically all traffic which uses such roads.

- b. Agree on the identification of roads or road segments which meet the criteria in item a by a listing and appropriate maps.
 - c. Provide for formal meetings and informal consultation on a regular basis to discuss and agree on action with respect to the roads identified pursuant to item b.
 - d. Provide for regular and adequate maintenance of the roads identified in item b, including the assignment of maintenance responsibilities.
 - e. Provide for entering into project agreements when improvements of a road under the jurisdiction of one party is to be financed in whole or in part from funds or resources provided by the other party.
 - f. Provide for appropriate jurisdictional status of roads through transfer of easements and acquisition of easements by the appropriate party.
2. Identification of Roads. A list of roads and segments of roads which meet the criteria set forth in item 1a is agreed upon and is marked "schedule A" and attached as part of this agreement. Schedule A may be modified from time to time by agreement between the cooperator and Forest Service, by adding or removing roads or road segments, or by altering the description of a road or road segments, to give it proper identity. Each such modification shall be indicated by a revised schedule A bearing the signatures of the parties or their authorized representatives and the effective date of the revision.
3. Maintenance Plans. At the annual meeting provided for in item 6, plans for maintaining the roads listed in schedule A shall be agreed upon. Such plans shall include assignment of responsibility for maintenance or particular elements of maintenance to the cooperator or Forest Service for each road or segment of road listed in schedule A. To the extent practical, and subject to availability of funds, responsibility for maintenance shall be assigned in proportion to use for which each party is properly responsible.
- Maintenance shall include preserving and keeping the roads, including structures and related facilities as nearly as possible in their original condition as constructed or reconstructed to provide satisfactory and safe road service.
- Maintenance plans shall provide for prompt changes in maintenance assignments during the period of the plan upon agreement by the parties or their designated representatives.
4. Project Agreements. When improvement of a road listed in schedule A is to be financed in whole or in part from funds or resources provided by the party not having jurisdiction, the parties shall enter into a project agreement providing for performing the improvement work and its financing. A project agreement is not required for improvement of a road or a road segment over which the party performing and financing such improvement has jurisdiction. Project agreements shall be supplements to this general agreement and subject to the agreements, provisions, and conditions herein contained.

- a. A project agreement shall be entered into prior to beginning of improvement or construction work for which a project agreement is required.
- b. The project agreement shall include the following elements:
 1. Identification of road or road segment to be improved or constructed.
 2. Plans and specifications for the project or provision for their development and subsequent agreement thereon.
 3. Schedule of construction or improvement work and designation of the party or parties to perform the work.
 4. Estimates of cost of improvement or construction.
 5. Agreement as to how cost of work is to be borne including arrangements to share in the work or to deposit funds with the performing party for a share of the costs.
- c. If funds are provided by the cooperator on an advance basis for work to be performed by the Forest Service, they shall be deposited in the Treasury of the United States to the credit of cooperative work, Forest Service. Any unused balance of cooperative funds for the purposes outlined in the project agreement shall be returned to the cooperator after completion of the work performed or upon agreement of the Forest Service. If the cooperative funds are made available on a reimbursement basis as the work progresses or upon its completion, the Forest Service shall submit to the cooperator periodic billings, but not more often than monthly, or a final billing as the case may be.

The amount of cooperative funds as set forth in the project agreement shall be the maximum commitment of the cooperator to the project unless changed by a modification of the project agreement.
- d. If funds are provided by the Forest Service for work to be performed by the cooperator the arrangements shall be set forth in the project agreement. Payments to the cooperator shall be made as provided for in the project agreement. If it appears that the project cost may exceed the estimate and additional funds may be needed, no obligation shall arise against the Federal government with respect to the increased cost except by modification of the project agreement prior to incurring any commitment.
5. Rights-of-Way. Easements or other interests in land acquired by either party shall be adequate to serve the road needs of both parties. The party having jurisdiction of an existing road or intended to have jurisdiction of a road to be constructed shall obtain the

needed rights-of-way in its name. There shall be no provisions in any easement document that will prevent the Forest Service from using or authorizing the use of roads for which Federal funds were expended. The cooperator must be in a position to assure the Forest Service the continuance of such uses for the period needed. The party acquiring the easement or other interest in land shall obtain such title evidence and title approval as required in its acquisitions for roads of comparable standards.

The costs of such easements or other interests in land are to be at the expense of the acquiring party.

The Forest Service shall cooperate in the procurement of rights-of-way over land administered by other agencies of the United States required for any project included under this agreement and shall furnish the cooperator copies of survey notes, maps, and other records.

To the extent possible under available authority, each party agrees to convey easements over lands or interests in lands it owns or administers to the other party in order to provide jurisdiction by the appropriate party as may be agreed to for any road or road segment listed on schedule A.

6. Annual Meeting and Continuing Consultation. The cooperator and Forest Service shall meet at least once each year to review matters covered by this agreement and to agree on actions to implement this agreement including, but not limited to, (1) approval of changes in the listing of roads on schedule A; (2) approval of the annual maintenance plan; (3) approval of project agreements for construction or reconstruction; and (4) approval of transfer of jurisdiction of particular roads by easement conveyance. It is also the intent of the parties to arrange for continuing consultation between their representatives with the objective of reaching prompt agreement by the parties on all matters of mutual concern which are covered by this agreement. The Forest Supervisor of the Tahoe National Forest for the Forest Service, and Steve Jones for the cooperator shall be responsible for making the arrangements for formal meetings and continuing consultation.

7. Modification and Termination

- a. This agreement may be modified by mutual consent.
- b. This agreement may be terminated by either party upon at least 30 days prior written notice, except that such termination shall in no way affect or change any commitment made authorizing the use of roads or rights-of-way for purposes for which Federal funds were expended, or any operation in progress at time of notice, and provided that such termination shall in no way affect the agreement of the parties hereto with respect to any obligations incurred under the agreement until a full settlement has been made.

8. Miscellaneous

FS Agreement No.
Cooperator Tax ID No.
Cooperator Agreement No.

07-RO-11051754-006

94-1552786

1/19/07

- a. It is understood that any default by a permittee or other authorized road user creates no liability on the part of the Forest Service.
 - b. Nothing herein contained shall be constructed to obligate the Forest Service or the cooperator beyond the extent of available funds allocated or programmed for this work, or contrary to applicable laws, rules, and regulations.
 - c. No Member of, or Delegate to, the Congress, or Resident Commissioner, shall be admitted to any share or part of this agreement or to any benefits that may arise therefrom, unless it is made with a corporation for its general benefit.
 - d. Where applicable, any contract, agreement, or understanding entered into pursuant to this agreement providing for work to be performed shall include the requirements of Federal laws, Executive orders, and Regulations.
9. COMMENCEMENT/EXPIRATION DATE. This instrument is executed as of the date of last signature and is effective through December 31, 2011 at which time it will expire unless extended.
10. AUTHORIZED REPRESENTATIVES. By signature below, the cooperator certifies that the individuals listed in this document as representatives of the cooperator are authorized to act in their respective areas for matters related to this agreement.

FS Agreement No.
Cooperator Tax ID No.
Cooperator Agreement No.

07-RO-11051754-006

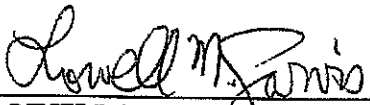
94-1552786

1/19/07


This agreement shall be effective as of the date herein written and shall supersede all prior existing agreements, if any, for the same roads.

PLACER COUNTY WATER AGENCY

USDA FOREST SERVICE
TAHOE NATIONAL FOREST



LOWELL JARVIS 3/15/07
Chairman, Board of Directors DATE




STEVEN T. EUBANKS 4/9/07
Forest Supervisor DATE

USDA FOREST SERVICE
ELDORADO NATIONAL FOREST



RAMIRO VILLALVAZO 3/29/07
Forest Supervisor DATE

The authority and format of this instrument has been reviewed and approved for signature.



KARINE WAGNER 1/19/2007
Agreements Coordinator DATE

FOREST ROAD AGREEMENT
 BETWEEN THE
 U.S. DEPARTMENT OF AGRICULTURE
 FOREST SERVICE, TAHOE NATIONAL FOREST,
 FOREST SERVICE, EL DorADO NATIONAL FOREST,
 AND
 PLACER COUNTY WATER AGENCY

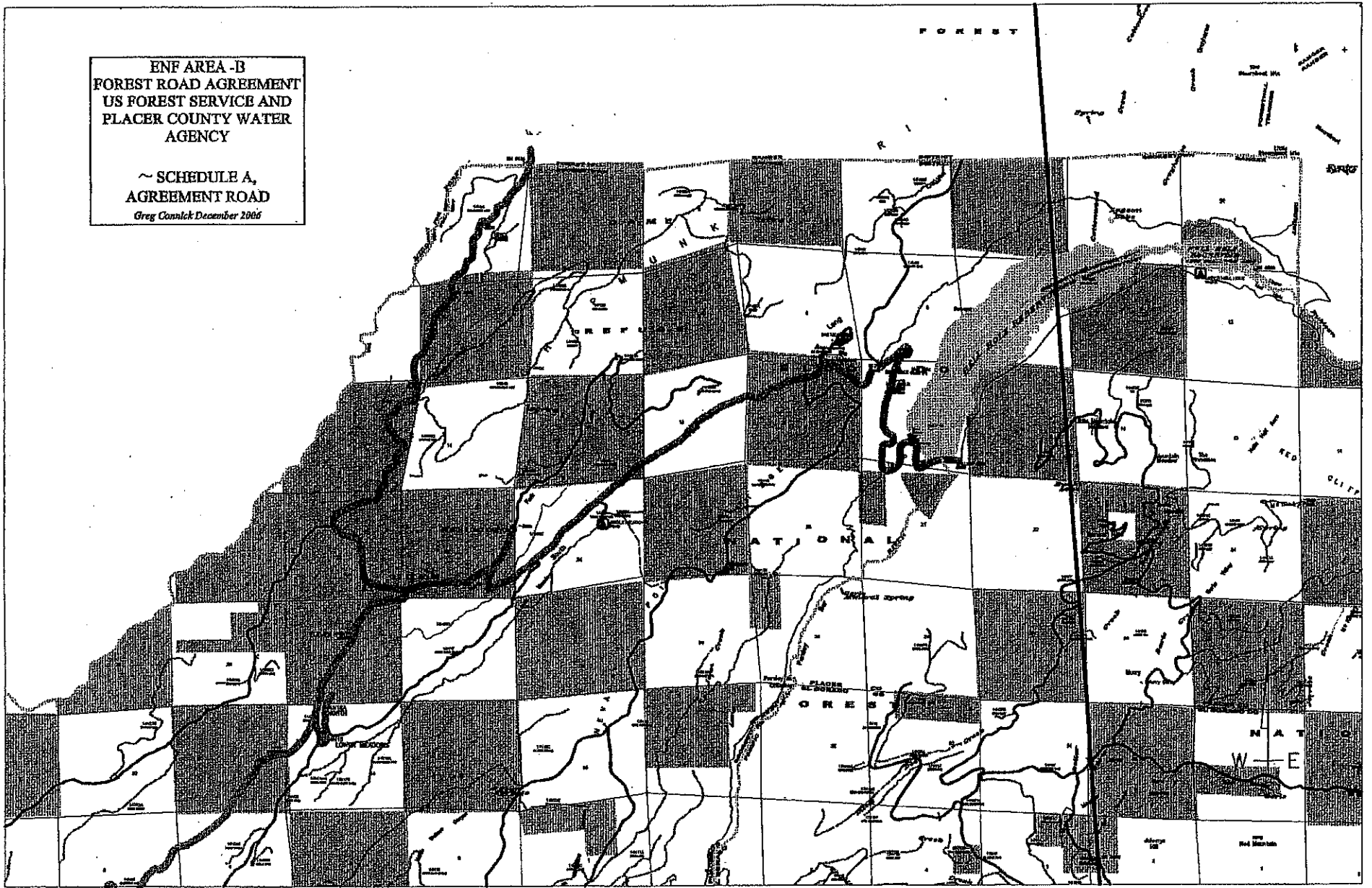
Schedule A

Mosquito Ridge Road NFSR 0096	Mile Post 1.5 Mile Post 40.6	38.10 miles	Forest Service - TNF
Middle Fork Power House NFSR 0096-017	Mosquito Ridge Road MF Interbay Dam - North	4.451 miles	Forest Service - TNF
Little Duncan NFSR 0096-052	Mosquito Ridge Road Duncan Diversion Tunnel	2.312 miles	Forest Service - TNF
Blue Gate Road NFSR 0096-076	Mosquito Ridge Road French Meadows Res.	0.21 miles	Forest Service - TNF
Soda Springs - Riverton NFSR 0022	Mosquito Ridge Road Forest Boundary	0.977 miles	Forest Service - TNF
Lower Dam NFSR 0022-002	Soda Springs - Riverton Rd FM Dam Valve Station	0.500 miles	Forest Service - TNF
Blacksmith Flat Road NFSR 0023	Mosquito Ridge Road Forest Boundary	2.300 miles	Forest Service - TNF
Blacksmith Flat Spur NFSR 0023-002	Blacksmith Flat Road Parking Area	0.684 miles	Forest Service - TNF
Eleven Pines Road NFSR 14N08	Mile Post 19.3 Mile Post 21.136	1.836 miles	Forest Service - ENF
Lower Meadows Road NFSR 14N16	Eleven Pines Road Mile Post 0.182	0.182 miles	Forest Service - ENF
North Road NFSR 14N16A	Lower Meadows Road Mile Post 0.2	0.2 miles	Forest Service - ENF
Ralston Ridge Road NFSR 14N22	Blacksmith Flat Road Mile Post 3.11	3.11 Miles	Forest Service - ENF
Blacksmith Flat Road NFSR 14N25	Forest Boundary Mile Post 18.985	18.985 Miles	Forest Service - ENF
Tanners Point Road NFSR 14N31	Ralston Ridge Road Mile Post 1.12	1.12 Miles	Forest Service - ENF
North Long Canyon Road NFSR 14N42	Old Ice House Road Mile Post 0.45	0.45 Miles	Forest Service - ENF
Section 36 Road NFSR 14N55	Tanners Point Road Mile Post 1.0	1.0 Miles	Forest Service - ENF
End of the World Road NFSR 14N55	Tanners Point Road Mile Post 1.2	1.2 Miles	Forest Service - ENF
Old Ice House Road NFSR 17N02	Forest Boundary Mile Post 13.48	13.48 Miles	Forest Service - ENF

ENF AREA -B
FOREST ROAD AGREEMENT
US FOREST SERVICE AND
PLACER COUNTY WATER
AGENCY


~ SCHEDULE A,
AGREEMENT ROAD

Greg Connick December 2006

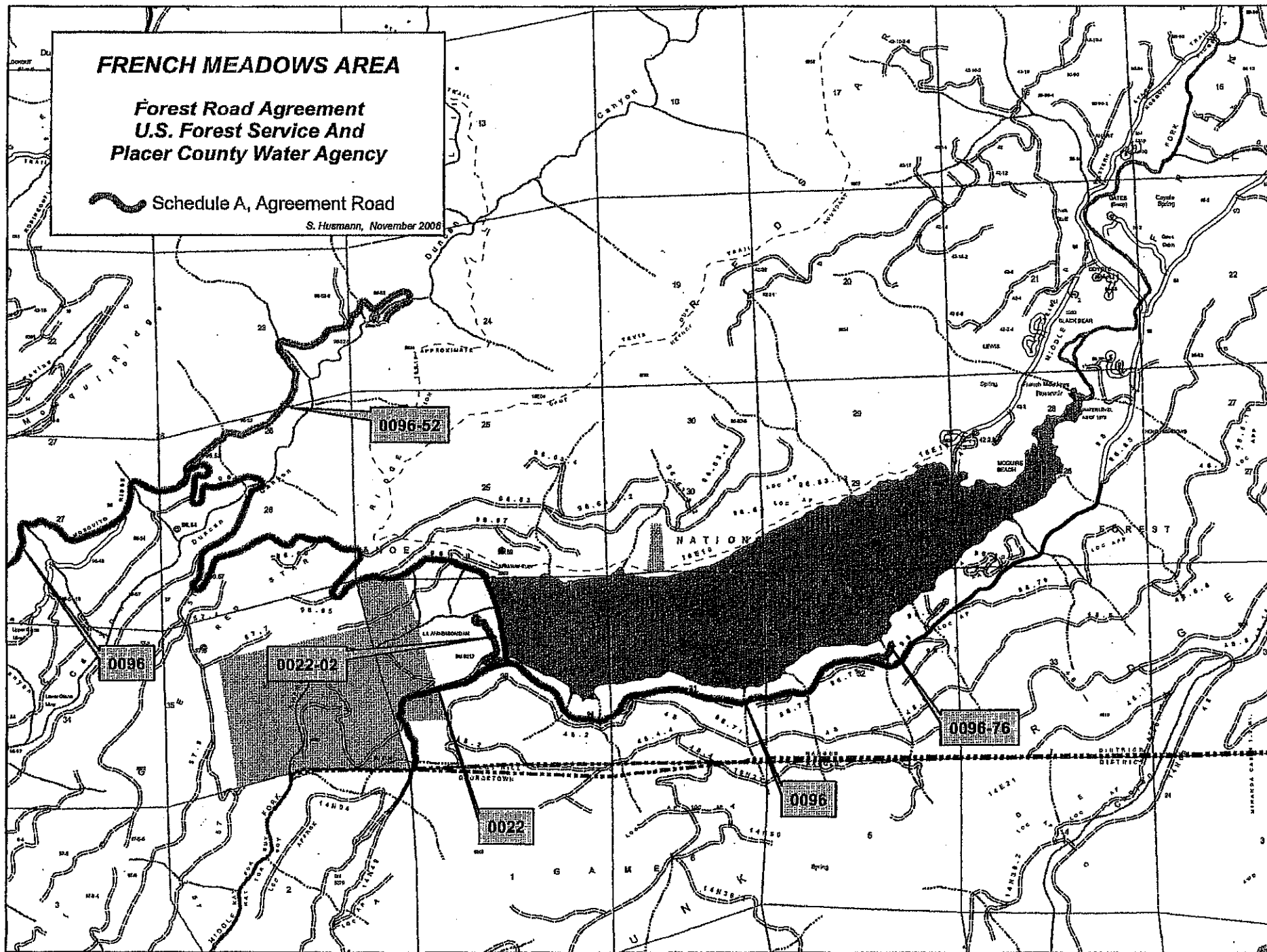


FRENCH MEADOWS AREA

Forest Road Agreement
U.S. Forest Service And
Placer County Water Agency

 Schedule A, Agreement Road

S. Husmann, November 2008

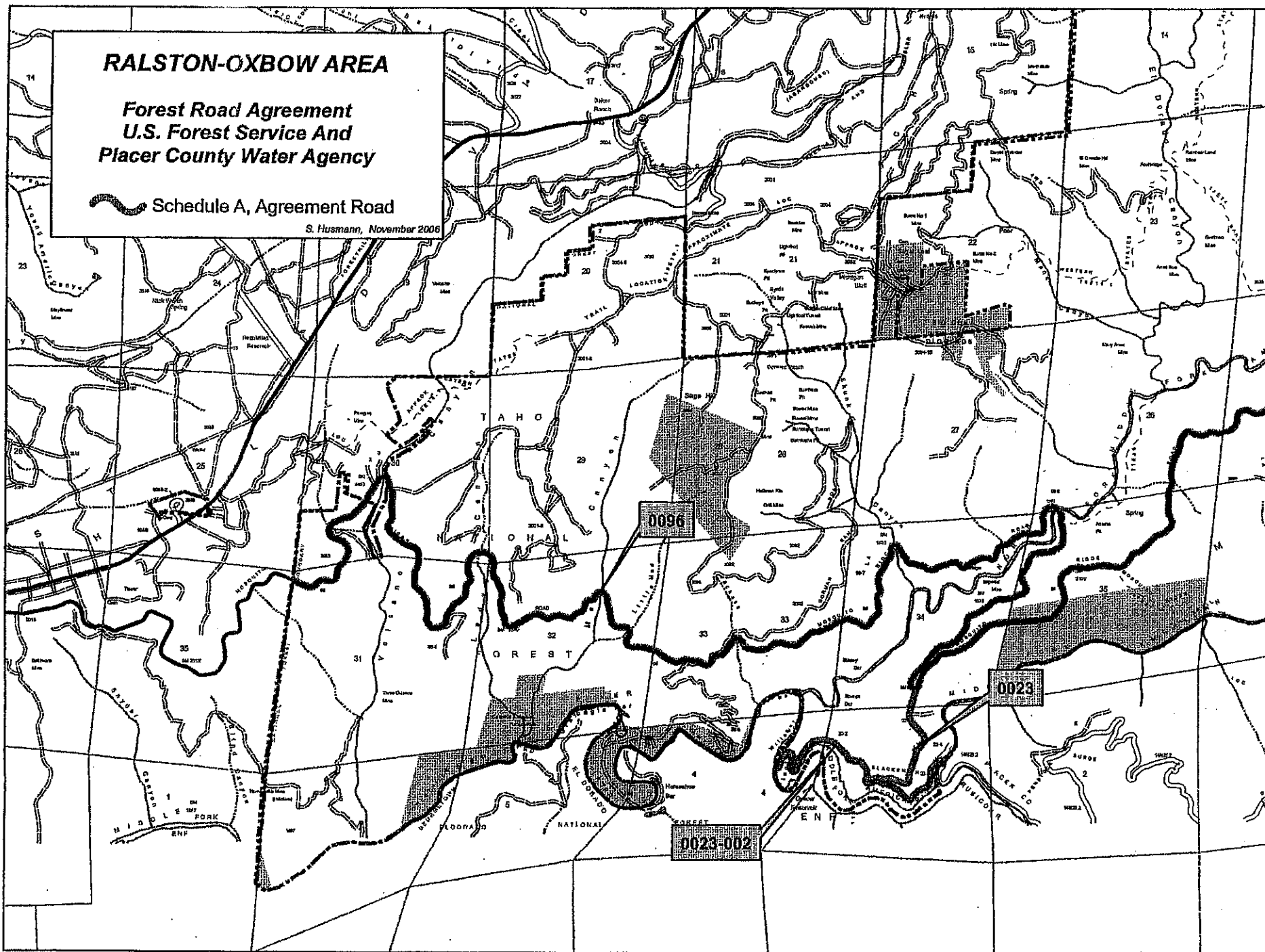


RALSTON-OXBOW AREA

Forest Road Agreement
U.S. Forest Service And
Placer County Water Agency

 Schedule A, Agreement Road

S. Husmann, November 2006



APPENDIX G
Betterment Road Survey Data

Appendix G. Betterment Road Survey Data.

Name	Point ID Number	Road Mile	GPS Coordinates (NAD83 DD)		Data Feature Codes (see Appendix A)	Description	Supplemental Information	Road Condition	Sign Condition	Photo Number (see Appendix H)
			longitude	latitude						
Existing Construction Access Road (Betterment-related)										
Forest road 14N09A (OHV Road)	FR14N09A01	0.000	-120.419698	39.071640	0 0	Begin Termini	Road begins off of Forest road 48.			
					12	Native	Road condition poor. Very rocky and lots of rills and potholes.	Poor		FR14N09A01
					22	Single Lane	Width ~12'. Visibility: Good on left ~200', and fair/poor on the right (~50-100').			
	FR14N09A02	0.544	-120.419234	39.072325	95-3	Overhead Powerline	Electric line running across road from the left to the right and then proceeds to run parallel to the road.			
	FR14N09A03	0.239	-120.417360	39.074442	49	Water bar	Water bar located ~15' behind this point. ~2' high x 2.5' wide.			
					95-3	Overhead Powerline	Electric line runs from the right of the road to the left of the road.			
					95-1	Road Damage	Road condition fair/poor.	Fair / Poor		
	FR14N09A04	0.300	-120.416306	39.074680	49	Water bar	1.5' high x 2' wide.			
	FR14N09A05	0.518	-120.413769	39.076850	95-3	Overhead Powerline	Electric line runs from the left of the road to the right.			
	FR14N09A06	0.541	-120.413496	39.077108	95	Geographic Feature	Ended GPS survey by the memorial dedication plaque. Made of metal.		Good	FR14N09A02
					95	Remark	Remainder of road primitive and not suitable for most types of passenger vehicles.	Poor		
		1.166	-120.406160	39.082891	99	End Termini	Approximate end of proposed betterment segment of road. Not surveyed.	Poor		

- 95 - Remark
- 95-1 - Road damage
- 95-2 - Stream crossing
- 95-3 - Overhead powerline/telephone line

APPENDIX H
Betterment Road Survey Photo Log

Appendix H. Betterment Road Survey Photo Log.

Additional information related to features identified on road is included in Appendix G.



FR14N09A01 – Forest Road 14N09A
at Road Mile 0.000



FR14N09A0 – Forest Road 14N09A
at Road Mile 0.541