



If applicable, describe any of the project's areas of controversy known to the Lead Agency, including issues raised by agencies and the public.

There are no known areas of controversy known to the Lead Agency. The Plan was developed in consultation with the California Department of Fish and Wildlife, Forest Service, Regional Water Quality Control Board, State Water Resources Control Board, and United States Fish and Wildlife Service.

Provide a list of the responsible or trustee agencies for the project.

California Department of Fish and Wildlife- responsible

Regional Water Quality Control Board- responsible

State Water Resources Control Board- responsible

## **Attachment A**

### **Yuba County Water Agency Summary Form**

**Yuba River Development Project – Cottage Creek  
Campground Access Road Repairs**

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## **ATTACHMENT A TO SUMMARY FORM – YUBA COUNTY WATER AGENCY**

### **Yuba River Development Project – Cottage Creek Campground Access Road Repairs**

#### **1.0 Project Description (cont.)**

This Plan update was submitted to FERC for approval on August 10, 2018. Because of this proposed update and the expiration of the majority of the original permits in 2019, YCWA submitted updated permit applications and amendments for the Plan, hereafter referred to as the proposed project. A list of specific permits anticipated to be required is provided in Section 2.8, Project Permitting.

The FERC Project is located in Yuba, Sierra, and Nevada counties on the North Fork, Middle Fork, and main stem of the Yuba River and on Oregon Creek. Major Project facilities, which range in elevation from 280 feet (ft) to 2,049 ft, include: 1) New Bullards Bar Reservoir, Dam, and Penstock; 2) Log Cabin and Our House Diversion Dams and Impoundments; 3) Lohman Ridge and Camptonville Diversion Tunnels; 4) New Colgate and Narrows 2 Powerhouse Tunnels and Penstocks; 5) New Colgate, New Bullards Minimum Flow (i.e., mini hydro), and Narrows 2 Powerhouses; and 6) appurtenant facilities and features (i.e., administrative buildings, switchyards, roads, trails, and gages). The existing YRDP does not include any aboveground open water conduits (i.e., canals or flumes) or any transmission lines. The FERC Project includes two undeveloped recreation sites at Log Cabin and Our House Diversion Dams, both located on Forest Service National Forest System (NFS) land managed by the Tahoe National Forest (TNF) and within the existing FERC Project boundary. The FERC Project boundary encompasses all of the areas under the jurisdiction of FERC associated with the FERC Project<sup>1</sup>.

#### **1.1 Project Sites**

Activities under the proposed project would occur at six primary sites, described below: Disposal Site 1, Disposal Site 2, Disposal Site 3, Log Cabin Diversion Dam, Our House Diversion Dam, and Celestial Valley Mitigation Site.

The main features of the proposed project area are: Log Cabin Diversion Dam and Impoundment (3.57 acres); Our House Diversion Dam and Impoundment (10.10 acres); Disposal Site 1 (9.51 acres); Disposal Site 2 (11.60 acres); Disposal Site 3 (80.00 acres), Celestial Valley Mitigation Site (2.50 acres), Log Cabin Temporary Laydown area (0.34 acre), Our House Temporary Laydown area (0.28 acre), and access roads.

Figure 1 shows the general site locations.

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<sup>1</sup> The sites associated with the sediment management plan make up only a portion of the sites within the FERC Project Boundary.

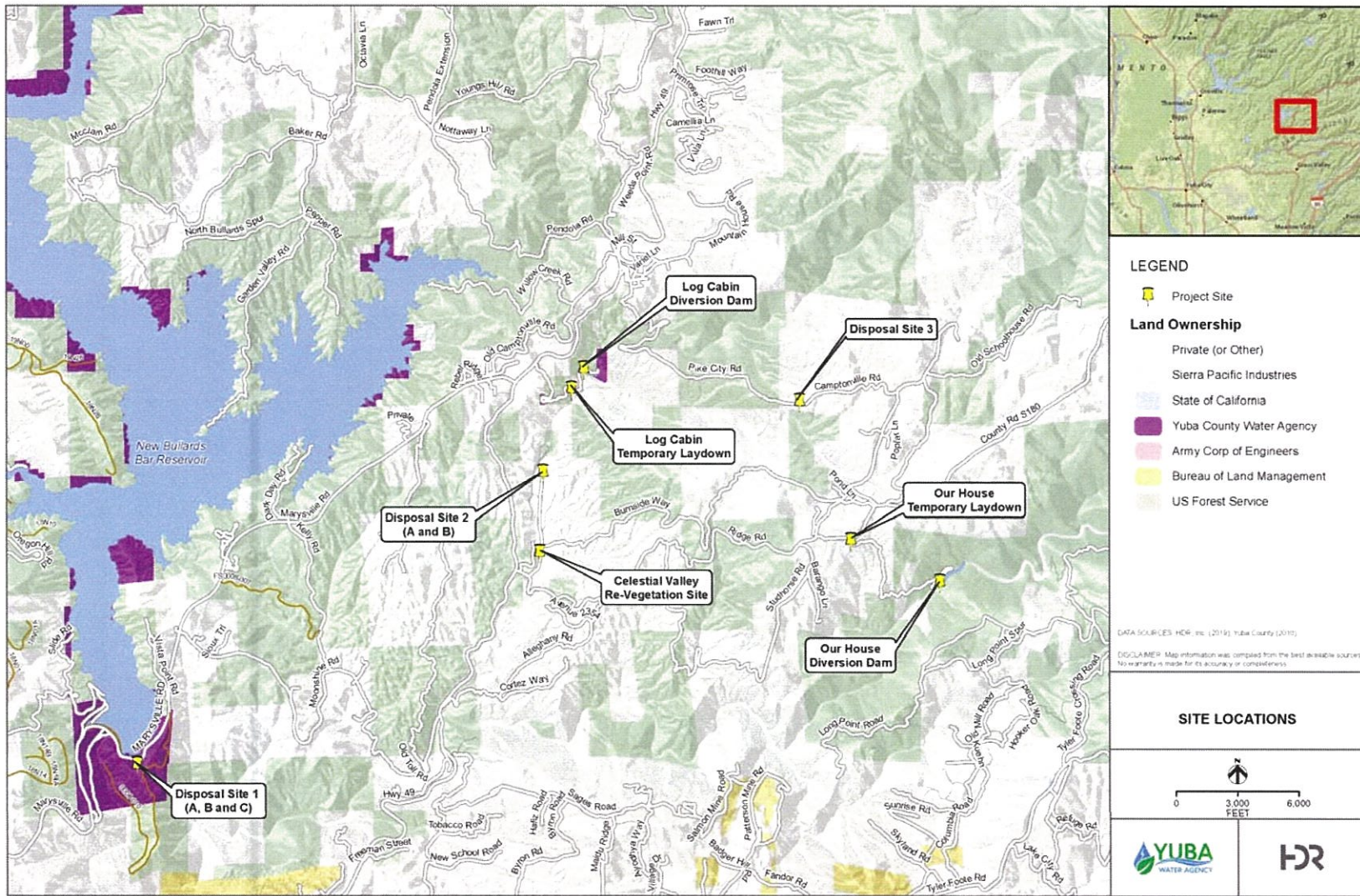


Figure 1. General site locations.

### **1.1.1 Disposal Site 1**

Disposal Site 1 is on YCWA-owned land within the FERC Project boundary and is located behind a locked gate. Disposal Site 1 is approximately a 9-mile drive from Log Cabin Diversion Dam and a 15-mile drive from Our House Diversion Dam. There are three sub-areas at Disposal Site 1: A, B, and C. Figure 2 shows the survey map of Disposal Site 1.

Disposal Site 1 has been used several times during past sediment removal events as a placement/disposal area for the removed sediment from Log Cabin and Our House Diversion Dam Impoundments. Sediment from removal at the two impoundments was deposited at Disposal Site 1 in 2014, 2017, and 2018, for a total of 67,020 cu yd. A 2018 land survey conducted by YCWA indicated that Sites 1A and 1B could hold up to an additional 40,000 cu yd of sediment. Site 1C is not planned for use at this time, but may be used in the future.

### **1.1.2 Disposal Site 2**

Disposal Site 2 is located approximately 5.1 miles (mi) northeast of North San Juan in Yuba County. The site is located on private property and requires special permission to access. Land use in the area is predominately rural residential and industrial. The site is generally flat and drains west into Oregon Creek. Annual grassland, riparian forest, and wetland features are the main biological communities present on the site. In total, the site is estimated to have a capacity of approximately 150,000 cu yd of sediment. There are two sub-areas at Disposal Site 2: A and B. The space between Sites 2A and 2B is used by a private land owner and is not available for disposal. Figure 3 is a map showing Disposal Sites 2A and 2B.

### **1.1.3 Disposal Site 3**

Disposal Site 3 is an 80-acre parcel just west of the community of Pike in Sierra County. The site is approximately 2 mi east of Log Cabin Diversion Dam and 2 mi northwest of Our House Diversion Dam. The land is currently privately owned, but will be owned by YCWA prior to placement of sediment. The primary land use in the area has been timber production. However, evidence of past hydraulic mining is present (i.e., hydraulic pits). The site generally slopes downward to the northwest, with ephemeral drainages flowing into Oregon Creek. Ponderosa pine (*Pinus ponderosa*) forest makes up the main biological community at the site. Currently, the site's exact capacity has not been estimated, but it is likely capable of storing several decades of future sediment disposal totaling at least 1.4 million cu yd. Figure 4 is a map of Disposal Site 3.



Figure 2. Disposal Site 1 map.

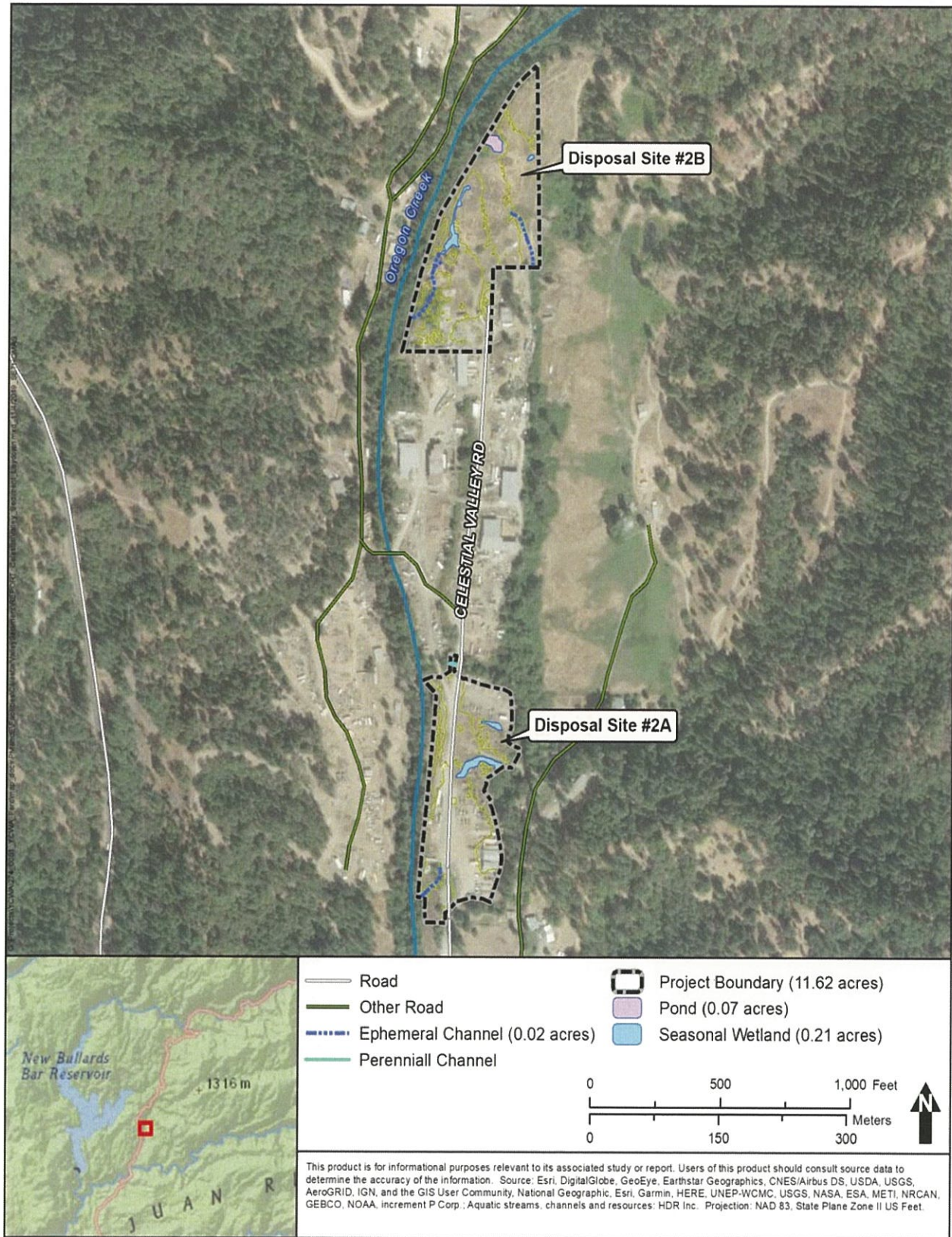


Figure 3. Disposal Site 2 map.

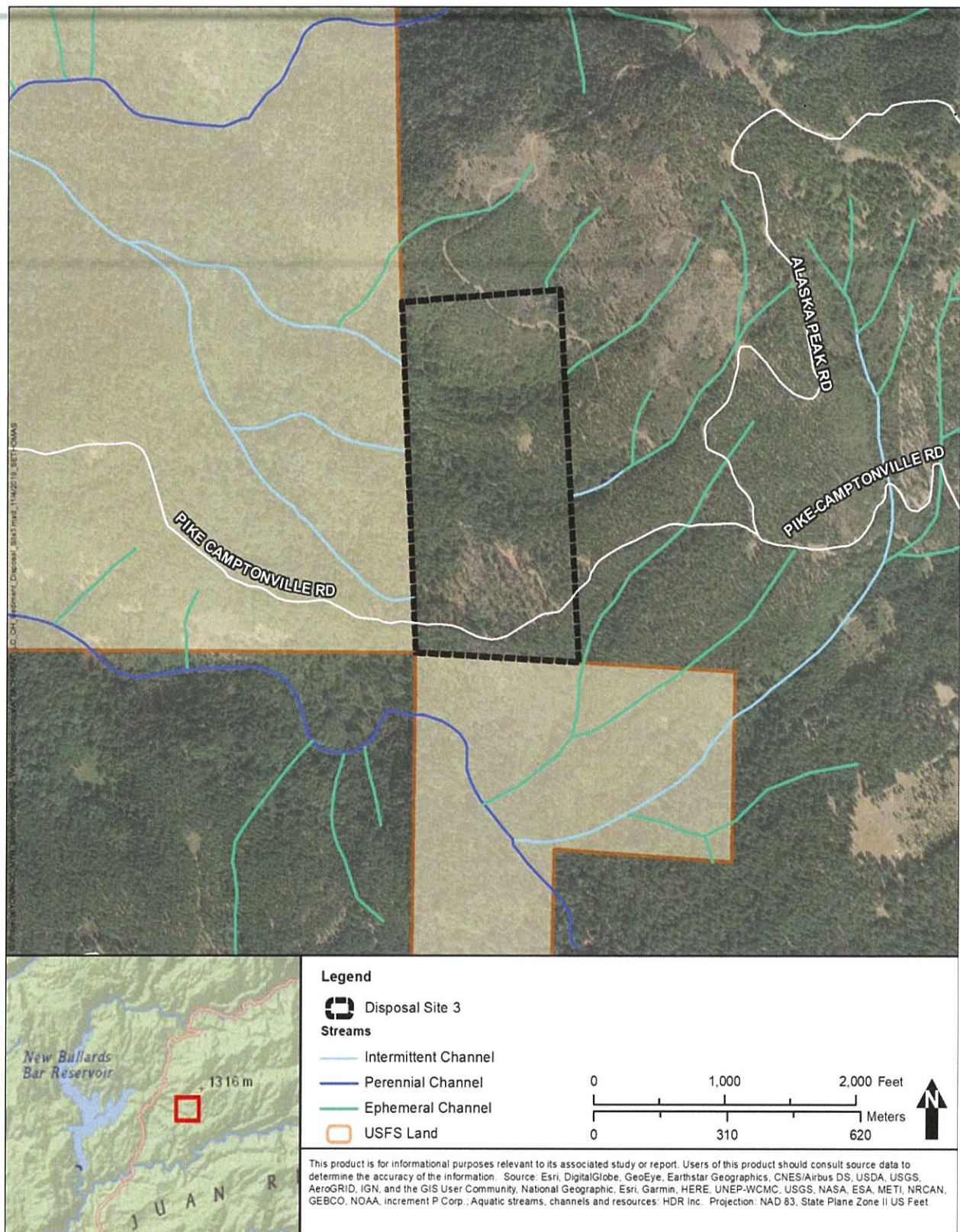


Figure 4. Disposal Site 3 map.

#### **1.1.4 Log Cabin Diversion Dam**

Log Cabin Diversion Dam is located on NFS land within TNF. Access to Log Cabin Diversion Dam is via a gated, paved road off of State Route 49, approximately 0.25 mile northeast of the intersection of State Route 49 and Marysville Road. The gate at the intersection of State Route 49 and the access road is normally closed and locked.

Log Cabin Diversion Dam is a 105-ft-radius, concrete arch dam located on Oregon Creek 4.3 mi upstream of the confluence with the Middle Fork Yuba River in Yuba County. At maximum pool, the dam can impound about 90 acre-feet (ac-ft) of water. The dam is 53 ft high with a crest length of 300 ft, a crest elevation of 1,979 ft, and a drainage area of 29.1 square miles. The dam has a spillway, a fish release outlet valve used for releasing FERC-mandated minimum instream flow requirements, and a low level (5-ft-diameter) outlet valve. The uncontrolled spillway, with the spillway crest at an 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 1,948 ft at the inlet and an engineer's estimated maximum capacity of 18 cfs. 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 ft at the inlet, and an engineer's estimated maximum capacity of 348 cfs. The low level outlet is controlled by a slide gate on the upstream face of the dam that is operated by a two-person mobile gasoline powered engine. Figure 5 shows a map of the Log Cabin Diversion Dam Impoundment.

YCWA has records of sediment removal operations at Log Cabin Diversion Dam occurring in 1972 (~40,000 cu yd), 1988 (~32,000 cu yd), and 1997 (unknown amount). In 2014, YCWA returned the impoundment to near original conditions by removing approximately 11,000 cu yd of sediment. In fall 2017 and fall 2018, YCWA removed an additional 7,440 and 7,580 cu yd of sediment, respectively, from the impoundment and deposited it at Disposal Site 1.

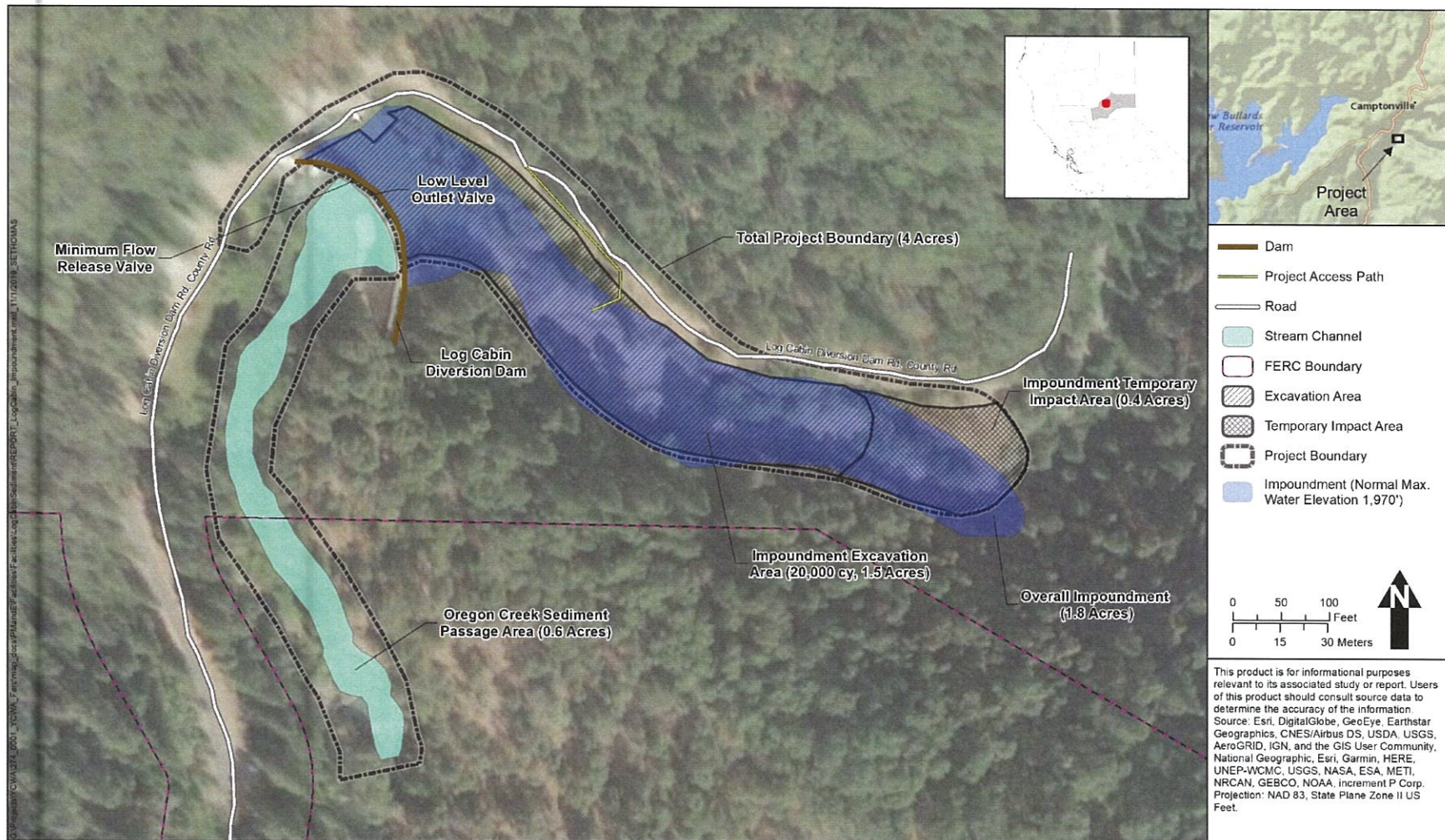


Figure 5. Log Cabin Impoundment map.

### **1.1.5 Our House Diversion Dam**

Our House Diversion Dam is located on NFS land within TNF. Access to Our House Diversion Dam is via Ridge Road off of State Route 49, approximately 2 mi south of the intersection of State Route 49 and Marysville Road. The entrance is accessed by traveling approximately 4.5 mi down Ridge Road to Our House Diversion Dam Road, and then traveling south and east on Our House Diversion Dam Road approximately 1.5 mi to the dam. Our House Diversion Dam Road is gated at a location on the access road about 500 ft uphill from the dam. The gate near the dam is normally closed and locked.

Our House Diversion Dam is a 130-ft-radius, double curvature, concrete arch dam straddling the border between Sierra County and Nevada County on the Middle Fork Yuba River 12.6 mi upstream of its confluence with the North Fork 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, a crest elevation of 2,049 ft, and a drainage area of 144.8 square miles. The dam has a spillway, a fish release outlet valve used for releasing FERC-mandated minimum flow requirements, and a low level (5-ft-diameter) outlet valve. 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 when the pool is at the invert (2,015 ft) of the Lohman Ridge Diversion Tunnel, which diverts water from the Middle Fork Yuba River to Oregon Creek. The fish release outlet is controlled by a hand-operated, 24-inch (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 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 that is operated by a two-person mobile gasoline powered engine. Figure 6 shows a map of the Our House Diversion Dam Impoundment.

YCWA has records of five sediment removal operations at Our House Diversion Dam. In 1986, an unquantified amount was removed, and the location of disposal was not specified; between 7,333 and 15,000 cu yd were estimated to have been passed downstream through the low level release valve, along with an additional unknown amount approximately 1 month later. In 1992, 27,595 cu yd of sediment were removed and disposed of at a site at Sierra Mountain Mills. In 1997, 67,894 cu yd of sediment were removed and sent to a disposal site on NFS land. On December 31, 2005, the removal of 80,000 cu yd of sediment was completed, and the sediment was disposed of in an old quarry site on Marysville Road on NFS land. In 2017, YCWA removed approximately 41,100 cu yd of sediment from the impoundment and placed the sediment at Disposal Site 1.

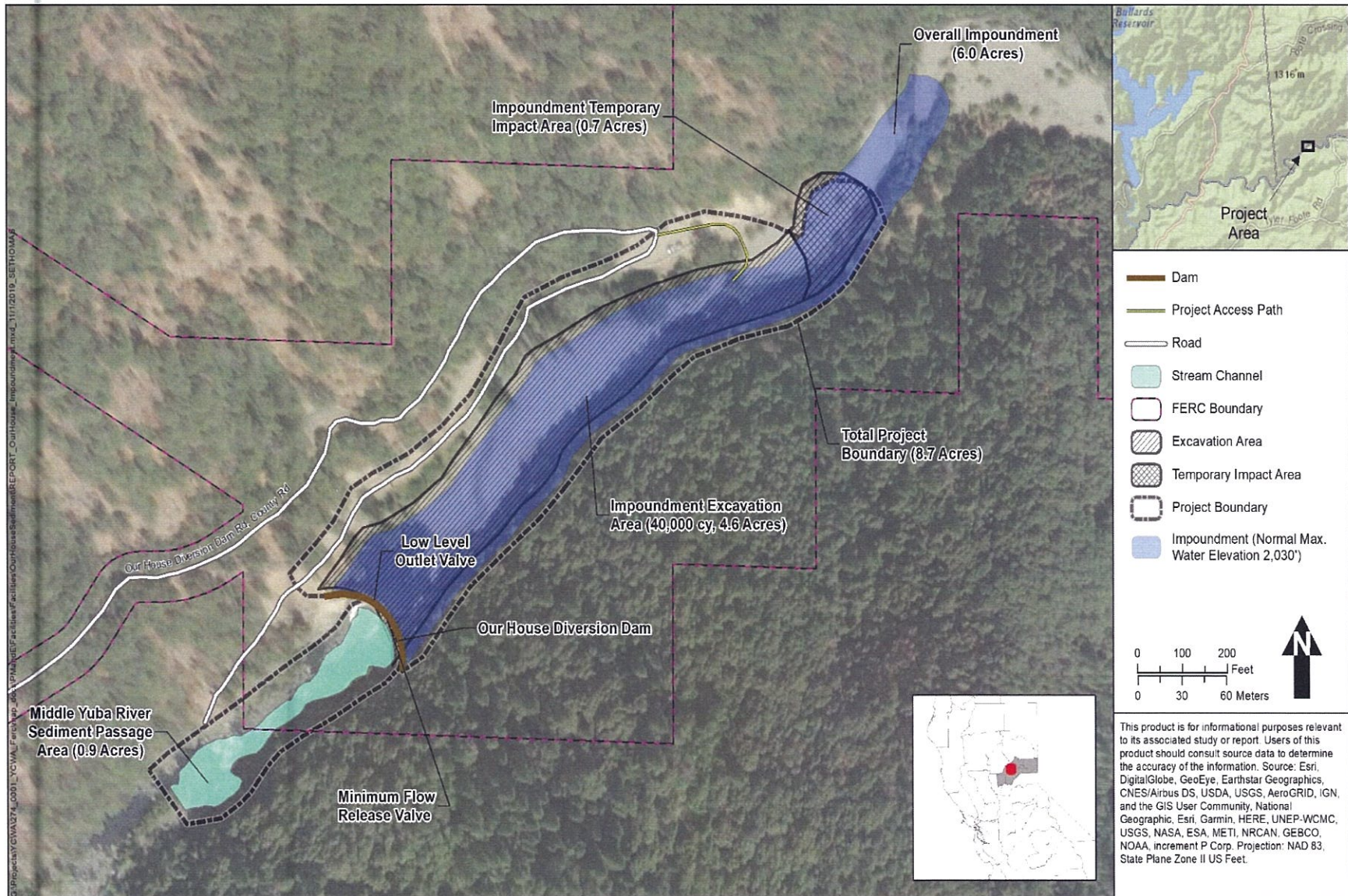


Figure 6. Our House Impoundment map.

### 1.1.6 Celestial Valley Mitigation Site

Approximately 193 willows (*Salix* spp.) with a diameter at breast height (DBH) of less than 5 inches and 17 willows with a DBH of 5 inches or greater would require removal at Our House Diversion Dam Impoundment prior to removal of sediment. In addition, Fremont's cottonwood (*Populus fremontii*) could require removal. YCWA proposes to mitigate for all removed willow trees at a ratio of 2:1 and all removed Fremont's cottonwood at a ratio of 4:1. Willows would be mitigated per the cumulative DBH of trees removed that are above 4 inches. Fremont's cottonwood would also be mitigated per the cumulative DBH of trees removed that are above 4 inches. Cuttings are expected to be installed after being taken directly from the willow/cottonwood trees found within the vicinity of the work area at appropriate planting times (October to December or February to April in 2019 or 2020). Revegetation would be consistent with agency permits. Table 1 summarizes the total number of cuttings anticipated to be installed.

The proposed mitigation site is located along Celestial Valley Road approximately 3.6 mi northeast of the community of North San Juan in Yuba County. The area is approximately 800 feet in length, stretching from the center of Oregon Creek to the western edge of Celestial Valley Road, and owned by the Forest Service. Figure 7 provides a revegetation site map.

The mitigation site would be separated into two components, both of which are located on the east bank of Oregon Creek. The active planting area would be comprised of approximately 0.28 acre of space for all cuttings described in Table 1. A passive enhancement area of 0.18 acre would occur in areas where live native trees already occur in the mitigation site. Passive enhancement would consist of the removal of Himalayan blackberry (*Rubus armeniacus*) and periodic maintenance by the biological monitor to allow for the existing willow stand to spread. Revegetation criteria and maintenance activities would be consistent with agency permits. All Himalayan blackberry management would be performed without chemical control.

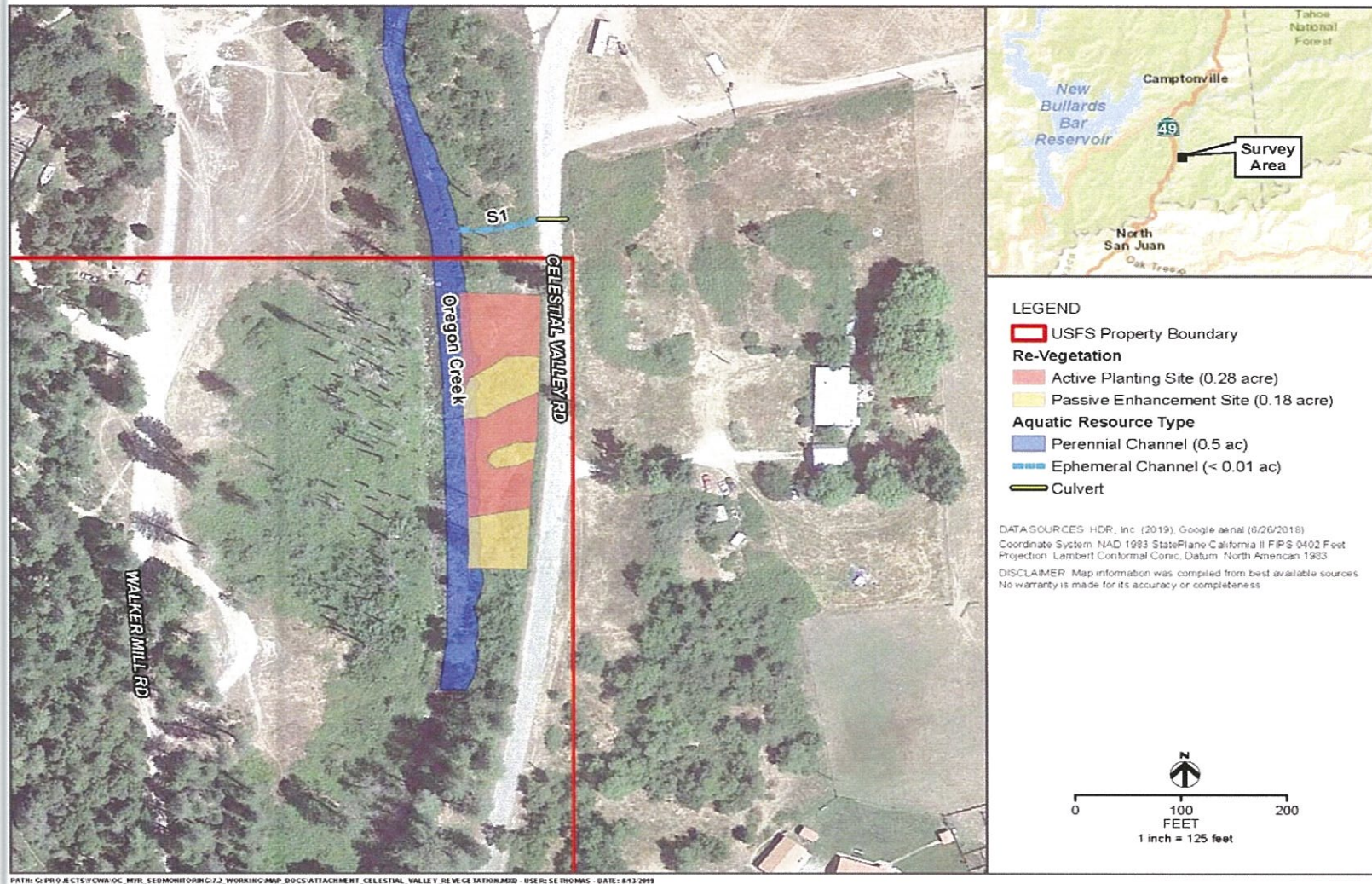


Figure 7. Celestial Valley Mitigation Site map.

**Table 1. Cutting species and quantities.**

Common Name	Scientific Name	Total Quantity
Willow	<i>Salix</i> spp.	430
Fremont's cottonwood	<i>Populus fremontii</i> ssp. <i>fremontii</i>	4
Note: The total number of cuttings of willows is expected to be equal to value of the following formula: $[(2X/1.5) + 0.15X]$ where X is the cumulative DBH of willow trees removed above 4 inches DBH, 2 is the factor to apply the mitigation ratio, 1.5 is the expected diameter of all cuttings, and 0.15 is an additional amount to compensate for expected dieback. From application of this formula, it was determined that 430 cuttings of willows should be installed.		

## 1.2 Sediment Management Activities

Sediment management at both Log Cabin and Our House Diversion Dams includes five components: 1) maintenance of minimum pools; 2) passage of sediment; 3) remedial action required by blockage of outlets, as necessary; 4) planned mechanical removal of sediment, as necessary; and 5) emergency removal of sediment.

### 1.2.1 Maintenance of Minimum Pools

Currently, YCWA attempts to maintain a pool throughout the year at Our House Diversion Dam and would continue to do so. YCWA does not 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 that impoundment and never reaches the dam. At Log Cabin Diversion Dam, sediment tends to accumulate at the downstream end at or near the dam, which occasionally affects the proper operations of the Log Cabin Diversion Dam's low level outlet and fish release valves.

### 1.2.2 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 Diversion 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 opening is generally scheduled for winter so that the high spring flows would continue to mobilize and redistribute moderate sized sediment below the dam.

At Log Cabin Diversion Dam, at least once between October 1 and March 21 when mean daily natural inflow to the Log Cabin Diversion Dam Impoundment is estimated to be 540 cfs,<sup>2</sup> YCWA would fully open the low level outlet valve to allow the passage of sediment. The valve would remain open to full capacity for at least 9 consecutive days. When the valve is being closed, it would occur over 2 days to gradually reduce flow and sediment as follows: YCWA would close the low level outlet valve to approximately 50 percent (by area) of the orifice opening for 1 day; by noon on the next day, YCWA would close the low level outlet valve entirely. YCWA may close the low level outlet valve during the 9-day period if mean daily natural inflow into the

<sup>2</sup> Calculated by adding the flow at United States Geological Survey (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.

impoundment, measured as described above, is estimated to be less than 540 cfs or if significant reduction of flow through the valve indicates blockage. If YCWA does close the valve prematurely, it would notify the Forest Service, CDFW, and SWRCB of the reason for premature closure within one business day and provide YCWA's plans for further sediment passage or actions needed to restore the valve to full functionality. During periods when the valve is open, YCWA would inspect the valve at least once per day during business hours. The valve may be opened more than once in a given year under the conditions above between October 1 and March 21 to meet objectives of the Plan.

At Our House Diversion Dam, at least once between October 1 and March 21 when mean daily inflow into the Our House Diversion Dam Impoundment is estimated to be 1,500 cfs<sup>3</sup> or greater, YCWA would fully open the low level outlet valve. The valve would remain open to full capacity for at least 9 consecutive days. When the valve is being closed, it would occur over 2 days to gradually reduce flow and sediment as follows: YCWA would close the low level outlet valve to approximately 50 percent (by area) of the orifice opening for 1 day; by noon on the next day, YCWA would close the low level outlet valve entirely. YCWA may close the valve during the 9-day period if mean daily inflow into the impoundment is estimated to be less than 1,500 cfs or if significant reduction of flow through the valve indicates blockage. If YCWA does close the valve prematurely, it would notify the Forest Service, CDFW, and SWRCB of the reason for premature closure within one business day and provide YCWA's plans for further sediment passage or actions needed to restore the valve to full functionality. During periods when the valve is open, YCWA would inspect the valve at least once per day during business hours. The valve may be opened more than once in a given year under the conditions above between October 1 and March 21 to meet objectives of the Plan.

### **1.2.3 Remedial Action Required by Blockage of Outlets**

If after October 1, YCWA determines that any one of the Log Cabin or Our House Diversion Dams' fish release valves or low level outlet valves has been partially or fully blocked by sediment, YCWA, consistent with existing permits, could take remedial actions at that valve prior to April 1 or April 10 of the following year (as described in the following paragraphs) to return that valve to proper functioning condition.

This work would include one or both of two methods. The first method would be to use air and/or water nozzles to blow sediment out of the valves. The second method would be to use a suction dredge to remove, at each dam, up to 250 cu yd of accumulated sediment upstream of the fish release or low level outlet valve. This process is referred to as suction dredging. 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 the 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 distribute the deposited material farther downstream. The low level outlet would then be closed gradually over the course of 4 days, with the goal of avoiding any additional sediment buildup that

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<sup>3</sup> Calculated by adding the flow from Lohman Ridge Diversion Tunnel with the flow recorded at USGS streamflow gage 11400880.

could clog the outlets. YCWA could close the valve completely at any time during the 4 days if YCWA anticipated that the outlet was at risk of being reclogged.

All activities related to suction dredging would be completed by April 1 unless high flows preclude safe access, in which case suction dredging could continue until no later than April 10.

#### **1.2.4 Planned Mechanical Removal of Sediment**

Even with the benefits of maintaining a pool in the Our House Diversion Dam Impoundment and periodic opening of the low level outlet valves, YCWA is often required to remove sediment from either the Log Cabin or Our House Diversion Dam Impoundments. When sediment requires removal, mechanical removal may be necessary. However, when possible, YCWA would 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 necessary, would occur in summer or early fall when inflow into the impoundment is low (i.e., during drier months when inflow is less than or equal to the minimum instream flow requirement). If sediment removal were planned, YCWA would draw down the pool in the impoundment as low as possible immediately prior to the start of work and divert inflows around the diversion so that sediment could be excavated in the dry. The water would be drained in a way to avoid a seasonal increase 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 suction dredge sediment from the diversion pool.

YCWA estimates that the maximum amount of sediment that would be removed at any one event from the Log Cabin Diversion Dam Impoundment would be 40,000 cu yd; the maximum amount of sediment that would be removed at any one event from the Our House Diversion Dam Impoundment is estimated to be 100,000 cu yd. However, YCWA anticipates that any single sediment excavation would be much less than these estimates because the purpose of the proposed project is to manage sediment in the impoundments while minimizing mechanical excavation.

If mechanical excavation is needed, it would occur in eight steps: 1) notifying appropriate agencies about planned sediment removal; 2) testing sediment for metals; 3) mobilizing workers and equipment; 4) initiating the diversion and control of water; 5) removing sediment; 6) stockpiling sediment and stabilizing the stockpile; 7) demobilizing workers and equipment; and 8) issuing a final report. Each step is described in more detail in the following sections.

##### ***1.2.4.1 Notification of Appropriate Agencies***

All work would occur in accordance with applicable local, state, and federal regulations. No later than 30 days prior to the date when the removal is scheduled to occur, YCWA would provide a written notification (maybe via e-mail) to FERC, the United States Army Corps of Engineers (USACE), USFWS, Forest Service, SWRCB, Central Valley Regional Water Quality Control Board (CVRWQCB), and CDFW stating that YCWA intends to mechanically remove sediment from the impoundment. All mitigation measures and best management practices (BMPs) would be implemented during all mechanical sediment removal activities as set forth in the associated

permits and described in the resource sections in the Environmental Checklist. Additionally, any other parties required to be notified by regulatory permits would be included.

#### ***1.2.4.2 Sediment Testing for Metals***

Prior to removing any sediment from an impoundment, YCWA would collect three to five bulk samples of the sediment and would transport the samples to a state-certified laboratory for determination of metals content. Sediments would be characterized as hazardous or nonhazardous based on the results of the sample testing. Sampling and handling procedures would be in accordance with the United States Environmental Protection Agency's (USEPA) *Test Methods for Evaluating Solid Waste - Physical/Chemical Methods* (SW-846). Sediment samples would be placed in laboratory-quality sample containers and preserved in accordance with SW-846. Each sediment sample would be recorded and transported using an approved chain-of-custody form. The results of the testing would be forwarded to FERC, USACE, USFWS, Forest Service, SWRCB, CVRWQCB, and CDFW prior to any ground-disturbing activities. If sediment testing results show hazardous amounts of metals, additional confirmatory samples may be taken, and an alternate plan for sediment stockpiling or disposal would be developed in accordance with the test results and appropriate regulations. No hazardous material would be removed from the impoundment until the alternate plan is in place and all necessary permits and approvals have been obtained.

#### ***1.2.4.3 Mobilization***

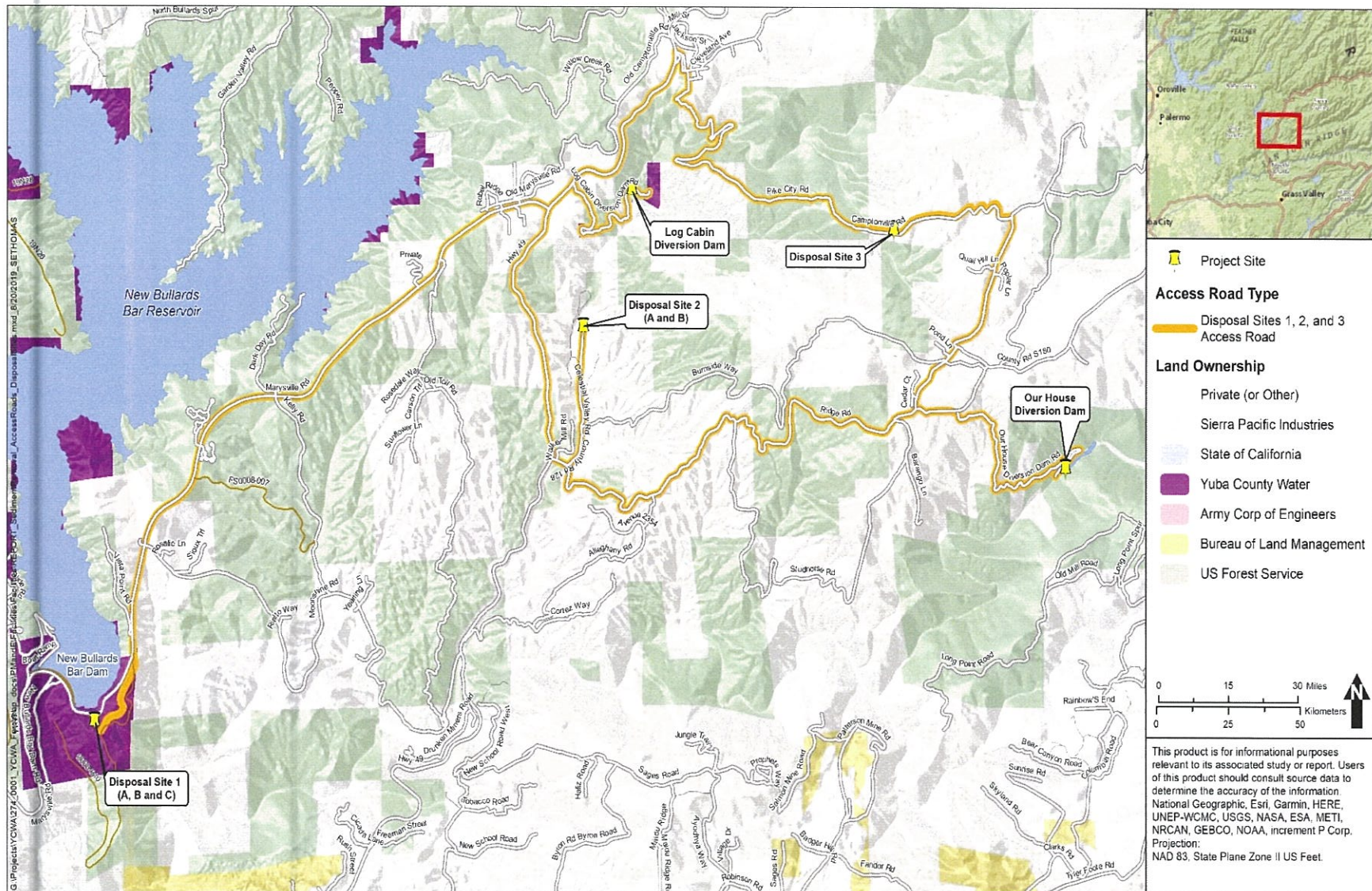
At both Log Cabin and Our House Diversion Dams, mobilization of workers and equipment would start approximately 3 to 4 weeks prior to instream sediment removal (i.e., 3 to 4 weeks prior to September 15). Mobilization would involve flagging of any known or observed environmentally sensitive resources; worker environmental awareness training; staging of all contractor equipment; any necessary grading of staging areas and access roads; any upland vegetation removal required to complete the work; and installing and testing of the water bypass system pipes, generators, and controls. All mobilization activities would occur above the ordinary high water mark.

Prior to any other mobilization activities occurring, the onsite biologist would flag any known or unknown sensitive resources, including cultural resources, special-status species, sensitive habitats, target nonnative invasive plants, and other predetermined areas with significant sensitive resources to ensure that no activities are conducted in those areas. The onsite biologist would also present a worker environmental awareness training to all contractors prior to the start of any work. The program would be given to any new contractors that come onto the site throughout the duration of the project.

Prior to any contractor vehicles and equipment entering the project site, the onsite biologist would inspect the site for invasive species. All visible soil, plant materials, animal remnants, or any other signs of invasives on vehicles and equipment would be removed prior to entering the project site. Additionally, all vehicles and equipment would be inspected for leaks. Vehicle and equipment maintenance and refueling areas would be designated by the Stormwater Pollution Prevention Plan (SWPPP). Proper spill clean-up materials and fire suppression equipment would be mobilized on site. As new vehicles and equipment arrive at the project site, they would be inspected. The practice

of inspecting vehicles and equipment before they enter the project site would continue throughout the duration of the project.

All ingress and egress of vehicles would occur on access roads as shown in Figure 8; no off-road driving would be allowed outside of the excavation areas, disposal sites, or staging areas. No road or staging area grading is explicitly planned at this time. However, minor grading may be necessary to ensure both safe ingress and egress to and from the project site, and safe siting and operation of equipment (i.e., generators). No grading activities would occur until the SWPPP permit is active.



**Figure 8. Access road map.**

### **1.2.5 Diversion and Control of Water**

Following the onsite biologist's resource flagging and trainings, a water bypass would be installed and tested before mechanical sediment removal would begin. This could include some ground disturbance along the diversion dam access roads for placement of water conveyance pipes (either temporary or permanent, underground) and a brief period of in-water work to place a cofferdam structure and bypass pumps. Some small amount of excavation may be necessary to properly site bypass pumps below the water to avoid cavitation and other problems that jeopardize reliability of the water bypass system.

#### ***1.2.5.1 Our House Diversion Dam***

For the foreseeable future, mechanical sediment removal events would use temporary, aboveground water conveyance systems to bypass water around the planned excavation areas. However, YCWA is conducting investigations to evaluate permanent water conveyance systems that could be used in the future to bypass the water.

Diversion and control of water would consist of a temporary water conveyance system from upstream of the planned excavation area to just downstream of the dam. A small temporary catchment would be constructed upstream of the work area using a cofferdam (approximately 300 cu ft in size) made of super sacks, an inflatable bladder, or other similar method. Exclusionary block netting would be deployed, and an aquatic vertebrate rescue would take place in the area of the catchment before placement of the cofferdam. A temporary bank of pumps, powered by generators, would be placed inside the catchment. Some excavation of the catchment could be necessary to enable the proper submergence of the pumps and to avoid cavitation or other unsafe operating conditions. Temporary, heavy duty, pressure rated, rubber lay flat discharge hose would connect the pumps to a temporary metal manifold structure. The manifold structure would be attached to two temporary 24-inch pipes routed outside of the work area, along the access road, to discharge to a point below the dam.

The future development of a more permanent water conveyance system could consist of a similar layout as that just described, but the temporary, heavy duty, pressure rated, rubber lay flat discharge hose would connect the pumps to a permanent metal manifold above the ordinary high water mark. The manifold structure would be attached to two permanent, underground 24-inch pipes routed outside of the work area, beneath the access road. The permanent, underground pipes would then surface adjacent to the access road, just upstream of the Lohman Ridge Tunnel inlet. From the point where the permanent, underground pipes surface, temporary pipes would be attached to discharge water to a point below the dam.

Either water conveyance system would be designed to handle flows ranging from the FERC-mandated minimum flow to upward of 50 cfs. To meet these flows, the conveyance system would have 50 percent redundancy of instream pumps and 100 percent redundancy of generators used to power the pumps. All generators used would be positioned in portable spill containment. An external diesel fuel tank would also be placed in spill containment and would be plumbed directly to the primary generator's engine for extended run time. Flow through the pumps and conveyance pipes, as well as output of the generators, would be monitored electronically and by a full-time

observer on site. The electronic monitor would sound an alarm to alert the observer of any pumping issues and would automatically transfer conveyance from the failed pump or generator to a redundant backup. Figure 9 shows the proposed layout of the conveyance system. All resources identified and flagged as sensitive by the biologist would be avoided during the installation of the diversion.



**Figure 9. Proposed layout of pumps and pipes for the diversion at Our House Diversion Dam.**

### ***1.2.5.2 Log Cabin Diversion Dam***

Configuration of the temporary and potential permanent water conveyance system at Log Cabin Diversion Dam would be similar to that described above for Our House Diversion Dam. However, at Log Cabin Diversion Dam, the natural streambed profile configuration would be used as the catchment basin, as shown in Figure 10. Additionally, the temporary, aboveground pipes and potential permanent, underground pipes would include two 12-inch pipes. For the permanent, underground layout, the pipes would surface adjacent to the access road just upstream of the Camptonville Tunnel inlet. Also, the water conveyance system at Log Cabin Diversion Dam would be designed to handle flows ranging from the FERC-mandated minimum flow to approximately 20 cfs. Temporary, aboveground piping would run approximately 1,000 linear ft.

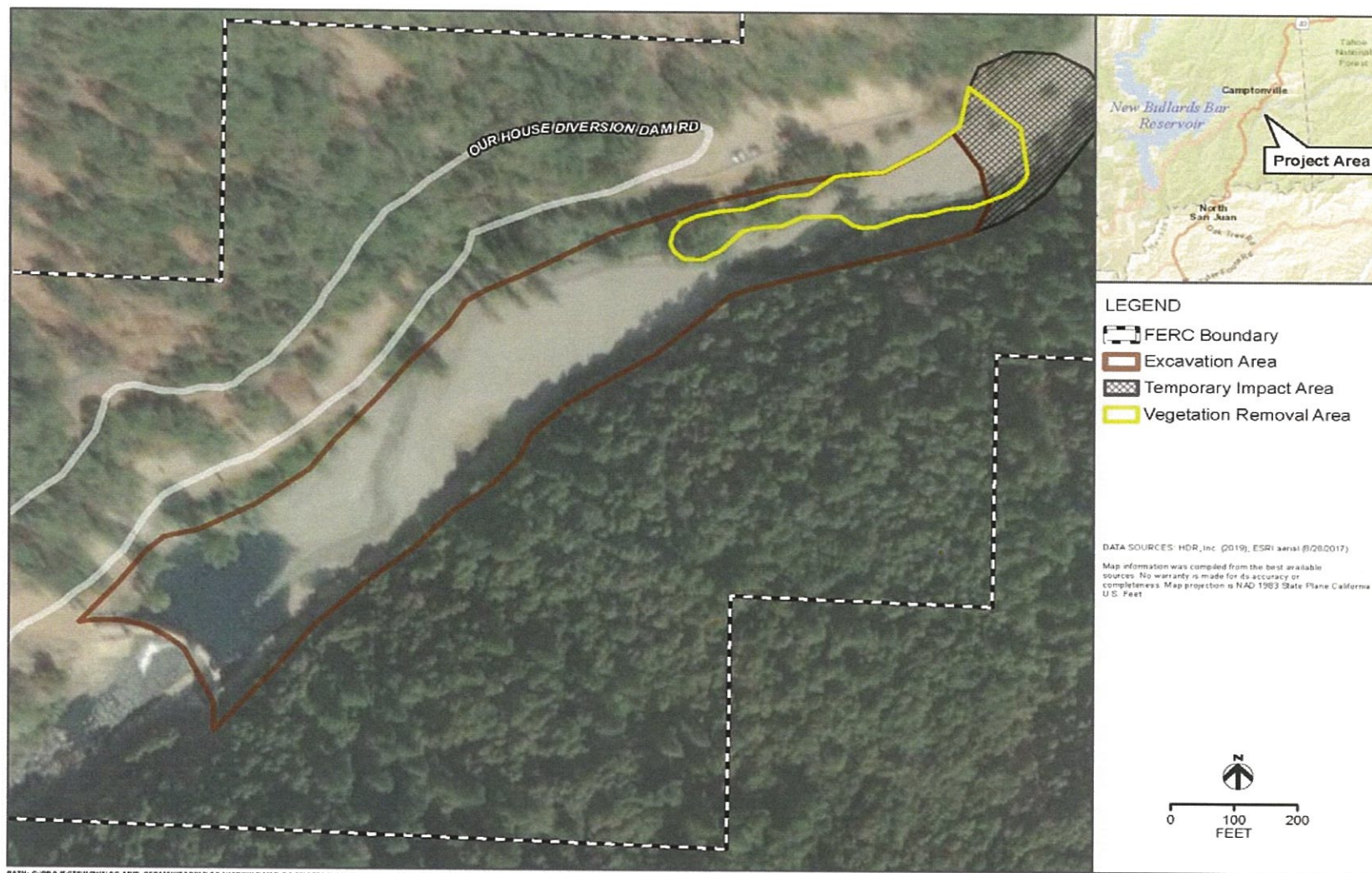
Before mechanical sediment removal, the impoundments would be completely dewatered by allowing the water to drain naturally through the valve or pumping it into the diversion tunnels. Dewatering of the impoundments would coincide with an aquatic vertebrate rescue in accordance with the 2014 *Fish Rescue and Salvage Plan*.



**Figure 10. Proposed layout of pumps and pipes for the diversion at Log Cabin Diversion Dam.**

### ***1.2.5.3 Vegetation Removal***

To the maximum extent possible, riparian vegetation removal will be avoided. However, any riparian vegetation removal that is necessary to complete the work will occur after the aquatic vertebrate species rescue and prior to mechanical sediment removal. YCWA will need to remove some riparian vegetation below the ordinary high water mark of the Our House Diversion Dam impoundment. Surveys of the area of proposed vegetation removal were conducted on May 14, 2018 and August 15, 2018 to count the numbers of trees to remove as part of sediment removal. The diameter at breast height (DBH) of approximately 210 willows (*Salix spp.*) within the impact area were measured. Approximately 193 willows had a DBH of five inches or less, along with 17 willows with a DBH greater than four inches. A total of 125.6 in. of DBH of willows above four inches DBH will be removed. Biological mitigation measures describe proposed mitigation to offset the removal of the willows and other riparian vegetation. Figure 11 shows the area from which vegetation would be removed from Our House Diversion Dam impoundment.



**Figure 11. Vegetation removal area proposed for Our House Diversion Dam.**

## 1.2.6 Removal of Sediment

The amount of material to be excavated from an impoundment would vary from event to event. However, YCWA estimates that the maximum amount of sediment to be removed during any one event is up to 100,000 cu yd from the Our House Diversion Dam Impoundment and up to 40,000 cu yd from the Log Cabin Diversion Dam Impoundment. Therefore, over the 10-year period, a total of no more than 1.4 million cu yd would be removed. This volume is likely a gross overestimate. Mechanical sediment removal is neither planned nor expected to be required every year.

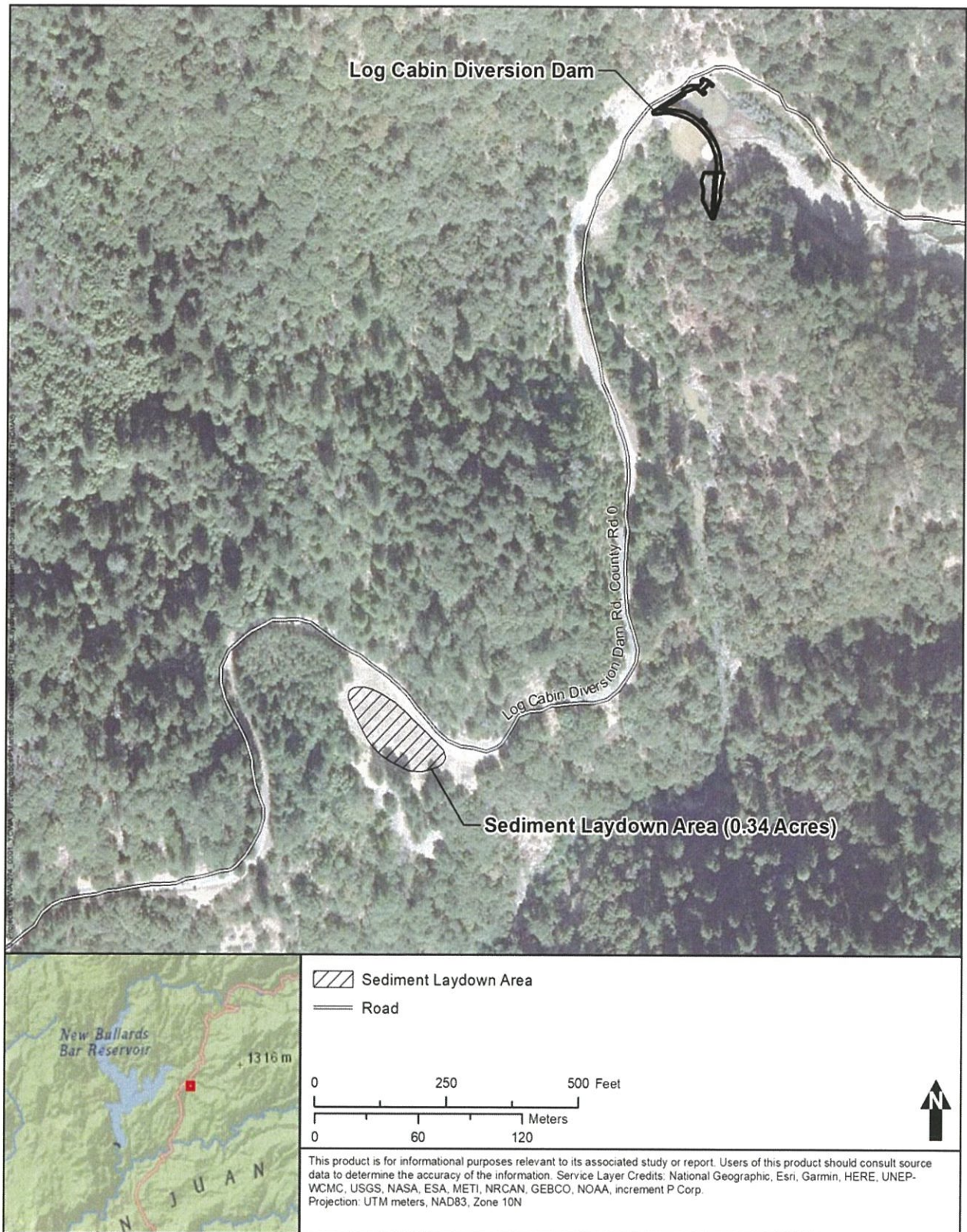
The excavation would be accomplished with excavators staged within the impoundment. Excavated sediment would be loaded into large-capacity, off-road trucks, which would transport the material to temporary laydown areas outside of the impoundments. The material, which would be verified by testing to be clean and nonhazardous, would be temporarily (i.e., no more than 48 hours) stockpiled at the laydown areas for eventual loading onto street legal trucks for hauling to the final stockpile area. Any sediment tested and identified as hazardous would be transported immediately to an appropriate disposal site. After the last day of sediment removal from an impoundment, YCWA would have 72 business hours to clean up the temporary laydown area, including relocating the last of the removed sediment.<sup>4</sup> Appropriate BMPs from Volume 1 of the Forest Service *National Best Management Practices for Water Quality Management on National Forest System Lands*, or latest version, as appropriate) would be instituted to prevent erosion. During impoundment excavation, the excavators and trucks would be removed from the impoundment at the end of each shift and stored temporarily at designated staging areas.

The temporary laydown area for Log Cabin Diversion Dam would be located adjacent to the paved dam access road, approximately 0.2 mile (mi) from the dam, and would consist of a cleared area. The area includes land owned by Sierra Pacific Industries and NFS land, and is within the FERC Project boundary. This temporary impact area is located at an upland clearing, away from any natural water features.

Figure 12 shows the temporary laydown area for Log Cabin Diversion Dam.

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<sup>4</sup> An exception would be made in the case of inclement weather, which can make the material too wet and access unsafe to move material within the 48-hour timeline.



**Figure 12. Log Cabin Diversion Dam temporary laydown area map.**

The temporary laydown area for Our House Diversion Dam would be located on Sierra Pacific Industries property near the junction of Ridge Road and the Our House Diversion Dam access road. The laydown area was previously cleared of vegetation, is upland of any natural water features, and occurs within the FERC Project boundary.

Figure 13 shows the temporary laydown area for Our House Diversion Dam.

During mechanical sediment removal at either impoundment, testing of turbidity and dissolved oxygen would occur three times daily upstream of the construction activity and below the diversion dam at a point immediately downstream of the water discharge. If levels exceed established permit limits, all instream project work would cease and would not resume until levels return to within permit limits.

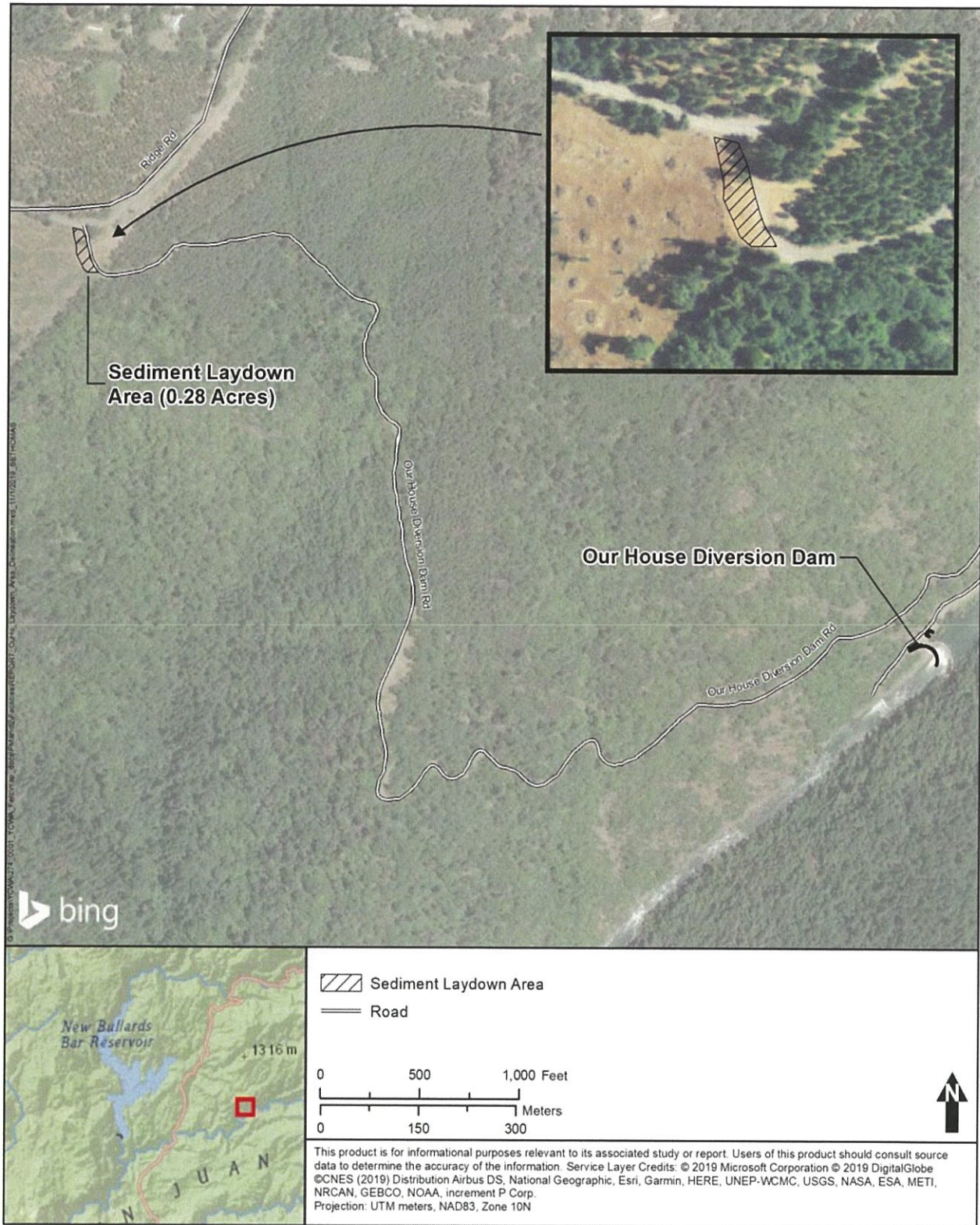
Additionally, when dewatered, natural seepage occurs within the Log Cabin and Our House Diversion Dam Impoundments. Depending on the flow from these seeps, YCWA could need to continue pumping minimal quantities of water (i.e., anticipated to be less than 1 cfs) from an impoundment into the diversion tunnels to keep the work areas dry for excavation. It is anticipated that depressions within the tunnels would capture the water and allow any suspended material to settle out.

#### ***1.2.6.1 Sediment Stockpiling and Stabilization***

Removed sediment would be managed and disposed of in accordance with applicable local, state, and federal regulations, and in compliance with regulatory permits.

The excavated sediment would be moved from temporary laydown areas in street legal trucks to sediment disposal areas on YCWA-owned land (Disposal Sites 1 and 3) or private land (Disposal Site 2). Both Disposal Sites 1 and 2 are generally flat, minimally vegetated, and have dirt road access with adequate space for large trucks to turn around. Disposal Site 3 is sloped, forested in areas outside of the hydraulic pits, and does not currently have an access road. For any road use on NFS land, the Forest Service's *National Best Management Practices for Water Quality Management on National Forest System Lands* would be followed, as appropriate.

Spoils Site 1 is located within the FERC Project Boundary behind a locked gate. It is approximately 9 mi from Log Cabin Diversion Dam and 15 mi from Our House Diversion Dam. There are 3 sub-areas at Disposal Site 1: A, B and C. A 2018 land survey conducted by YCWA indicated that Site 1 A and B could hold up to an additional 40,000 cu yd of sediment. Site 1 C is not planned for use at this time but may be used in the future.



**Figure 13. Our House Diversion Dam temporary laydown area map.**

From Log Cabin Diversion Dam, the haul route to Disposal Site 1 would consist of the following:

- 1) an existing unimproved ramp from the impoundment up to the northern edge of the impoundment; 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) State Route 49 south to Marysville Road; 6) Marysville Road west to a point east of New Bullard Bar Dam; and 7) an unpaved road south to the stockpile area on YCWA property.

From Our House Diversion Dam, the haul route to Disposal Site 1 would consist of the following:

- 1) an existing unimproved, gravel ramp from the impoundment to the paved Our House Diversion Dam access road; 2) the dam access road to the temporary laydown area at the intersection of the dam access road and Ridge Road; 3) Ridge Road west to State Route 49; 4) State Route 49 north to Marysville Road; 5) Marysville Road west to a point east of New Bullards Bar Dam; and 6) an unpaved road south to the stockpile area on YCWA property.

Disposal Site 2 is on privately owned property approximately 4.7 mi from Log Cabin Diversion Dam and 6 mi from Our House Diversion Dam, and is not within the FERC Project Boundary. A wide gravel road would provide easy access into and out of the site. A 2018 survey conducted by YCWA estimates that approximately 150,000 cu yd of materials can be disposed of at Disposal Site 2.

From Log Cabin Diversion Dam, the haul route to Disposal Site 2 would consist of the following:

- 1) an existing unimproved ramp from the impoundment up to the northern edge of the impoundment; 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) State Route 49 south to Ridge Road; 5) Ridge Road east to Celestial Valley Road; and 6) Celestial Valley Road north to the end of the road.

From Our House Diversion Dam, the haul route to Disposal Site 2 would consist of the following:

- 1) an existing unimproved, gravel ramp from the impoundment to the paved Our House Diversion Dam access road; 2) the dam access road to the temporary laydown area at the intersection of the dam access road and Ridge Road; 3) Ridge Road east to Celestial Valley Road; and 4) Celestial Valley Road north to the end of the road.

Disposal Site 3 is an 80-acre parcel just west of the community of Pike in Sierra County. The site is approximately 2 mi east of Log Cabin Diversion Dam and 2 mi northwest of Our House Diversion Dam, and is not within the FERC Project Boundary. Currently, the site's capacity has not been estimated, but it is likely capable of storing several decades of future sediment disposal.

From Log Cabin Diversion Dam, the haul route to Disposal Site 3 would consist of the following:

- 1) an existing unimproved ramp from the impoundment up to the northern edge of the impoundment; 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) State Route 49 south to Ridge Road; 5) Ridge Road east to Pike City Road; 6) Pike City Road north to Camptonville Road; and 7) Camptonville Road west to Disposal Site 3.

From Our House Diversion Dam, the haul route to Disposal Site 3 would consist of the following: 1) an existing unimproved, gravel ramp from the impoundment to the paved Our House Diversion Dam access road; 2) the dam access road to the temporary laydown area at the intersection of the dam access road and Ridge Road; 3) Ridge Road east to Pike City Road; 4) Pike City Road north to Camptonville Road; and 5) Camptonville Road west to Disposal Site 3.

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

#### ***1.2.6.2 Demobilization***

At either diversion dam, after sediment removal has been completed, natural seepage and flow from two valve-controlled 6-inch pipes connected to the main water conveyance pipes would fill the impoundments to above the fish release outlet valves. Once the impoundments have been filled to above the fish release outlet valves, the FERC-mandated minimum instream flow would be transferred from the water conveyance system to the fish release outlet valves. Once the flow has been transferred, the water conveyance system pumps would be shut down and the system would be dismantled.

All construction-related vehicles, equipment, and debris would be removed from the site. Prior to exiting the site, the onsite biologist would perform an inspection for invasive species. All visible soil, plant material, animal remnants, or any other signs of invasive species on vehicles and equipment would be removed.

All disturbed areas within the work area and at the disposal sites would be stabilized with industry standard BMPs to reduce erosion potential. Planting and/or seeding with native species, a sterile seed mix, mulching, and use of non-erodible materials such as coconut fiber matting are potential methods for stabilization.

## **2.0 Identify the project's significant or potentially significant effects and briefly describe any proposed mitigation measures that would reduce or avoid that effect (cont.):**

### **2.1 Air Quality (cont.)**

- AQ-3 Clean visible mud from paved road entrances at least once per day
- AQ-4 Hydroseed disposed sediment as soon as practical.
- AQ-5 Diesel idling time to be limited to 5 minutes per Title 13, Section 2485 of CCR. (note that this does not apply to USEPA certified "clean idle" vehicles)
- AQ-6 Diesels to be maintained per manufacturer recommendations

- AQ-7 Diesel off-road equipment to be tier 4 (where available)
- AQ-8 Apply chemical stabilizer to unpaved roads to control particulate emissions
- AQ-9 On-road heavy duty truck fleet to comply with California Title 13 CCR § 2025 which requires that older vehicles be replaced by modern, emission-controlled trucks.

## 2.2 Biological Resources

Based on the results of the literature review and previous surveys, several special-status plant and wildlife species are known to occur or have the potential to occur at the project sites. The species or species groups identified below were determined to have the potential to be substantially adversely affected by project-related activities, either directly or through habitat modifications or indirectly through effects that could occur post-construction. Mitigation measures are presented below to avoid, minimize, and/or mitigate for potential effects, as necessary.

### 2.2.1 Special-status Plants

Suitable habitat for the following nine special-status plants occurs at the proposed project sites: Sierra arching sedge, Mosquin's clarkia, mountain lady's slipper, Cantelow's lewisia, Shevock's copper moss, Sierra blue grass, brownish beaked-rush, and True's mountain jewelflower. In addition, suitable habitat for one special-status mushroom, branched collybia, occurs at the proposed project sites. None of these species are state or federally listed. Seven of these species, all but branched collybia and mountain lady's slipper, have a CNPS rating of 1 or 2. Branched collybia and mountain lady's-slipper are FSS species and would be considered special-status if occurring on Forest Service land. Although none of the aforementioned species were observed during previous biological surveys, these rare plants could occur in the vegetation communities identified on the proposed project.

If any of the aforementioned special-status plants are present at the proposed project sites, individuals may be impacted by compaction, trampling, removal, or degradation of habitat. Although adverse effects on special-status plants and their habitat would be avoided to the greatest extent possible, implementation of proposed project-related activities may result in direct and/or indirect effects on these species should they be present in areas proposed for disturbance. In order to minimize potential adverse effects on special-status plant species, implementation of the following avoidance, minimization, and mitigation measures are recommended.

Implementation of **BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary encroachment into areas that may support special-status plants. Mitigation measure **BIO-2** would instruct workers on proper avoidance of special-status plants to minimize disturbance of these species and their habitat. Mitigation measure **BIO-3** and **BIO-4** will minimize adverse effects on special-status plants due to project-induced erosion and encroachment of invasive plants by requiring temporarily disturbed areas to be revegetated with native species and for vehicles and equipment to be inspected and decontaminated prior to entering a project-site. **BIO-5** would minimize impacts to special-status plants by mandating any sensitive resources located onsite or nearby prior to mechanical sediment removal activities would be flagged for avoidance prior to work beginning. **BIO-6** provides for the avoidance of the removal

of as much vegetation as possible, leaving native vegetation in place. Finally, **BIO-7** requires the use of BMPs in any areas within 250 ft of sensitive resources, including special-status plants. As shown, implementation of the aforementioned mitigation measures would reduce effects to a less than significant level with mitigation incorporated.

### 2.2.2 Special-status Aquatic Species

The proposed project sites may provide suitable habitat for hardhead, foothill yellow-legged frog, California red-legged frog, and western pond turtle. Although hardhead have not been documented at the proposed project sites, suitable habitat is present, as well as known species associates: Sacramento pikeminnow and Sacramento sucker. Proposed project-related activities have the potential to result in direct effects on hardhead as a result of dewatering, sedimentation, inadvertent chemical releases, and aquatic species relocations activities. All effects to suitable aquatic habitat for this species would be temporary in nature and, therefore, no net loss of habitat would occur.

FYLF has been documented along Oregon Creek at Log Cabin Diversion Dam, Disposal Site 2, and the Celestial Valley Mitigation Site; the Middle Yuba River at Our House Diversion Dam; and in an unnamed tributary that runs through Disposal Site 3. CRLF has not been previously documented at any of the project sites, however, suitable habitat exists at Disposal Site 2. While there is a potentially suitable pond at Disposal Site 3, the likelihood of CRLF to occur at this site is considered extremely limited.<sup>5</sup> Western pond turtle is known from Log Cabin Diversion Dam and potential habitat occurs at Disposal Site 2, Disposal Site 3, the Celestial Valley Mitigation Site and Our House Diversion Dam. Project-related activities such as dewatering, aquatic species relocation, sediment removal and laydown, riparian vegetation removal, vehicular traffic, sedimentation, and the accidental release of chemicals have the potential to effect special-status frogs and western pond turtle and/or their associated habitat.

Although adverse effects on special-status aquatic species and their habitat would be avoided to the greatest extent possible, implementation of project-related activities may result in direct and/or indirect effects on these species should they be present in areas proposed for disturbance.

Implementation of **BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary encroachment into areas that may be utilized by special-status aquatic species. Mitigation measure **BIO-2** would instruct workers on proper identification and avoidance techniques of special-status aquatic species. Additionally, mitigation measures **BIO-3** and **BIO-4** would limit the degradation of aquatic habitat, allow for the restoration of disturbed habitats and limit the spread of invasive species into wetted areas. **BIO-5** would minimize impacts to special-status aquatic species by mandating any sensitive resources located onsite or nearby (and not previously identified as being impacted by the proposed project) prior to mechanical sediment removal activities would be flagged for avoidance prior to work beginning. **BIO-6** provides for the avoidance of the removal of as much vegetation as possible, leaving native vegetation in place. Mitigation measures **BIO-7** and **BIO-8** would limit the effects on special-status aquatic species by restricting work in wetted areas and implementing standard BMPs,

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<sup>5</sup> In its X approval of the original Plan, FERC determined there would be no impact to California red-legged frog at Log Cabin Diversion Dam and impoundment, Our House Diversion Dam and impoundment and Disposal Site 1. Conditions have not changed for the species at these sites.

limiting the speeds and maintenance requirements of vehicular traffic in sensitive habitats, requiring clearance surveys, and rescue and salvage efforts, as well as additional clearance surveys if deemed appropriate by a qualified biologist for the duration of proposed project-related activities. **BIO-9** prevents injury and death of aquatic species in the work area by removing them from site prior to the full dewatering or removal of sediment. Additional protections for semi-aquatic species in **BIO-10** would make sure they are not present in areas not subject to aquatic species rescue and work would begin in areas with less likelihood to have frogs present. **BIO-11** would prevent aquatic species from getting entrained in pumps or entering pipes during work. Preventing the majority of work in flowing water, through **BIO-12**, would lessen the contact of equipment with aquatic species, and **BIO-13** would keep water flowing downstream and maintain flows for aquatic species present there. As shown, implementation of the aforementioned mitigation measures would reduce the effects of special-status aquatic species to a less than significant level with mitigation incorporated. As shown, implementation of the aforementioned mitigation measures would reduce the effects of special-status aquatic species to a less than significant level with mitigation incorporated.

### 2.2.3 Coast Horned Lizard

No occurrences of coast horned lizard were reported in the 2012 biological resource surveys associated directly with the Log Cabin or Our House diversion dams, the impoundments, Disposal Site 1, or the access roads, nor have any been seen during work at any of these sites. However, the species has the potential to occur throughout the project sites, based on habitat and range descriptions (CDFW 2019b). Effects on coast horned lizard would be minimized to a less than significant level through the implementation avoidance and minimization measures **BIO-1**, **BIO-2**, **BIO-6**, and **BIO-8**.

### 2.2.4 Special-status Birds and Raptors

The proposed project sites may provide nesting, wintering and/or foraging habitat for up to eight special-status bird and raptor species, as well as nesting, wintering and/or foraging habitat for other migratory birds and raptors not identified in **Table 3.4-2**. Special-status birds and raptors identified in **Table 3.4-2** include golden eagle, great gray owl, California spotted owl, northern goshawk, American peregrine falcon, bald eagle, purple martin, and olive-sided flycatcher. All native breeding birds (except game birds during the hunting season), regardless of their listing status, are protected under FGC 3503. Ground disturbance, as well as vegetation and tree clearing during the nesting season, could result in direct effects on nesting birds should they be present in construction or operations and maintenance impact areas. Furthermore, noise and other human activity may result in nest abandonment if nesting birds are present within 200 ft (500 ft for raptors) of a work area.

According to the TNF District Biologist, a pair of great gray owls has established a nesting territory within 1 mile of the Log Cabin Diversion Dam Impoundment. The owls have been documented near Ridge Road, which would be used as a haul route for sediment removal activities. Potential effects on great gray owl from proposed project-related activities would be collisions with haul trucks and/or flushing due to disturbance by passing haul trucks.

Multiple California spotted owl PACs border the proposed project sites. One PAC occurs near the Log Cabin Diversion Dam project site, just northwest of the intersection of Marysville Road and State Route 49. A second PAC is located south of the intersection of Marysville Road and Kelly Road, northeast of Disposal Site 1. A third PAC is known to border the Our House Diversion Dam Impoundment. In addition to the known PAC's, there is a documented occurrence, not associated with an existing PAC, near Disposal Site 3. Occurrence YUB0006 is documented just south of the town of Pike. Although there are documented occurrences of California spotted owl relatively close to the proposed project sites, all proposed project related activities would occur during the work window for the species. Potential effects on California spotted owl from proposed project-related activities would be collisions with haul trucks and/or flushing due to disturbance by passing haul trucks.

Proposed project-related work is not expected to occur during nesting season (February 1 – August 31), but if work needs to occur during nesting season, effects on migratory birds and raptors would be minimized to a less than significant level through the implementation of the following avoidance and minimization measures- **BIO-1, BIO-2, BIO-14, BIO-15, and BIO-16**. Implementation of **BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary encroachment into areas that may be utilized by special-status birds and raptors and their associated habitat. **BIO-2** would instruct workers on proper avoidance of techniques for owls. Implementation of **BIO-14** and **BIO-15** would minimize effects on nesting owls by requiring preconstruction nesting surveys and nest avoidance. Finally, implementation of **BIO-16** would fence off the side of the area on Ridge Road most likely to be the location of great gray owl flight, directing them out of the path of proposed project vehicles. Cumulatively implementation of these avoidance and minimization measures would reduce effects of birds and raptors to a less than significant level.

### 2.2.5 Special-status Roosting Bats

Suitable habitat for pallid bat, Townsend's big-eared bat, western red bat, and fringed myotis occurs at the proposed project sites. These species may utilize a variety of habitats and structures throughout the proposed project sites, as well as in adjacent areas, for roosting and foraging. Townsend's big-eared bats are cave or mine roost obligates, and may utilize the area for foraging. Pallid bats, fringed myotis, and western red bats may be found roosting in rock crevices, structures or hollow trees, and may utilize the area for roosting and foraging. Furthermore, acoustic data collected during the 2012 special-status bats focused surveys at Log Cabin Diversion Dam, Our House Diversion Dam, and Disposal Site 1 recorded the presence of the western red bat at both the Log Cabin and Our House diversion dams. Log Cabin Diversion Dam has structures that contained evidence of bat use and appropriate habitat, but was noted as not utilized as a maternal roost. Our House Diversion Dam had suitable foraging habitat present, but had no signs of roosting on the dam. Disposal Site 1 did not have any reported sightings of western red bats. Formal special-status bat surveys have not been completed for Disposal Site 2, Disposal Site 3, and the Celestial Valley Mitigation Site; however, suitable habitat is present.

Disturbance from proposed project-related activities such as noise, dust, sediment removal activity, sediment laydown activity, and any vegetation removal could affect maternity roosting sites should they be present. Effects on habitat would be considered a direct and significant impact

if special-status bat species were taken or deterred from establishing maternity roosts. Effects on special-status bats would be minimized through the implementation of **BIO-1, BIO-2, and BIO-6**.

Implementation of **BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary encroachment into areas that may be utilized as roosting sites by special-status bats. Implementation of **BIO-2** would require that personnel are instructed on proper avoidance of techniques for bats. Additionally, implementation of **BIO-6** would minimize effects on special-status bats by minimizing the removal of vegetation that may be used as habitat. As shown, implementation of the aforementioned mitigation measures would reduce effects on special-status bats to a less than significant level.

## **2.2.6 Other Terrestrial Mammal Species**

Suitable foraging and denning habitat for the ringtail cat and Sierra Nevada mountain beaver occurs at the proposed project sites. Both are predominantly nocturnal species; closely associated with permanent water sources such as streams/rivers; occupy burrows (beaver), hollow snags, logs, trees, and cavities in talus and other rocky areas (ringtail). The only proposed project-related activities that would occur at night would include one to two personnel monitoring diversion piping throughout sediment removal activities. Furthermore, proposed project-related activities are anticipated to occur outside the reproductive season for both species (December 1 – June 30). As a result, effects of the proposed project on the Sierra Nevada mountain beaver and ringtail cat could occur as a result of ground disturbance and vegetation clearing during daytime hours that would result in the collapse of burrows and/or crevices occupied by these species. In order to minimize the potential effects of the proposed project on these species, implementation of the following measures is recommended- **BIO-1, BIO-2, and BIO-6**.

Implementation of **BIO-1** would reduce the area of disturbance to the smallest footprint feasible in order to avoid unnecessary disturbance to ringtail cat and Sierra Nevada mountain beaver. Implementation of **BIO-2** would instruct workers on proper avoidance of techniques for these species. Additionally, implementation of **BIO-6** would minimize effects on ringtail cat and Sierra Nevada mountain beaver by reducing the amount of habitat loss due to vegetation removal. As shown, implementation of the aforementioned mitigation measures would reduce effects on the species to a less than significant level.

Biological resources mitigation measures proposed for this proposed project are:

**BIO-1: Minimizing Footprint.** During construction, the work areas will be reduced to the smallest possible footprint. All project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities will be confined, to the greatest extent possible, to previously disturbed areas. Additionally, the project footprint/area will be clearly defined and marked to avoid working in areas outside of the approved project boundary.

**BIO-2: Biological Monitoring and Worker Environmental Awareness Training.** A qualified biologist(s) will be on-site daily to monitor sediment removal and laydown activities that could potentially cause adverse effects on sensitive biological resources. The duties of the qualified

biologist will comply with all agency conditions outlined in the CDFW incidental take permit or other project-related permits. In addition, a qualified biologist will be retained to conduct mandatory contractor/worker awareness training for construction personnel. The awareness training would be provided to all construction personnel, or personnel entering the project sites, to brief them on the locations of sensitive biological resources, how to identify species (visual and auditory) most likely to be present, required avoidance and minimization measures for biological resources, and to brief them on the penalties for not complying with biological mitigation requirements. If new personnel are added to the project, the contractor would be required to receive the mandatory training before starting work.

**BIO-3: Restoration of Temporarily Disturbed Areas.** All exposed and/or disturbed areas resulting from project-related activities will be returned to their original contour and grade, and restored using locally appropriate grass and forb seeds, plugs or a mix of the two. Areas will be seeded with species appropriate to their topographical and hydrological character. For example, temporarily disturbed seasonal wetlands will be seeded with native hydrophytic species typical to the region; whereas upland areas will be seeded with an upland grass and forb mix. Seeded areas will be covered with broadcast straw and/or jute netted, where appropriate.

**BIO-4: Invasive Species Control.** Prior to any vehicles and equipment entering a project site, a qualified biologist would perform an inspection for invasive plant species. All visible soil, plant materials, animal remnants, or any other signs of invasive species on vehicles and equipment will be removed prior to entering the project site. Removal and decontamination requirements of vehicles and equipment will be up to the discretion of the qualified biologist. If an occurrence is small enough to be managed on-site, the qualified biologist may approve the decontamination of the vehicle or equipment at a proper staging area with adequate containment. Any materials removed at a containment site must be bagged and taken off-site. If an occurrence is large enough, the contractor may be required to take the vehicle or equipment to an off-site wash station. Additionally, if a vehicle or piece of equipment must leave the project site for any length of time and has been exposed to a different project site or location, it will be required to be re-inspected prior to re-entering the project site.

**BIO-5: Flagging Sensitive Resources.** Prior to any work occurring, any known sensitive resources (i.e., which include, but are not limited to: cultural resources, special-status species, sensitive habitats, target nonnative invasive plants and other predetermined 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.

**BIO-6: Minimization of Vegetation Removal.** 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 riparian trees with a trunk diameter at breast height in excess of 4 in. will be removed without prior consultation and approval from CDFW.

For work at the Celestial Valley Mitigation Site, cuttings are to be harvested by cutting horizontally from the branch, at a measurement of approximately 1.5 in. in diameter and 2.5 to 3 ft in length. The cuttings are to be placed in buckets filled up to 9 in. with water, or at a different depth at the

discretion of the contractor and biologist. If the willows are flowering, the gender ratio of the cuttings should be as close to 70 percent pistillate and 30 staminate as possible to facilitate seed production at the mitigation site and improve long term viability. These cuttings will be installed at the mitigation site within two days of harvesting at a depth of approximately 1.5 to 2 ft, or at the direction of the monitor and restoration contractor. If the cuttings dieback in a manner that final performance criteria will not be met, then additional cuttings will be sourced from the Oregon Creek/Yuba River watershed to ensure satisfying final performance criteria.

Irrigation is not a component of this mitigation. The Celestial Valley Mitigation Site has been selected such that all cuttings are expected to survive due to natural systems, including the water in Oregon Creek, rainfall, and existing groundwater resources.

**BIO-7: Construction Best Management Practices.** Prior to initiation of project-related activities, within 250 ft of sensitive resources, construction BMPs will be employed on-site to prevent degradation to on- and off-site features. Methods will include the use of appropriate measures to intercept and capture sediment prior to entering aquatic resources, as well as erosion control measures along the perimeter of all work areas to prevent the displacement of fill material. Additionally, all proper spill prevention BMPs will be implemented. All BMPs will be in place prior to initiation of any construction activities and will remain until construction activities are completed. All erosion control methods will be maintained until all on-site soils are stabilized.

**BIO-8: Vehicular Best Management Practices.** All proposed project-related vehicle traffic will be confined to established roads, staging areas, and parking areas. Vehicle speeds will not exceed 15 miles per hour, on access roads with no posted speed limit, to avoid collision with special-status species or habitats. Additionally, maintenance or refueling of vehicles or equipment must occur in designated areas and/or a secondary containment, located away from wetted areas.

**BIO-9: Stranded/Entrained Aquatic Species Rescue and Salvage.** Prior to and during diversion of flow and dewatering of the stream channel and work area, as well as prior to sediment laydown at Disposal Site 2, a qualified biologist will remove all fish, frogs, turtles, and other aquatic vertebrate species in accordance with the *Fish Rescue and Salvage Plan* developed by YCWA in coordination with Forest Service, CDFW, USFWS, and SWRCB in 2014. Electrofishing for aquatic species rescue will be restricted to areas clear of FYLF and approved onsite by the CDFW.

All species will be captured using fine mesh or soft material nets, or another method approved by the agencies listed above, and transported to release locations in a bucket, ice chest, or other carrying mechanism, with aeration devices for species that require oxygenated water. All species will be moved to an area upstream of sediment removal activities, or away from sediment laydown at Disposal Site 2, where they will not be likely to reenter the work area.

- Handling of aquatic species will be minimized to the greatest extent possible.
- Gloves will be worn at all times during rescue and salvage efforts to minimize effects of handling to the greatest extent possible.

- Prior to entering the stream or initiating any rescue and salvage activities, all gear and equipment will be decontaminated in a designated location where runoff can be contained.
- All species will be relocated to an area of Oregon Creek or the Middle Yuba River, upstream of project-related activities, to minimize the potential for reentry to the work area.
- Exclusionary devices (i.e., nets, screens, etc.) will be used on any equipment or project-related materials that have the potential to entrain aquatic species.
- A qualified biologist will check the work area daily for stranded aquatic life for the duration of dewatering and sediment removal activities. This includes prior to work beginning every morning, and at least two additional times per day. If stranded aquatic species are present, they will be removed by the qualified biologist or the work area will be changed for the day to avoid the species.

**BIO-10: Special-status Semi-Aquatic Species Protections.** Prior to the commencement of any project-related activities or utilization of any project facilities (e.g. staging or parking areas, sediment laydown areas, etc.) that may directly affect special-status semi-aquatic species or their associated habitat, a qualified biologist will perform clearance surveys to identify and relocate frogs outside of work areas. Sediment removal work will start in the areas where sediment is currently elevated and dry where FYLF are much less likely to be present.

**BIO-11: Exclusion Devices.** Exclusion devices (i.e., 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. Exclusion devices will be in place and maintained in working order at all times water is being diverted. Intake pumps will be fitted with a fish screens meeting the “fry size” criteria of CDFW and the NMFS before water is diverted. Round openings in the screen will not exceed 3/32-in. diameter, square openings will not exceed 3/32 in. measured diagonally, and slotted openings will not exceed 0.069 in. in width. The onsite biologist will periodically inspect all exclusion devices to verify that they are functioning properly and are effectively protecting aquatic vertebrate species. Block nets sufficient to prevent frog movement through them will be erected at the upstream end of the sediment removal area to prevent relocated FYLF from (re-)entering the sediment removal area.

**BIO-12: Avoid Work in Flowing Water.** No heavy equipment will operate, or any excavation take place, in the portion of the stream where flowing water is present, except to place the bypass pumps.

**BIO-13: Water Diversion.** 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 required 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 will 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.

**BIO-14: Migratory Bird and Raptor Surveys.** If clearing and/or construction activities occur during the migratory bird nesting season (February 1 – August 31), then preconstruction surveys to identify active migratory bird and/or raptor nests will be conducted by a qualified biologist within 7 days of construction initiation. Focused surveys must be performed by a qualified biologist for the purposes of determining presence/absence of active nest sites within the proposed impact area, including construction access routes and a 500 ft buffer, where feasible.

**BIO-15: Nest Avoidance.** If active nest sites are identified at the project sites, a no disturbance buffer should be established for all active nest sites prior to commencement of any project construction activities. A no disturbance buffer constitutes a zone in which project-related activities (i.e., vegetation removal, earth moving, and construction) cannot occur. The size of no disturbance buffers will be determined by a qualified biologist based on the species, activities proposed in the vicinity of the nest, and topographic and other visual barriers.

**BIO-16: Great Gray Owl Collision Avoidance.** Prior to hauling sediment, with approval from the County Transportation Department, appropriate barriers will be installed adjacent to documented nesting territories, or as deemed appropriate by the Forest Service. These barriers will be 6 ft high temporary construction fencing raised 18 in. 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, will be placed onto metal road posts on the uphill side of the road segment. Incidental sightings will be recorded by a qualified biological monitor and reported to the Forest Service and CDFW.

**BIO-17: No Net Loss of Sensitive Communities.** Mitigation for permanent adverse effects on sensitive communities (seasonal wetlands/riparian habitat) will be provided at a minimum 1:1 ratio. Mitigation can include on-site restoration, in-lieu fee payment, or purchase of mitigation credits at an agency approved mitigation bank. Mitigation as required in regulatory permits issued through CDFW, the USFWS, and/or USACE, as well as the revegetation described in the Project Description, may be applied to satisfy this measure.

## 2.3 Cultural Resources

The assessment of project impacts on “historical resources,” as defined by CEQA Guidelines (Section 15064.5), is a two-step analysis: first, an analysis of whether a project may impact a resource that falls within the definition of “historical resource(s)” as defined under CEQA; and second, if the proposed project is found to impact historical resources, an analysis of whether the project would cause a substantial adverse change to the resource. A project that may cause a substantial adverse change in the significance of an historical resource is one that may have significant effect on the environment (PRC 21084.1). The significance of an historic architectural resource is considered to be “materially impaired” when a project demolishes or materially alters the physical characteristics that justify the inclusion of the resource in the CRHR, or that justify the inclusion of the resource in a local register, or that justify its eligibility for inclusion in the CRHR as determined by the lead agency for the purposes of CEQA (Section 15064.5[b][2]).

As determined above, all five cultural resources documented for this inventory effort were determined to be ineligible for the CRHR. Accordingly, none of these five resources or

components of resources are considered to be historical resources and thus proposed project implementation would not cause a substantial adverse change in the physical characteristics of any historical resources and would result in a **less-than-significant** impact to historical resources.

Nonetheless, while unlikely, additional buried or previously unidentified cultural resources could exist within the newly added areas of the proposed plan. While much of the natural topography in the proposed project vicinity has been altered, prehistoric and historic period archaeological sites could occur in buried contexts. Thus, the potential exists that buried resources could be discovered during construction. Implementation of mitigation measure CULT-01 outlined below would reduce potential project impacts related to unknown historical resources to a less-than-significant level.

CEQA considers archaeological resources to be an intrinsic part of the physical environment and, thus, requires that the potential of any project to adversely affect archaeological resources be analyzed (CEQA Section 21083.2). Implementation of a project could have a potentially significant impact on archaeological resources if it were to cause a substantial adverse change in the significance pursuant to CEQA Guidelines (Section 15064.5). The present cultural resources inventory identified five archaeological resources within the newly added areas of the proposed project. Though implementation of the proposed project would likely impact several or all of these resources, none of these resources are considered unique archaeological resources that are significant, so impacting these resources would not cause a substantial adverse change in their significance. Thus, the proposed project would result in a **less than significant** impact to archaeological resources.

Mitigation measure CULT-01 would be implemented if archaeological resources are revealed during proposed Project implementation, therefore reducing the impact to a less-than-significant level.

There are no known human burials or remains within the area of proposed disturbance. However, the remote possibility for encountering human remains during implementation of the proposed project does exist. Therefore, mitigation measure CULT-02 is required if human remains are found during implementation to reduce impact to a less-than-significant level.

Cultural resources mitigation measures proposed for this proposed project are:

**CULT-01: Inadvertent Discovery of Historical and Archaeological Resources.** In the event that buried cultural deposits (i.e., prehistoric stone tools, grinding stones, historic glass, bottles, foundations, cellars, privy pits, etc.) are encountered during proposed project implementation, work must stop immediately at the discovery site until a qualified, professional archaeologist can determine the nature of the resources and, as appropriate, assist in helping proposed project personnel avoid the resources or implement management measures to evaluate the significance and potential eligibility of the resources for listing on the CRHR, or any local registers, as appropriate.

**CULT-02: Inadvertent Discovery of Human Remains.** In accordance with the California Health and Safety Code (CHSC), Section 7050.5, and the PRC 5097.98, regarding the discovery

of human remains, if any such finds are encountered during proposed project implementation, all work within the vicinity of the find will cease immediately and a 100 foot-wide buffer surrounding the discovery will be established around it. YCWA, or its agent, will be immediately notified, and the TNF, if on TNF lands. The County coroner will be contacted immediately to examine and evaluate the find. If the coroner determines that the remains are not recent and are of Native American descent, the coroner will contact the Native American Heritage Commission (NAHC) in accordance with CHSC Section 7050.5, and PRC 5097.98. YCWA will work with the most likely descendant, as determined by the NAHC, to determine the most appropriate means of treating the remains. All proposed project personnel should be instructed that any human remains encountered are to be treated with sensitivity and respect, and that their discovery and location are to be kept confidential. Proposed project implementation personnel should be briefed prior to implementation activities regarding procedures to follow in the event buried human remains are encountered.

## 2.4 Hydrology and Water Quality

The primary water quality concerns are: 1) downstream turbidity during sediment passage in conjunction with naturally occurring high flows; 2) downstream turbidity during mechanical removal of sediment during summer low flows; 3) hazardous material spills from equipment during sediment passage or mechanical removal, as well as subsequent spoil placement activities; and 4) runoff from sediment disposal stockpiles.

Downstream sediment passage would result in short term increased downstream turbidity during a time of already high turbidity<sup>6</sup>, potentially temporarily degrading downstream water quality, but ultimately improving downstream aquatic habitat with transfer of the sediment load. All downstream sediment passage would be performed during high flow conditions under high naturally-turbid conditions as shown during YCWA's 2017 sediment passage at Our House Diversion Dam. Following its release, the sediment would settle and it is expected that natural geomorphic processes would take over. Therefore, no significant impact would occur, and no further mitigation would be required.

Mechanical removal could temporarily increase suspended sediment downstream of the proposed project. However, mechanical removals would be performed during the summer low flow season from dewatered areas of the impoundment. Nevertheless, monitoring would be performed upstream and downstream of the project, both before and during project implementation. If turbidity downstream of the impoundments is found to be outside of Basin Plan objectives or permit requirements, work would cease until the CDFW, CVRWQCB, SWRCB, and TNF have been consulted and a plan has been agreed upon (see Mitigation Measure WQ-1). Therefore, no significant impact would occur, with mitigation incorporated.

Ground disturbance caused by the proposed project construction activities and the storage of removed sediment at disposal sites has the potential to increase erosion and sedimentation rates above existing conditions. However, construction activities for the proposed project would be

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<sup>6</sup> At least once between November 1 and March 15 of each year inclusive, YCWA would open the low level outlet valve to full capacity for at least 96 continuous hours when instantaneous flows are greater than 540 cfs (Log Cabin) or 600 cfs (Our House).

temporary and short-term and are not likely to result in substantial soil erosion or loss of topsoil. In addition, the sediment at the disposal sites would be contoured to prevent erosion and a SWPPP would be developed for the proposed project. The proposed project SWPPP would designate disposal requirements for hazardous materials and secondary containment methods to preserve water quality. Additionally, BMPs would be designated to protect sediment stockpiles from mixing with rain water and creating polluted runoff. Therefore, impacts related to soil erosion or the loss of topsoil would be less than significant, and no mitigation would be required.

Implementation of the proposed project would comply with all state and federal laws pertaining to water quality. Proposed project activities would not impact the interaction of surface water and groundwater, and therefore would not impact ground water quality.

Hydrology and water quality mitigation measures proposed for this proposed project are:

**WQ-1: Monitoring.** Prior to each sediment passage event or mechanical removal of sediment, YCWA will collect water quality samples upstream and downstream of the diversion impoundment to establish baseline turbidity conditions. Samples will also be collected daily from the established sites during the sediment management activity. If the measured turbidity downstream of the impoundments is inconsistent with the Basin Plan's water quality objective for turbidity or applicable permit requirements, the sediment passage event or mechanical removal of sediment will cease until YCWA consults with the CDFW, CVRWQCB, SWRCB, and TNF and a plan has been agreed upon.

## 2.5 Tribal Cultural Resources

The cultural resources inventory effort, including consultation to date, has not determined any cultural resource to be eligible for or listed in the CRHR and accordingly, no resources are considered to be TCR. However, the remote possibility for encountering previously unidentified TCR during implementation of the proposed project does exist. In the case of inadvertent discoveries of cultural resources, Mitigation Measures CULT-01 and CULT-02 (see above) would be implemented, therefore reducing the impact to a less-than-significant level.

The cultural resources inventory effort, including consultation to date, has not determined any cultural resource to be eligible for or listed in the CRHR by the lead agency, and accordingly, no resources are considered to be TCR. However, the remote possibility for encountering previously unidentified TCR during implementation of the proposed project does exist. In the case of inadvertent discoveries of cultural resources, Mitigation Measures CULT-01 and CULT-02 (see above) would be implemented, therefore reducing the impact to a less-than-significant level.

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