Amended Application for New License
Major Project – Existing Dam

Log Cabin and Our House Diversion Dams
Sediment Management Plan

Security Level: Public

Yuba River Development Project
FERC Project No. 2246

June 2017

Table of Contents

Table of Contents (continued)

List of Figures

List of Tables

None.

List of Attachments

Page Left Blank

GLOSSARY - DEFINITION OF TERMS, ACRONYMS AND ABBREVIATIONS

Term	Definition
ac-ft	acre-feet
Cal Fish and Wildlife	California Department of Fish and Wildlife
C.F.R.	Code of Federal Regulations
cfs	cubic feet per second
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DO	Dissolved Oxygen
DSOD	California Division of Safety of Dams
FERC or Commission	Federal Energy Regulatory Commission
FERC Project Boundary	The area Licensee uses for normal Project operations and maintenance, and is shown on Exhibits G, J, and K of the current license.
FLA	Final License Application
Forest Service	United States Department of Agriculture, Forest Service
ft	foot or feet
in	inch
invert	an arch constructed in an upside-down position to provide lateral support
mi	mile
NFS	National Forest System
NTU	Nephelometric Turbidity Unit
Plan	Log Cabin and Our House Diversion Dam Sediment Management Plan
PNF	Plumas National Forest
Project	Yuba River Development Project, FERC Project No. 2246
Project Vicinity	The area surrounding the Project on the order of a United States Geological Survey 1: 24,000 topographic quadrangle.
SWRCB	State Water Resources Control Board
TNF	Tahoe National Forest
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
USFWS	United States Department of Interior, Fish and Wildlife Service
valve	slide gate that controls the low level outlets at Log Cabin and Our House Diversion Dams
work	Any activities described in the Plan
YCWA	Yuba County Water Agency
yd^3	cubic yard

Page Left Blank

SECTION 1.0

INTRODUCTION

In April 2014, the Yuba County Water Agency (YCWA), pursuant to Section (§) 5.18 of Title 18 of the Code of Federal Regulations (C.F.R.), filed with the Federal Energy Regulatory Commission (FERC) an Application for a New License for Major Project – Existing Dam - for YCWA's 361.9 megawatt Yuba River Development Project, FERC No. 2246 (Project). In June 2017, YCWA amended its April 2014 Application for a New License (FLA). The initial license for the Project was issued by the Federal Power Commission (FERC's predecessor) to YCWA on May 16, 1963, effective on May 1, 1963. The Federal Power Commission's May 6, 1966, Order Amending License changed the license's effective date to May 1, 1966, for a term ending on April 30, 2016.

YCWA included this Log Cabin and Our House Diversion Dams Sediment Management Plan (Plan) in its June 2017 Amended FLA.

The United States Department of Agriculture, Forest Service's (Forest Service) Federal Power Act Section 4(e) authority only applies in this Plan to Project facilities on National Forest System (NFS) land. The Forest Service administers the Plumas National Forest (PNF) in conformance with the PNF Land and Resource Management Plan (USDA Forest Service 1988), as subsequently amended, and administers the Tahoe National Forest (TNF) in conformance with TNF Land and Resource Management Plan (USDA Forest Service 1990), as subsequently amended. When the TNF or PNF Forest Plan revisions occur, those revised plans will supersede the 1990 TNF and 1988 PNF plans.

1.1 Background

1.1.1 Yuba River Development Project

The Project is located in Yuba, Sierra and Nevada counties, California, on the main stems of the Yuba River, the North Yuba River and the Middle Yuba River, and on Oregon Creek, a tributary to the Middle Yuba River. Major Project facilities, which range in elevation from 280 feet (ft) to 2,049 ft, include: 1) New Bullards Bar Dam and Reservoir; 2) Our House and Log Cabin diversion dams; 3) Lohman Ridge and Camptonville diversion tunnels; 4) New Colgate and Narrows 2 power tunnels and penstocks; 5) New Colgate, New Bullards Minimum Flow and Narrows 2 powerhouses; and 6) appurtenant facilities and features (e.g., administrative buildings, switchyards, roads, trails and gages). The existing Project does not include any aboveground open water conduits (e.g., canals or flumes) or any transmission lines.

In addition, the Project includes 16 developed recreation facilities. These include: 1) Hornswoggle Group Campground; 2) Schoolhouse Campground; 3) Dark Day Campground; 4)

Cottage Creek Campground;[1] 5) Garden Point Boat-in Campground; 6) Madrone Cove Boat-in Campground; 7) Frenchy Point Boat-in Campground; 8) Dark Day Picnic Area; 9) Sunset Vista Point; 10) Dam Overlook; 11) Moran Road Day Use Area; 12) Cottage Creek Boat Launch;[2] 13) Dark Day Boat Launch, including the Overflow Parking Area; 14) Schoolhouse Trail; 15) Bullards Bar Trail; and 16) floating comfort stations.[3] All of the recreation facilities are located on NFS land, with the exception of the Dam Overlook, Cottage Creek Boat Launch and small portions of the Bullards Bar Trail, which are located on land owned by YCWA. All of the developed recreation facilities are located within the existing FERC Project Boundary, except for a few short segments of the Bullards Bar Trail to the east of the Dark Day Boat Launch. In addition, the Project includes two undeveloped recreation sites at Our House and Log Cabin diversion dams, both located on NFS land and within the existing FERC Project Boundary.

Figure 1.1-1 shows the Project Vicinity,[4] proposed Project, and proposed FERC Project Boundary.[5]

[1] Cottage Creek Campground was burned in 2010 and has not been rebuilt. YCWA is in discussions with the United States Department of Agriculture, Forest Service (Forest Service) regarding rebuilding the burned campground.

[2] Emerald Cove Marina provides visitor services at Cottage Creek Boat Launch, including houseboat and boat rentals, boat slips and moorings, fuel and a general store. The marina is operated under a lease from YCWA by a private company.

[3] The Project recreation facilities included one campground that is no longer part of the Project. Burnt Bridge Campground was closed initially by the Forest Service in 1979 due to low use levels. FERC, in an August 19, 1993 Order, which approved YCWA's Revised Recreation Plan, directed YCWA to remove all improvements and restore the Burnt Bridge Campground to the condition it was in prior to development of the facility. YCWA consulted with the Forest Service and all that remains of Burnt Bridge Campground today is the circulation road and vehicle spurs; all other facilities were removed.

[4] For the purpose of this Plan, "Project Vicinity" refers to the area surrounding the proposed Project on the order of United States Geological Survey (USGS) 1:24,000 quadrangles.

[5] The FERC Project Boundary is the area that YCWA uses for normal Project operations and maintenance. The Boundary is shown in Exhibit G of YCWA's Amended FLA, and may be changed by FERC with cause from time to time during the term of the new license.

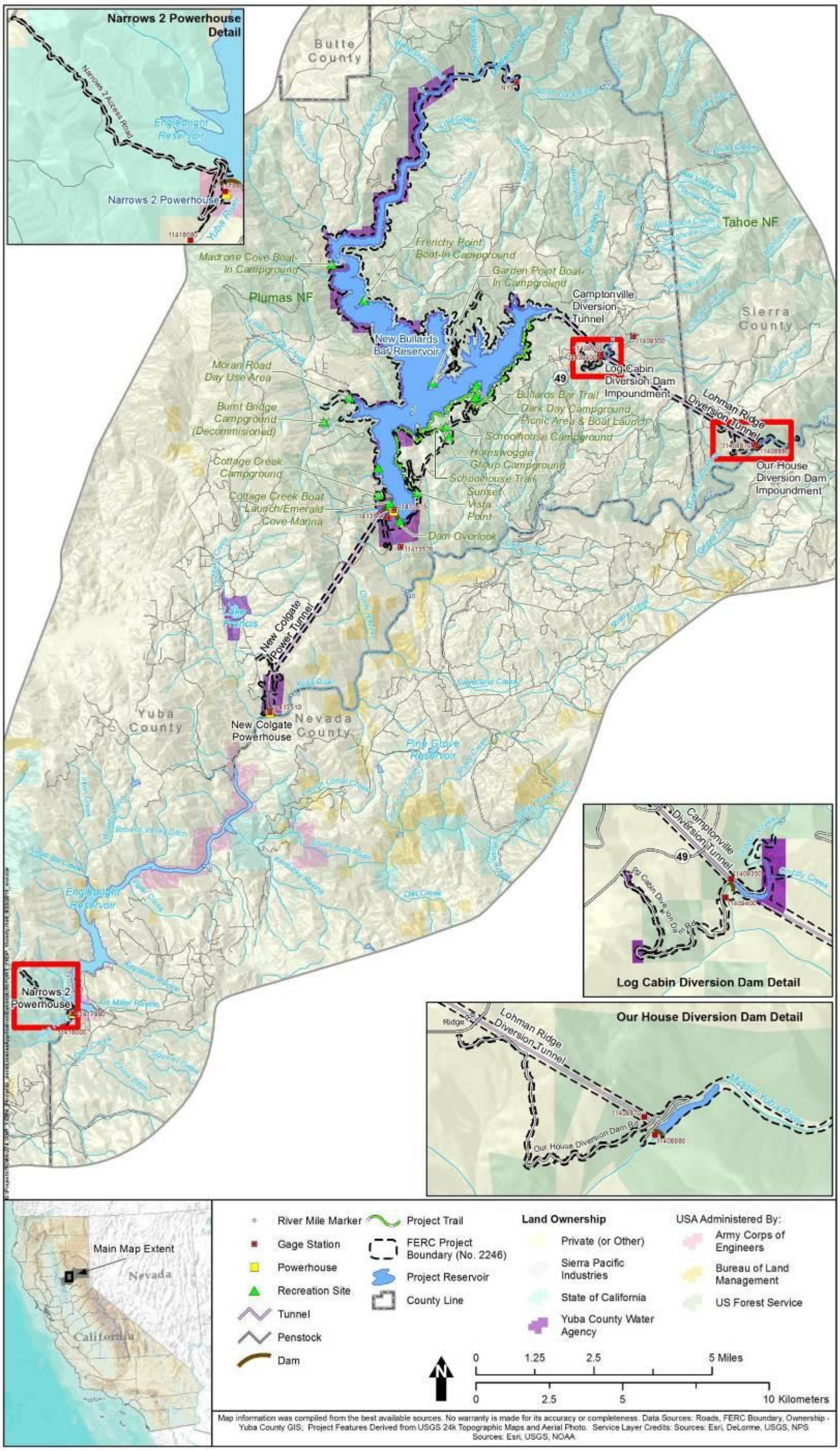

Figure 1.1-1. Yuba County Water Agency's Yuba River Development Project and Project Vicinity.

Page Left Blank

1.2 Purpose of the Log Cabin and Our House Diversion Dams Sediment Management Plan

The purpose of this Plan is to prescribe procedures and guidelines for the management of sediment behind Log Cabin Diversion Dam and Our House Diversion Dam. The objectives of the Plan are twofold: 1) to provide for dam safety and proper functioning of Project facilities, especially the fish release and low level outlet valves; and 2) to maintain the health of the aquatic environment downstream of the dams by allowing the passage of sediments that occur behind the dams.

YCWA will coordinate, to the extent appropriate, the efforts required under this Plan with other Project resource efforts, including implementation of other resource management plans and measures included in the new license.

1.3 Goals and Objectives of the Log Cabin and Our House Diversion Dams Sediment Management Plan

The goal of the Plan is to ensure that YCWA's management of sediment in Log Cabin Diversion Dam and Our House Diversion Dam is fully protective of facility safety and operations and environmental resources.

The objective of the Plan is to provide necessary guidelines to meet the Plan goal.

1.4 Contents of the Log Cabin and Our House Diversion Dams Sediment Management Plan

This Plan includes the following:

- Section 1.0. Introduction. This section includes introductory information, including the purpose, objectives and contents of the Plan.
- Section 2.0. Description of Log Cabin and Our House Diversion Dams. This section describes Log Cabin Diversion Dam and Our House Diversion Dam, including access to the dams, and recent sediment management activities at each dam.
- Section 3.0. Sediment Management. This section describes the methods for managing sediment which occurs behind the dams over the course of their operation under the Project license.
- Section 4.0. Monitoring. This section describes monitoring related to the activities described in the Plan.
- Section 5.0. Best Management Practices and Permits. This section describes Best Management Practices (BMP) that will be used during mechanical sediment removal, and necessary permits to implement the Plan.

- Section 6.0. Consultation and Plan Revisions. This section describes how Plan revisions will be made.
- Section 7.0. References Cited. This section lists references cited in this Plan.

SECTION 2.0

DESCRIPTION OF LOG CABIN AND OUR HOUSE DIVERSION DAMS

This section describes the Log Cabin Diversion Dam and the Our House Diversion Dam, access to the dams, and recent sediment removal activities at each dam.

2.1 Log Cabin Diversion Dam

2.1.1 Vehicular Access

Access to Log Cabin Diversion Dam is via a gated, paved road off State Route 49, approximately 0.25 mile (mi) northeast of the intersection with Marysville Road. A gate at the intersection of Highway 49 and the access road is normally closed and locked. No other gates occur along the access road.

2.1.2 Facility Description

Log Cabin Diversion Dam, which is located on NFS land within the TNF, is a 105-ft radius, concrete arch dam located in Yuba County on Oregon Creek 4.3 mi upstream of the confluence with the Middle Yuba River. At maximum pool, the dam can impound about 90 acre-feet (ac-ft) of water. The dam is 42.5 ft high with a crest length of 300 ft, a crest elevation of 1,970 ft, and a drainage area of 29.1 square miles. The dam has a spillway, a fish release outlet valve used for releasing minimum instream flow requirements in the FERC license, and a low level (5-ft diameter) outlet valve.[6] The uncontrolled spillway, with the spillway crest at elevation of 1,970 ft, is ungated and has a maximum capacity of 12,000 cubic feet per second (cfs). The fish release outlet valve has an invert elevation of 1,941.75 ft at the inlet and an engineer's estimated maximum capacity of 18 cfs,[7] when the pool is at the invert (1,952 ft) of the Camptonville Diversion Tunnel, which diverts water from Oregon Creek, and water previously diverted from the Middle Yuba River via the Lohman Ridge Tunnel, to New Bullards Bar Reservoir on the North Yuba River. The outlet is controlled by a hand-operated, 18-inch valve on the downstream end of the outlet. The low level outlet has an invert elevation of 1,936.42 ft at the inlet, and an engineer's estimated maximum capacity of 348 cfs,[8] when the pool surface elevation is at the invert of the Camptonville Diversion Tunnel. The low level outlet is controlled by a slide gate on the upstream face of the dam, which is operated by a two-person mobile gasoline powered engine.

[6] For the purpose of this Plan, the slide gate that controls the Log Cabin Diversion Dam low level (5-ft diameter) outlet is referred to as a "valve."

[7] YCWA plans to rate the Log Cabin Diversion Dam fish release valve as soon as reasonably possible, depending on hydrologic conditions and agency approvals.

[8] YCWA plans to rate the Log Cabin Diversion Dam low level outlet valve as soon as reasonably possible, depending on hydrologic conditions and agency approvals.

Figures 2.1-1 and 2.1-2 show the downstream and upstream faces, respectively, of Log Cabin Diversion Dam.

Figure 2.1-1. View to the east of the downstream face of Log Cabin Diversion Dam. The majority of discharge shown in photograph is through the fish release valve. The low level outlet valve is to the right of the fish release valve.

Figure 2.1-2. View to southwest of the upstream face of Log Cabin Diversion Dam. The intake for the fish release valve is marked by an "A;" the location of the intake valve stem for the low level valve is marked with a "B."

2.1.3 Typical Operations of the Dam Valves

As described above, the Log Cabin Diversion Dam fish release valve is operated continuously and adjusted manually to provide minimum streamflow downstream of the dam. The low level outlet valve, which would only be opened in case of an emergency, is tested (i.e., rapidly opening and closing the valve) every five years as required by FERC and the California Division of Safety of Dams (DSOD). The last time the valve was tested was March 2012.

2.1.4 Past Sediment Removal

YCWA has records of sediment removals at Log Cabin Diversion Dam occurring in 1972 (approximately 40,000 cubic yards [yd^3]), 1988 (approximately 32,000 yd^3), and in 1997 (unknown amount). In 2014, YCWA returned the impoundment to near original conditions by removing approximately 11,000 yd^3 of sediment.

2.2 Our House Diversion Dam

2.2.1 Vehicular Access

Access to Our House Diversion Dam is from State Route 49 via Ridge Road (approximately 2 mi south of the intersection of State Route 49 and Marysville Road), east on Ridge Road, approximately 4.5 mi to Our House Diversion Dam Road, and south and east on Our House Diversion Dam Road, approximately 1.5 mi to the dam. Our House Diversion Dam Road is gated at the intersection with the Ridge Road and the access road and at a location on the access road about 500 ft uphill from the dam. The gate at Ridge Road is normally kept open, and the gate near the dam is normally closed and locked.

2.2.2 Facility Description

Our House Diversion Dam, which is located on NFS land within the TNF, is a 130-ft radius, double curvature, concrete arch dam straddling the border between Sierra County and Nevada County on the Middle Yuba River, 12.6 mi upstream of its confluence with the North Yuba River. At maximum pool, the dam can impound about 280 ac-ft of water. The dam is 70 ft high with a crest length of 368 ft and a crest elevation of 2,030 ft, and has a drainage area of 144.8 square miles. The dam has a spillway, a fish release outlet valve used for releasing minimum flow requirements in the existing FERC license, and a low level (5-ft diameter) outlet valve.[9] The spillway, with a spill crest elevation of 2,030 ft, is ungated and has a maximum capacity of 60,000 cfs. The fish release outlet valve has an invert elevation of 1,999 ft at the inlet, and an engineer's estimated maximum capacity of 59 cfs,[10] when the pool is at the invert (2,015 ft) of the Lohman Ridge Diversion Tunnel, which diverts water from the Middle Yuba River to Oregon Creek. The fish release outlet is controlled by a hand-operated 24-in valve on the downstream end of the outlet. The low level outlet has an invert elevation of 1,989.96 ft at the inlet and an engineer's estimated maximum capacity of 463 cfs,[11] when the pool is at the invert of the Lohman Ridge Diversion Tunnel. The low level outlet is controlled by a slide gate on the upstream face of the dam, which is operated by a two-person mobile gasoline powered engine.

Figures 2.2-1 and 2.2-2 show the downstream and upstream faces, respectively, of Our House Diversion Dam.

[9] For the purpose of this Plan, the slide gate that controls the Our House Diversion Dam low level outlet is referred to as a "valve."

[10] YCWA plans to rate the Our House Diversion Dam fish release valve as soon as reasonably possible, depending on hydrologic conditions and agency approvals.

[11] YCWA plans to rate the Our House Diversion Dam low level outlet valve as soon as reasonably possible, depending on hydrologic conditions and agency approvals.

Figure 2.2-1. View to east of downstream face of Our House Diversion Dam. The majority of discharge shown in photograph is through the fish release valve. A minor amount of gate leakage is occurring through the low level outlet valve, which is below the minimum flow release valve.

Figure 2.2-2. View to the south of upstream face of Our House Diversion Dam. The inlets for the low level valve and the fish release valve are located below the operator for the Low Level Valve, as indicated by the arrow above.

2.2.3 Typical Operations of the Dam Valves

As described above, the Our House Diversion Dam fish release valve is operated continuously and adjusted manually to provide minimum streamflow downstream of the dam. The low level outlet valve, which would only be opened in case of an emergency, is tested (i.e., rapidly opening and closing the valve) every 5 years, as required by FERC and the DSOD. The last time the valve was tested was March 2012.

2.2.4 Past Sediment Removal

YCWA has records of four sediment removal operations at Our House Diversion Dam.

In 1986, following floods in February, YCWA implemented a two-phased dredging activity at Our House Diversion Dam. Phase I dredging began sediment removal on August 1, 1986; an unquantified amount was removed and location of disposal was not specified. Necessary permits and approvals were obtained for dredging and sediment disposal. On August 20, 1986, between

7,333 and 15,000 yd^3 were estimated to have been passed downstream through the low level release valve, along with an additional unknown amount about a month later. YCWA discontinued sluicing in the fall of 1986, though an additional 15,000 yd^3 remained to be removed. In 1986, approximately 9,000 yd^3 were subsequently removed from the Middle Yuba River channel downstream of Our House Diversion Dam (EBASCO Environmental 1989).

In 1992, 27,595 yd^3 of sediment was excavated between August 3 and September 5. Sediments were disposed of at a site at the Sierra Mountain Mills, approximately 8 mi away from the dam (PG&E 1992). Necessary permits and approvals were obtained for dredging and sediment disposal.

In 1997, 67,894 yd^3 of sediment was excavated between September 10 and October 30. Prior to removal, sediments were tested for mercury and found to be at natural background levels. Sediments were sent to a spoil disposal site on NFS land approximately 18 mi west of Our House Diversion Dam (PG&E 1997). Necessary permits and approvals were obtained for excavation and sediment disposal.

On December 31, 2005, an intense storm event carried sediments from the upstream reaches of the Middle Yuba River that partially blocked the low level outlet, tunnel intake structure, and fish release outlet. 80,000 yd^3 of sediment was excavated between August 10 and September 15, 2006. Sediments were disposed of in an old quarry site on Marysville Road on NFS land, approximately 1 mi south of New Bullards Bar Dam (YCWA 2006). Necessary permits and approvals were obtained for excavation and sediment disposal.

At the time this Plan is developed, YCWA does not believe there is an imminent danger of sediment clogging either the low level outlet valve or fish release valve at Our House Diversion Dam.

Page Left Blank

SECTION 3.0

SEDIMENT MANAGEMENT

Sediment management at both Log Cabin and Our House Diversion dams includes four components: 1) maintenance of minimum pools; 2) passage of sediment; 3) planned mechanical removal of sediment, when needed; and 4) emergency removal of sediment. Each of these components is described below. This section also describes for each component some specific environmental protection measures that would be taken; additional environmental protection measures are described in Section 4.

3.1 Maintenance of Minimum Pool at Our House Diversion Dam

Currently, YCWA attempts to maintain a pool throughout the year at Our House Diversion Dam and will continue to do so, but is not able to operate similarly at Log Cabin Diversion Dam. As a result, at Our House Diversion Dam, much of the sediment that enters the impoundment settles at the upstream end of the impoundment, whereas at Log Cabin Diversion Dam, sediment tends to accumulate at the dam, which occasionally affects the proper operations of the low level outlet and fish release valves.

3.2 Passage of Sediment

Opening of low level outlet valves in diversion dams is an effective measure to pass sediment, that otherwise would accumulate behind the dams, to the river downstream of the dam. The original Operation and Maintenance Manuals for Log Cabin and Our House dams recommended that, "*sluicing should be done periodically to prevent the buildup of gravel and silt below the sill of the tunnel intake. This should be done during a period of high flow to insure [sic] efficient sluicing.*" The event is best scheduled for winter so that the high spring flows will continue to mobilize and redistribute moderate size sediment below the dam.

At Log Cabin Diversion Dam, the first day between October 1 and March 21 that mean daily natural inflow into the Log Cabin Diversion Dam impoundment is estimated to be 540 cfs or greater (i.e., as calculated by adding the flow at the USGS streamflow gage 11409400 and the flow into the Camptonville Diversion Tunnel, and subtracting from that total the flow into the Lohman Ridge Diversion Tunnel), YCWA will fully open the low level outlet valve. The valve will remain open to full capacity for at least nine consecutive days. By noon on the tenth day, YCWA will close the low-level outlet valve to 50 percent (by area) of the orifice opening, and by noon on the eleventh day, YCWA will close the low-level outlet valve entirely. YCWA may close the valve during the 11 day period if mean daily natural inflow into the impoundment measured as described above drops below 540 cfs or significant reduction of flow through the valve indicates blockage. If YCWA does close the valve prematurely, it will immediately notify the Forest Service, Cal Fish and Wildlife, and the State Water Resources Control Board (SWRCB) of the reason for premature closure and of YCWA's plans for further sediment

passage or actions needed to restore the valve to full functionality. In the case where daily natural inflow drops below 540 cfs and YCWA plans to close the low-level outlet valve, by noon on the day after the mean daily flows drop below 540 cfs, YCWA will close the low level outlet valve to 50 percent (by area) of the orifice opening, and by noon on the next day, YCWA will close the low-level outlet valve entirely. In the case where YCWA closes the valve due to indication of blockage the valve may be fully closed immediately. During periods when the valve is open, YCWA will inspect the valve at least once a day during business hours. The valve may be opened more than once under the conditions above during the period between October 1 and March 21 to meet objectives of the Plan.

At Our House Diversion Dam, the first day between October 1 and March 21 that mean daily inflow into the Our House Diversion Dam impoundment is estimated to be 1,500 cfs or greater (i.e., as calculated by adding the flow at the USGS streamflow gage 11400880 and the flow into the Lohman Ridge Diversion Tunnel), YCWA will fully open the low-level outlet valve. The valve will remain open to full capacity for at least nine consecutive days. By noon on the tenth day, YCWA will close the low-level outlet valve to 50 percent (by area) of the orifice opening, and by noon on the eleventh day, YCWA will close the low-level outlet valve entirely. YCWA may close the valve during the 11 day period if mean daily inflow into the impoundment measured as described above drops below 600 cfs or significant reduction of flow through the valve indicates blockage. If YCWA does close the valve prematurely, it will immediately notify the Forest Service, Cal Fish and Wildlife, and the SWRCB of the reason for premature closure and of YCWA's plans for further sediment passage or actions needed to restore the valve to full functionality. In the case where daily natural inflow drops below 600 cfs and YCWA plans to close the low-level outlet valve, by noon on the day after the mean daily flows drop below 600 cfs, YCWA will close the low-level outlet valve to 50 percent (by area) of the orifice opening, and by noon on the next day, YCWA will close the low level outlet valve entirely. In the case where YCWA closes the valve due to indication of blockage the valve may be fully closed immediately. During periods when the valve is open, YCWA will inspect the valve at least once a day during business hours. The valve may be opened more than once under the conditions above during the period between October 1 and March 21 to meet objectives of the Plan.

If the Forest Service determines there are biological and geomorphic benefits to opening the Our House Diversion Dam low level outlet during April through September for all or a portion of the period when the Lohman Ridge Diversion Tunnel is closed in compliance with YCWA' Proposed Condition, *Periodically Close Lowman Ridge Diversion Tunnel*, the Forest Service will provide a proposal to YCWA. YCWA will implement the proposal after obtaining necessary permits and approvals unless the YCWA determines the proposed action would damage Project existing facilities or impair Licensee's operation of the Project.

3.3 Blockage of Outlets

If after October 1 YCWA determines that any one of the Our House Diversion Dam's or the Log Cabin Diversion Dam's fish release valves or low level outlet valves has been partially or fully blocked by sediment, then YCWA may take remedial actions at that valve by the following April

1 or 10 as described below, consistent with existing permits, to return that valve to proper functioning condition.
This work could include:

- using air and/or water nozzles to blow sediment out of the valves; and/or
- employing a suction dredge to remove, at each dam, up to 250 yds^3 of accumulated sediment upstream of the valve. The sediment would be pumped around the dam and discharged directly to the river downstream of the dam. During these activities, YCWA would reduce flows over the spillway to ensure safety of the divers working in the diversion pool and to maintain minimum flow requirements. Once sediment has been cleared from the outlet, YCWA would open the low level outlet to flush the outlet and to distribute the deposited material further downstream. The low level outlet would then be closed gradually over the course of 4 days, with the goal of avoiding any additional sediment build-up that could clog the outlets. YCWA may close the value if YCWA anticipates the outlet is at risk of being re-clogged.

All activities related to above suction-dredging (dredging and opening of the low level outlet as described above) shall be completed by April 1, unless the last sediment passage event ends between March 21 and March 31, in which case all activities related to suction-dredging shall be completed by April 10.

3.4 Planned Mechanical Removal of Sediment

Even with the benefits of maintaining a pool in Our House impoundment and periodic opening of the low level outlet valves, it is likely that YCWA may need to remove sediment from the Our House Diversion Dam impoundment or the Log Cabin Diversion Dam impoundment, or both. In those cases, mechanical sediment removal may be necessary.

When possible, YCWA may use handwork (i.e., shovels), as opposed to mechanical removal, as a remediation method for sediment buildup in front of the valves at the diversion dams.

Planned sediment removal, when needed, will occur in summer/early fall (i.e., drier months) when inflow into the impoundment is low (i.e., inflow less than or equal to minimum instream flow requirement). If sediment removal is planned, YCWA would draw down the pool in the impoundment (Section 3.1) as low as possible immediately prior to the start of work and divert inflows around the diversion so that sediment can be excavated in the dry. The water will be drained in a way to avoid aseasonal increases to instream flow downstream of the dams, such as allowing it to drain naturally through the valve or pumping it into the diversion tunnels. YCWA does not propose to perform mechanical excavation work below the waterline or suction dredge sediments in the diversion pool.

YCWA estimates that the maximum amount of sediment that would be removed at any one time from Log Cabin Diversion Dam impoundment is 20,000 yds^3 and the maximum amount of sediment that would be removed at any one time from Our House Diversion Dam impoundment is 40,000 yds^3. However, YCWA anticipates that any sediment excavation would be much less

than this, since the purpose of this Plan is to manage sediment in the impoundments while minimizing mechanical excavation.

If mechanical excavation is needed, it would occur in nine steps: 1) notification of appropriate agencies about planned sediment removal; 2) sediment testing for metals; 3) mobilization; 4) diversion/control of water; 5) removal of sediment; 6) stockpiling of sediment; 7) stabilization of the stockpile; 8) demobilization; and 9) issuance of a report. Each step is described below regardless of the impoundment in which the work would occur.

All work will occur in accordance with applicable local, state, and federal regulations.

BMPs detailed in Section 4.2 will be followed during all activities associated with mechanical removal of sediment.

3.4.1 Notification of Agencies for Planned Sediment Removal

YCWA routinely inspects the Log Cabin Diversion Dam and Our House Diversion Dam impoundments. Though no quantification of sedimentation is done, YCWA routinely makes and notes qualitative assessments of the sediment deposit extent and levels and, in particular, any potential blockage or clogging of the fish release valve and low level outlet valve.

If YCWA determines that sedimentation in any of the impoundments warrants implementing mechanical removal, no later than 30 days prior to when the removal is scheduled to take place, YCWA will provide a written notification (i.e., may be via e-mail) to FERC, United States Army Corps of Engineers (USACE), United States Department of Interior, Fish and Wildlife Service (USFWS), Forest Service, State Water Resources Control Board (SWRCB), Central Valley Water Quality Control Board (CVRWQCB) and California Department of Fish and Wildlife (Cal Fish and Wildlife) that YCWA intends to mechanically remove sediment from the impoundment. To the extent possible, the notification will provide: 1) a schedule that includes an estimated start and end date for major activities including mobilization, clearing activities, in-channel work, fish and other aquatic species relocation, demobilization and monitoring; 2) if a water diversion and/or pumping of water will be necessary; and 3) if the work will require removal of or disturbance to any riparian vegetation. YCWA will also include: 1) reasons why mechanical removal is warranted; 2) information on the method selected for providing flows below the construction site; 3) estimates on how much excavated material will be removed; 4) if any deviations from this Plan are anticipated; and 5) results from the hazardous metal tests described in Section 3.3.2, if the results have not already been provided to the permitting agencies.

3.4.2 Sediment Testing for Metals

Prior to removing any sediment from an impoundment, YCWA will collect three to five bulk samples of the sediment to be removed from the impoundment and transport the samples to a

state-certified laboratory for determination of metals[12] content. Sediments will be characterized as hazardous[13] or non-hazardous, based on the results of the sampling. Sampling and handling procedures shall be in accordance with the United States Environmental Protection Agency's *Test Methods for Evaluating Solid Waste - Physical/Chemical Methods* (SW-846) (USEPA 2007). Sediment samples will be transferred to laboratory-quality sample containers and preserved by in accordance with SW-846. Each sediment sample will be recorded and transported using an approved chain-of-custody form. The results of the testing will be forwarded to FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife prior to any ground-disturbing activities. If sediment testing results are hazardous, additional confirmatory samples may be taken and an alternate plan for sediment stockpiling or disposal will be developed in accordance with the test results and appropriate regulations. No material will be removed from the impoundment until the alternate plan is in place and all necessary permits and approvals have been obtained.

3.4.3 Mobilization

Once sediment testing and agency notifications and permitting, as described in Section 4.3, have been completed, mobilization will include delivery of equipment to the site, establishing laydown areas, and creating stable pads for equipment, as needed (e.g., if YCWA plans to use a mobile crane with a clam shell on the bank). Mobilization will also include the following, which YCWA anticipates will be developed by the contractor YCWA selects to perform the sediment removal:

- Work schedule describing start and completion dates of tasks required to complete the work.
- Job site security plan describing measures that will be taken to provide adequate job site security that protects the contractor's, the Forest Service's, and YCWA's property from damage and/or theft during working and non-working hours.
- Medical emergency response plan describing procedures to be followed in the event of a medical emergency and location of nearest medical facility.
- Fire prevention and protection plan describing measures that will be taken to reduce the potential for fire and the procedures to be followed in the event of fire.
- Hazardous materials management plan describing measures that will be taken to reduce the potential and control spills of hazardous materials.

[12] C.C.R. Title 22 Section 66261.24 specifies the 17 metals that can qualify waste as hazardous.

[13] Soil or liquid will be characterized as Resource Conservation and Recovery Act hazardous waste, per 40 C.F.R. Parts 260 – 265, a Toxic Substances Control Act Polychlorinated Biphenyl hazardous waste, per 40 C.F.R. Part 761, or a non- Resource Conservation and Recovery Act, California hazardous waste Section 25117 of the California Health and Safety Code, pursuant to Section 25141 of the California Health and Safety Code.

3.4.4 Diversion/Control or Water

Diversion and control of water may consist of one or two methods. One approach would be to channel natural inflow into the impoundment around the planned work area and through the dam via the fish release valve or low level outlet valve, or both. The diversion would consist of installation of temporary piping to deliver the required flow of water continuously to the valve. Flow would be intercepted upstream of the planned excavation and diverted into a pipe. The pipe would be routed away from the planned excavation. The pipe would be installed in a buried trench and/or protected by steel plates to allow for movement of equipment in the impoundment without damage to the pipe.

The second approach would be pumping water around the work area. In this approach, a small temporary catchment would be constructed upstream of the work area and pumps would actively pass the water through one or more pipes routed around the outside of the work area and discharge into the stream below the dam.

3.4.5 Removal of Sediment

The amount of material to be excavated from the impoundment will vary from event to event, but the maximum amount of sediment that YCWA estimates will be removed is 20,000 yd^3 from Log Cabin Diversion Dam and 40,000 yd^3 from Our House Diversion Dam.

The excavation will be accomplished with track-mounted excavators located within the impoundment, or with larger mobile cranes working from the access roads above the impoundments. Stable pads will be constructed for equipment working in the impoundment. Excavated sediment will be loaded into large-capacity off-road trucks which will deliver the material to laydown areas outside the impoundments. The material, which will be clean and non-hazardous, will be temporarily (no more than 48 hours) stockpiled at the laydown area for eventual loading onto street legal trucks for hauling to the final stockpile area. After the last day of sediment removal, YCWA has 72 business hours to clean up the laydown area, including removing the last of the sediment, within 72 business hours. Appropriate BMPs from Forest Service's *Soil and Water Conservation Handbook* (USDA Forest Service 2011 or latest version as appropriate) will be instituted to prevent erosion. During the work, the excavators and trucks will be removed from the impoundment at the end of each shift.

The laydown area for Log Cabin Diversion Dam is located adjacent to the paved dam access road, approximately 0.2-mi from the dam, and consists of a semi-cleared area (i.e., no trees, but covered with non-native low brush and grasses). The area consists of land owned by Sierra Pacific Industries and NFS land and is within the FERC Project Boundary. The laydown area is upland, away from any water.

The laydown area for Our House Diversion Dam is located just north of the impoundment on YCWA-owned land. The laydown area is upland, away from any water.

3.4.6 Disposal of Sediment

Removed sediment will be managed and disposed of in accordance with applicable local, state, and federal regulations.

The excavated sediment will be moved from the transfer areas in the street legal trucks to a sediment disposal area on YCWA-owned land (Site 1) or private land (Site 2) property.[14] YCWA is currently in discussions with the land owner for use of Site 2. Site 2 is included in the Plan at this time assuming YCWA will obtain permission. If permission is not obtained, YCWA will use Site 1 exclusively.

Disposal Site 1 is located within the FERC Project Boundary behind a locked gate. It is approximately 9 miles from Log Cabin Diversion Dam, and 15 miles from Our House Diversion Dam. YCWA estimates that Site 1 could hold up to 90,000 yd^3. There are three sub-areas at Disposal Site 1 - A, B and C - which are pictured in Figures 3.4-1, 3.4-2 and 3.4-3. Portions of Site 1 are vegetated, though the majority of the vegetation is non-native. Access to Disposal Site 1C would require the reopening of an old road.

Figure 3.4-1. Disposal Site 1A.

[14] Large quantities of dredged material may require the use of other areas for stockpiling. At this time, YCWA anticipates using the sites described above for sediment disposal, but may use other options in the future.

Figure 3.4-2. Disposal Site 1B.

Figure 3.4-3. Disposal Site 1C.

Disposal Site 2 is on privately owned property, approximately 4.7 miles from Log Cabin Diversion Dam and 6 miles from Our House Diversion Dam, and is not within the FERC Project Boundary. A wide gravel road provides easy access into and out of the site. Within the property, a minimal dirt road would most likely need to be watered down during Project activities.

YCWA estimates that approximately 25,000 to 30,000 yd^3 of materials can be disposed of at Site 2 and with little effort, the capacity could be increased significantly.

Figures 3.4-4 and 3.4-5 show Disposal Site 2.

Figure 3.4-4. Disposal Site 2 looking toward edge of property.

Figure 3.4-5. Disposal Site 2 looking toward center of site.

Figure 3.4-6 shows the location of Log Cabin Diversion Dam, and the routes that will be used to haul the sediment to Disposal Site 1 or Disposal Site 2. From the Log Cabin Diversion Dam, the haul route to the Site 1 sediment disposal location area will consist of the following: 1) an existing unimproved ramp from the impoundment up to the northern edge; 2) a gravel road along the northern edge of the impoundment to the right dam abutment; 3) a paved road, consisting of the lower portion of the dam access road to, the laydown area; 4) the upper portion of the dam access road to State Route 49; 5) south on State Route 49 to Marysville Road; 6) west on Marysville Road to a point east of New Bullard Bar Dam; and 7) south on an unpaved road to the stockpile area on YCWA property. From the Log Cabin Diversion Dam, the haul route to the Site 2 sediment disposal location area will consist of the following: 1) an existing unimproved ramp from the impoundment up to the northern edge; 2) a gravel road along the northern edge of the impoundment to the right dam abutment; 3) a paved road, consisting of the dam access road, from the dam to State Route 49; 4) south on State Route 49 to Ridge Road; 5) Ridge Road to north on Celestial Valley Road; and 6) north to the end of Celestial Valley Road. For any road use on NFS land, including "existing unimproved ramp from impoundment up to the northern edge," Forest Service's *Soil and Water Conservation Handbook* (USDA Forest Service 2011, or latest version as appropriate) will be followed, as appropriate.

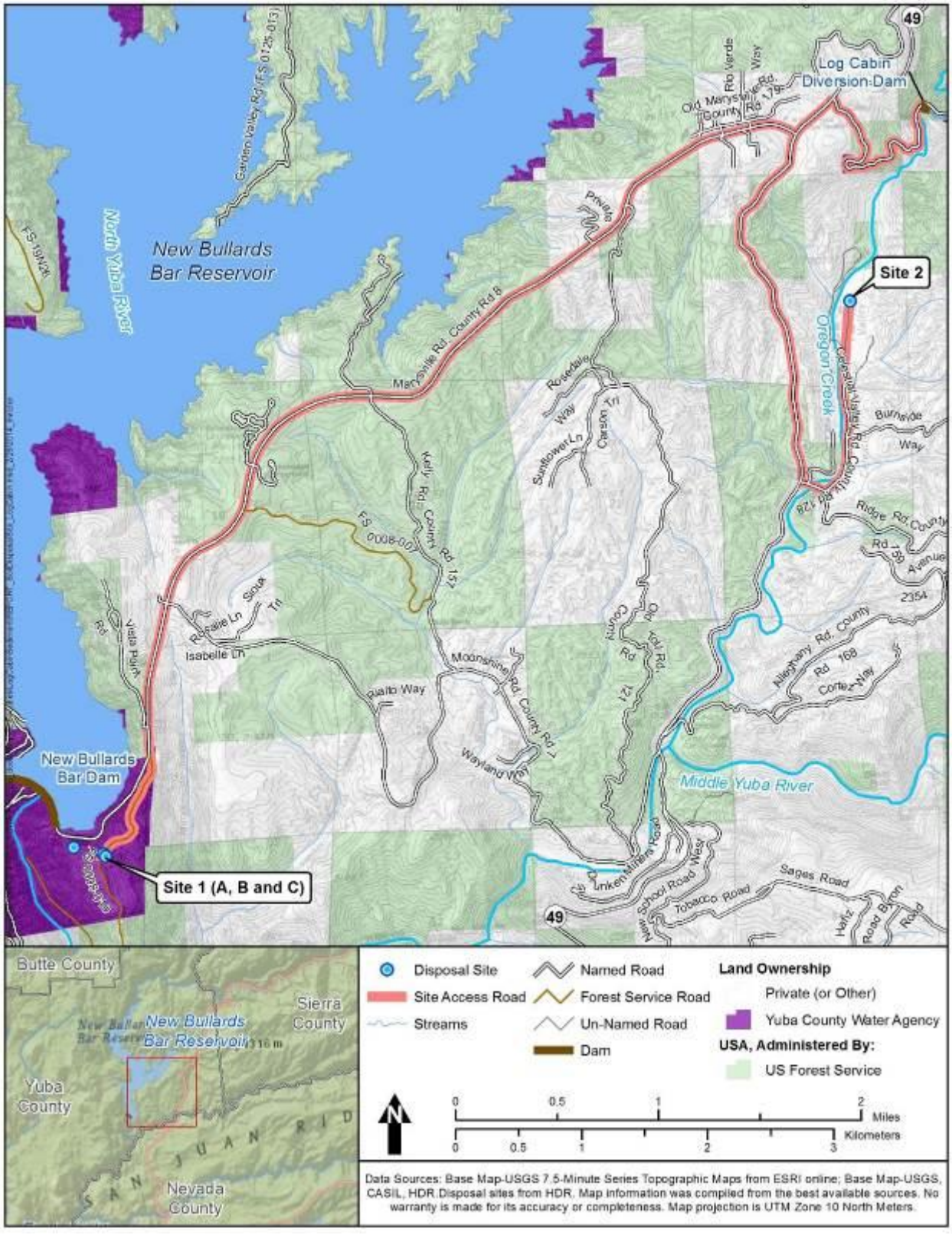

Figure 3.4-6. Location of Log Cabin Diversion Dam and haul route to Site 1 and Site 2.

Figure 3.4-7 shows the location of Our House Diversion Dam, the route that will be used to haul the sediment to Site 1, and the area where the sediment will be deposited. From the Our House Diversion Dam, the haul route to the Site 1 sediment disposal location area will consist of the following: 1) an existing unimproved, gravel ramp from the impoundment to the laydown area; 2) paved roads, consisting of Our House Dam access road, from the laydown area north of the impoundment to Ridge Road; 3) Ridge Road to State Route 49; 4) North on State Route 49 to west on Marysville Road to a point east of New Bullards Bar Dam; and 5) south on an unpaved road to the stockpile area on YCWA property. From the Our House Diversion Dam, the haul route to the Site 2 sediment disposal location area will consist of the following: 1) an existing unimproved, gravel ramp from the impoundment; 2) paved roads, consisting of Our House Dam access road, from the dam to Ridge Road; 3) Ridge Road to Celestial Valley Road; and 4) north to the end of Celestial Valley Road. For any road use on NFS land, including "existing unimproved ramp from impoundment up to the northern edge," Forest Service *Soil and Water Conservation Handbook* (USDA Forest Service 2011, or latest version as appropriate) will be followed, as appropriate.

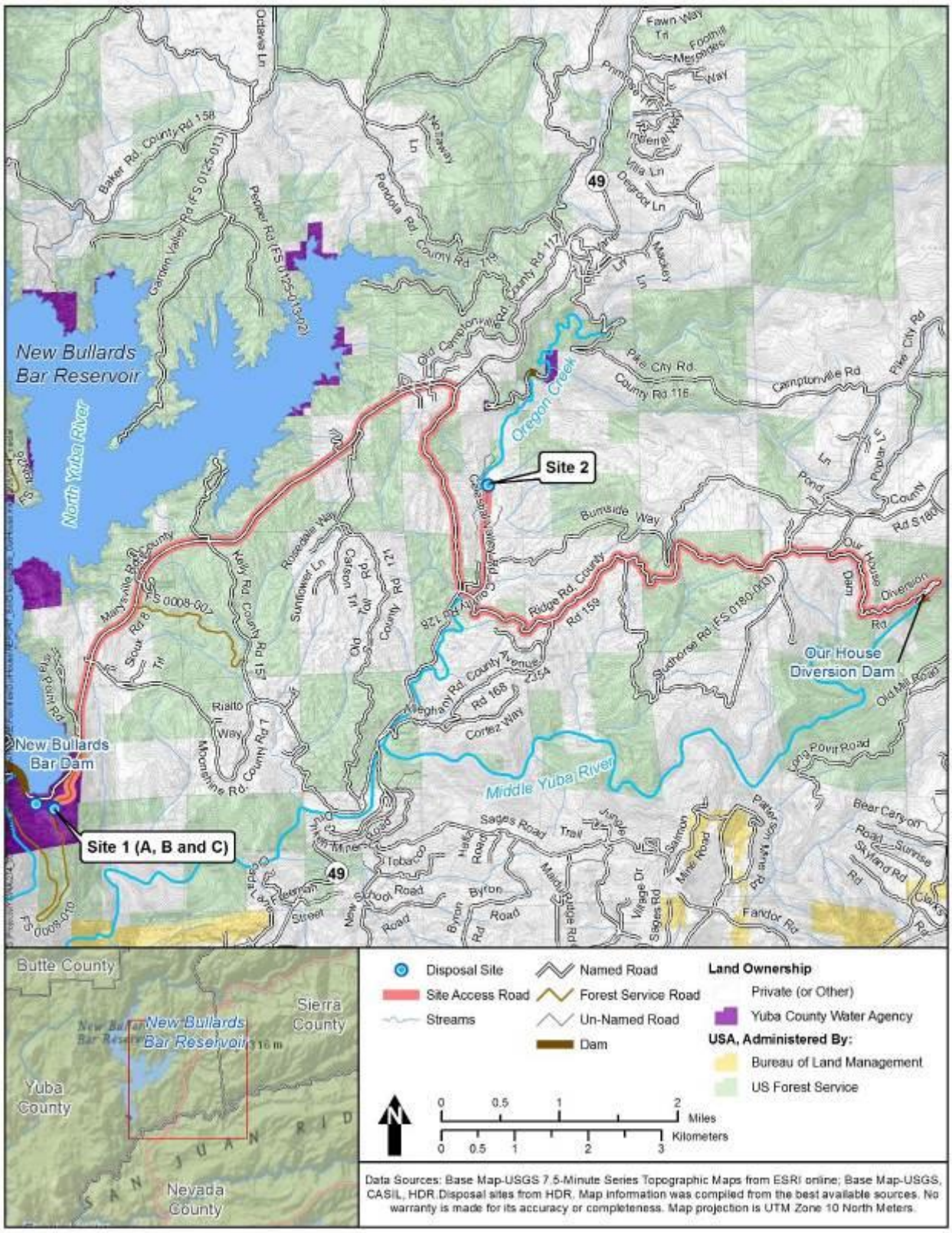

Figure 3.4-7. Location of Our House Diversion Dam and haul route to Site 1 and Site 2.

The number of round trips between the impoundment and the sediment disposal area will depend on the amount of material to be excavated. During hauling, YCWA will provide traffic control on the haul route at intersections where the haul trucks enter and leave public roads. Traffic control personnel will also be responsible for keeping the general public from getting past the diversion access road gates during work hours.

Signs will be posted during the work at the top of the access road to the impoundment warning the general public about the work underway and the associated dangers, and that they may access the site only by means other than a vehicle using caution.

3.4.7 Stockpile Stabilization

Both the Site 1 and Site 2 sediment disposal areas are generally flat with either minimal or non-native vegetation. Access to the disposal areas is on dirt roads with adequate space for turn-around by large trucks.

The excavated material will be placed as engineered fill in accordance with generally accepted geotechnical engineering practices; it will be dumped and spread out in loose lifts not exceeding 12 inches in depth and compaction will be based on a maximum lift thickness (12 inches) and a two passes with a Cat D6 or equivalent. The need for ground surface preparation prior to material placement, such as stripping and grubbing of existing vegetation, excavation of benches into sloping ground, and subsurface and surface drainage, will be determined after the material volume is known and the specific sediment disposal area is selected for stockpiling. The final stockpile dimensions will also be dependent on the volume of material excavated. The stockpile slope inclinations will not exceed 2 to 1 (horizontal to vertical).

Silt fencing will be installed at the perimeter of the stockpile area to mitigate the potential for migration of sediment. At the completion of the stockpiling, the surface of the stockpile will be compacted and hydro seeded for long term erosion control.

3.4.8 Demobilization

Once removal of sediment is complete, the work will demobilize by removing all equipment from the site (including the laydown areas); restoring minimum flow by gravity[15] through the impoundment to the fish release valve; removing sediment control measures within the impoundment; and removing all water control (diversion) measures. The site will essentially be returned to its original state (except for the impoundment) at the end of excavation.

YCWA will invite FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife to inspect the work area when the work is complete.

[15] YCWA will make a good faith effort not to disrupt flow, but short periods of interruption may occur when the diversion of inflows is established and removed.

3.4.9 Final Report

Within 60 days of completing the sediment removal, YCWA will provide to FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB, and Cal Fish and Wildlife a report with photographs that summarizes the work, including the amount of material excavated, the results of field density tests, and a description of measures implemented to avoid and minimize impacts to fish, wildlife, plants, habitat, and water quality.

3.5 Emergency Mechanical Removal of Sediment

In the event of the need for emergency activities,[16] YCWA will apply for and follow the terms of the appropriate permits and approvals from the responsible agencies. These may include the USACE Regional General Permit for repair and protection activities in an emergency situation, which includes a Clean Water Act (CWA) Section 401 certification as part of its parameters, or other appropriate permitting.

Pursuant to California Fish and Game Code Section 1610(a)(1) and (2), notification of lake or streambed alteration to Cal Fish and Wildlife is not necessary prior to performing: 1) immediate emergency work necessary to protect life or property; and 2) immediate emergency repairs to public service facilities necessary to maintain service as a result of a disaster in an area in which a state of emergency has been proclaimed by the Governor. Although notification is not required before beginning emergency work, notification of the emergency work must be submitted within 14 days after beginning the work (Fish and Game Code §1610(b)).

The Forest Service (Tahoe National Forest Yuba River District Ranger and Forest Hydroelectric Coordinator or Public Services Staff Officer) will be notified by email or phone of the emergency activities prior to beginning work and in writing within 14 business days after beginning work.

Where possible, the nature of the emergency activities, with the exception of permitting, will follow those described in this Plan, under Mechanical Removal of Sediment.

[16] Defined by the USACE (2009) and Cal Fish and Wildlife (CDFW n.d.) as "*clear, sudden, unexpected, and imminent threat to life or property demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or essential public services*." This definition may be subject to change.

Page Left Blank

SECTION 4.0

MONITORING

Monitoring related to the activities described in this plan are described in detail in YCWA's relicensing implementation plan *Upper Yuba River Aquatic Monitoring Plan*. As stated in that plan, monitoring of sediment and channel morphology will be conducted both in the impoundments and downstream of the impoundments. Impoundment monitoring will be focused on determining the effectiveness of the sediment pass-through for reducing the amount of both course and fine accumulated sediment in the impoundment. Monitoring downstream of the impoundments will be focused on changes in habitat conditions for aquatic and riparian species.

Page Left Blank

SECTION 5.0

BEST MANAGEMENT PRACTICES AND PERMITS

This section describes BMPs will be used during mechanical sediment removal, and necessary permits to implement this Plan.

5.1 Best Management Practices

The BMPs described below will be used during all mechanical sediment removal described in Section 3.3, in addition to the BMPs from Forest Service's *Soil and Water Conservation Handbook* (USDA Forest Service 2011, or latest version), a appropriate.

- Work will be timed during dry weather and limited to the period of September 15 through November 15. Work may begin earlier than September 15 if surveys conducted by a qualified biologist confirm that foothill yellow-legged frog tadpoles are not present within the work area and concurrence is received from Forest Service and Cal Fish and Wildlife. Foothill yellow-legged frog surveys will be conducted in accordance with protocols recommends by the Forest Service.
- Excavation activities shall be timed with awareness of precipitation forecasts and likely increases in stream flow. Excavation activities shall cease and all reasonable erosion control measures, inside and outside of the floodplain, will be implemented prior to all storm events. No work shall occur during wet weather. Wet weather is defined as the accumulation of 0.25 in of rain in a 24-hour period. Re-vegetation, restoration and erosion control work is not confined to this time period.
- If work in the flowing portion of the stream is unavoidable, the entire stream flow will be diverted around or through the work area during work activities, while maintaining appropriate flows in the natural channel downstream of the work for aquatic species. Flow will be diverted in a manner that minimizes turbidity, siltation, and pollution and provides flows to downstream reaches. Normal flows shall be restored to the affected stream immediately upon completion of work at that location. Any temporary dam or other artificial obstruction constructed will only be built from clean materials such as sandbags, gravel bags, water dams, or clean/washed gravel which will cause little or no siltation. YCWA will restore normal flows to the effected stream immediately upon completion of work at that location.
- A qualified biologist will visit the site daily for the duration of activities that involve water diversion, grading, excavation, vegetation removal, or other ground disturbing activities to ensure impacts to fish and wildlife resources are minimized. The biologist shall be familiar with fish, plant, wildlife and habitats found within and adjacent to the work site.
- A qualified biologist will conduct an education program for all persons employed or otherwise working at the project site prior to performing any work onsite. The program

will consist of a presentation that includes a discussion of the biology of the habitats and species that may be present within or adjacent to the work site.

- Prior to and during diversion of flow and dewatering of the stream channel and work area, a qualified biologist shall remove all fish, frogs, turtles, and other aquatic vertebrate species in accordance with a Fish Rescue and Salvage Plan developed by YCWA in coordination with Forest Service, Cal Fish and Wildlife, USFWS, and SWRCB. All species shall be captured using fine mesh, soft material nets (e.g., catch-and-release nets), or another method approved by the agencies listed above. All species shall be moved to an area of the stream channel upstream of sediment removal activities where they will not reenter the work area. The qualified biologist shall check the work area daily for stranded aquatic life for the duration of dewatering and sediment removal activities. Handling of aquatic species shall be minimized to the greatest extent feasible.
- Exclusion devices (e.g., nets and screens) will be placed on any pumps or pipes within the impoundment and around the work area as appropriate to exclude aquatic species.
- Where possible, work will be timed to occur so as not to coincide with sensitive ecological times (e.g. breeding, nesting, migration or blooming) of known special-status species within or near the proposed work area.
- Prior to any work occurring, any known sensitive resources (i.e., include, but are not limited to: cultural resources, special status species, sensitive habitats, target non-native invasive plants and other pre-determined areas with significant sensitive resources) within or near the proposed work area will be flagged to ensure that no activities are conducted in those areas.
- Disturbance or removal of vegetation will be kept to the minimum necessary to complete project related activities. When feasible, branches and limbs extending over the river will not be pruned to avoid potential impacts to shaded riverine aquatic habitat. No native trees with a trunk diameter at breast height in excess of 4 inches will be removed without prior consultation and approval from Cal Fish and Wildlife. If vegetation removal cannot be avoided during project activities, YCWA will conduct a focused survey for active bird nests within the area proposed for vegetation removal, plus a 500-ft buffer, within 5 days of commencement of vegetation removal activities. If no breeding raptors or special-status bird species and/or their nests are found within 500 ft of the work area and no other breeding birds (non-special status species) and/or their nests are found within 250 ft of the work area, vegetation removal may proceed. If any breeding birds and/or their nests are found within the survey areas described above, YCWA will consult with the Forest Service for work on NFS land, Cal Fish and Wildlife, and USFWS, as appropriate, prior to commencing any vegetation removal activities. Breeding bird survey results, if conduced, will be submitted to the above agencies for review via electronic mail within 5 days of completion and prior to commencing work.
- All exposed/disturbed areas and access points within the stream left barren of vegetation as a result of the construction activities, such as staging areas, shall be restored using a Forest Service approved seed mix or grass or sedge plugs. The re-vegetation should emphasize native species or approved sterile non-native species. Seeded areas shall be covered with broadcast straw and/or erosion control blankets and straw wattles.

- No heavy equipment shall operate, or any excavation take place, in the portion of the stream where flowing water is present.
- Beginning during mobilization and through demobilization, when work is being performed in the impoundment, turbidity will be monitored thrice daily: before work starts, at noon, and at the end of the day. Turbidity will be monitored at a point upstream of work disturbance and at a point immediately downstream of the dam. The following applies: if natural turbidity is less than one Nephelometric Turbidity Unit (NTU), controllable factors shall not cause downstream turbidity of more than 2 NTU, if natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent, if natural turbidity is between 50 and 100 NTUs, increases shall not exceed an additional 10 NTUs, and if natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent (SWRCB 2011) If the difference in measured turbidity exceeds any of these limits, work will cease, and FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife will be contacted. Work will not resume until FERC approval is obtained.
- Beginning during mobilization and through demobilization, when work is being performed in the impoundment, dissolved oxygen (DO) will be also monitored thrice daily: before work starts, at noon, and at the end of the day. DO will be monitored at a point upstream of work disturbance and at a point immediately downstream of the dam to ensure that Project activities do not cause DO to fall below 7.0 mg/L (SWRCB 2011). If the DO falls below 7.0 mg/L downstream of Project activities, work will cease, and FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife will be contacted. Work will not resume until FERC approval is obtained.
- Work activities will be conducted in a manner that prevents the introduction, transfer, and spread of aquatic, riparian, and terrestrial invasive species, including plants, animals, and microbes (e.g., algae, fungi, parasites, mussels and bacteria), from one work site and/or waterbody to another. Prior to entering the impoundment, YCWA will inspect the equipment to be used in the impoundment for invasive species and, if any signs of invasive species are found, the equipment shall be cleaned to remove those species. All visible soil/mud, plant materials, and animal remnants on equipment will be removed prior to entering and exiting the work site and/or between each use in different waterbodies. YCWA will notify Cal Fish and Wildlife immediately if an invasive species not previously known to occur within the work site is discovered during work activities by submitting a completed Suspect Invasive Species Report (Attachment A).
- All disturbed soils within the work site will be stabilized to reduce erosion potential, both during and upon completion of work activities. Planting and/or seeding with native species, sterile seed mix, and mulching are potential methods for stabilization. Where suitable vegetation cannot reasonably be expected to become established, non-erodible materials, such as coconut fiber matting, shall be used for such stabilization.
- Erosion control measures will be utilized throughout all phases of the work, including sediment removal and placement on adjacent lands. Precautions to minimize

turbidity/siltation may require the placement of silt fencing, coir logs, coir rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to pass to downstream reaches. Water trucks will be used to wet the unpaved roads to prevent excess dust. All vegetative erosion control measures utilized within the work site shall be free of non-native plant materials.

- No debris, soil, silt, sand, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or other petroleum products or any other substances which could be hazardous to aquatic life, or other organic or earthen material from any logging, construction, or other associated work related activity shall be allowed to contaminate the soil and/or enter into or be placed where it may be washed by rainfall or runoff into waters. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 ft of the high water mark.
- Leaks and spills into water bodies will be prevented by ensuring that all vehicles and equipment are in good working order (no leaks); placing drip pans or absorbent materials under vehicles and equipment when not in use; ensuring that all construction areas have proper spill clean up materials (e.g., absorbent pads, sealed containers and booms) to contain the movement of any spilled substances; preventing any other substances which could be hazardous to aquatic life from contaminating the soil and/or entering the waters of the state; and if maintenance or refueling of vehicles or equipment must occur on-site, using a designated area and/or a secondary containment, located away from drainage courses, to prevent the runoff of storm water and the runoff of spills.
- During the entire work period, standard fire equipment will be kept readily available and an emergency contact will be established between the contractor and the TNF to prevent the start and spread of fires.
- A California spotted owl (*Strix occidentalis occidentalis*) Protected Activity Center (PAC) borders Our House Diversion Dam Impoundment (as of 2014). YCWA shall determine the current status of this PAC through discussion with the TNF, Yuba River District Biologist, prior to excavation and hauling activities. If recommended by the TNF biologist, excavation and hauling activities shall occur outside of the limited operating period (LOP) for the California spotted owl, which is March 1 through August 15.
- Great gray owls (*Strix nebulosa*) are known to be active and forage along a section of the Ridge Road haul route (as of 2014). YCWA shall determine the current status and location (specific road segment) of the great gray owl activity area through discussion with the TNF, Yuba River District Biologist. Prior to hauling sediment, to avoid collisions between owls and trucks, and if YCWA obtains approval from the County Transportation Department, YCWA shall install appropriate barriers along an approximate 400 ft the segment of road where this species is active as determined by the TNF. These barriers shall be 6 ft high temporary construction fencing raised 18 inches off the ground to allow smaller animals to pass underneath, and installed on the downhill side of the road segment. Perching deterrents, such as snow poles, shall be placed onto metal road posts on the uphill side of the road segment. All YCWA contractor truck drivers shall be informed of the presence of great gray owls, provided with identification cards, and asked to report sightings to the TNF and Cal Fish and Wildlife.

5.2 Permits and Approvals

YCWA obtained the following permits and approvals for the 2014 FERC-approved *Log Cabin and Our House Diversion Dams Sediment Management Plan*, which covers similar work as covered by this Plan. YCWA intends to revise the following permits and approvals, as needed, to include activities in Section 3.2 (e.g., timing, triggers, and length of sediment passage) and Section 3.3 (e.g., remedial actions for blockage of outlets):

- USACE CWA Section 404 Individual Permit for mechanical sediment removal (SPK-2014-00703, issued September 25, 2014)
- USACE CWA Section 404 Letter of Permission for sediment passage at Log Cabin (SPK-2014-00703, issued October 21, 2016)
- USACE CWA Section 404 Letter of Permission for sediment passage at Our House (SPK-2014-00703, issued October 21, 2016, as amended and January 27, 2017 and April 4, 2017)
- CVRWQB CWA Section 401 Certification for mechanical sediment removal (WDID#5A58CR00113, issued September 17, 2014, as amended April 4, 2017)
- CVRWQB Waste Discharge Requirement (Notice of Applicability No. R5-2009-0085-15, issued August 1, 2014)[17]
- SWRCB Section 401 Certification for sediment passage (issued February 10, 2016, as amended April 5, 2017)
- Cal Fish and Wildlife Fish and Game Code section 1605 Lake or Streambed Alteration Agreement –Long-term Routine Maintenance (Notification No. 1600-2014-0163-R2, issued September 8, 2014)
- SWRCB Storm Water Pollution Prevention Plan (required for each individual mechanical sediment removal event)
- USFWS Endangered Species Act Section 7 consultation (completed as part of the USACE permit applications)
- State Historic Preservation Officer National Historic Properties Act Section 106 consultation (completed as part of USACE permit applications)
- TNF, Forest Supervisor approval (Tahoe National Forest Letter of Concurrence, issued September 10, 2014)).
- YCWA, California Environmental Quality Act compliance (update to Initial Study/Mitigated Negative Declaration, adopted by YCWA Board on September 2, 2014)
- County permits – grading, etc. (required for each mechanical sediment removal event)

[17] YCWA may apply under Order No. R5-2009-0085 for a long-term permit for Waste Discharge.

To effectively implement this Plan, YCWA intends to obtain the above permits and approvals, and maintain the permits and approvals through the term of the new license.

SECTION 6.0

PLAN REVISIONS

YCWA, in consultation with USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife will review the monitoring information after 3 years in which sediment pass-through events occurred. Upon this review, YCWA, in consultation with USACE, USFWS, Forest Service, SWRCB, CVRWQCB and Cal Fish and Wildlife will determine the effectiveness of the operations at moving sediment through the system, or if revisions to the Plan are warranted. Additionally, the Plan may be updated, or revised as needed when significant changes in existing conditions occur, or if monitoring results demonstrate that additional monitoring can be reduced in scope or frequency. Any updates to the Plan will be prepared in coordination and consultation with the above agencies. Sixty days will be allowed for the above agencies to comment and make recommendations before YCWA files the updated plan with FERC, including relevant documentation of coordination and consultation with the above agencies, for FERC's approval. If YCWA does not adopt a particular recommendation by the above agencies, the filing will include the reasons for not doing so. YCWA will implement the Plan as approved by the Commission.[18]

If the Plan is revised, YCWA understands that it may need to obtain or modify existing permits and approvals to implement the Plan as revised. For example, if alternate sediment disposal sites (Section 3.4.6) are proposed on or may affect NFS lands outside of the FERC Project Boundary, a Forest Service Special Use Permit (SUP) may also be needed.

[18] The Plan will not be considered revised until FERC issues its formal approval.

Page Left Blank

SECTION 7.0

REFERENCES CITED

EBASCO Environmental. 1989. Continued monitoring report for 1988/1989 for the cleanup and abatement of sediments sluiced from Our House Reservoir, Middle Yuba River. Prepared for the Yuba County Water Agency, December.

Pacific Gas and Electric Company (PG&E). 1997. Yuba County Water Agency 1997 Storm Damage Our House Diversion Restoration of Channel Pool and Dam. Internal document: SAP Order 8003636, DSR Number 93058.

_____. 1992. Yuba County Water Agency Our House Dam Sediment Removal Project.

State Water Resources Control Board (SWRCB). 2011. Central Valley Basin Plan. Available online: <http://www.swrcb.ca.gov/centralvalley/water_issues/basin_plans/>. Accessed April 17, 2014. Last updated 2011.

United States Army Corps of Engineers (USACE). 2009. Department of the Army. Regional General Permit Number 60 for Repair and Protection Activities in Emergency Situations. Available online: <http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/RegionalandProgrammaticGeneralPermits.aspx>. Sacramento, California.

United States Department of Agriculture, Forest Service (USDA Forest Service). 2011. Forest Service Handbook – Soil and Water Conservation Handbook (R5 FSH 2509.22), Section 12.2. Available online: <http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?2509.22!r5_ALL>.

_____. 1990. Tahoe National Forest Land and Resource Management Plan. Department of Agriculture. Nevada City, California. 687 pp. and appendices.

_____. 1988. Plumas National Forest Land and Resource Management Plan. Department of Agriculture. Quincy, California. Available online: < http://www.fs.usda.gov/detail/plumas/landmanagement/?cid=fsm9_034925>.

United States Environmental Protection Agency (USEPA). 2007. *Test Methods for Evaluating Solid Waste - Physical/Chemical Methods* (SW-846). Available online: <http://www.epa.gov/solidwaste/hazard/testmethods/sw846/online/index.htm#table>.

Yuba County Water Agency (YCWA). 2006. Our House Dam Sediment Removal Project. FERC Project No. 2246-CA.

Page Left Blank

Log Cabin and Our House Diversion Dams Sediment Management Plan

Attachment A

Suspect Invasive Species Siting Report

Yuba River Development Project

FERC Project No. 2246

June 2017

CALIFORNIA DEPARTMENT OF FISH AND GAME

Suspect Invasive Species Sighting Report

You may not be able to provide all of the information requested below, but please fill in as much as you can.

_____ _____

General type of organism (plant, shellfish, snake, etc) and its name if known Date of Sighting

Description of organism (size, color, shape and other distinguishing characteristics)

_____

The county in California where the sighting took place

Directions to the location of the sighting

If any photographs were taken, please include them when you submit this form.

_____

Landowner or Land Manager (if known)

_____

First and Last name of person who sighted the suspect invasive species

Best phone number to reach this person (include area code): _____

Best time to reach this person:

Day: 8am-noon ☐ Noon-5pm ☐ **Eve:** 5pm – 9pm ☐

E-Mail address: _____

Mailing Address: _____

When completed, please mail this form and any pictures and/or samples to:

Invasive Species Program
Habitat Conservation Branch
Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814