

# **Application for New License** **Major Project – Existing Dam**

## **Exhibit A**

### **Project Description**

### **Security Level: Public**

Yuba River Development Project  
FERC Project No. 2246



Prepared by:  
Yuba County Water Agency  
1220 F Street  
Marysville, CA 95901  
[www.ycwa.com](http://www.ycwa.com)

April 2014



**Table of Contents**  
**Description**

<b>Section No.</b>	<b>Description</b>	<b>Page No.</b>
1.0	Introduction.....	A-1
2.0	Project Location .....	A-2
3.0	Project Facilities and Features .....	A-7
3.1	New Colgate Development.....	A-8
3.1.1	Developmental Facilities .....	A-8
3.1.2	New Colgate Development Recreation Facilities .....	A-15
3.1.2.1	New Bullards Bar Reservoir .....	A-18
3.1.2.2	Project Diversion Dam Impoundments.....	A-38
3.1.3	Streamflow Gages.....	A-39
3.1.4	Roads.....	A-40
3.2	New Bullards Minimum Flow Development.....	A-41
3.2.1	Developmental Facilities .....	A-41
3.2.2	Recreation Facilities.....	A-42
3.2.3	Gages.....	A-42
3.2.4	Roads.....	A-43
3.3	Narrows 2 Development .....	A-43
3.3.1	Developmental Facilities .....	A-43
3.3.2	Narrows 2 Development Recreation Facilities .....	A-45
3.3.3	Streamflow Gages.....	A-45
3.3.4	Roads.....	A-46
4.0	Area within the Existing FERC Project Boundary .....	A-46
4.1	Lands of the United States within the Existing FERC Project Boundary.....	A-47
5.0	Proposed Changes to Existing Project .....	A-48
5.1	Changes to Project Facilities.....	A-48
5.1.1	Generating Facilities .....	A-48
5.1.1.1	New Colgate Powerhouse Tailwater Depression System .....	A-48
5.1.2	Non-Generating Facilities .....	A-55
5.1.2.1	New Bullards Bar Dam Flood Control Outlet .....	A-55
5.1.2.2	Recreation Facilities.....	A-58
5.1.2.3	Modifications to Minimum Flow Release Facilities.....	A-61
5.1.2.4	Modifications to Streamflow Gages .....	A-61
5.1.2.5	Changes to Project Roads .....	A-61
5.2	Changes to FERC Project Boundary.....	A-63
6.0	References Cited .....	A-68

**List of Figures**  
**Description**

<b>Figure No.</b>	<b>Description</b>	<b>Page No.</b>
2.0-1.	Yuba River watershed in relation to the Feather River and other tributaries to the Sacramento River.....	A-3
2.0-2.	Yuba County Water Agency’s Yuba River Development Project and Project Vicinity. ....	A-5
3.1-1.	Our House Diversion Dam.....	A-13
3.1-2.	Log Cabin Diversion Dam. ....	A-14
3.1-3.	New Bullards Bar Dam and New Bullards Bar Minimum Flow Powerhouse.....	A-14
3.1-4.	Views of New Colgate Development facilities and features. ....	A-15
3.1-5.	Representative photographs of Schoolhouse Campground. ....	A-18
3.1-6.	Representative photograph of Dark Day Campground. ....	A-20
3.1-7.	Representative photographs of Hornswoggle Group Campground. ....	A-21
3.1-8.	Representative photograph of Garden Point Boat-in Campground. ....	A-22
3.1-9.	Representative photograph of Madrone Cove Boat-in Campground.....	A-23
3.1-10.	Representative photograph of Frenchy Point Boat-in Campground. ....	A-24
3.1-11.	Representative photographs of Dark Day Picnic Area.....	A-25
3.1-12.	Representative photographs of Sunset Vista Point. ....	A-26
3.1-13.	Representative photographs of the Dam Overlook. ....	A-27
3.1-14.	Representative photographs of Moran Road Day Use Area. ....	A-28
3.1-15.	Representative photographs of Cottage Creek Boat Launch. ....	A-29
3.1-16.	Representative photographs of Dark Day Boat Launch.....	A-30
3.1-17.	Representative photograph of the floating comfort stations. ....	A-32
3.1-18.	Representative photographs of the water treatment facility.....	A-33
3.1-19.	Representative photographs of the water distribution system at Cottage Creek Boat Launch.....	A-34
3.1-20.	Representative photograph of the water distribution system across New Bullards Bar Dam.....	A-35
3.1-21.	Representative photograph of the water storage tanks.....	A-36
3.1-22.	Representative photograph of the Emerald Cove Marina. ....	A-37
3.1-23.	Representative photographs of Our House Diversion Dam recreation site. ....	A-38
3.1-24.	Representative photographs of Log Cabin Diversion Dam recreation site. ....	A-39
3.3-1.	Views of Narrows 2 Development facilities and features.....	A-45
5.1-1.	Schematic flow diagram of YCWA’s proposed New Colgate Powerhouse Tailwater Depression System.....	A-51
5.1-2.	General arrangement of YCWA’s proposed New Colgate Powerhouse Tailwater Depression System.....	A-52

**List of Figures (continued)**

<b>Figure No.</b>	<b>Description</b>	<b>Page No.</b>
5.1-3.	Piping section and details of YCWA’s proposed the New Colgate Powerhouse Tailwater Depression System. ....	A-53
5.1-4.	Conceptual level plan and profile of YCWA’s proposed New Bullards Bar Dam new Flood Control Outlet.....	A-57

**List of Tables**

<b>Table No.</b>	<b>Description</b>	<b>Page No.</b>
3.0-1.	Key information regarding Yuba River Development Project powerhouses.....	A-7
3.0-2.	Key information regarding Yuba River Development Project reservoirs and impoundments. ....	A-7
3.1-1.	Description of Yuba River Development Project facilities and features – New Colgate Development. ....	A-8
3.1-2.	Developed recreation facilities and undeveloped recreation sites at the Yuba River Development Project. ....	A-17
3.1-3.	Existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Colgate Development.....	A-39
3.1-4.	Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the New Colgate Development. ....	A-40
3.1-5.	Existing Recreation Roads included in Yuba River Development Project that are associated with the New Colgate Development. ....	A-40
3.2-1.	Description of Yuba River Development Project facilities and features – New Bullards Minimum Flow Development.....	A-41
3.2-2.	Existing streamflow gage used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Bullards Bar Minimum Flow Development.....	A-43
3.3-1.	Description of Yuba River Development Project facilities and features – Narrows 2 Development. ....	A-43
3.3-2.	Non-Project existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the Narrows 2 Development. ....	A-46
3.3-3.	Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the Narrows 2 Development. ....	A-46

**List of Tables (continued)**

<b>Table No.</b>	<b>Description</b>	<b>Page No.</b>
4.0-1.	Summary of land ownership within the existing FERC Project Boundary by Project Development based on information provided by the County Assessor. ....	A-47
4.1-1.	Lands of the United States enclosed within the existing FERC Project Boundary by Project Development and managing federal agency.....	A-47
5.1-1.	Proposed additions to Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project by Development. ....	A-62
5.1-2.	Proposed additions to and withdrawals of Recreation Roads associated with the New Colgate Development. YCWA does not propose any changes to Recreation Roads and Trails associated with the New Bullards Bar Minimum Flow Development or the Narrows 2 Development.....	A-62
5.2-1.	Summary of land ownership within the proposed Yuba River Development Project FERC Project Boundary by Project Development and difference as compared to existing FERC Project Boundary. ....	A-66
5.2-2.	Lands of the United States enclosed within the proposed FERC Project Boundary by Project Development and managing federal agency.....	A-67

**List of Attachments**

None.

## EXHIBIT A

# PROJECT DESCRIPTION

---

### 1.0 Introduction

The Yuba County Water Agency (YCWA or Licensee) has prepared this Exhibit A, Project Description, as part of its Application for a New License Major Project – Existing Dam – (Application for New License) from the Federal Energy Regulatory Commission (FERC) for the Yuba River Development Project (Project), FERC Project No. 2246. This exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (C.F.R.), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated Licensing Process). In particular, this exhibit conforms to the regulations in 18 C.F.R. Section (§) 5.18(a)(5)(iii), which require in part that an application include an Exhibit A, Project Description, in conformance with 18 C.F.R. Section 4.51(b). This Exhibit A describes, in detail, all existing and proposed Project facilities. As a reference, 18 C.F.R. Section 4.51(b) states:

Exhibit A is a description of the project. This exhibit need not include information on project works maintained and operated by the U.S. Army Corps of Engineers, the Bureau of Reclamation, or any other department or agency of the United States, except for any project works that are proposed to be altered or modified. If the project includes more than one dam with associated facilities, each dam and the associated component parts must be described together as a discrete development. The description for each development must contain:

- (1) The physical composition, dimensions, and general configuration of any dams, spillways, penstocks, powerhouses, tailraces, or other structures, whether existing or proposed, to be included as part of the project;
- (2) The normal maximum surface area and normal maximum surface elevation (mean sea level), gross storage capacity, and usable storage capacity of any impoundments to be included as part of the project;
- (3) The number, type, and rated capacity of any turbines or generators, whether existing or proposed, to be included as part of the project;
- (4) The number, length, voltage, and interconnections of any primary transmission lines, whether existing or proposed, to be included as part of the project (see 16 U.S.C. 796(11));
- (5) The specifications of any additional mechanical, electrical, and transmission equipment appurtenant to the project; and
- (6) All lands of the United States that are enclosed within the project boundary described under paragraph (h) of this section (Exhibit G), identified and tabulated by legal subdivisions of a public land survey of the affected area or, in the absence of a public land survey, by the best available legal description. The tabulation must show the total acreage of the lands of the United States within the project boundary.

Besides introductory material, this exhibit includes five sections. The Project's location is described in Section 2.0. Section 3.0 provides details of the existing Project facilities, including dimensions, physical features, and other pertinent information, arranged by Project development. Section 4.0 describes the area within the existing and proposed FERC Project Boundary, including the legal description and total acreage for all parcels owned by the United States. Section 5.0 describes YCWA's proposed changes to existing Project facilities and the Project

Boundary, including changes to total acreage of land within the Project Boundary owned by the United States. Section 6.0 provides a bibliography of the references listed in this exhibit.

See Exhibit B for a description of Project operations, Exhibit C for a construction schedule for any proposed new facilities, Exhibit D for costs and financing information, and Exhibit E for a discussion of potential environmental effects and YCWA's proposed resource management measures. Project design drawings and maps are included in Exhibits F and G, respectively. Exhibit H contains a detailed description of the need for the electricity provided by the Project, availability of electrical energy alternatives, and other miscellaneous information.

All elevation data in this exhibit are in National Geodetic Vertical Datum of 1929 (NGVD 29) unless otherwise specified.

## **2.0 Project Location**

The Yuba River Development Project is located in northern California in Yuba, Nevada and Sierra counties in the western foothills of the Sierra Nevada. A portion of the Project is on federal land managed by the United States Department of Agriculture, Forest Service (Forest Service) as part of the Plumas and Tahoe national forests (PNF and TNF, respectively), and a portion is on federal land administered by the United States Army Corps of Engineers (USACE) as part of Englebright Reservoir and Dam.

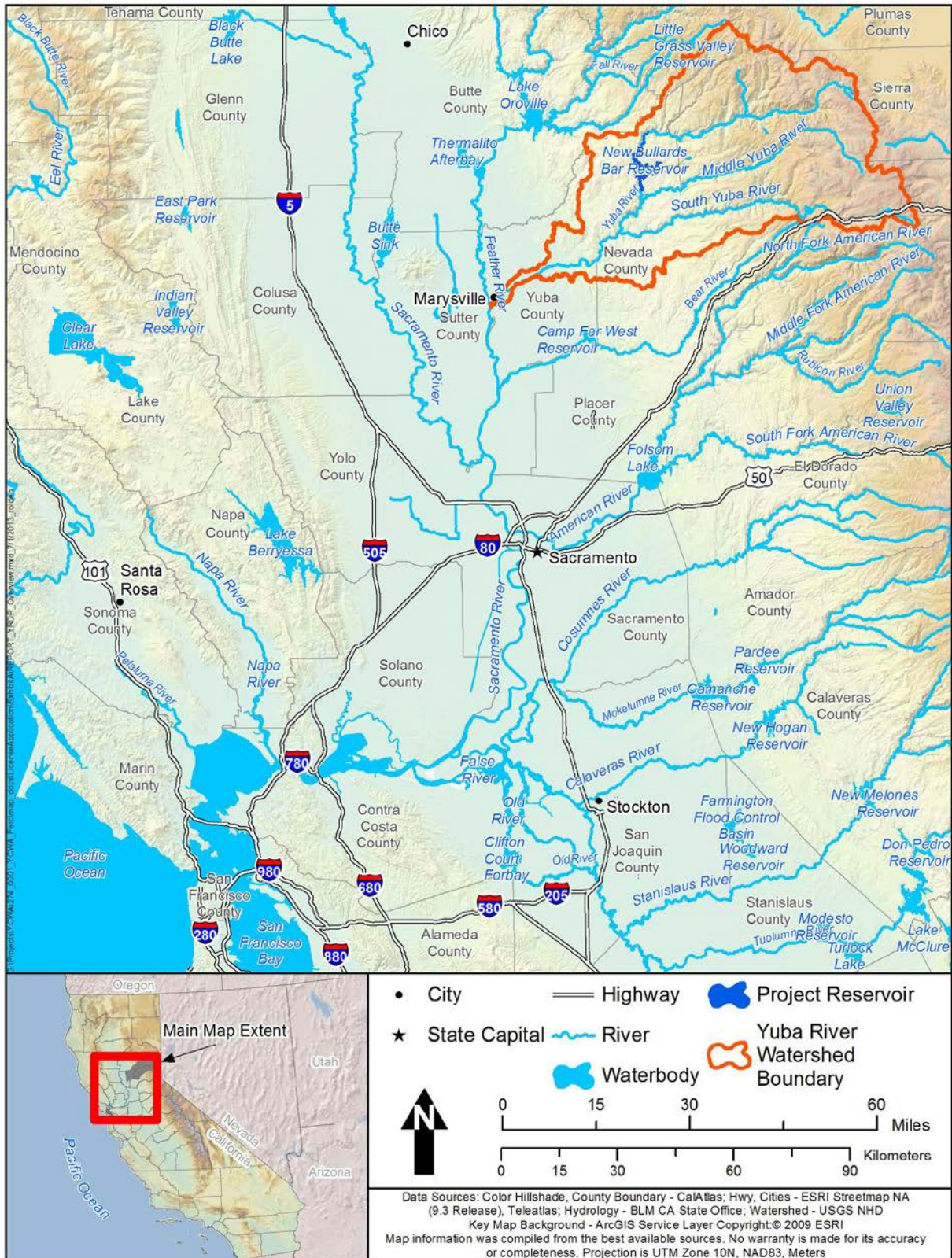
The existing Project ranges in elevation from approximately 2,030 feet (ft) at the upstream end of the Our House Diversion Dam impoundment to approximately 290 ft at the base of the Narrows 2 Powerhouse.

Project facilities are located on the main stem of the Yuba River, Middle Yuba River and North Yuba River; and Oregon Creek, a tributary to the Middle Yuba River. The Yuba River is a tributary to the Feather River and is part of the Sacramento River Basin, which drains into the San Francisco Bay. Figure 2.0-1 illustrates the general regional location of the Project. The map does not display the FERC Project Boundary, which could not be shown at the scale of the map, but highlights the general region of the Project for contextual purposes. Figure 2.0-2 shows the Project Vicinity,<sup>1</sup> proposed Project, and proposed FERC Project Boundary.

---

<sup>1</sup> For the purpose of this Exhibit A, "Project Vicinity" refers to the area surrounding the Project on the order of United States Geological Survey (USGS) 1:24,000 quadrangles.





**Figure 2.0-1. Yuba River watershed in relation to the Feather River and other tributaries to the Sacramento River.**

Page Left Blank



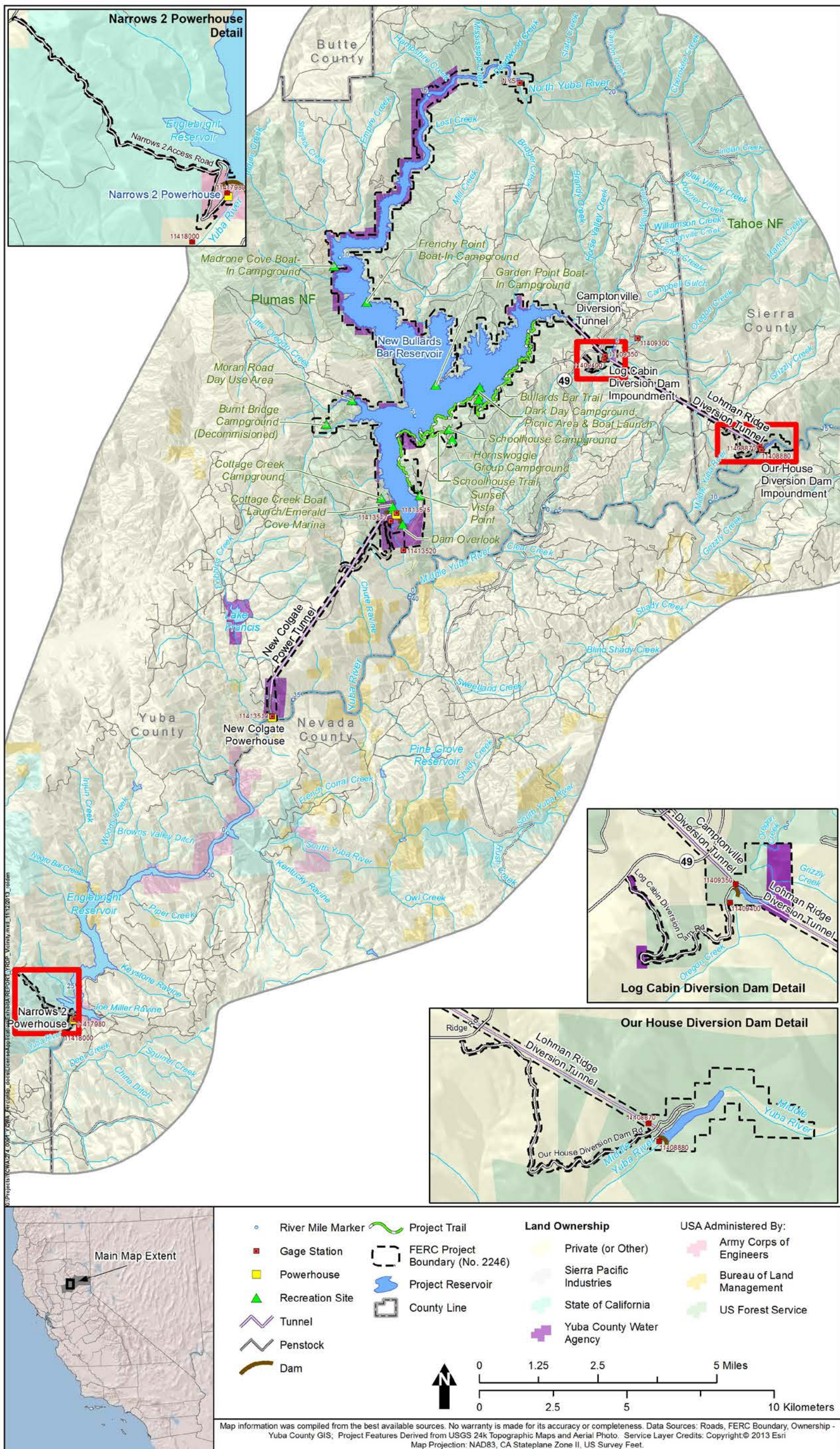


Figure 2.0-2. Yuba County Water Agency's Yuba River Development Project and Project Vicinity.



Page Left Blank

### 3.0 Project Facilities and Features

The initial license for the Yuba River Development 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.

The existing Project can store approximately 966,770 acre-feet (ac-ft) of water (gross storage), and can generate an average of about 1,414,200 megawatt-hours of power annually. The existing Project’s FERC total installed capacity is 361.9 megawatts and YCWA’s calculated dependable capacity is 248,080 kilowatts. Table 3.0-1 and Table 3.0-2 summarize key information for Project powerhouses and reservoirs, respectively.

**Table 3.0-1. Key information regarding Yuba River Development Project powerhouses.**

Powerhouse	Unit	Turbine Type	Rated Head (ft)	Rated Hydraulic Capacity (cfs)		Generation Capacity (kW)		Average Annual Energy (MWh/yr) <sup>3</sup>
				Minimum	Maximum	Nameplate Rating <sup>1</sup>	Dependable <sup>2</sup>	
New Colgate	1	Pelton	1,306	0	1,715	157,500	231,497	1,233,701
New Colgate	2	Pelton	1,306	0	1,715	157,500		
New Bullards Minimum Flow	1	Pelton	561	0	5	150	57	952
Narrows 2	1	Francis	236	600	3,400	46,750	0	172,780
<b>Total</b>	<b>4</b>	--	--	--	--	<b>361,900</b>	<b>231,554</b>	<b>1,407,433</b>

Notes: cfs = cubic feet per second; kW = kilowatt; MWh/yr = megawatt-hours/year

<sup>1</sup> From Table 5.2-5 in Exhibit D.

<sup>2</sup> From Table 5.2-7 in Exhibit D (i.e., modeled dependable capacity from water year (WY) 1970 through WY 2010).

<sup>3</sup> From Table 5.2-2 in Exhibit D (i.e., modeled average annual generation from WY 2070 through WY 2010).

**Table 3.0-2. Key information regarding Yuba River Development Project reservoirs and impoundments.**

Project Reservoir	NMWSE <sup>1</sup> (ft)	Gross Storage <sup>2</sup> (ac-ft)	Usable Storage <sup>2</sup> (ac-ft)	Surface Area <sup>2</sup> (ac)	Maximum Depth <sup>2</sup> (ft)	Shoreline Length <sup>2</sup> (mi)	Drainage Area <sup>3</sup> (sq mi)
Our House Diversion Dam Impoundment	2,030	280	None	14	65	0.7	144.8
Log Cabin Diversion Dam Impoundment	1,970	90	None	5	40	0.4	29.1
New Bullards Bar Reservoir	1,956	966,400	966,103	4,790	636	71.9	466.6
<b>Total</b>	--	<b>966,770</b>	<b>966,103</b>	<b>4,809</b>	--	--	--

<sup>1</sup> NMWSE = Normal Maximum Water Surface Elevation

<sup>2</sup> At NMWSE

<sup>3</sup> At the dam, and drainage areas are not additive.

Project facilities and features are described below by development.

### 3.1 New Colgate Development

#### 3.1.1 Developmental Facilities

The New Colgate Development is located on the main stems of the North Yuba River, Middle Yuba River, Yuba River, and Oregon Creek, a tributary to the Middle Yuba River. The development includes two diversion dams (Our House and Log Cabin), two diversion tunnels (Lohman Ridge and Camptonville), one storage reservoir (New Bullards Bar), one power tunnel and penstock (New Colgate) and one powerhouse (New Colgate). Table 3.1-1 summarizes the dimensions, physical features, and other pertinent information for each facility or feature, excluding recreation facilities associated with the New Colgate Development, which are described in Section 3.1-2. Representative photographs of the non-recreation facilities and features are provided in Figures 3.1-1 through 3.1-4.

**Table 3.1-1. Description of Yuba River Development Project facilities and features – New Colgate Development.**

<b>OUR HOUSE DIVERSION DAM</b>	
Location/Legal Description	Latitude 39.411910, Longitude -120.997427
River Mile	Middle Yuba River RM 12.6
Construction Period	1968
Hazard Classification	Low
Type	130 ft-radius double curvature concrete arch
Height	70 ft
Crest Elevation	2,030 ft
Crest Length	368 ft
Spillway Type	Central, ungated overpour with six bays
Spillway Capacity	60,000 cfs to top of thrust blocks
Closest Upstream Facility	Nevada Irrigation District's Milton Diversion Dam, 32.2 miles upstream on the Middle Yuba River
Closest Downstream Facility	YCWA's New Colgate Powerhouse, 18.5 miles downstream on the Yuba River
<b>OUR HOUSE DIVERSION DAM FISH RELEASE OUTLET</b>	
Number, Size & Control	One, 24-inch diameter steel pipe
Outlet Invert Elevation	1,999 ft
Maximum Design Capacity (Engineer's Estimate)	59 cfs, <sup>1</sup> when the pool is at the Lohman Ridge Diversion Tunnel invert elevation of 2,015 ft
Control	Hand-operated 24-inch valve on the outlet
<b>OUR HOUSE DIVERSION DAM LOW LEVEL OUTLET</b>	
Number, Size & Control	One 5-foot diameter steel pipe, slide gate controlled
Outlet Invert Elevation	1,987 ft
Maximum Design Capacity (Engineer's Estimate)	463 cfs, <sup>2</sup> when the pool is at the Lohman Ridge Diversion Tunnel invert elevation of 2,015 ft
Control	Two-person portable gasoline powered engine-operated slide gate on upstream end of dam
Trash Rack	12.375 inch spacing between steel bars

**Table 3.1-1. (continued)**

<b>OUR HOUSE DIVERSION IMPOUNDMENT</b>	
Normal Maximum Water Surface Elevation	2,030 ft
Drainage Area	144.8 square miles
Storage Capacity	None (280 ac-ft capacity, but no storage)
Surface Area	14 acres
<b>OUR HOUSE DIVERSION DAM ACCESS ROAD</b>	
Access Roads Within FERC Project Boundary	Our House Dam Road
<b>LOHMAN RIDGE DIVERSION TUNNEL</b>	
Number & Type	One rock horseshoe-shaped tunnel (partially lined)
Construction Period	1968
Size	Unlined Horseshoe Tunnel: width = 12 ft 6 in, height = 12 ft 6 in
	Lined Horseshoe Tunnel: width = 9 ft 8 in, height = 10 ft 8.5 in
Length	19,395 ft total (90% unlined tunnel, 10% lined tunnel)
Tunnel Intake Invert Elevation	2,015 ft
Maximum Flow Capacity	860 cfs
Trash Rack	8.75 inch spacing between steel bars
<b>LOG CABIN DIVERSION DAM</b>	
Location/Legal Description	Latitude 39.440491, Longitude -121.058746
River Mile	Oregon Creek RM 4.3
Construction Period	1968
Hazard Classification	Low
Type	105 ft-radius concrete arch
Height	42.5 ft
Crest Elevation	1,970 ft
Crest Length	300 ft
Spillway Type	Central ungated overpour with six bays
Spillway Capacity	12,000 cfs
Closest Upstream Facility	No upstream facilities
Closest Downstream Facility	YCWA's New Colgate Powerhouse, 14.9 miles downstream on the Yuba River
<b>LOG CABIN DIVERSION DAM FISH RELEASE OUTLET</b>	
Number, Size & Control	One, 18-inch diameter steel pipe
Outlet Invert Elevation	1,947 ft
Maximum Design Capacity (Engineer's Estimate)	18 cfs, <sup>1</sup> when the pool is at the Camptonville Diversion Tunnel invert elevation of 1,952 ft
Control	Hand-operated 18-inch valve on the outlet
<b>LOG CABIN DIVERSION DAM LOW LEVEL OUTLET</b>	
Number, Size & Control	One, 5-foot diameter steel pipe, slide gate controlled
Outlet Invert Elevation	1,935 ft
Maximum Design Capacity (Engineer's Estimate)	348 cfs, <sup>2</sup> when the pool is at the at the Camptonville Diversion Tunnel invert elevation of 1,952 ft
Control	Two-person portable gasoline powered engine-operated slide gate on upstream end of dam
Trash Rack	12.375 inch spacing between steel bars

**Table 3.1-1. (continued)**

<b>LOG CABIN DIVERSION IMPOUNDMENT</b>	
Normal Maximum Water Surface Elevation	1,970 ft
Drainage Area	29.1 square miles
Storage Capacity	None (90 ac-ft capacity, but no storage)
Surface Area	5 acres
<b>LOG CABIN DIVERSION DAM ACCESS ROAD</b>	
Access Roads Within FERC Project Boundary	Log Cabin Diversion Dam Road
<b>CAMPTONVILLE DIVERSION TUNNEL</b>	
Number & Type	One rock horseshoe-shaped tunnel (partially lined)
Construction Period	1968
Size	Unlined Horseshoe Tunnel: width = 14 ft 6 in, height = 14 ft 6 in
	Lined Horseshoe Tunnel: width = 11 ft 7 in, height = 12 ft 7½ in
Length	6,121 ft total (70% unlined horseshoe, 30% lined horseshoe)
Tunnel Intake Invert Elevation	1,952 ft
Maximum Flow Capacity	1,100 cfs
Trash Rack	8.75 inch spacing between steel bars
<b>NEW BULLARDS BAR DAM</b>	
Location/Legal Description	Latitude 39.392569 Longitude -121.14140 in Sec 25, T 18 N, R 7 E in Yuba and Nevada Counties, 2.6 miles northwest of North San Juan
River Mile	North Yuba River RM 2.4
Construction Period	1966-1969
Hazard Classification	High
Type	1,110 ft-radius double curvature concrete arch
Height	645 ft
Crest	--
Elevation	1,965 ft
Width	25 ft
Length	2,323 ft
Base	--
Elevation	1,320 ft
Width	185 ft
Slope	--
Upstream Face	Variable
Downstream Face	Variable
Closest Upstream Facility	YCWA's Log Cabin Diversion, 14.9 miles upstream on the Yuba River
Closest Downstream Facility	New Bullards Minimum Flow Powerhouse at base of dam
<b>NEW BULLARDS BAR DAM SPILLWAY</b>	
Type	Concrete ogee with 3 radial gates
Crest Elevation	1,902 ft
Top of Gates Elevation	1,956 ft
Width	106 ft
Length	1,000 ft
Control	Three 30 ft X 53 ft Tainter Gates
Hoist Type	10 hp drum hoist
Maximum Discharge	160,000 cfs to dam crest; 185,000 cfs to top of parapet wall



**Table 3.1-1. (continued)**

<b>NEW BULLARDS BAR DAM LOW LEVEL OUTLET</b>	
Number, Size & Control	One, 72-inch diameter steel pipe
Intake Invert Elevation	1,444.5 ft
Storage Below Intake	~5,000 ac-ft
Maximum Design Capacity	3,500, but actual release capacity is limited to 1,250 cfs because of valve vibrations at higher release rates
Control	72 inch Hollow Jet Valve, manual control
<b>NEW BULLARDS BAR RESERVOIR</b>	
Normal Maximum Water Surface Elevation	1,956 ft
Normal Minimum Water Surface Elevation	1,730 ft
Drainage Area	488.6 square miles
Gross Storage	966,400 ac-ft
Usable Storage	966,103 ac-ft
Surface Area	4,790 acres
Length	15.3 miles
Width	0.5 mile
Maximum Depth	636 ft
Shoreline Length	71.9 miles
Minimum Pool in Existing License	230,000 ac-ft (El. 1,730 ft)
<b>NEW BULLARDS BAR POWER INTAKE</b>	
Type	Submerged tower attached to New Bullards Bar Dam near the center of the dam
Number of Intakes	Two, but Upper Intake not used per direction of Cal Fish and Wildlife
Centerline Elevations of Intakes	1,627.5 ft and 1,808 ft <sup>2</sup>
Storage Below Lower Intake	~88,000 ac-ft
<b>NEW COLGATE POWER TUNNEL</b>	
Number & Type	One rock tunnel comprised of horseshoe-shaped (partially lined) and circular (lined) sections and steel penstock
Construction Period	1968-1969
Size	Unlined Horseshoe Dimensions: width = 26 ft, height = 26 ft
	Lined Horseshoe Dimensions: width = 22.75 ft, height = 14.5 ft
	Lined Circular: Diameter = 14 ft
	Steel penstock: Diameter = 9 ft – 14.5 ft
Length	5.2 miles
Maximum Design Flow Capacity	3,400 cfs

<sup>2</sup> In 1993, YCWA convened a Temperature Advisory Committee to obtain more refined recommendations for the operation of New Bullards Bar Reservoir's multi-port power intake. The committee was composed of YCWA, United States Department of Interior, Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG, which is now California Department of Fish and Wildlife). After reviewing temperature model data and the operating options, USFWS and CDFG recommended that water releases from New Bullards Bar Reservoir be as cold as possible at all times. YCWA immediately implemented this recommendation and, since 1993, all controlled releases of water from New Bullards Bar Reservoir through New Bullards Bar Minimum Flow Powerhouse into the North Yuba River and through New Colgate Powerhouse into the Yuba River have been from the deeper port (El. 1,627.5 ft) of the New Bullards Bar Power Intake.

**Table 3.1-1. (continued)**

<b>NEW COLGATE POWERHOUSE</b>	
Location/Legal Description	Latitude 39° 19' 51" Longitude 121° 11' 30" in Sec 16, T 17 N, R 7 E in Yuba County, 2.4 miles west of Birchville
Controls	SCADA – ISO, <sup>3</sup> PG&E – AGC <sup>4</sup>
Normal Type of Operation	Peaking (baseline during runoff in high runoff seasons)
Closest Upstream Facility	YCWA's New Bullards Minimum Flow Powerhouse, 8.1 miles upstream on North Yuba River
Closest Downstream Facility	USACE's Englebright Reservoir, 1.7 miles downstream on Yuba River
Structure	--
Type	Steel Frame, reinforced concrete
Approximate Size	Floor plan 98 ft 6 in x 144 ft 0 in, height 60 ft
Turbine	--
Number of Units	Two
Type	Pelton (vertical shaft)
Manufacturer	Voith Siemens
Nameplate Output	212,000 hp
Nameplate Capability	315 MW
Nameplate Rated Head	1,391 ft
Design Head	1,306 ft
Speed	180 RPM
Nameplate Rated Flow	3,220 cfs
Maximum Rated Flow	3,430 cfs
Turbine Centerline Elevation	565 ft
Generator	--
Type	Synchronous
Manufacturer	Toshiba
Upgrades	Unit 1 rewind 2006, Unit 2 rewind 2013
Nameplate Output	175,000 kVA
Nameplate Capability	315 MW
Power Factor	0.9
Voltage	13,800 Volts
Speed	180 RPM
Governor	--
Type	Cabinet Type
Manufacturer	Voith Siemens
<b>NEW COLGATE SWITCHYARD</b>	
Location	Latitude 39° 19' 51" Longitude 121° 11' 30" in Sec 16, T 17 N, R 7 E in Yuba County, 2.4 miles west of Birchville
Size	144 ft x 45 ft Approx.
Transformer Type	ABB, Toshiba
Transformer Nameplate Rating	187,000 kVA, 158,000 kVA
Voltage Rating	230 kV

**Table 3.1-1. (continued)**

NEW COLGATE SWITCHYARD (continued)	
High Voltage Breakers	SF-6
Associated Transmission Line within FERC License	None

Notes: ac-ft = acre-feet; cfs = cubic feet per second; El. = elevation; hp = horsepower; kVA = kilovolt-ampere; MWh/yr = megawatt-hours/year; RM = river mile; RPM = revolutions per minute

- <sup>1</sup> YCWA’s engineer’s estimate for the Our House Diversion Dam’s and Log Cabin Diversion Dam’s fish release valves are 59 cfs and 18 cfs, respectively, when the impoundment behind the dam is at the invert elevation of the Lohman Ridge Diversion Tunnel. YCWA plans to rate each fish release outlet in spring 2015.
- <sup>2</sup> YCWA’s engineer’s estimate for the Our House Diversion Dam’s and Log Cabin Diversion Dam’s low level (5-foot diameter) outlet valves are 463 cfs and 348 cfs, respectively, when the impoundment behind the dam is at the invert elevation of the Camptonville Diversion Tunnel. YCWA plans to rate each outlet in spring 2015.
- <sup>3</sup> SCADA – ISO = Supervisory Control and Data Acquisition – California Independent System Operator
- <sup>4</sup> PG&E – AGC = Pacific Gas and Electric Company – Automatic Generation Control



**Figure 3.1-1. Our House Diversion Dam.**





Figure 3.1-2. Log Cabin Diversion Dam.



Figure 3.1-3. New Bullards Bar Dam and New Bullards Bar Minimum Flow Powerhouse.





**Figure 3.1-4. Views of New Colgate Development facilities and features.**

### **3.1.2 Recreation Facilities**

The New Colgate Development has 16 developed recreation facilities at New Bullards Bar Reservoir, which include: 1) Hornswoggle Group Campground; 2) Schoolhouse Campground; 3) Dark Day Campground; 4) Cottage Creek Campground;<sup>3</sup> 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;<sup>4</sup> 13) Dark Day Boat Launch, including the Overflow Parking Area; 14) Schoolhouse Trail; 15) Bullards Bar Trail;<sup>5</sup> and 16) floating comfort stations. All of the recreation facilities are located on National Forest System (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.

<sup>3</sup> Cottage Creek Campground was burned in 2010 and has not been rebuilt. YCWA is in discussions with the Forest Service regarding rebuilding the burned campground.

<sup>4</sup> 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.

<sup>5</sup> 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. Of note, the Forest Service Administration Site was removed from the Project per the 1993 Revised Recreation Plan (Exhibit R) that was approved by FERC on August 29, 1993.

The New Colgate Development also includes two undeveloped recreation sites at Our House and Log Cabin diversion dams located on NFS land within the existing FERC Project Boundary.

A summary of these facilities and sites including their associated amenities is provided in Table 3.1-2. A detailed description of the developed recreation facilities and undeveloped recreation sites are provided in Section 3.1.2.1 and 3.1.2.2.

**Table 3.1-2. Developed recreation facilities and undeveloped recreation sites at the Yuba River Development Project.**

Recreation Facility	Fee	Manager	Land Ownership	Campsites						Picnic Sites	Boat Ramp		Parking Spaces			Restrooms			Trail-head	
				Type	Total	Single	Double	Triple	Group		No.	Lanes	Total	Single	Double	Total	Vault	Flush		
<b>NEW BULLARDS BAR RESERVOIR</b>																				
Schoolhouse Campground	Yes	USFS	NFS	tent/RV	57 <sup>1</sup>	44	13	0	0	0	0	0	20 <sup>2</sup>	20 <sup>2</sup>	0	5	1	4	Yes	
Hornswoggle Group Campground	Yes	USFS	NFS	tent/RV	6	0	0	0	6	0	0	0	0	0	0	4	2	2	No	
Dark Day Campground	Yes	USFS	NFS	tent	10	6	3	1	0	0	0	0	0	0	0	2	2	0	Yes	
Cottage Creek Campground <sup>3</sup>	Yes	USFS	NFS	--	0	0	0	0	0	0	0	0	0	0	0	1	1	0	No	
Garden Point Boat-In Campground	Yes	USFS	NFS	tent	16	12	4	0	0	0	0	0	0	0	0	3	3	0	No	
Madrone Cove Boat-In Campground	Yes	USFS	NFS	tent	10	10	0	0	0	0	0	0	0	0	0	1	1	0	No	
Frenchy Point Boat-In Campground <sup>4</sup>	No	USFS	NFS	tent	7	6	1	0	0	0	0	0	0	0	0	0	0	0	No	
Dark Day Boat Launch	Main	No	USFS	NFS	--	0	0	0	0	0	0	1	2-3	103	39	64	1	1	0	Yes
	Overflow	No	USFS	NFS	--	0	0	0	0	0	0	0	0	73	18	55	1	1	0	No
Cottage Creek Boat Launch	No	YCWA	YCWA	--	0	0	0	0	0	1	1	2	209	130	79	2	2	0	No	
Dark Day Picnic Area	No	USFS	NFS	--	0	0	0	0	0	13	0	0	14	14	0	1	1	0	No	
Sunset Vista	No	USFS	NFS	--	0	0	0	0	0	1	0	0	60 <sup>2</sup>	60 <sup>2</sup>	0	1	1	0	Yes	
Dam Overlook	No	USFS	YCWA	--	0	0	0	0	0	0	0	0	24 <sup>2</sup>	24 <sup>2</sup>	0	0	0	0	No	
Moran Road Day Use Area	No	USFS	NFS	--	0	0	0	0	0	0	1	1	8 <sup>2</sup>	8 <sup>2</sup>	0	1	1	0	No	
Bullards Bar Trail	No	USFS	NFS/ YCWA	--	0	0	0	0	0	0	0	0	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	0	0	0	No	
Schoolhouse Trail	No	USFS	NFS	--	0	0	0	0	0	0	0	0	N/A <sup>5</sup>	N/A <sup>5</sup>	N/A <sup>5</sup>	0	0	0	No	
Floating Comfort Stations	No	YCWA	N/A	--	0	0	0	0	0	0	0	0	0	0	0	7	7	0	No	
<b>PROJECT IMPOUNDMENTS</b>																				
Our House Diversion Dam	No	--	NFS	--	0	0	0	0	0	0	0	0	25 <sup>2</sup>	25 <sup>2</sup>	0	0	0	0	No	
Log Cabin Diversion Dam	No	--	NFS	--	0	0	0	0	0	0	0	0	N/A <sup>6</sup>	N/A <sup>6</sup>	N/A <sup>6</sup>	0	0	0	No	
<b>Total</b>	--	--	--	--	<b>106</b>	<b>78</b>	<b>21</b>	<b>1</b>	<b>6</b>	<b>15</b>	<b>3</b>	<b>5-6</b>	<b>536</b>	<b>338</b>	<b>198</b>	<b>30</b>	<b>24</b>	<b>6</b>	--	

<sup>1</sup> Includes a host site.

<sup>2</sup> Parking area is not striped so the total number of spaces is estimated.

<sup>3</sup> Cottage Creek Campground was used for overflow camping; however, the facility burned in a 2011 fire and has been closed since. All facilities were destroyed in the fire, except the vault restroom.

<sup>4</sup> Frenchy Point Boat-in Campground is no longer managed as a developed campground, but rather for dispersed shoreline camping. The restroom facility has been removed and only the campsite amenities remain, including the picnic tables, fire rings and Klondike stoves.

<sup>5</sup> Trailhead parking is available where the trail intersects other existing parking areas, including at the Schoolhouse Campground overflow parking area (20 spaces), Sunset Vista Point (20 spaces), Dark Day Picnic Area (16 spaces) and Dark Day Boat Launch (39 single spaces).

<sup>6</sup> Parking at Log Cabin Diversion Dam impoundment is informal along the shoulder of Highway 49, which does not have a defined area to estimate the parking capacity.

N/A = not available

### 3.1.2.1 New Bullards Bar Reservoir

#### Campgrounds

##### Schoolhouse Campground

Schoolhouse Campground is located between New Bullards Bar Reservoir and Marysville Road across from the Hornswoggle Group Campground. The campground is approximately 0.5 mile (mi) from the reservoir shoreline on NFS land. The campground has 57 campsites, which includes 43 single sites, 13 double sites and 1 host site. The single sites amenities include a picnic table, cooking grill/fire ring, food locker, and vehicle parking spur with a capacity of six people and one vehicle for \$22 per night. The double sites amenities include 2 picnic tables, a cooking grill/fire ring, 2 food lockers and vehicle parking spur with a capacity of 12 people and 2 vehicles for \$44 per night. The campground has 5 restrooms (4 flush and 1 vault), a potable water system and an overflow parking area for 20 vehicles. The campground does not have any recreation vehicle (RV) hookups or a dump station. The campground has 1 facility identification sign at the entrance; 5 information boards (one 3-panel board at the entrance station and four single-panel information boards at each restroom); 12 directional signs along the circulation roads; 29 information/regulation signs throughout the facility; and a site marker sign at each campsite.

The campground also has a trailhead for the 1.0-mi Schoolhouse Trail (Project trail), which connects to the 14.0-mi Bullards Bar Trail (Project trail); and includes two trail signs, where the trail intersects the campground. In addition, the 8 Ball Trail (non-Project trail) passes through the campground and leads to Dark Day Campground.

Representative photographs of the recreation facilities are provided in Figure 3.1-5.



Typical Camp Site

**Figure 3.1-5. Representative photographs of Schoolhouse Campground.**





Typical Comfort Station

Figure 3.1-5. (continued)

### Dark Day Campground

Dark Day Campground is located approximately 4 mi from the New Bullards Bar Dam via Marysville Road and Dark Day Road on the southeast shoreline of the Willow Creek arm of the reservoir. The facility is approximately 0.2 mi from the reservoir shoreline. The campground complex has 10 campsites for tent camping only, with 6 single sites, 3 double sites and 1 triple site. The single site amenities include a picnic table, cooking grill/fire ring, food locker, and vehicle parking spur with a capacity of six people and one vehicle for \$22 per night. The double site amenities include 2 picnic tables, a cooking grill/fire ring, 2 food lockers and vehicle parking spur with a capacity of 12 people and 2 vehicles for \$44 per night. The triple site amenities include 3 picnic tables, a cooking grill/fire ring, 3 food lockers and vehicle parking spur with a capacity of 18 people and 3 vehicles for \$66 per night. The campground has three vault restroom buildings and a potable water system. The campground has 2 information boards (a 3-panel and single-panel board), 9 information/regulation signs throughout the facility; and 3 campsite marker signs (one for each cluster of campsites). Representative photographs of the recreation facilities are provided in Figure 3.1-6.



Typical Camp Site

**Figure 3.1-6. Representative photograph of Dark Day Campground.**

#### Hornswoggle Group Campground

Hornswoggle Group Campground is located on Marysville Road, 2.5 mi northeast of the New Bullards Bar Dam, and 3.3 mi southwest of the Highway 49 junction. The facility is approximately 0.6 mi from the southeast shoreline of the reservoir on NFS land. The facility consists of 6 group campsites with 5 campsites that accommodate up to 25 people-at-one-time (PAOT) (\$80 per night), and 1 group campsite that accommodates up to 50 PAOT (\$140 per night). The group site amenities include tables, food lockers and a group fire ring/grill. The campground has four restrooms (two flush and two vault), a potable water system, and parking areas at each campsite. The campground has one facility identification sign at the entrance; six single-panel information boards; three directional signs along the circulation road; seven information/regulation signs throughout the facility, and six campsite marker signs. Representative photographs of the recreation facilities are provided in Figure 3.1-7.





Typical Group Camp Site



Typical Comfort Station

**Figure 3.1-7. Representative photographs of Hornswoggle Group Campground.**

### Garden Point Boat-In Campground

The Garden Point Boat-in Campground is accessed by boat only and is located on a peninsula on the north side of the reservoir at the junction between the North Yuba River and Willow Creek arms of the reservoir on NFS land. The campground is approximately 3.0 mi by boat from the Cottage Creek Boat Launch, and 1.5 mi from the Dark Day Boat Launch. The campground has 16 campsites, which includes 12 single sites and 4 double sites. The single site amenities include

a picnic table, a fire ring, and Klondike stove for a maximum of six people for \$22 per night. The double site amenities include 2 picnic tables, a fire ring, and Klondike stove for a maximum of 12 people for \$44 per night. The campground has four restrooms (all vault) and does not have a potable water system. The campground has 1 facility identification sign; 1 2-panel information board; 1 information/regulation sign, and 16 campsite marker signs. A representative photograph of the recreation facilities is provided in Figure 3.1-8.



Typical Camp Site

**Figure 3.1-8. Representative photograph of Garden Point Boat-in Campground.**

#### Madrone Cove Boat-In Campground

The Madrone Cove Campground is accessed by boat only and is located along the west shore of the North Yuba River arm of the reservoir on NFS-owned land. By boat, the campground is approximately 7.5 mi from the Cottage Creek Boat Launch and 6.0 mi from the Dark Day Boat Launch. The campground has 10 single campsites (maximum of 6 people per site for \$22 per night). Each site's amenities include a picnic table, fire ring and Klondike stove. The campground has two restrooms (both vault) and does not have a potable water system. The campground has 1 facility identification sign; 1 2-panel information board; 2 information/regulation signs, and 10 campsite marker signs. A representative photograph of the recreation facilities is provided in Figure 3.1-9.





Typical Camp Site

**Figure 3.1-9. Representative photograph of Madrone Cove Boat-in Campground.**

#### Frenchy Point Boat-In Campground

Frenchy Point Boat-in Campground was once a developed campground facility, but is now used as an undeveloped shoreline camping area due to very low use in the past.<sup>6</sup> The site is accessed by boat only and is located along the west facing shore of the North Yuba River arm of the reservoir on NFS land. By boat, the campground is approximately 6.0 mi from the Cottage Creek Boat Launch and 4.5 mi from the Dark Day Boat Launch. The remnant facilities include seven campsites (6 single and 1 double). The single site amenities each include a picnic table, fire ring and Klondike stove; and the double site amenities each include a picnic table, fire ring and two Klondike stoves. The site has one site identification sign; two single-panel information boards; and one information/regulation sign. A representative photograph of the recreation facilities is provided in Figure 3.1-10.

---

<sup>6</sup> This facility was converted to a shoreline camping area due to low use. The location of the facility is not ideal for visitor use because the shoreline access is very steep, particularly below the normal maximum water surface elevation (NMWSE). As the reservoir elevation recedes early in the peak recreation season, the access issue results in a very short period of use. Historically, the use of this facility only occurred within 15 vertical ft of the NMWSE, which occurred for roughly 1 month typically in the June-July period (YCWA 1993).



Typical Camp Site

**Figure 3.1-10. Representative photograph of Frenchy Point Boat-in Campground.**

## **Day Use Facilities**

### Dark Day Picnic Area

The Dark Day Picnic Area is located adjacent to Dark Day Campground on NFS land. The picnic area consists of 13 picnic sites, each with a picnic table and cooking grill/fire ring. The day use area also has 1 restroom (vault), a potable water system, and a paved and striped parking area for 14 vehicles. A trailhead for the Bullards Bar Trail is located near the parking area. The facility has one facility identification sign; 2 single-panel information boards; 14 information/regulation signs; 2 directional signs on the road and 1 trailhead sign. Representative photographs of the recreation facilities are provided in Figure 3.1-11.





Typical Camp Site



Parking Area and Typical Comfort Station

**Figure 3.1-11. Representative photographs of Dark Day Picnic Area.**

### Sunset Vista Point

This scenic overlook is located near the southeast corner of the reservoir approximately 1.0 mi east of New Bullards Bar Dam via Marysville Road and Vista Point Road. The facility consists of 1 restroom (vault), 1 picnic table, and a gravel parking area for approximately 60 vehicles. The facility also serves as a trailhead for the Bullards Bar Trail (Project trail). The facility has one facility identification sign; a single one-panel information board; four information/regulation signs; and an interpretive panel. In addition, the Bullards Bar Trailhead also has three signs including a trailhead sign and two informational signs. Representative photographs of the recreation facilities are provided in Figure 3.1-12.





**Figure 3.1-12. Representative photographs of Sunset Vista Point.**

#### Dam Overlook

The Dam Overlook is located at the southeast corner of New Bullards Bar Dam on Marysville Road on YCWA-owned land. The facility provides a safe place to park a vehicle with an unobstructed view of the dam and reservoir and consists of a gravel parking area for approximately 24 vehicles and an interpretive plaque related to the construction of New Bullards Bar Dam and the Project. The facility does not have any signs other than the interpretive plaque. Representative photographs of the recreation facilities are provided in Figure 3.1-13.





Parking Area



Dedication Plaque

**Figure 3.1-13. Representative photographs of the Dam Overlook.**

#### Moran Road Day Use Area

The Moran Road Day Use Area is located on the west shoreline of New Bullards Bar Reservoir at Moran Cove on NFS land. The day use area is accessible by vehicle 6.4 mi from the Town of Challenge via Oregon Hill Road and Moran Road. The rustic developed facility consists of a gravel parking area for eight vehicles, one restroom (vault) and an informal car top boat ramp (gravel surface). The facility has a single one-panel information board and four information/regulation signs. Representative photographs of the recreation facilities are provided in Figure 3.1-14.





**Figure 3.1-14. Representative photographs of Moran Road Day Use Area.**



## Boat Launch Facilities

### Cottage Creek Boat Launch

Cottage Creek Boat Launch is located on YCWA-owned land along the southwest corner of the reservoir off County Road 169 approximately 0.1 mi from its intersection with Marysville Road. The launch ramp facility consists of a 900-ft long 2-lane concrete launch ramp, 2 restrooms (vault), 1 picnic site, and a paved and striped parking area for 209 vehicles (130 single spaces and 79 double spaces). The facility has 2 facility identification signs and 33 information/regulation signs. Representative photographs of the recreation facilities are provided in Figure 3.1-15.



Parking Area



Boat Ramp and Floating Dock

**Figure 3.1-15. Representative photographs of Cottage Creek Boat Launch.**

### Dark Day Boat Launch

The Dark Day Boat Launch facility is located on Dark Day Road. The facility consists of a main facility (original construction) and an overflow parking area (constructed in 2003). The main facility has a 2-lane concrete boat ramp (3-lane concrete boat ramp at the top of the ramp) with a floating boat dock, a 4-unit restroom (vault) and a paved and striped parking area for 103



vehicles (39 single spaces and 64 double spaces). Exterior, solar-powered lights are provided at the restroom and at the top of the boat ramp. The overflow parking area facility (named Dark Day Boat Launch Overflow Parking Area) has a paved and striped parking area for 73 vehicles (18 single spaces and 55 double spaces), and a 2-unit restroom (vault). Overall, the facility has 2 facility identification signs; 1 2-panel information board; 45 information/regulation signs; and 5 directional signs on the access and circulation roads off Marysville Road. Representative photographs of the recreation facilities are provided in Figure 3.1-16.



**Main Facility and Parking Area**



**Boat Ramp and Floating Dock**

**Figure 3.1-16. Representative photographs of Dark Day Boat Launch.**



Overflow Parking Area

**Figure 3.1-16. (continued)**

## **Recreational Trails**

### Bullards Bar Trail

The Bullards Bar Trail is a 14-mi non-motorized, multi-use trail offering an easy, relatively level, and scenic route along the shoreline of the reservoir from the Sunset Vista Point near the dam up to Old Camptonville Road near the Willow Creek arm of the reservoir. The non-motorized, multi-use trail is located within the existing FERC Project Boundary, except for the eastern end of the trail (approximately 1.5 mi) which extends beyond the FERC Project Boundary along Willow Creek, ending at Old Camptonville Road. The trailheads, including parking, are located at the Sunset Vista Point day use facility, Dark Day Picnic Area and Dark Day Boat Launch. The trail is located on NFS and YCWA-owned land and is managed by the Forest Service.

### Schoolhouse Trail

The Schoolhouse Trail is a 0.7-mile non-motorized, multi-use trail that descends steeply for approximately 250 ft from Schoolhouse Campground to the Bullards Bar Trail. The trailhead including parking is located at the Schoolhouse Campground with parking nearby in the campground overflow parking area. The entire trail is located on NFS land within the existing FERC Project Boundary land and is managed by the Forest Service.

## **Floating Comfort Stations**

New Bullards Bar Reservoir has seven floating comfort stations dispersed throughout the reservoir. Each floating comfort stations consists of two stalls on a floating dock with cleats for boats to approach and tie off to and informational signs. A representative photograph of the recreation facilities is provided in Figure 3.1-17.





**Figure 3.1-17. Representative photograph of the floating comfort stations.**

## **Recreational Water Supply System**

### Water Treatment Facility

The water treatment facility<sup>7</sup> is located on the north side of New Bullards Bar Dam at the west end of the Cottage Creek Boat Launch facility on YCWA land. The water treatment facility consists of the following primary elements: 1) a water treatment building, containing filters, valves, gages, electronics, office, pumps and equipment; 2) two 10,000 gallon storage tanks; 3) concrete de-chlorination basin; and 4) extensive, separate piping for raw water and treated water. The facility has a storage capacity of 20,000 gallons and a filter rate of 30 gallons per minute or 43,200 gallons per day. Representative photographs of the water treatment facility are provided in Figure 3.1-18.

---

<sup>7</sup> The source for the recreational facility water system is raw water from New Bullards Bar Reservoir at the low level outlet of New Bullards Bar Dam. YCWA pumps and pipes the raw water up the downstream side of New Bullards Bar Dam (north side) and under Cottage Creek Campground Access Road at the entrance to the Cottage Creek Boat Launch facility, where the source water enters the water treatment facility.



**Figure 3.1-18. Representative photographs of the water treatment facility.**



## Water Distribution System

### *Water Treatment Facility to Cottage Creek Boat Launch*

The treated water leaves the water treatment facility and is piped underground directly to the Cottage Creek Boat Launch facility along the northern boundary of the facility parking area. Roughly halfway along the parking area, there is a “T” junction in the piping, where the piping emerges above ground and water may either be pumped up the hill to a storage tank near the marina storage/maintenance yard north of the boat launch parking area (off Cottage Creek Campground Access Road) or continue down to the marina. This segment is entirely on YCWA land. Representative photographs of these facilities are provided in Figure 3.1-19.



**Figure 3.1-19. Representative photographs of the water distribution system at Cottage Creek Boat Launch.**

### *Water Treatment Facility to Sunset Vista Point/Water Storage Tanks*

Treated water serving the recreation facilities on the south side of New Bullards Bar Reservoir along Marysville Road leaves the water treatment facility and is piped across New Bullards Bar Dam (upstream face near crest) and then underground across the entrance road to the upstream side of the dam, where a 2-inch pipe carries it aboveground, across the upstream side, just below the crest of the dam to the south side of the dam. Here the pipe goes underground near the Dam Overlook (no water facilities) along the north side of Marysville Road until it reaches the south side of the Forest Service administration site (non-project) near Sunset Vista Point. It travels



through the Forest Service’s administrative site,<sup>8</sup> mostly between the administrative site road and the reservoir, until the 2-inch pipe connects to the top of both water storage tanks at the north side of the Forest Service administrative site. This segment is on YCWA and NFS land. A representative photograph of the distribution system across the dam is provided in Figure 3.1-20.



**Figure 3.1-20. Representative photograph of the water distribution system across New Bullards Bar Dam.**

The primary storage of treated water occurs near the Forest Service’s administrative site (non-project on NFS land), where two storage tanks are located - a 28,000 gallon concrete tank and a newer 10,000 gallon polypropylene tank. A representative photograph of the water storage tanks is provided in Figure 3.1-21.

---

<sup>8</sup> The Forest Service administrative site is a non-Project facility used by the Forest Service for a variety of Forest Service needs, and is not open to the public. It includes a Forest Service operational headquarters, barracks and residences for Forest Service fire response. FERC, in an August 19, 1993 Order that approved YCWA’s Revised Recreation Plan, directed YCWA to remove the administrative site from the Project facilities, and redraw the FERC Project boundary to exclude the administrative site. This has been done in YCWA’s Application for New License.



**Figure 3.1-21. Representative photograph of the water storage tanks.**

*Sunset Vista Point/Water Storage Tanks to Schoolhouse and Hornswoggle Group Campgrounds*

The treated water leaves the storage tanks at the Forest Service administrative site via the underground delivery system (8-inch pipe) to the Project recreation facilities along Marysville Road (Hornswoggle Group Campground, Schoolhouse Campground, and the Dark Day complex). The 8-inch mainline pipe then turns and follows Marysville Road north, and delivers the water to the Project recreation facilities along Marysville Road.

The connection to Hornswoggle Group Campground occurs at a “T” junction in the main distribution line several hundred feet before the Schoolhouse Campground access road. The treated water is diverted off the main distribution line underneath Marysville Road to the south to Hornswoggle Group Campground, where water is piped underground to the campground water facilities (e.g., flush restrooms, water spigots and fire hydrant).

The connection to Schoolhouse Campground occurs at a “T” junction in the main distribution line several hundred feet past the Schoolhouse Campground access road, near the middle of the facility complex. The treated water is connected underground to the campground water facilities (e.g., flush restrooms and water spigots). This segment is on YCWA and NFS land.

All of these facilities are entirely below-ground and representative photographs are not available.

*Schoolhouse and Hornswoggle Group Campgrounds to Dark Day Complex*

The connection to the Dark Day recreation complex occurs at a “T” junction in the main distribution line just before the Dark Day access road. The main distribution line then follows the west side of Dark Day Road, where it connects to the Dark Day Overflow Boat Ramp Parking Area, Dark Day Campground, Dark Day Picnic Area and Dark Day Boat Launch. The main distribution line runs along the western edge of the road that accesses Dark Day Campground and Picnic Area with several “T” junctions to run treated water to the campsites and picnic area along the road; as well as east to the water spigot at Dark Day Boat Launch facility. All of these facilities are entirely below-ground and representative photographs are not available.

**Marina Services (YCWA Lease)**

The marina is provided as a service to Project visitors through a YCWA lease to a private concessionaire. Currently, the marina is called Emerald Cove Marina. The facility is located on New Bullards Bar Reservoir at the end of Cottage Creek Boat Ramp, and consists of a marina, a floating general store and a floating restroom building. The Emerald Cove Marina provides overnight boat slips and mooring buoys, gasoline pumps, and a floating dump station for houseboat sanitation systems. In addition, the marina provides marine-related repair and maintenance services for nearly any watercraft from complete engine overhauls to cosmetic repairs, including 24-hour emergency watercraft calls/service. The marina has a variety of boat rentals including luxury houseboats, powerboats, pontoon boats, and personal watercraft/wave runners. The general store provides groceries and general supplies to the public. The marina operates a reservation system for overnight camping permits at New Bullards Bar Reservoir facilities, including shoreline camping permits and portable chemical toilet rentals. A representative photograph is provided in Figure 3.1-22.



**Figure 3.1-22. Representative photograph of the Emerald Cove Marina.**



### 3.1.2.2 Project Diversion Dam Impoundments

#### Our House Diversion Dam

The Our House Diversion Dam impoundment provides undeveloped day use recreation opportunities. The site is located on NFS land along the Middle Yuba River (river mile or RM 12.6) and does not have any developed recreation facilities. Vehicle access to the diversion dam occurs via Highway 49 to Ridge Road and then 1.8 mi along the paved Our House Dam Road. Informal parking for approximately 25 vehicles is available at the end of the Our House Dam Road, where visitors have foot access to the shoreline. Representative photographs are provided in Figure 3.1-23.



**Figure 3.1-23. Representative photographs of Our House Diversion Dam recreation site.**

## Log Cabin Diversion Dam

The Log Cabin Diversion Dam impoundment provides undeveloped day use recreation opportunities. The site is located on NFS land along Oregon Creek (RM 4.3) and does not have any developed recreation facilities. YCWA, with the permission of the Forest Service, has installed and keeps locked a vehicular gate on NFS land at the start of Log Cabin Road at Highway 49. Vehicle access to the diversion dam is restricted. Visitors may park their vehicles along the shoulder of Highway 49 and hike into the diversion dam. A representative photograph is provided in Figure 3.1-24.



Figure 3.1-24. Representative photographs of Log Cabin Diversion Dam recreation site.

### 3.1.3 Streamflow Gages

The New Colgate Development includes the two streamflow gages listed in Table 3.1-3 that YCWA uses to monitor compliance with existing minimum streamflow requirements.

**Table 3.1-3. Existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Colgate Development.**

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Middle Yuba River downstream from Our House Diversion Dam <sup>1</sup>	11408880	YC5	Middle Yuba River Below Our House Dam, Near Camptonville	39°24'42"	120°59'49"	1,957.51
Oregon Creek downstream from Log Cabin Diversion Dam <sup>1</sup>	11409400	YC3	Oregon Creek Below Log Cabin Dam, Near Camptonville	39°26'22"	121°03'29"	1,912.73

<sup>1</sup> United States Geological Survey (USGS) rates this gage for full range in stage/flow.

### 3.1.4 Roads

Tables 3.1-4 and 3.1-5 list Primary Project Roads (non-recreation roads) and recreation-related roads, respectively, associated with the New Colgate Development.

**Table 3.1-4. Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the New Colgate Development.**

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Our House Diversion Dam Road (TNF Rd 0180-Our House)	Ridge Road	Our House Diversion Dam	Private	0	0.79	0.79
	Forest Service	--	Forest Service	0.79	0.85	0.06
	Private	--	Private	0.85	1.12	0.27
	Forest Service	--	Forest Service	1.12	1.93	0.81
Our House Diversion Dam Road Spur	Our House Diversion Dam Road	Our House Diversion Dam	Forest Service	0	0.03	0.03
Log Cabin Diversion Dam Road	Highway 49	Log Cabin Diversion Dam	Private	0	0.15	0.15
	Forest Service	--	Forest Service	0.15	0.42	0.27
	Private	--	Private	0.42	0.50	0.08
	Forest Service	--	Forest Service	0.50	0.85	0.35
	Private	--	Private	0.85	1.09	0.24
	Forest Service	--	Forest Service	1.09	1.33	0.24
New Bullards Bar Dam Road	County Road 8	New Bullards Bar Dam	Private	0	1.09	1.09
	New Bullards Bar Dam Road Spur	New Bullards Bar Dam	Private	0	0.11	0.11
<b>Total</b>	<b>14 road segments</b>					<b>4.53 mi</b>

**Table 3.1-5. Existing Recreation Roads included in Yuba River Development Project that are associated with the New Colgate Development.**

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Dark Day Boat Launch Road	Dark Day Boat Launch	Forest Service	New Bullards Bar Reservoir	Forest Service	0	0.28	0.28
Dark Day Campground and Picnic Area Road	Dark Day Campground and Picnic Area	Forest Service	Campground	TNF Rd 0008-004	0	0.44	0.44
Schoolhouse Campground Loop Road	Schoolhouse Campground	County Road 8	Campground	TNF Rd 0008-005, 0008-005-001, 0008-005-002 and 0008-003	0	0.97	0.97
Hornswoggle Group Campground Road	Hornswoggle Group Campground	County Road 8	Campground	TNF Rd 0008-006	0	0.33	0.33
Moran Boat Launch Access Road	Moran Boat Launch	Moran Road	New Bullards Bar Reservoir	Forest Service	0	0.20	0.20
				YCWA	0.20	0.29	0.09
Burnt Bridge Campground Loop Road (PNF Rd 18N07)	Burnt Bridge Campground	County Road 129	Campground	Forest Service	0	0.77	0.77
Sunset Vista Point Road	Sunset Vista and Trailhead	County Road 8	Bullards Bar Trailhead	Forest Service	0	0.12	0.12



**Table 3.1-5. (continued)**

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Cottage Creek Campground Road	Cottage Creek Campground	County Road 169	Campground	Forest Service	0	0.14	0.14
Cottage Creek Campground Access Road	Cottage Creek Campground	County Road 8	Cottage Creek Campground	YCWA	0	0.47	0.47
				Forest Service	0.47	0.82	0.35
				YCWA	0.82	1.16	0.34
				Forest Service	1.16	1.24	0.08
Cottage Creek Boat Launch Road	Cottage Creek Boat Launch	Cottage Creek Campground Access Road	New Bullards Bar Reservoir	YCWA	0	0.15	0.15
Cottage Creek Shoreline Access Spur	Cottage Creek Shoreline Access	Cottage Creek Campground Access Road	New Bullards Bar Reservoir	Forest Service	0	0.08	0.08
<b>Total</b>		<b>15 road segments</b>					<b>4.81 mi</b>

## 3.2 New Bullards Minimum Flow Development

### 3.2.1 Developmental Facilities

The New Bullards Minimum Flow Development is located on the North Yuba River and includes one powerhouse (New Bullards Minimum Flow). Table 3.2-1 summarizes the dimensions, physical features, and other pertinent information for each facility or feature. The New Bullards Minimum Flow Development does not include any recreation facilities. A representative photograph of New Bullards Minimum Flow Development facilities and features is provided in Figure 3.1-3.

**Table 3.2-1. Description of Yuba River Development Project facilities and features – New Bullards Minimum Flow Development.**

<b>NEW BULLARDS MINIMUM FLOW POWERHOUSE PENSTOCK</b>	
Number and Type	One steel penstock that bifurcates off the New Bullards Bar Dam low level outlet pipe
Construction Period	1986
Size	12 inches diameter
Length	70 ft
<b>NEW BULLARDS MINIMUM FLOW POWERHOUSE</b>	
Maximum Design Capacity	5 cfs
Location/Legal Description	Latitude 39° 23' 33" Longitude 121° 08' 31" in Sec 25, T 18 N, R 7 E in Yuba County, 2.6 miles northwest of North San Juan
Placed in Service (Began Commercial Operation)	1986
Closest Upstream Facility	New Bullards Bar Reservoir, immediately upstream
Closest Downstream Facility	New Colgate Powerhouse, 8.1-miles downstream on Yuba River
Normal Type of Operation	Base loaded
Structure	--
Type	Prefabricated steel building
Approximate Size	Floor plan: 16 ft x 16 ft

**Table 3.2-1. (continued)**

<b>NEW BULLARDS MINIMUM FLOW POWERHOUSE (continued)</b>	
Turbine	--
Number of Units	One
Type	Pelton
Manufacturer	Canyon Industries
Nameplate Output	201 hp
Nameplate Capability	150 kW
Nameplate Rated Head	344 ft – 560 ft
Design Head	560 ft
Speed	900 RPM
Nameplate Rated Flow	5 cfs
Turbine Centerline Elevation	1,391 ft
Generator	--
Type	Synchronous
Manufacturer	Kato
Upgrades	None
Nameplate Output	187.5 kVA
Nameplate Capability	150 kW
Power Factor	0.9
Voltage	480 Volts
Speed	900 RPM
Governor	--
Manufacturer	Kato
<b>NEW BULLARDS MINIMUM FLOW TRANSFORMER</b>	
Location	Latitude 39° 23' 33" Longitude 121° 08' 31" in Sec 25, T 18 N, R 7 E in Yuba County, 2.6 miles northwest of North San Juan
Size	225 kVA
Transformer Nameplate Rating	225 kVA
Voltage Rating	480/12,000 Volts
High Voltage Breakers	12,000 Volts
Associated Transmission Line within FERC License	None

Notes: cfs = cubic feet per second; hp = horsepower; kVA = kilovolt-ampere; kW = kilowatt; RPM = revolutions per minute

### **3.2.2 Recreation Facilities**

The New Bullards Bar Minimum Flow Development does not include any recreation facilities.

### **3.2.3 Gages**

The New Bullards Bar Minimum Flow Development includes the streamflow gage in Table 3.2-2 used by YCWA to monitor compliance with existing minimum streamflow requirements. YCWA uses United States Geological Survey (USGS) Gage 11413517, North Yuba River Downstream from New Bullards Bar Dam, to measure releases from the New Bullards Bar Minimum Flow Powerhouse.

**Table 3.2-2. Existing streamflow gage used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the New Bullards Bar Minimum Flow Development.**

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
North Yuba River downstream from New Bullards Bar Dam <sup>1</sup>	11413517	YC7	North Yuba River Low Flow Release Below New Bullards Bar Dam	39°23'26"	121°08'36"	1,350

<sup>1</sup> USGS rates this gage for partial range in stage/flow (up to 10.0 cubic feet per second).

### 3.2.4 Roads

The New Bullards Bar Minimum Flow Development does not include any roads.

## 3.3 Narrows 2 Development

### 3.3.1 Developmental Facilities

The Narrows 2 Development is located on the main stem of the Yuba River. The development includes one power tunnel and penstock (Narrows 2), and one powerhouse (Narrows 2). Table 3.3-1 summarizes the dimensions, physical features and other pertinent information for each facility or feature. The Narrows 2 Development does not include any recreation facilities. A representative photograph of Narrows 2 Development facilities and features is provided in Figure 3.3-1.

**Table 3.3-1. Description of Yuba River Development Project facilities and features – Narrows 2 Development.**

NARROWS 2 POWERHOUSE PENSTOCK	
Number and Type	One rock tunnel, concrete lined horseshoe shaped tunnel at upper end, steel lined tunnel near powerhouse
Construction Period	1968-69
Size	Concrete lined tunnel section approx. 18'-4" diameter, steel lined section 14'-0" diameter.
Length	737 ft (349 ft concrete lined horseshoe tunnel, 368 ft steel lined tunnel and 20 ft transition)
Maximum Flow Capacity	3,400 cfs
NARROWS 2 POWERHOUSE	
Location/Legal Description	Latitude 39° 14' 11" Longitude 121° 16' 17" in Sec 23, T 16 N, R 6 E, 1.6 miles north of Mooney Flat
Closest Upstream Facility	USACE's Englebright Dam, immediately upstream
Closest Downstream Facility	PG&E's Narrows 1 Powerhouse, immediately downstream
Controls	SCADA
Normal Type of Operation	Base loaded
Structure	--
Type	Concrete structure keyed into rock.
Approximate Size	Floor plan approx. 100 ft x 60 ft. Height of structure (from bottom of draft tube to roof deck) approx. 85 ft.



**Table 3.3-1. (continued)**

<b>NARROWS 2 POWERHOUSE (continued)</b>	
Turbine	--
Number of Units	One
Type	Vertical Francis Type
Manufacturer	Voith Siemens
Nameplate Output	70,000 hp
Nameplate Capability	46.7 MW
Maximum Capability	55 MW
Nameplate Rated Head	236 ft
Design Head	236 ft
Gross Head	235 ft at NMWSE. 183 ft at normal min WSE
Speed	163.6 RPM
Nameplate Rated Flow	3,400 cfs
Turbine Centerline Elevation	292.00 ft
Generator	--
Type	Vertical Indoor
Manufacturer	Toshiba
Upgrades	Rewind 1999
Nameplate Output	55,000 kVA
Nameplate Capability	46.7 MW
Power Factor	0.85
Speed	163.6 RPM
Governor	--
Type	Cabinet type
Manufacturer	Voith Siemens
<b>NARROWS 2 PARTIAL BYPASS</b>	
Maximum Capacity	650 cfs, but usually no higher than 230 cfs due to facility safety
<b>ACCESS ROAD</b>	
Access roads within FERC Project Boundary	Unnamed road off of Scott Forbes Road
<b>NARROWS 2 FULL BYPASS</b>	
Location	Immediately upstream of Narrows 2 Powerhouse
Maximum Capacity	3,000 cfs
Control	72-in. diameter fixed-cone valve
<b>NARROWS 2 POWERHOUSE SWITCHYARD</b>	
Location	Latitude 39° 14' 11" Longitude 121° 16' 17" in Sec 23, T 16 N, R 6 E, 1.6 miles north of Mooney Flat
Maximum Capacity	55,000 kVA
Voltage Rating	60/13.8 kV
High Voltage Breakers	SF-6
Associated Transmission Line within FERC License	None

Notes: cfs = cubic feet per second; hp = horsepower; kVA = kilovolt-ampere; kW = kilowatt; MW = megawatt; NMWSE = normal maximum water surface elevation; RPM = revolutions per minute; SCADA = Supervisory Control And Data Acquisition system

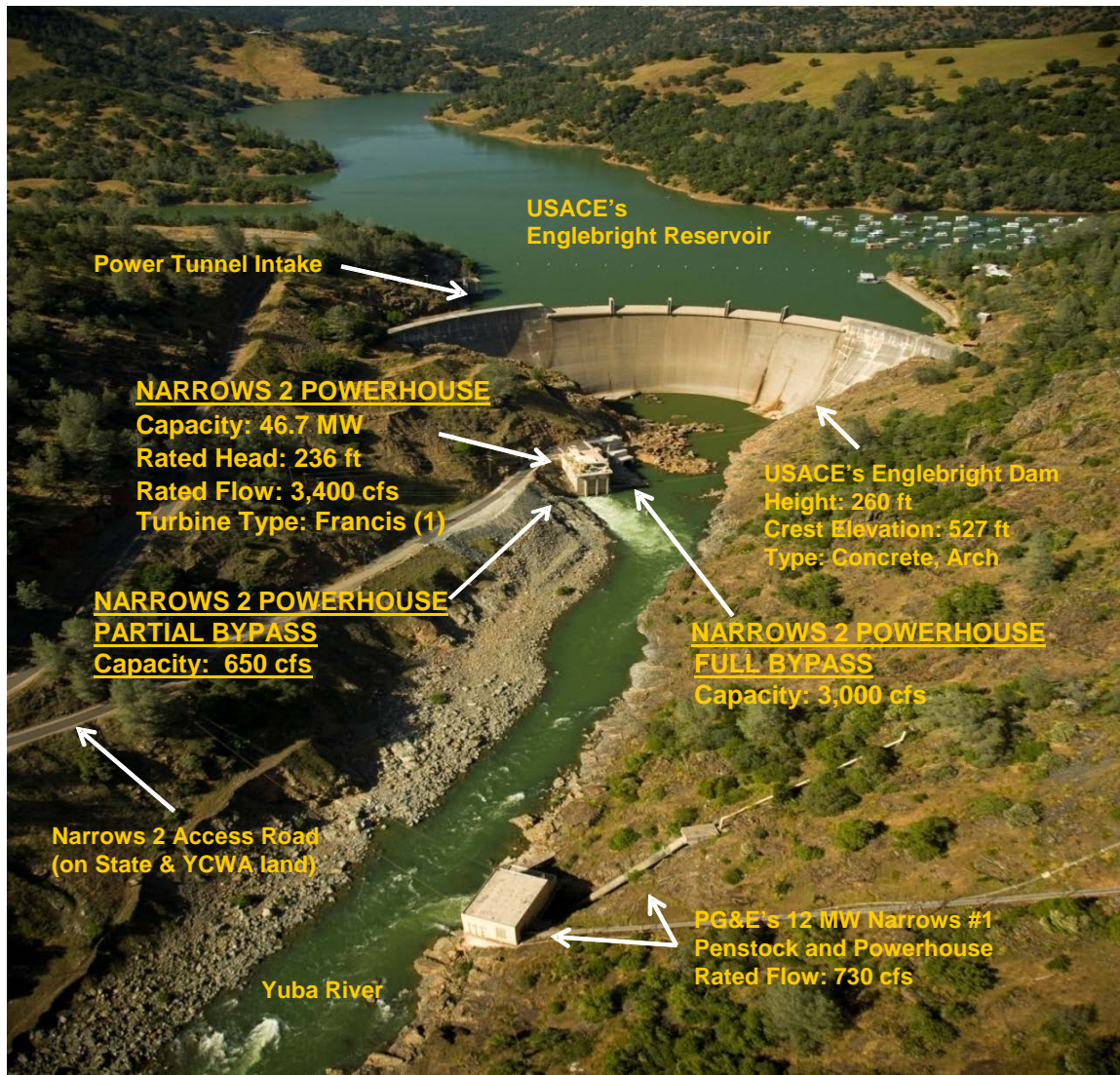


Figure 3.3-1. Views of Narrows 2 Development facilities and features.

### 3.3.2 Narrows 2 Development Recreation Facilities

The Narrows 2 Development does not include any recreation facilities.

### 3.3.3 Streamflow Gages

The Narrows 2 Development does not include any streamflow gages. YCWA uses two non-Project gages to monitor compliance with streamflow requirements. These gages are: USGS Gage 11418000, Yuba River Below Englebright Dam, Near Smartsville, and USGS Gage 1142100, Yuba River Near Marysville. The Smartsville gage is owned, operated, and maintained by PG&E. The Marysville gage is owned by YCWA and operated by USGS (Table 3.3-2).

**Table 3.3-2. Non-Project existing streamflow gages used by YCWA to monitor compliance with existing minimum streamflow requirements associated with the Narrows 2 Development.**

Location	USGS Gage No.	YCWA's Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (ft)
Yuba River downstream of Narrows 2 Powerhouse <sup>1</sup>	11418000 <sup>1</sup>	NY28	Yuba River Below Englebright Dam, Near Smartsville	39°14'07"	121°16'23"	278.68
Yuba River near Marysville <sup>1</sup>	11421000 <sup>1</sup>	--	Yuba River Near Marysville	39°10'33"	121°31'26"	-2.95

<sup>1</sup> USGS rates this gage for full range in stage/flow.

### 3.3.4 Roads

Table 3.3-3 list Primary Project Roads (non-recreation roads) associated with the Narrows 2 Development. The development does not include any recreational roads.

**Table 3.3-3. Existing Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project that are associated with the Narrows 2 Development.**

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
Narrows 2 Powerhouse Road	County Road 222	Narrows 2 Powerhouse	State of California	0	1.50	1.50
	USACE	--	USACE	1.50	2.07	0.57
Narrows 2 Intake Spur	Narrows 2 Powerhouse Road	Narrows 2 Intake	State of California	0	0.14	0.14
	USACE	--	USACE	0.13	0.19	0.06
<b>Total</b>			<b>4 road segments</b>			<b>2.27 mi</b>

## 4.0 Area Within the Existing FERC Project Boundary

The existing FERC Project Boundary, consisting of lands necessary for the safe operations and maintenance (O&M) of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources, encompasses 7,815.2 acres (ac) of land in Yuba, Nevada and Sierra counties, California.

Within the FERC Project Boundary, the United States is the major landholder with 4,432.8 ac (56.7% of the area within the FERC Project Boundary). NFS land includes 4,416.7 ac and USACE land includes 16.1 ac. The FERC Project Boundary also includes 20.1 ac of State of California land. YCWA is the largest non-federal landowner within the Project Boundary, owning 3,149.3 ac (40.3%). The remainder (213.0 ac) of the land is private. Land ownership is summarized for the existing Project Boundary below in Table 4.0-1.<sup>9</sup> Land ownership parcel Geographic Information System (GIS) data used to develop this and all other land ownership tables was obtained from the Yuba County GIS Department (K. Atkinson, pers. comm., 2013) and was then modified per the Forest Service's request.

<sup>9</sup> Refer to Exhibit G, Section 1.1, for a detailed description of the data sources used to calculate land ownership within the FERC Project Boundary.



**Table 4.0-1. Summary of land ownership within the existing FERC Project Boundary by Project Development based on information provided by the County Assessor.**

Development	Forest Service (ac)	USACE (ac)	State of California (ac)	YCWA (ac)	Other Private (ac)	Total	
						Area (ac)	Percent of Total
New Colgate	4,416.7	0.0	0.0	3,148.1	209.9	7,774.7	99.5%
New Bullards Minimum Flow	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0%
Narrows 2	0.0	16.1	20.1	1.2	3.1	40.5	0.5%
<b>Total</b>	<b>4,416.7</b>	<b>16.1</b>	<b>20.1</b>	<b>3,149.3</b>	<b>213.0</b>	<b>7,815.2</b>	<b>100.0%</b>
<b>Percent</b>	<b>56.5%</b>	<b>0.2%</b>	<b>0.3%</b>	<b>40.3%</b>	<b>2.7%</b>	<b>--</b>	<b>100.0%</b>

Source: Yuba County GIS Parcel Base, Obtained August 2013, modified per the Forest Service's request.

## 4.1 Lands of the United States within the Existing FERC Project Boundary

Table 4.1-1 identifies by Public Land Survey System each section, or portion thereof, within the existing FERC Project Boundary that is federal land.

**Table 4.1-1. Lands of the United States enclosed within the existing FERC Project Boundary by Project Development and managing federal agency.**

Administered by	Township	Range	Section	Acres
<b>NEW COLGATE DEVELOPMENT</b>				
Forest Service	18N	7E	1	163.4
			2	71.9
			11	62.9
			12	202.2
			13	130.4
			14	274.9
			15	55.6
			24	291.9
			25	17.1
			26	24.8
		34	5.2	
		35	0.1	
		8E	3	39.7
			4	173.9
			5	12.3
			6	96.5
			7	209
			8	397.6
			9	123.3
			10	20.5
11	29.4			
13	0.1			
14	7.1			
16	15.8			

**Table 4.1-1. (continued)**

Administered by	Township	Range	Section	Acres
<b>NEW COLGATE DEVELOPMENT (continued)</b>				
Forest Service (cont.)	18N (cont.)	8E (cont.)	17	372.3
			18	450.6
			19	143.9
		9E	18	0.1
			19	8.1
			20	69.8
	19N	7E	13	1.9
			24	35.3
			25	46.4
			26	202
			34	0.1
			35	276.2
		8E	36	44.8
			7	15.3
			8	136.8
			9	101.9
			16	16.3
			18	69.3
<b>New Colgate Development Total</b>				<b>4,416.7</b>
<b>NEW BULLARDS BAR MINIMUM FLOW</b>				
No Federal Lands				
<b>NARROWS 2 DEVELOPMENT</b>				
USACE	16N	6E	14	16.1
<b>Narrows 2 Development Total</b>				<b>16.1</b>
<b>Grand Total</b>				<b>4,432.8</b>

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service's request.

## **5.0 Proposed Changes to Existing Project**

### **5.1 Changes to Project Facilities**

#### **5.1.1 Generating Facilities**

YCWA does not propose to add to the Project any previously constructed, unlicensed water power structures or facilities.

##### **5.1.1.1 New Colgate Powerhouse Tailwater Depression System**

YCWA proposes to add to the Project a new tailwater depression system (TDS) at the New Colgate Powerhouse.

The New Colgate Powerhouse generators are driven by six-jet, vertical-shaft Pelton wheel turbines. The turbine runners rotate in the air of the turbine discharge chambers where water can fall freely off the turbine buckets. When the water level in the turbine discharge chamber rises,

the foam and backsplash cause uneven resistance to free rotation with resulting vibration. Consequently, the rate of water release must be reduced and, at high stages, the operation of the turbines must cease.

The water level in the turbine discharge chambers rises as the water level in the Yuba River rises during flood events. The flood runoff can come from spillway releases at New Bullards Bar Dam, unregulated flow downstream of the dam and the Middle Yuba River. Above certain water levels at the powerhouse, when Yuba River flow upstream of the New Colgate Powerhouse reaches approximately 20,000 cubic feet per second (cfs), there is a corresponding reduction in the permissible flow through the New Colgate Powerhouse, which allows the release of water from New Bullards Bar Reservoir through the powerhouse from the power intake, which is at a lower level than the existing spillway elevation. This in turn reduces the ability to move water which could encroach upon the available flood storage space in the reservoir. For example, if the New Colgate Powerhouse were totally shut down for 72 hours prior to and during a period of peak flood inflow to New Bullards Bar Reservoir, there would be a loss of over 20,000 ac-ft of useable storage.<sup>10</sup>

The New Colgate Powerhouse TDS will introduce compressed air into the turbine discharge chamber to lower the tailwater elevation to a level that does not interfere with turbine operation, thereby allowing continued turbine operation during high flows. The TDS will thus enhance the ability to regulate flood releases from New Bullards Bar Reservoir and increase the production of energy.

Figures 5.1-1 through 5.1-3 are conceptual-level plan and profile drawings of the New Colgate Powerhouse TDS. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the Commission as Project Exhibit Drawings. Refer to Exhibit B for a description regarding the anticipated operations of the New Colgate Powerhouse new TDS.

---

<sup>10</sup> The outlet into New Colgate Tunnel is below the level of the spillway lip, which allows for releases in advance of any limits in flood operation regulations.



Page Left Blank

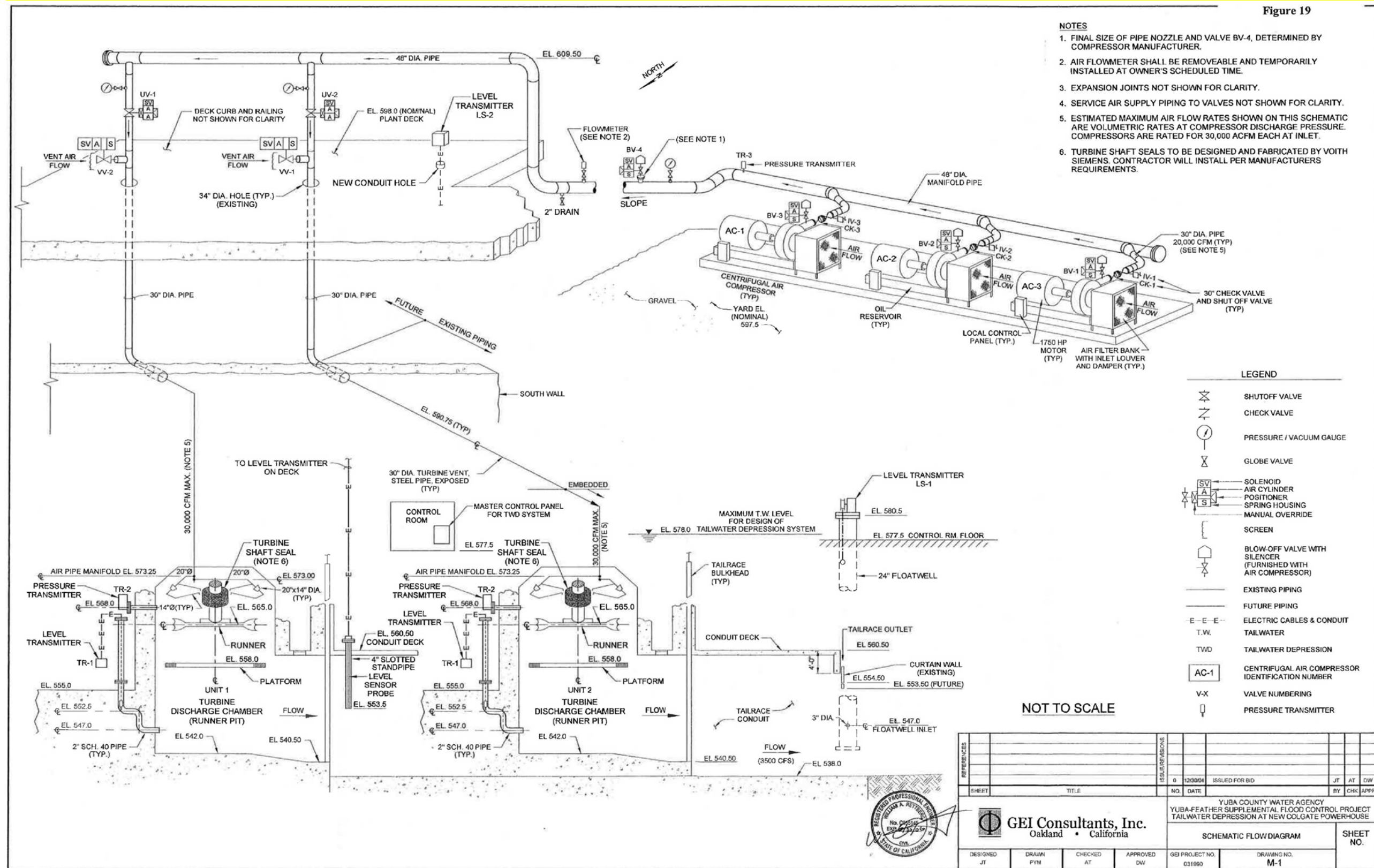


Figure 5.1-1. Schematic flow diagram of YCWA's proposed New Colgate Powerhouse Tailwater Depression System.

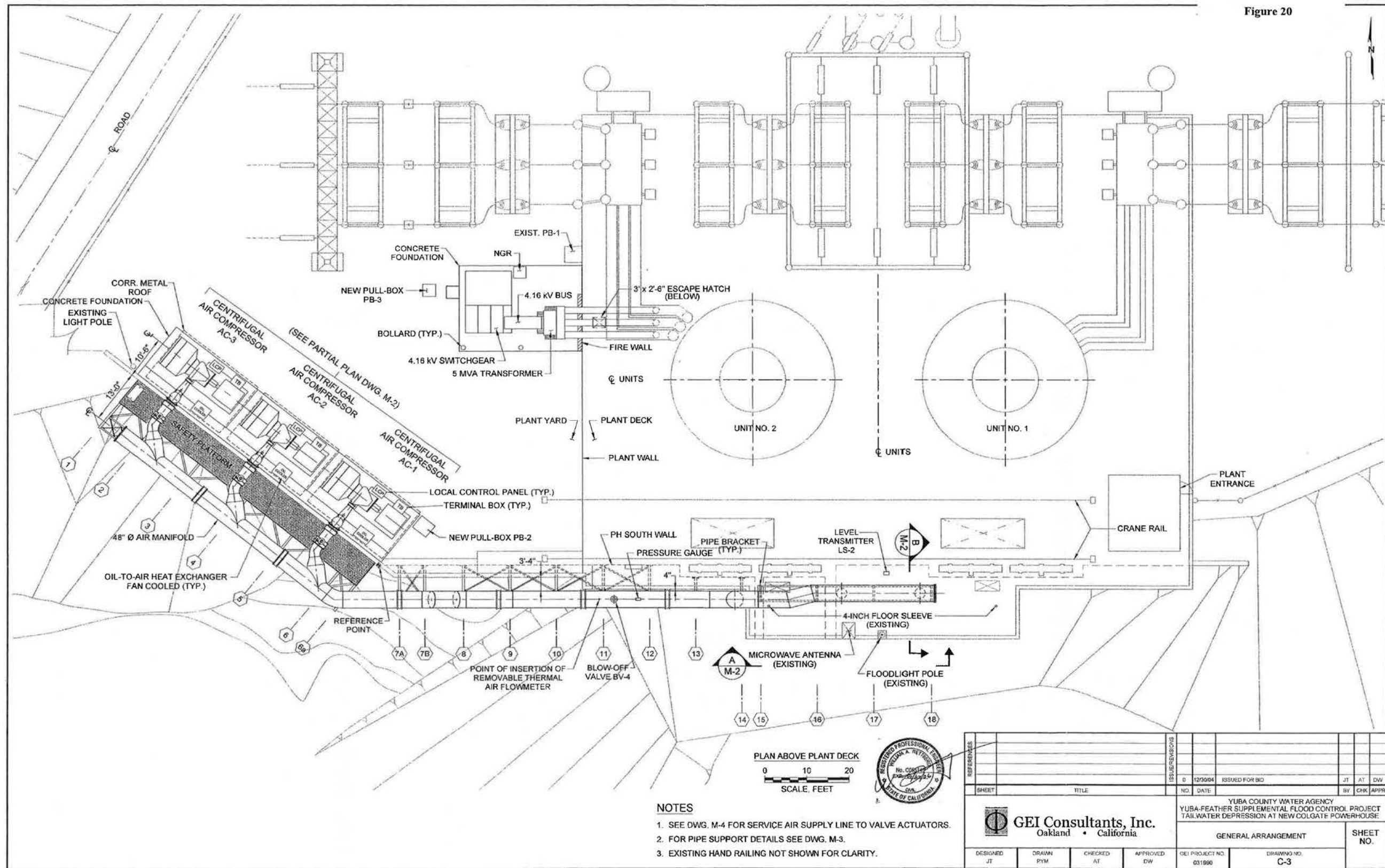


Figure 5.1-2. General arrangement of YCWA's proposed New Colgate Powerhouse Tailwater Depression System.



Figure 21

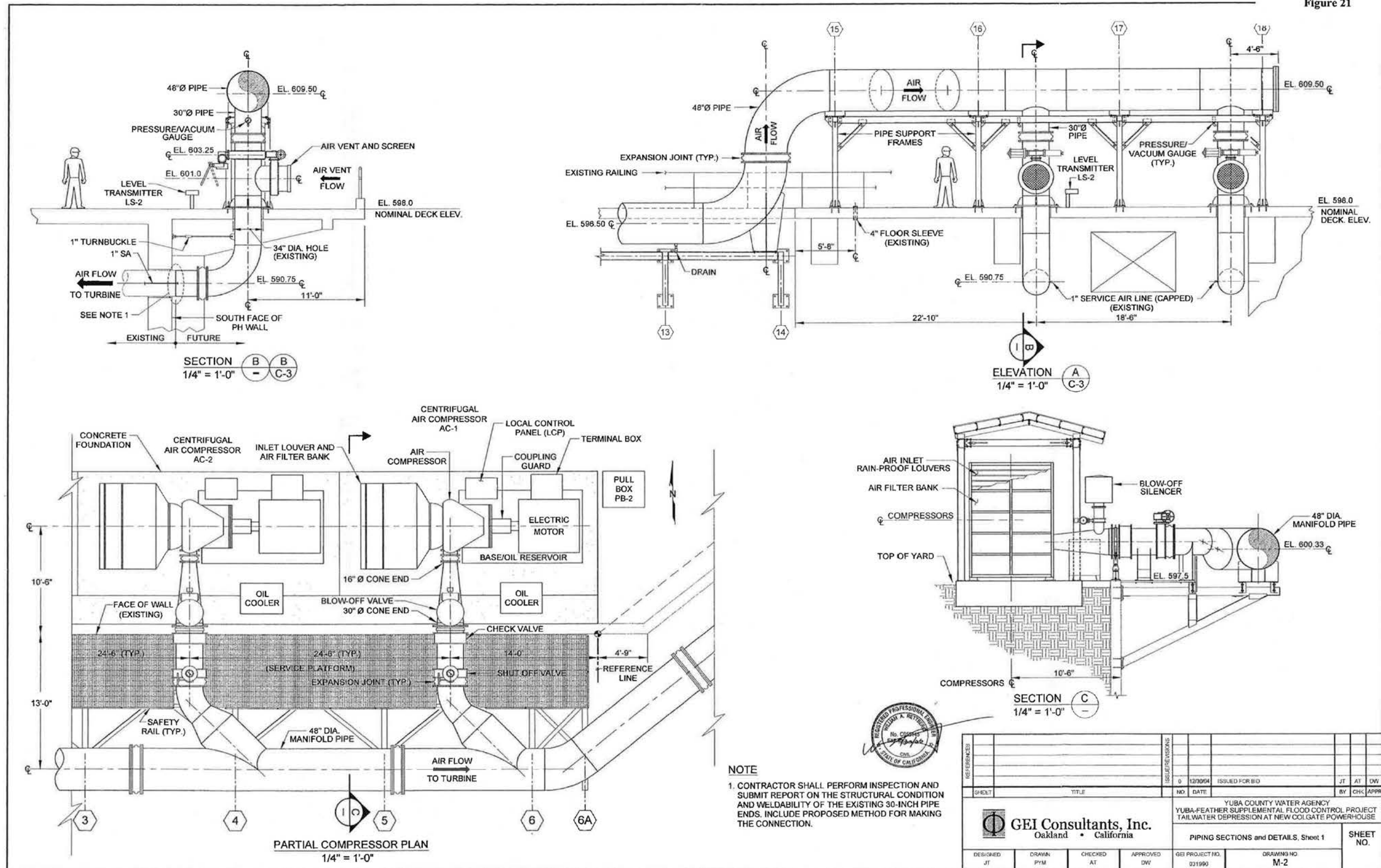


Figure 5.1-3. Piping section and details of YCWA's proposed the New Colgate Powerhouse Tailwater Depression System.

Page Left Blank

## 5.1.2 Non-Generating Facilities

### 5.1.2.1 New Bullards Bar Dam Flood Control Outlet

YCWA proposes to construct a new Flood Control Outlet on New Bullards Bar Dam, to be located south of the existing New Bullards Bar Dam spillway centerline in the upper left abutment area of the dam. The primary benefit of the new Flood Control Outlet is increased flood management. As configured at this time, the new outlet would have a discharge capacity at the bottom of the New Bullards Bar flood pool (elevation 1,918 ft) and at the normal maximum water surface elevation (NMWSE) (1,956 ft) of approximately 45,000 cfs and 66,000 cfs, respectively. The outlet would include:

- An excavated approach channel to the intake structure, with right and left wing walls.
- A reinforced-concrete intake control structure at the end of the approach channel containing intake gates and hydraulic hoists. The intake would be a 70-ft-wide reinforced-concrete structure extending from the approach channel invert at elevation 1,865 ft to a deck at elevation 1,970 ft. It would be located in a rock excavation at the downstream end of the approach channel. The intake structure would have three 17-ft-wide, 30-ft-high gate openings separated by 4.5-ft wide concrete piers. The gates would be roller-type gates operated by hydraulic cylinders. The gates would be operated using hydraulic cylinders installed on the top deck.
- Intake area site works including a fenced, paved parking area adjacent to the intake structure deck, access to Marysville Road, and riprap erosion protection of the finished slopes.
- A 540-ft-long concrete-lined conveyance tunnel. The tunnel would be concrete-lined and horseshoe-shaped, with net opening dimensions of 25 ft in height by 26 ft in width.
- A concrete outlet structure including the tunnel outlet portal, a 60-ft-long open channel and 27-ft-long flip-bucket energy dissipater at the end of the open channel, which would deflect the discharging water jet away from the foundation area and toward the river canyon. The flip-bucket structure would be founded and bolted to rock to resist the hydrodynamic forces and vibrations. A cutoff would be provided to protect the flip bucket foundation from scour. The area between the flip bucket and the river would be cleared of all vegetation, overburden and loose weathered rock down to sound rock.
- A 2,900-ft-long construction access road from an existing forest road to the outlet structure.
- Power supply to the intake for operation and control of the gates.

Figure 5.1-4 shows conceptual-level plan and profile drawings of the new Flood Control Outlet. If approved, detailed drawings would be provided to the Commission as appropriate for FERC approval. After construction is completed, detailed as-built drawings would be filed with the



Commission as Project Exhibit Drawings. Refer to Exhibit B for a description regarding the anticipated operations of the New Bullards Bar Dam Flood Control Outlet.

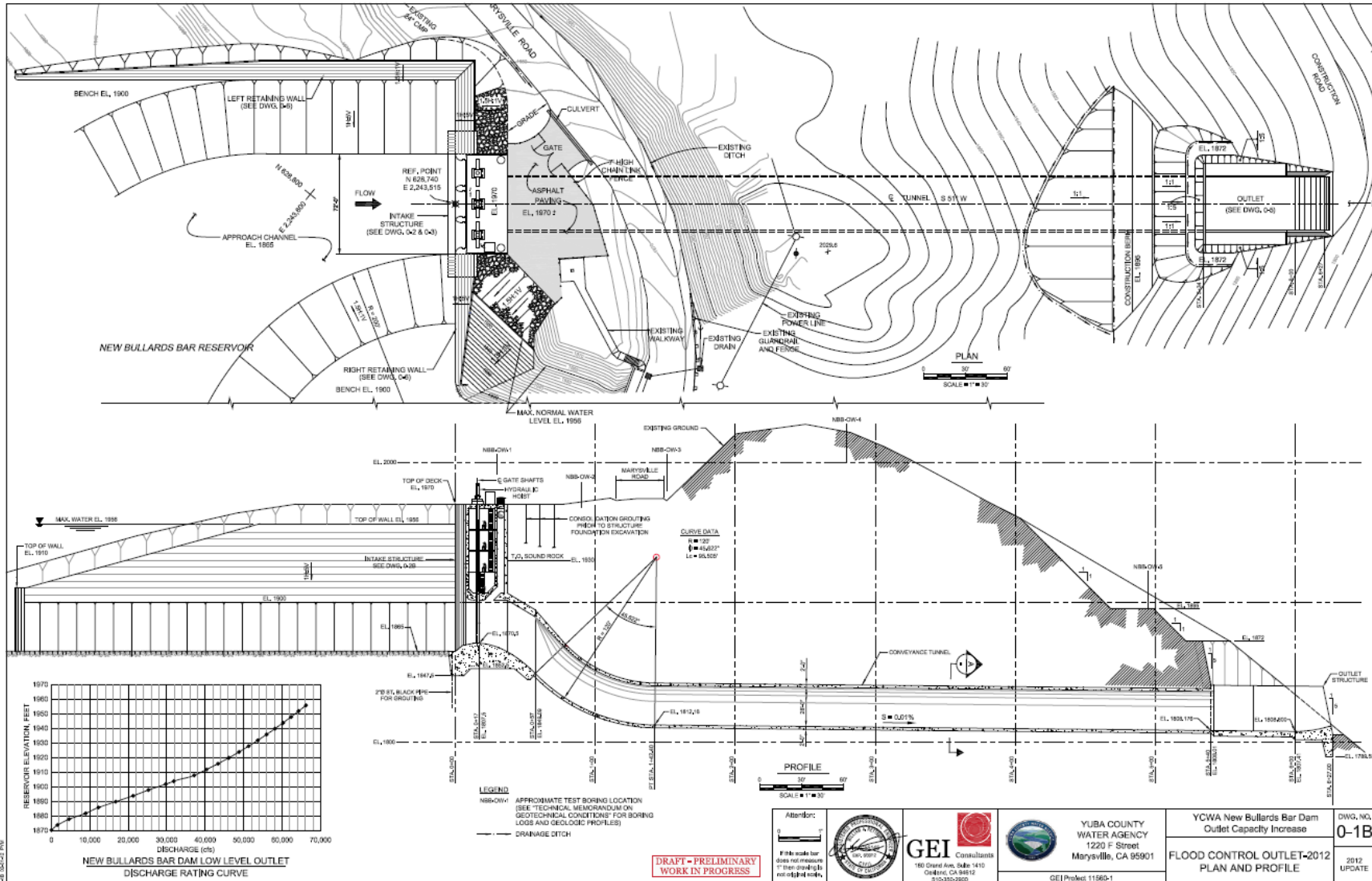


Figure 5.1-4. Conceptual level plan and profile of YCWA's proposed New Bullards Bar Dam Flood Control Outlet.

### **5.1.2.2 Recreation Facilities**

YCWA proposes several enhancements to the existing Project recreation facilities. A description of these enhancements is provided below.

#### **Schoolhouse Campground**

- Replace the lone existing vault restroom (two-unit) with an efficient flush model (including appropriate septic system), if the addition of the flush facility does not exceed the existing water system capacity.
- Convert the double and triple campsites to single campsites.
- Upgrade the host site with water and electric hookups and a septic tank.
- Provide electricity at the entrance kiosk/information board, host site, RV campsites and each restroom.
- Develop up to 12 RV campsites with water and electric hookups. The final number of RV campsites may change during site design due to terrain and road turning radius limitations.
- Restrict RV size at the campground to a 30 ft length, except where RVs up to 40 ft length may be accommodated without: 1) significantly re-designing the existing campground circulation road; and 2) reducing the total number of existing campsites.
- Provide appropriate trailhead signage on the facility entrance sign.

#### **Dark Day Campground**

- Replace the existing vault restrooms with efficient flush models and sizes that meet Forest Service capacities (including appropriate septic system), if the addition of these flush facilities do not exceed the existing water system capacity
- Convert the double and triple campsites to single campsites
- Expand the capacity by two single campsites, as feasible

#### **Hornswoggle Group Campground**

- Replace the existing four-unit flush restrooms at the Manzanita and Madrone campsites with efficient two-unit flush models
- Replace the existing, two-unit vault restrooms at the Sugarpine and Douglas Fir campsites with one-unit flush models (including appropriate septic system), if the addition of these flush facilities do not exceed the existing water system capacity

- Install an efficient one-unit flush restroom at Dogwood and Ponderosa campsites (where restrooms do not currently exist), if the addition of these flush facilities do not exceed the existing water system capacity
- Restrict RV size at the campground to a 30 ft length, except where RVs up to 40 ft length may be accommodated without significantly re-designing the existing campground circulation roads
- Expand the capacity by one group campsite (25-50 PAOT), including a parking area, restroom, and group camping area
- Provide electricity at the entrance kiosk/information board and each restroom

### **Cottage Creek Campground**

- Re-develop the site as a group campground to meet small group camping needs with the following facilities and specifications.
  - Provide a total of four small group campsites consisting of two 12-PAOT sites and two 18-PAOT sites.
  - Provide a group living area with a group fire ring, picnic tables and food lockers at each campsite
  - Provide a paved parking area with spaces designed for a vehicle with a boat trailer for each campsite
  - Provide an appropriate number (and size) of efficient flush restrooms that meets the standards at the time of design, including lighting (interior and exterior) at the restrooms
  - Provide a potable water delivery and distribution system

### **Garden Point Boat-in Campground**

- Expand the site capacity by at least five single campsites
- Install additional restrooms that meet the needs of the final number of new campsites developed

### **Frenchy Point Boat-in Campground**

- Decommission the facility due to low use

### **Dark Day Picnic Area**

- Replace the existing vault restroom with an efficient flush model (including appropriate septic system), if the addition of the flush facility does not exceed the existing water system capacity



- Expand the parking area to provide a total of 25 single spaces
- Improve shoreline access, including developing trails and signage
- Recommend a county ordinance establishing a non-motorized boating only zone in the cove to west of the picnic area peninsula
- Remove the Klamath stoves

### **Sunset Vista Point**

- Replace vault restroom with an efficient flush model (including appropriate septic system), if the addition of the flush facility does not exceed the existing water system capacity
- Install two additional picnic sites, each with a picnic table and a concrete grill with self-contained ash box
- Upgrade the existing picnic site by replacing the picnic table and installing a concrete grill with self-contained ash box
- Enhance the vistas of the reservoir from each picnic site by clearing vegetation per the guidelines in YCWA's Visual Management Plan
- Delineate each parking space, but maintain the existing gravel parking surface; except at the accessible parking spaces (number to be determined during site design), which will be a paved or concrete surface
- Delineate the parking spaces/areas for the vista/picnic visitors and trailhead users
- Improve signage on the entrance sign and all information boards to include all recreational uses at the facility
- Provide a three-panel interpretive display that includes, at a minimum, information on the Project history and purpose as well as other relevant local/area history

### **Dam Overlook**

- Install an information board identifying the Project recreational facilities and opportunities, including a map

### **Moran Road Day Use Area**

- Develop a turnaround along the car top boat ramp below the high water line designed for vehicles only

### **Dark Day Boat Launch**

- Replace the existing vault restroom with an efficient flush model (including appropriate septic system), if the addition of the flush facility does not exceed the existing water system capacity
- Repair the erosion uphill of the concrete boat ramp

### **Recreational Trails (Bullards Bar and Schoolhouse Trails)**

- Install consistent signage at all Project trailheads, including a: 1) trailhead symbol or identification sign at all facility entrance signs where trailheads are located; 2) trailhead identification sign at all trailhead parking areas; and trailhead information board with trail map and information
- Install consistent directional signage at all Project trail junctions

#### **5.1.2.3 Modifications to Minimum Flow Release Facilities**

YCWA proposes to change minimum flows on the North Yuba River downstream of New Bullards Bar Dam, on the Middle Yuba River downstream of Our House Diversion Dam, and on Oregon Creek downstream of Log Cabin Diversion Dam. The release facilities at each of these locations do not have capacity for the YCWA-proposed minimum flows. YCWA proposes to modify the release capacity at each of these locations to allow for release of the respective proposed minimum streamflow at each location.

#### **5.1.2.4 Modifications to Streamflow Gages**

YCWA proposes changes to minimum flows on the North Yuba River downstream of New Bullards Bar Dam, on the Middle Yuba River downstream of Our House Diversion Dam, and on Oregon Creek downstream of Log Cabin Diversion Dam. There is an existing measurement weir at each of these locations, with a notch sized to monitor compliance with existing minimum flow requirements. The proposed minimum flows will exceed the current measurement capacity of the measurement weir notches. YCWA proposes to increase the sizes of the measurement weir notches to accurately monitor compliance with the respective proposed minimum flows. YCWA's *Streamflow and Reservoir Level Compliance Monitoring Plan* includes details about each of these enlargements.

#### **5.1.2.5 Changes to Project Roads**

YCWA proposes changes to Primary Project Roads and Trails and to Recreation Roads. Tables 5.1-1 shows Primary Project Roads and Trails that have been added, and Table 5.1-2 shows Recreation Roads added and removed.

**Table 5.1-1. Proposed additions to Primary Project Roads and Trails (non-recreation roads and trails) included in Yuba River Development Project by Development.**

Road Name	Begin	End	Land Ownership	Mile Marker-Start	Mile Marker-End	Total Length (mi)
<b>NEW COLGATE DEVELOPMENT</b>						
Garden Valley Road	Forest Service	--	Forest Service	0	2.53	2.53
New Bullards Bar Dam Compliance Flow Gage Trail	New Bullards Bar Dam Road	Stream Gage	Private	0	0.12	0.12
Colgate Tunnel Lane	County Road 139	Penstock	Private	0	0.72	0.72
Colgate Tunnel Muck Road	Colgate Tunnel Lane	Rock Pit	Private	0	0.85	0.85
Colgate Haul Road	County Road 139	Penstock	Private	0	0.23	0.23
Colgate Tunnel Penstock Road	Colgate Tunnel Muck Road	Penstock	Private	0	0.15	0.15
Penstock Access Road #1	County Road 1051	Penstock	Private	0	0.23	0.23
Penstock Access Road #1 Spur	Penstock Access 1	Penstock	Private	0	0.04	0.04
Penstock Access Road #2	County Road 1051	Penstock	Private	0	0.10	0.10
Penstock Access Road #3	County Road 1051	Penstock	Private	0	0.10	0.10
Penstock Access Road #4	County Road 1051	Penstock	Private	0	0.15	0.15
<b>NEW BULLARDS BAR FLOW DEVELOPMENT</b>						
None						
<b>NARROWS 2 DEVELOPMENT</b>						
Narrows 2 Compliance Flow Gage Trail	Narrows 2 Access	Stream Gage	USACE	0	0.18	0.18
	--	--	Private	0.18	0.21	0.03
<b>Net Change</b>	<b>11 road segments added; 1 road segment removed</b>					<b>5.40 mi</b>

**Table 5.1-2. Proposed additions to and withdrawals of Recreation Roads associated with the New Colgate Development. YCWA does not propose any changes to Recreation Roads and Trails associated with the New Bullards Bar Minimum Flow Development or the Narrows 2 Development.**

Road Name	Associated Recreation Facility	Begin	End	Land Ownership (FS Road #, if applicable)	Mile Marker-Start	Mile Marker-End	Total Length (mi)
<b>PROPOSED ADDITION</b>							
Dark Day Access Road	Dark Day Recreation Area	0.33 mi from County Road 8 <sup>1</sup>	Entrance to Dark Day Boat Launch and Campground Roads	Forest Service	0	0.23	0.23
<b>Total</b>	<b>1 road segment added</b>						<b>0.23 mi</b>
<b>PROPOSED WITHDRAWAL</b>							
Burnt Bridge Campground Loop Road (PNF Rd 18N07)	Burnt Bridge Campground	County Road 129	Campground	Forest Service	0	0.77	0.77
<b>Total</b>	<b>1 road segment removed</b>						<b>0.77 mi</b>

<sup>1</sup> Yuba County confirmed the first 0.33 mi is County Road 181.

## 5.2 Changes to FERC Project Boundary

YCWA proposes several changes to the Project Boundary in order to more accurately define lands necessary for the safe O&M of the Project and other purposes, such as recreation, shoreline control, and protection of environmental resources. There are two categories of proposed project boundary changes:

- Proposed addition of lands to the existing Project Boundary that are currently utilized with a preponderance of use related to the Project O&M, and proposed removal of lands from the Project Boundary that do not have Project facilities and are not used or necessary for Project O&M. These proposed changes are essentially making corrections to the existing Project Boundary.
- Proposed changes to the existing FERC Project Boundary around the Project reservoir and impoundments from surveyed coordinates to a contour located above the NMWSE. These changes are proposed as this is the preferred method of defining project boundaries as outlined in the FERC Drawing Guide (FERC 2012) and as it is a better representation of lands required for Project O&M around the Project reservoirs.

Proposed changes are discussed by Project development below. All proposed changes are described in detail in Section 2.0 of Exhibit G.

For the New Colgate Development, YCWA proposes the following changes under the category of corrections to the existing Project Boundary:

- The addition of the areas that encompass 100-ft rights-of-way (i.e., 50 ft on either side of centerline) of nine separate Primary Project Roads used to access and maintain the New Colgate Surge Chamber, New Colgate Powerhouse Penstock and New Colgate Powerhouse. Lands in these proposed additions are owned by private land owners and by YCWA.
- The removal of the land owned by Pacific Gas and Electric Company (PG&E) to the east of New Colgate Powerhouse (Yuba County Assessor's Parcel Number 048270011000). These lands are not used or needed for Project O&M and are owned and utilized by PG&E for maintenance of PG&E facilities located within the boundaries of that parcel.
- The addition of the area that encompasses USGS Gage 11413517 (located at the Old Colgate Diversion Dam) and the Primary Project Trail used to access the gage for Project O&M purposes. Land in this proposed addition is owned by YCWA.
- The removal of the area that encompasses a section of Marysville Road (County Road 8) that is in the existing Project Boundary. Marysville Road is commonly used for many purposes not related to the Project and as such it is not considered a Primary Project Road. Land in this proposed removal is owned by private land owners and by YCWA.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Primary Project Trail that is used to access USGS Gage 11413517



downstream of the New Bullards Bar Minimum Flow Powerhouse. Land in this proposed addition is owned by YCWA.

- The removal of the area north of a 50-ft offset from centerline of Cottage Creek Campground Access Road to the proposed boundary near New Bullards Bar reservoir's edge except the area surrounding Cottage Creek Campground. Land parcels in this region are not currently used for Project O&M. Land in this proposed removal is a combination of land owned by YCWA and federal land managed by the NFS as part of the PNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the section of road that connects Cottage Creek Campground Access Road to Cottage Creek Campground. Land in this proposed addition is owned by private land owners and by YCWA.
- The removal of the area that encompasses the Administration Site to the north of Sunset Vista Point that is used for non-Project related activities by the Forest Service with the exception of the water supply system that provides water to Project recreation sites, which includes a 25-ft offset from water distribution tanks and 20-ft right-of-way (i.e., 10 ft on either side of centerline) of water distribution pipe alignments. Land in this area is federal land managed by the NFS as part of the TNF.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Project portion of the New Bullards Bar Trail that follows along the southeast side of the New Bullards Bar Reservoir. Land in this proposed addition is a combination of federal land managed by NFS as part of the TNF, and land owned by YCWA.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Schoolhouse Trail that provides access to the Bullards Bar Trail from Schoolhouse Campground. Land in this proposed addition is a combination of federal land managed by NFS as part of the TNF, Yuba County road right-of-way, and private land owners.
- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the water distribution pipe alignments that parallel both Marysville Road (County Road 8) and Dark Day Road. The water distribution system provides water to Project Recreation Sites and is considered a Project Facility. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses the leach field that is a part of the Hornswoggle Group Campground. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the non-county maintained portion of Dark Day Access Road which provides access to Dark Day Boat Launch, Picnic Area and Campground. The non-county maintained road starts approximately 0.33 mile from Marysville Road. Land in this proposed addition is federal land managed by NFS as part of the TNF.

- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) of the non-county maintained portion of Garden Valley Road which provides Project maintenance access for the annual removal of debris and maintenance access to Garden Point Boat-In Campground. The non-county maintained road begins just past the gate located approximately at the road's intersection with the Township Line common between Section 5, T18N, R8E, and Section 32, T19N, R8E. Land in this proposed addition is federal land managed by NFS as part of the TNF.
- The addition of the area that encompasses a 100-ft right-of-way (i.e., 50 ft on either side of centerline) around the Primary Project Road that is used to access USGS Gage 11408880 located downstream from Our House Diversion Dam. Land in this proposed addition is federal land managed by NFS as part of the TNF.

For the New Colgate Development, YCWA proposes the following changes under the category of redefining the boundary around the Project reservoir and impoundments from surveyed coordinates to a contour located above the NMWSE. A contour 30 ft above NMWSE or 200 horizontal ft from the NMWSE was chosen to define the proposed boundary for each of the three Project impoundments in areas where the boundary is not already defined to encompass Project facilities and recreation sites. The proposed boundary will encompass between 50 and 200 horizontal ft from reservoir NMSWE except where slopes exceed 60 percent, in which case the boundary would encompass less than 50 horizontal ft. As such, the proposed boundary will provide shoreline access from the reservoir of at least 50 ft for all areas except for areas where slopes are unsafe.

- The addition and removal of land such that the Project Boundary around New Bullards Bar Reservoir where the Project Boundary is not encompassing Project facilities is defined by the lesser (closer to reservoir NMWSE) of either the topographic contour of 1,985 ft, which is 30 ft above the NMWSE, or 200 horizontal ft from the NMWSE. Lands in this proposed change are a combination of lands owned by private land owners and YCWA, and federal lands managed by the NFS as part of the PNF and TNF.
- The addition and removal of lands such that the Project Boundary around Log Cabin Diversion Dam impoundment where the Project Boundary is not encompassing Project facilities is defined by the topographic contour of 2,000 ft, which is 30 ft above the NMWSE. Lands in this proposed change are a combination of federal lands managed by the NFS as part of the TNF, lands owned by YCWA, and a small area within a Yuba County road right-of-way.
- The addition and removal of lands such that the Project Boundary around Our House Diversion Dam impoundment where the Project Boundary is not encompassing Project facilities is defined by the topographic contour of 2,060 ft, which is 30 ft above the NMWSE. Lands in this proposed change are a combination of federal lands managed by the NFS as part of the TNF, and land owned by private land owners.

For the Narrows 2 Development, YCWA proposes the following changes under the category of corrections to the existing Project Boundary.

- The addition of the area that encompasses a 20-ft right-of-way (i.e., 10 ft on either side of centerline) around the Primary Project Trail that is used to access USGS Gage 11418000 located downstream of the Narrows 2 Powerhouse and the gage building itself. Land in this proposed addition is owned by private land owners.
- The removal of the area that extends south beyond a 100-ft right-of-way (i.e., 50 ft on either side of centerline) along the Narrows 2 Access Road, which is a Project road. These lands are not used for Project O&M and do not have any Project or non-Project facilities. Lands in this proposed removal are a combination of federal land managed by the USACE, land owned and managed by the State of California, and land owned by private land owners.
- The removal of the area that is between a 50-ft offset from the centerline of Narrows 2 Access Road, 50-ft offset from the centerline of Narrows 2 Powerhouse Intake Access Road, and a 10-ft offset from westernmost extent of either the communication line between the Narrows 2 Powerhouse and Powerhouse Intake Structure or the Narrows 2 Powerhouse Penstock. These land parcels are not used for Project O&M and do not have any Project or non-Project facilities. Land in the proposed removal is federal land managed by the USACE.

Exhibit G discusses and displays these proposed changes in detail. Table 5.2-1 summarizes land ownership within the existing FERC Project Boundary (Table 4.0-1) and YCWA’s proposed changes to the FERC Project Boundary.

**Table 5.2-1. Summary of land ownership within the proposed Yuba River Development Project FERC Project Boundary by Project Development and difference as compared to existing FERC Project Boundary.**

Development	Forest Service (ac)	USACE (ac)	State of California (ac)	YCWA (ac)	Other Private (ac)	Total	
						Area (ac)	Percent of Total
<b>PROPOSED PROJECT BOUNDARY</b>							
New Colgate	3,320.3	0	0	2,578.8	195.6	6,094.7	99.5%
New Bullards Minimum Flow	0	0	0	<0.1	0	<0.1	0%
Narrows 2	0	11.1	19.5	1.2	0.8	32.6	0.5%
<b>Total</b>	<b>3,320.3</b>	<b>11.1</b>	<b>19.5</b>	<b>2,580.0</b>	<b>196.4</b>	<b>6,127.3</b>	<b>100%</b>
<b>Percent</b>	<b>54.2%</b>	<b>0.2%</b>	<b>0.3%</b>	<b>42.1%</b>	<b>3.2%</b>	<b>--</b>	<b>--</b>
<b>DIFFERENCE BETWEEN EXISTING (TABLE 5.0-1) AND PROPOSED PROJECT BOUNDARY</b>							
<b>Difference</b>	<b>-1,096.4</b>	<b>-5.0</b>	<b>-0.6</b>	<b>-569.3</b>	<b>-16.6</b>	<b>-1,687.9</b>	<b>-21.7%</b>

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service’s request.

Table 5.2-1 shows that 54.4 percent of the land within the proposed Project Boundary is federal land. This represents a decrease of 1,101.4 ac, including 1,096.4 ac of NFS land and 5.0 ac of USACE land. Table 5.2-2 identifies by Public Land Survey System each section within the proposed FERC Project Boundary that is federal land.

**Table 5.2-2. Lands of the United States enclosed within the proposed FERC Project Boundary by Project Development and managing federal agency.**

Administered by	Township	Range	Section	Acres		
<b>NEW COLGATE DEVELOPMENT</b>						
Forest Service	18N	7E	1	142.7		
			2	65.8		
			11	31		
			12	186.1		
			13	111.6		
			14	119.1		
			15	2.2		
			24	152.9		
			25	10.1		
			26	18.2		
			34	5.2		
			35	0.1		
			18N	8E	3	26
					4	129.8
	5	15				
	6	71.6				
	7	221.7				
	8	324.8				
	9	90.3				
	10	20.5				
	11	12.2				
	13	0.1				
	14	7.1				
	16	8.3				
	17	352.8				
	18	444.7				
	19	126.9				
	20	0.4				
	19N	7E	18	0.1		
			19	8.1		
			20	27.3		
			13	0.3		
			24	11.7		
			25	34.3		
	19N	8E	26	168.3		
			35	229.6		
36			30.9			
7			8.4			
8			42.7			
9			21.6			
		18	39.8			
<b>New Colgate Development Total</b>				<b>3,320.3</b>		
<b>NEW BULLARDS BAR MINIMUM FLOW</b>						
No Federal Lands						
<b>NARROWS 2 DEVELOPMENT</b>						
USACE	16N	6E	14	11.1		
<b>Narrows 2 Development Total</b>				<b>11.1</b>		
<b>Grand Total</b>				<b>3,331.4</b>		

Source: Yuba County GIS Parcel Base, obtained August 2013, modified per the Forest Service's request.



## **6.0            References Cited**

Atkinson, Katie. GIS Technician. 2013. Yuba County Assessors Office. Personal Communication with Randall Olden, GIS Manager, HDR Engineering, Inc. regarding “Yuba County Parcel Base” [Shapefile] Marysville, CA. July 3, 2013.

Federal Energy Regulatory Commission (FERC). 2012. Federal Energy Regulatory Commission *Managing Hydropower Project Exhibits*. Guidance Document. <<http://www.ferc.gov/industries/hydropower/gen-info/guidelines/drawings-guide.pdf>>.

Yuba County Water Agency (YCWA). 1993. Yuba County Water Agency. Revised Exhibit R (Recreation Plan): Yuba River Development Project (FERC Project No. 2246). Marysville, California.