Visual Resource Management Plan

Sacramento Municipal Utility District

Hydro License Implementation • November 2015

Upper American River Project

FERC Project No. 2101

Powering forward. Together.

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Acronyms and Abbreviations

BEIG Built Environment Image Guide
ENF Eldorado National Forest
EVC Existing Visual Condition
FERC Federal Energy Regulatory Commission
FS Forest Service
LRMP Land and Resource Management Plan
OHV Off-Highway Vehicle
PM&E Protection, Mitigation, and Enhancement
ROS Recreation Opportunity Spectrum
SFAR South Fork of the American River
SMUD Sacramento Municipal Utility District
SMS Scenery Management System
SUP Special Use Permit
UARP Upper American River Project (FERC Project 2101)
U.S. United States
USDA United States Department of Agriculture
VMS Visual Management System
VQO Visual Quality Objective
VRMP – Visual Resource Management Plan
VRPP Visual Resource Protection Plan

1.0 Introduction

The Sacramento Municipal Utility District (SMUD) operates the Upper American River Project (Project) (FERC Project No. 2101) under a License that was granted by the Federal Energy Regulatory Commission (FERC) on July 23, 2014. The aesthetic/visual appearance of the Project influences the overall experience of visitors to the Project area and environs, including the Eldorado National Forest (ENF). As stipulated by the FERC License (License) for the Project, SMUD has prepared this Visual Resources Management Plan (VRMP) to manage visual resources in the Project area throughout the term of the License. Note that this VRMP is specific to Project facilities and lands within the FERC Project boundary and those Project facilities operated under ENF Special Use Permit (SUP) but outside the FERC project boundary. This VRMP does not provide guidance regarding reservoir levels or river flows, as the FERC License establishes minimum instream flows and new target reservoir levels.

The purpose of the VRMP is to satisfy the terms and conditions of the License for the Project (FS 4(e), Condition 53) and to guide the decision-making process and facilitate the aesthetic/visual enhancement and management of specific Project facilities and lands affecting the visual character of the Project area. To meet this purpose, the VRMP:

- Provides a vision of the desired future condition for several Project facilities specifically identified in the License as requiring improvement; and

- Establishes long-term actions and processes for the management of visual resources in the Project area through the term of the License.

The VRMP provides a summary of existing aesthetic/visual resource conditions in the Project area, an overview of other management plans that guide visual resource management in the region, and identifies potential visual resource protection and enhancement measures that may be used during the term of the License (in addition to those specifically identified in the License).

This VRMP incorporates the Visual Quality Objectives (VQOs) as specified in the Visual Management System (VMS), National Forest Landscape Management, Vol. 2, Chapter 1 (USDA-FS 1974). The Forest Service (FS) anticipates that the Scenery Management System (SMS) will supersede the VMS in the near future. This VRMP will be updated once the SMS is implemented on the Eldorado National Forest.

1.1 FERC License Requirements

FERC issued a License for the Project on July 23, 2014, for a term of 50 years. License Condition 53 of Appendix B (FS 4(e) conditions) requires SMUD to develop and implement a VRMP. Specifically, Condition 53 states:

FS and Licensee shall meet every 5 years to review opportunities to improve how well Project facilities blend in with the surrounding landscape. The type of rehabilitation/reconstruction work needed will be dependent on current policies, technologies, condition of facilities, impacts to surrounding areas, and other factors.

During planning and prior to any new construction or maintenance of facilities that have the potential to affect visual resources of National Forest System lands (including but not limited to the recreation related construction), the Licensee shall file with FERC, a plan approved by FS for the protection and rehabilitation of National Forest System visual resources affected by such construction or maintenance. At a minimum, the plan shall address clearings, spoil piles, and Project facilities involved in such construction or maintenance, like diversion structures, penstocks, pipes, ditches, powerhouses, other buildings, transmission lines, corridors, and access roads. The plan shall address facility configurations, alignments, building materials, colors, landscaping, and screening. The plan shall provide a proposed mitigation and implementation schedule to bring the Project facilities involved in such construction and maintenance affecting visual resources on National Forest System lands into compliance with visual resource standards and guidelines in the Eldorado National Forest Land and Resource Management Plan. Mitigation measures identified for either the visual resource plan for new construction or maintenance or the measures identified for existing facilities shall include, but are not limited to: (1) surface treatments with FS approved colors and natural appearing materials that will be in harmony with the surrounding landscape, (2) use of non-specular conductors for the transmission lines, (3) use of native plant species to screen facilities from view, (4) reshaping and revegetating disturbed areas to blend with surrounding visual characteristics, and, (5) locating transmission facilities to minimize visual impacts.

The following mitigation measures to existing facilities will be performed to improve visual quality reductions as follows for improvements that have not already been completed:

a. *Rubicon Reservoir. Within 2 years of License issuance paint the metal components of the gaging station, intake booms, telemetry facilities and cable crossing and bucket a non-reflective black color. Perform a visual inspection every 2 years and touch-up or re-paint as necessary to maintain the facility in good condition. Replace galvanized chain link fence at tunnel outlet with black fencing.*

b. *Robbs Peak Forebay. Within 2 years of License issuance paint galvanized railings with non-reflective black paint. Perform a visual inspection every 2 years and touch-up or re-paint as necessary to maintain the facility in good condition. Replace galvanized chain link fence with black vinyl fencing with black posts. Powder coating is preferred over painted metal. Paint or stain building roof a dark gray color to be approved by FS.* (Completed 2013)

c. *Robbs Powerhouse Facilities. Within 8 years of License issuance paint all paintable surfaces the same color as the Robbs Penstock.*

d. *Union Valley Dam and Sub-station. Within 13 years of License issuance sand-blast white paint from guardrail. Paint non-reflective black or replace with core-ten guardrail. Replace all chain link fence with black vinyl fencing with black posts. Powder coated posts are preferred over painted metal.* (Spillway fence completed 2013)

e. *Loon Lake Sub-station. Within 2 years of License issuance paint doors on building dark gray.*

f. *Loon Lake Passive Reflector (Wentworth Peak). Within 2 years of License issuance move the reflector from the skyline to a location with a back-drop. Paint a camouflage design on reflector in colors that allow it to blend in with the natural surroundings. If re-location is not possible because of site-line, investigate alternative technology to replace the facility with a structure with less visual impact.* (Completed 2014)

g. *Loon Lake Gate Shaft. Within 2 years of License issuance paint roof and building colors approved by FS.*

h. *Gerle Reservoir Dam. Within 2 years of License issuance paint handrail and guardrail non-reflective black.*

i. *Licensee-owned Weather Stations. Within 4 years of License issuance paint all reflective components with non-reflective black paint, except for meteorological sensors.*

j. *.Jones Fork Penstock. Within 3 years of License issuance paint the same color as the Robbs Penstock.*

Condition 53 requires consultation with the FS. A record of consultation with the FS regarding development of the VRMP is provided in Exhibit A.

1.2 Explanation of Terms

Key terms used in the VRMP include:

FERC Project Boundary/FERC Boundary – the boundary of the Project as approved by FERC under the License.

License – the new License issued by FERC on July 23, 2014 to operate and maintain the Upper American River Project (FERC Project No. 2101).

Operations and Maintenance – the act of keeping fixed assets in acceptable condition, including, but not limited to preventative maintenance, normal repairs, and replacement of parts and structural components, among others.

Project – the Upper American River Project (FERC Project No. 2101), including all Project facilities, lands, and water associated therewith as described in the License.

Project Area – the area of potential influence of the Project, principally located within the FERC Project boundary.

Recreation Opportunity Spectrum –

The ROS contains six distinct settings: urban, rural, roaded natural, semi-primitive motorized, semi-primitive non-motorized, and primitive, which are defined using physical, managerial, and social criteria. The six classes can be expressed in terms of three principal components: the activities, the setting, and the experience. The descriptions are included below. More information on the settings and components can be found in the FS 1982 ROS Users Guide. The Rural and Urban categories are not present within the area addressed by this plan.

1. **Primitive (P):** Area is characterized by essentially unmodified natural environment of fairly large size (5,000 acres). Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

2. **Semi-Primitive Non-Motorized (SPNM):** Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size (2,500 acres). Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on site controls and restrictions may be present, but are subtle. Motorized use is not permitted.

3. **Semi-Primitive Motorized (SPM):** Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size (2,500 acres). Concentration of users is low, but there is often evidence of other users. The area is

managed in such a way that minimum on site controls and restrictions may be present, but are subtle. Motorized use is permitted.

4. **Roaded Natural (RN):** Area is characterized by a predominantly natural-appearing environment with moderate evidence of the sights and sounds other humans. Such evidences usually harmonize with the natural environment. Interaction between users may be low to moderate but with evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is provided for in construction standards and design of facilities.

The following two ROS categories, although not present in the UARP, are included here for completeness.

5. **Rural (R):** Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate densities are provided far away from developed sites. Facilities for intensified motorized use and parking are available.

6. **Urban (U):** Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans on-site are predominant. Large numbers of users can be expected, both on-site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

Visual Quality Objectives – VQOs are established by a Forest Plan for each management area within a National Forest based on guidelines provided in the FS Visual Management System (VMS). Lands are identified as to the public's concern for scenic quality (sensitivity levels), as well as diversity of natural features (variety classes). The VQOs are designed to be measurable standards or objectives for managing the scenery of these lands. VQOs referenced in the VRMP include the following:

- **Preservation:** The VQO of preservation allows ecological changes only. Management activities, except for very low visual-impact recreation facilities, are prohibited. This objective applies to Wilderness areas, primitive areas, other special classified areas, areas awaiting classification, and some unique management units that do not justify special classification.

- **Retention:** The VQO of retention provides for management activities that are not visually evident. Under retention, activities may only repeat form, line, color, and

texture that are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc. should not be evident.

- **Partial Retention:** Under the VQO of partial retention, management activities remain visually subordinate to the characteristic landscape. Activities may repeat form, line, color, or texture common to the characteristic landscape, but changes in their qualities of size, amount, intensity, direction, and pattern remain visually subordinate to the characteristic landscape. Activities may also introduce form, line, color, or textures that are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape.

- **Modification:** Under the VQO of modification, management activities may visually dominate the characteristic landscape. However, activities of vegetative and land form alternation must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type.

Additional parts of these activities, such as structures, road, or slash, must remain visually subordinate to the proposed composition. Activities that are predominately introduction of facilities such as buildings, signs, and roads should borrow naturally established form, line, color, and texture so completely and at such scale that its visual characteristics are compatible with the natural surroundings.

Wilderness – A federally designated wilderness area, as defined by the 1964 Wilderness Act.

2.0 Existing Visual Setting and Resource Management

This section describes the existing aesthetic/visual setting of the Project area specific to existing Project facilities (e.g., hydroelectric, recreation, etc.) as well as other scenic routes and regional management plans that provide guidance regarding visual resources in the Project area. Table 2-1 provides a detailed accounting of each Hydroelectric Project facility, each Project Recreation facility, and their associated VQO, ROS, level of visibility to the public, and other visual resource attributes.

2.1 Existing Facilities

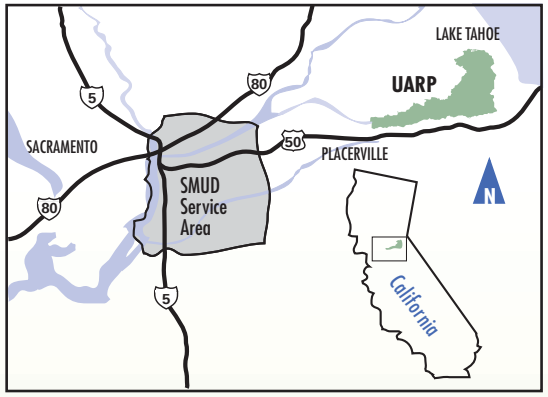
Facilities associated with the Project are located along the South Fork of the American River (SFAR), Silver Creek, and the Rubicon River, from near the crest of the Sierra Nevada range to its western foothills (Figure 2.1-1). These facilities include reservoirs, dams, a canal, penstocks, and other features associated with SMUD's hydropower project. This section provides a summary of existing Project facilities and primary viewsheds (as

Figure 2.1-1

Sacramento Municipal Utility District

Upper American River Project

Federal Energy Regulatory Commission Project No. 2101



UARP Profile
Not to Scale

Notes:
1. elevation (el.) denotes full pool elevation
2. acre feet (af) denotes full pool storage

TO FOLSOM DAM
el. 993′
White Rock P.H. 224 MW
tunnel
13,081af SLAB CR. RES. el. 1,850′
Slab Cr. P.H. 0.4 MW
South Fork American River
1,350 af BRUSH CR. RES. el. 2,915′
Camino P.H. 150 MW
tunnel
543 af CAMINO RES. el. 2,915′
Jaybird P.H. 144 MW
tunnel
Silver Creek
2,609 af JUNCTION RES. el. 4,450′
Union Valley P.H. 46.7 MW
266,369 af UNION VALLEY RES. el. 4,870′
Jones Fork P.H. 11.5 MW
Robbs Peak P.H. 29 MW
43,496 af ICE HOUSE RES. el. 5,450′
150 af ROBBS PEAK RES. el. 5,231′
tunnel
canal
831 af GERLE CR. RES. el. 5,231′
Gerle Creek
tunnel
69,309 af LOON LAKE RES. el. 6,410′
Loon Lake P.H. 82 MW
1,070 af BUCK ISLAND RES. el. 6,436′
1,439 af RUBICON RES. el. 6,545′
Rubicon River
Little Rubicon River
Gerle Cr.
LOON LAKE RES.
BUCK ISLAND RES.
Rockbound Lake
Highland Cr.
RUBICON RES.
Rubicon River
GERLE CR. RES.
LOON LAKE RD.
Loon Lake P.H.
South Fork Rubicon River
canal
South Fork Rubicon River
ROBBS PEAK RES.
Tells Cr.
UNION VALLEY RES.
Robbs Peak P.H.
Bassi Fork
Big Silver Creek
Union Valley P.H.
JUNCTION RES.
Jones Fork P.H.
Jones Fork Silver Cr.
Wrights Lake
South Fork Silver Creek
Lyons Cr.
ICE HOUSE RES.
Slab Cr.
Brush Cr.
CAMINO RES.
Silver Cr.
Jaybird P.H.
BRUSH CREEK RES.
Silver Cr.
South Fork Silver Creek
SLAB CREEK RES.
Camino P.H.
White Rock P.H.
Slab Creek P.H.
Soldier Cr.
ICE HOUSE RD.
CHILI BAR RES. (PG&E)
Tunnel
Transmission Line
POLLOCK PINES
South Fork American River
KYBURZ
50
South Fork American River
TO LAKE TAHOE
CAMINO
FRESH POND SMUD OFFICE
Silver Fork American River
Alder Cr.
PLACERVILLE
TO SACRAMENTO

N W E S

UARP Plan
0 1 2 3 4 5
Scale in Miles

Each powerhouse serves as a step on the UARP power stairway as the water drops one mile in elevation over a 53-mile course, beginning at Rubicon Reservoir (6,545 feet elevation) and ending at White Rock Powerhouse (993 feet elevation).

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TABLE 2-1

Facility Name	Type of Facility	Visual Quality Objective	Recreation Opportunity Spectrum	Existing or Future?	Visibility to Public	Building materials	Color	Comments
Loon Lake Development								
Rubicon Dam (main and aux.)	Concrete Gravity Overflow Dam	P	P	E	Moderate	Concrete	Grey	
Buck Island Dam (main and aux.)	Concrete Gravity Overflow Dam	P	SPM	E	Moderate	Concrete	Grey	
Loon Lake Main Dam and Spillway	Rockfill Dam with core; 250 ft. side channel concrete weir	R	RN	E	High	Rock	Grey	
Loon Lake Auxiliary Dam	Rockfill Dam with core	R	RN	E	High	Rock	Grey	
Loon Lake Outlet Valve House	Outlet Valve	R	RN	E	Moderate	Concrete	Grey	
Loon Lake Powerhouse Access Building/ Switchyard	Building and switchyard	R	RN	E	High	Concrete	Grey	
Loon Lake-Robbs Peak 69 kV T-Line	69 kV transmission line	M, PR, R	RN	E	Moderate	Concrete	Grey	
Loon Lake - Union Valley Switchyard 69 kV T-Line	69 kV transmission line	M, PR, R	RN	E	Moderate	Concrete	Grey	
Loon Lake Gatehouse	Gatehouse	R	RN	E	High	Concrete	Grey	
Rockbound Tunnel	Non-pressurized Tunnel	NA	P	E	Low	Conc./Rock	Grey	
Buck - Loon Tunnel	Non-pressurized Tunnel	NA	SPM	E	Low	Conc./Rock	Grey	
Loon Lake Penstock	Penstock	NA	NA	E	NA	Conc./Steel	Grey	
Loon Lake Tailrace Tunnel	Non-pressurized Tunnel	NA	NA	E	Low	Conc./Rock	Grey	
Robbs Peak Development								
Gerle Creek Dam	Concrete Gravity Overflow Dam	R	RN	E	Moderate	Concrete	Grey	
Robbs Peak Dam	Concrete Gravity Dam with Rectangular Lift Gates	M	RN	E	High	Concrete	Grey	
Robbs Peak Penstock	Steel Penstock	R	RN	E	High	Conc./Steel	Tan	
Robbs Peak Powerhouse and Switchyard	Powerhouse/Switchyard	R	RN	E	High	Concrete	Green/Grey	
Robbs Peak Intake Gatehouse	Gatehouse	M	RN	E	High	Concrete	Green	
Robbs Peak Penstock Valve House	Valve house	R	RN	E	Low	Concrete	Grey	
Robbs Peak -Union Valley 69 kV T-Line	69 kV transmission line	M, PR	RN	E	Moderate	Steel	Grey	
Gerle Creek Canal	Canal	M, PR, R	RN	E	Low	Concrete	NA	
Robbs Peak Tunnel	Tunnel	NA	RN	E	Low	Conc./Rock	NA	
Robbs Peak Surge Basin	Surge Basin	R	RN	E	Low	Concrete	NA	
Jones Fork /Ice House Development								
Ice House Dam and Spillway	Rockfill Dam with Core with Radial Gates	R	RN	E	High	Rock	Grey	
Ice House Dike 1	Zoned earthfill Dam	R	RN	E	High	Rock	Grey	
Ice House Dike 2	Earthfill Dam	R	RN	E	High	Rock	Grey	
Jones Fork Penstock	Steel Penstock	M, R	RN	E	High	Steel /concrete	Tan	
Jones Fork Powerhouse and Switchyard	Powerhouse/Switchyard	R	RN	E	Moderate	Concrete	Grey	
Jones Fork-Union Valley T-line	69 kV T-line	PR, R	RN	E	Moderate	Steel /concrete	Grey	
Ice House Gate House	Gate House	R	RN	E	High	Brick	Tan	
Ice House Outlet Structure	Outlet Valve House	R	RN	E	Low	Concrete	Grey	
Jones Fork Tunnel	Tunnel	NA	RN	E	Low	Conc./Rock	NA	
Jones Fork Penstock Valve House	Valve House	M	RN	E	Low	Concrete	Green	
Union Valley Development								
Union Valley Dam and Spillway	Zoned Earthfill Dam with Side Channel Spillway and Radial Gates	PR	RN	E	High	Conc./Rock	Grey	
Union Valley Powerhouse	Powerhouse	PR	RN	E	Moderate	Concrete	Grey	
Union Valley Switchyard	Switchyard	PR	RN	E	Moderate	Conc./Steel	Grey	
Union Valley-Camino 230 kV T-line	230 kV transmission line	M, PR	RN	E	Moderate	Concrete	Grey	
Union Valley-Jaybird 230 kV T-line	230 kV transmission line	M, PR	RN	E	Moderate	Concrete	Grey	
Union Valley Gate House	Gate House	R	RN	E	Moderate	Concrete	Grey	
Union Valley Tunnel	Tunnel	PR	RN	E	Low	Concrete	NA	
Union Valley Penstock	Penstock	NA	RN	E	NA	Concrete	NA	Not visible to the public
Jaybird Development								
Junction Dam	Double Curvature Concrete Overflow Arch Dam	PR	RN	E	Low	Concrete	Grey	
Jaybird Penstock	Steel Penstock	M	RN	E	Moderate	Concrete	Silver	
Jaybird Penstock Valve House	Valve house	M	RN	E	Low	Concrete	Grey	

Facility Name	Type of Facility	Visual Quality Objective	Recreation Opportunity Spectrum	Existing or Future?	Visibility to Public	Building materials	Color	Comments
Jaybird Powerhouse and Switchyard	Powerhouse and Switchyard	M	RN	E	Low	Concrete	Tan	
Jaybird-Whiterock 230 kV T-line	230 kV transmission line	M, PR, R	RN	E	Moderate	Steel	Grey	
Jaybird Surge Basin	Surge Basin	PR	RN	E	Moderate	Concrete	Grey	
Junction Gatehouse	Gatehouse	M	RN	E	Low	Concrete	Grey	
Jaybird Tunnel	Tunnel	NA	RN	E	NA	Concrete	NA	Not visible to the public
Camino Development								
Camino Dam	Double Curvature Concrete Thru Spillway Arch Dam	M	RN	E	Low	Concrete	Grey	
Brush Creek Dam	Double Curvature Concrete Overflow Arch Dam	M	RN	E	Moderate	Concrete	Grey	
Camino Penstock	Penstock	PR	RN	E	Moderate	Concrete	Green	
Camino Powerhouse and Switchyard	Powerhouse and Switchyard	PR	RN	E	Moderate	Concrete	Tan/Grey	
Camino-Whiterock 230 kV T-line	230 kV transmission line	M, PR, R	RN	E	Moderate	Steel	Grey	
Camino-Lake 230 kV T-line	230 kV transmission line	M, PR, R	RN	E	Moderate	Steel	Grey	
Camino Gate House	Gate House	M	RN	E	Moderate	Concrete	Grey	
Brush Creek Gate House	Gate House	M	RN	E	Moderate	Concrete	Grey	
Camino Surge Basin	Surge Basin	PR	RN	E	Moderate	Concrete	Grey	
Camino Tunnel	Tunnel	NA	NA	E	NA	Concrete	NA	Not visible to the public
Brush Creek Tunnel	Tunnel	NA	NA	E	NA	Concrete	NA	Not visible to the public
Camino Valve House	Valve House	PR	RN	E	Moderate	Concrete	Grey	
Slab Creek								
Slab Creek Dam and Powerhouse	Double Curvature Concrete Overflow Arch Dam with Powerhouse	R	RN	E	Moderate	Concrete	Grey	
12 kV T-line to PG&E	12kV transmission line	R, PR	RN	E	Moderate			
Slab Creek Gate House	Gate House	R	RN	E	Low	Concrete	Grey	
White Rock Tunnel	Tunnel	NA	RN	E	NA	Concrete	Grey	Not visible to the public
Hydromet Stations								
Sourdough Hill	Communication	R	SPM	E	Low	Concrete Block	Grey/Green	
Slate Mountain	Communication	M		E	Low			
Lost Corner Mountain	Meteorological	R	SPM	E	Low	Steel		
Buck Island Reservoir (Buck-Loon Tunnel)	Hydrological	R	SPM	E	Low	Steel		
Little Rubicon River below Buck Island Reservoir	Hydrological	R	SPM	E	Moderate	Steel		
Gerle Creek below Loon Lake Reservoir	Hydrological	R	RN	E	High	Steel		
Rockbound Tunnel Outlet	Hydrological	P	P	E	Low	Steel		
Rubicon Reservoir (Rockbound Tunnel)	Hydrological	P	P	E	Low	Steel		
Rubicon River below Rubicon Reservoir	Hydrological	P	P	E	Moderate	Steel		
Loon Lake Auxiliary Dam Leakage	Hydrological	R	RN	E	Low	Steel		
Loon Lake Chalet	Meteorological	R	RN	E	High	Steel		
Upper Van Vleck	Meteorological	PR	RN	E	Moderate	Steel		
Lower Van Vleck	Meteorological	PR	RN	E	Moderate	Steel		
Spider Lake	Meteorological	R	SPM	E	Moderate	Steel		
Moratinni Flat	Meteorological	PR	RN	E	Low	Steel		
Gerle Creek Reservoir	Hydrological	R	RN	E	Low	Steel		
South Fork Rubicon River below Gerle Creek	Hydrological	R	RN	E	Low	Steel		
South Fork Rubicon below Robbs Peak Reservoir	Hydrological	R	RN	E	Low	Steel		Construction planned 2016
Robbs Saddle	Meteorological	PR	RN	E	Moderate	Steel		
Little Silver Creek above Junction Reservoir	Hydrological	PR	RN	E	Low	Steel		
Union Valley Powerhouse	Hydrological	R	RN	E	Moderate	Steel		
Silver Creek below Junction Dam	Hydrological	PR	RN	E	Low	Steel		
South Fork Silver Creek above Junction Reservoir	Hydrological	PR	RN	E	Moderate	Steel		
Big Hill	Com /Meteorological	PR	RN	E	High	Concrete Block	Tan	
Wrights Lake	Meteorological	R	RN	E	High	Steel		
Alpha	Meteorological	M	RN	E	Low	Steel		
Ice House Reservoir	Hydrological	R	RN	E	Low	Steel		

Facility Name	Type of Facility	Visual Quality Objective	Recreation Opportunity Spectrum	Existing or Future?	Visibility to Public	Building materials	Color	Comments
Jaybird Springs	Meteorological	M	RN	E	Low	Steel		
Silver Creek below Camino Dam	Hydrological	M	RN	E	Low	Steel		
Brush Creek below Brush Creek Dam	Hydrological	M	RN	E	Low	Steel		
South Fork American River at Forebay Road	Hydrological	R	RN	E	Moderate	Steel	Brown	
Silver Creek above Camino Reservoir	Hydrological	M	RN	E	Low	Steel		
Silver Creek above SF American River	Hydrological	PR	SPM	E	Low	Steel		
Schneiders	Meteorological	R	SPM	E	Low	Steel		
Rubicon River above Rubicon Reservoir	Hydrological	P	P	E	Low	Steel		
Refletors/Repeaters								
Repeater Site at EID Penstock - Moon Ln.	Communication	PR	RN	E	Low	Steel	Grey	
Loon Lake Reflector	Communication	R	RN	E	High	Steel	Grey	
Peavine Reflector	Communication	M	RN	E	Low	Steel	Green	
Independence Reflector	Communication	PR	RN	E	Low	Steel	Green	
Iowa Hill Reflector	Communication	M	RN	E	Moderate	Steel	Green	
Recreation Facilities								
Loon CG, Boat Ramp, Wilderness Parking, Dump Station	Varies	R	RN	E	High	Varies	Varies	
Loon Chalet	Chalet	R	RN	E	High	Wood, rock, concrete	Tan, brown	
Northshore CG	Campground	R	RN	E	High	Varies	Varies	
Vault Toilet Near Northshore CG	Toilet	R	RN	F	High	Concrete	TBD	Construction planned 2016
Red Fir CG	Campground	R	RN	E	High	Varies	Varies	
Pleasant CG	Campground	R	SPM	E	High	Varies	Varies	
Airport Flat CG	Campground	R	RN	E	High	Varies	Varies	
Gerle CG, Angel Creek Day Use, Angel Creek Foot Trail, Gerle Reservoir Fishing Dock, Summer Harvest Trail	Varies	R	RN	E	High	Varies	Varies	
West Point CG and Boat Ramp	Varies	R	RN	E	High	Varies	Varies	
Camino Cove CG	Campground	R	RN	E	High	Varies	Varies	
Wolf Creek CG	Campground	R	RN	E	High	Varies	Varies	
Yellowjacket CG and Boat Ramp	Varies	R	RN	E	High	Varies	Varies	
Existing Union Valley Bike Trail	Bike Trail	R	RN	E	High	Varies	Varies	
Union Valley Bike Trail, Yellowjacket to Wench	Bike Trail	R	RN	F	High	Varies	Varies	
Union Valley Bike Trail, Wolf Creek to Dam	Bike Trail	R	RN	F	High	Varies	Varies	
Union Valley Bike Trail, Dam to Jones Fork	Bike Trail	R	RN	F	High	Varies	Varies	
Wench Creek CG	Campground	R	RN	E	High	Varies	Varies	
Azalea Cove CG	Campground	R	RN	E	High	Varies	Varies	
Big Silver CG	Campground	R	RN	E	High	Varies	Varies	
Fashoda Day Use, Fashoda CG, Fashoda Showers, Penninsula Boat Ramp, Sunset CG, Penninsula Dump Station	Varies	R	RN	E	High	Varies	Varies	
Fashoda Ampitheater	Ampitheater	R	RN	F	High	Varies	Varies	
Lone Rock CG	Campground	R	RN	E	High	Varies	Varies	
Jones Fork CG	Campground	R	RN	E	High	Varies	Varies	
Big Hill Vista	Vista	PR	RN	E	High	Varies	Varies	
Ice House Day Use, Boat Ramp, CG, Dump Station	Varies	R	RN	E	High	Varies	Varies	
Upper Silver Creek Day Use	Day Use	R	RN	F	High	Varies	Varies	
Strawberry Point CG	Campground	R	RN	E	High	Varies	Varies	
Northwind CG	Campground	R	RN	E	High	Varies	Varies	
Junction Boat Launch	Boat Launch	PR	RN	E	High	Varies	Varies	
Ice House Mountain Bike Trail, existing	Bike Trail	R	RN	E	High	Varies	Varies	
Ice House Mountain Bike Trail, future	Bike Trail	R	RN	F	High	Varies	Varies	Construction planned 2024
Ice House-Union Valley Mountain BikeTrail	Bike Trail	PR, R	RN	F	High	Varies	Varies	Construction planned 2024
Highland Point Day Use	Day Use	R	RN	F	High	Varies	Varies	Construction planned 2026
Upper Silver Creek Ice House Day Use	Day Use, Foot Trail	R	RN	F	High	Varies	Varies	Construction planned 2026
Brush Creek Boat Launch and Sanitation	Boat Launch	M	RN	E	High	Varies	Varies	

Facility Name	Type of Facility	Visual Quality Objective	Recreation Opportunity Spectrum	Existing or Future?	Visibility to Public	Building materials	Color	Comments
Slab Upper Launch	Boat Launch	R	RN	E	High	Varies	Varies	
Slab Lower Launch	Boat Launch	R	RN	E	High	Varies	Varies	
South Fork Silver Creek Whitewater Put-in	Whitewater Put-in	R	RN	F	High	Varies	Varies	Location not identified at the writing of this plan
South Fork Silver Creek Whitewater Take-out	Whitewater Take-out	PR	RN	F	High	Varies	Varies	
Slab Reach Put-in	Whitewater Put-in	R	RN	F	High	Varies	Varies	

VQO Codes	
P	Preservation
R	Retention
PR	Partial Retention
M	Modification

ROS Codes	
P	Primitive
SPN	Semi-Primitive Non-Motorized
SPM	Semi-Primitive Motorized
RN	Roaded Natural

identified primarily in the ENF Land and Resource Management Plan [LRMP]), grouped by proximity to one another, as well as associated Project area conditions.

Project area descriptions are presented in terms of Visual Quality Objectives (VQOs) and areas from which project facilities may be seen. The VQOs assigned to each of the areas are determined by the Forest Service according to the FS VMS (USDA-FS 1974) and the Forest Land and Resource Management Plan. This system is summarized in Section 1.2, as well as described in the ENF LRMP (USDA-FS 1988a). Descriptions of project area conditions are based on recent field observations and input and coordination with ENF..

The Forest Service also uses a baseline inventory of Existing Visual Condition (EVC) to measure existing conditions and change over time. An EVC ranging from Type I (equivalent to a VQO of Preservation) to Type VI (equivalent to a VQO of Unacceptable Modification) is assigned to NFS lands by the Forest Service. Most of the project area falls within an existing visual condition of Type II (equivalent to Retention) to Type IV (equivalent to a VQO of Modification). EVC rating maps are available at the Eldorado National Forest Supervisor's Office.

Photographs of select Project facilities and areas are provided in Exhibit B. Only facilities visible to the public are discussed in this plan. A detailed description of all project-related facilities may be found in the UARP Facilities Management Plan (SMUD 2015).

Rubicon Reservoir

Located within the Desolation Wilderness, Rubicon Reservoir lies 4 air miles east of Loon Lake Reservoir. Situated near the crest of the Sierra Nevada Mountains, the reservoir is located within an irregularly-shaped granite basin. The area surrounding Rubicon Reservoir consists mainly of large expanses of rocky terrain and very limited tree cover (juniper, pine, and hemlock). All shores have gently rolling to level terrain. Due to limited vegetation, views to the reservoir and adjacent mountains are fairly unobstructed. The vegetation and rocky terrain screen some views.

The Desolation Wilderness is managed according to the federal Wilderness Act of 1964, which places very strict limitations on human manipulation of the natural environment. Restrictions limit the construction of trails and permanent campsites, and the placement of signage; administrative structures, and constructed visitor facilities are generally not permitted. The Project facilities are located on the northern end of Rubicon Reservoir. They actually predate designation of the Wilderness; however, they were not excluded from the Wilderness boundary. To help minimize impacts on the adjacent Wilderness, Project facilities are generally designed to mimic the native landscape.

Management of the Wilderness is the responsibility of the ENF and the LTBMU. This designation allows only ecological changes to the existing landscape character. The ENF LRMP describes this viewshed as variety class A (distinctive landscapes). The entire foreground and middleground are within variety class A landscapes. A VQO of Preservation is applied to the Wilderness area in the ENF LRMP.

Project facilities at Rubicon Reservoir include the main dam, one auxiliary dam, a telemetered gauging station near the reservoir inlet, the Rockbound Tunnel inlet, and a telemetered gauging station at the tunnel inlet. In general, these structures are visible to visitors using the adjacent foot trail, 16E30.

Buck Island Reservoir

Buck Island Reservoir is located 3 air miles east of Loon Lake Reservoir, just outside the northwest boundary of Desolation Wilderness. Situated near the crest of the Sierra Nevada Mountains, the reservoir is located within an irregularly-shaped granite basin. The area surrounding Buck Island Reservoir consists mainly of large expanses of rocky terrain and very limited tree cover (juniper, pine, and hemlock). All shores have gently rolling to level terrain. Due to limited vegetation, views to the reservoir and adjacent mountains are fairly unobstructed. The vegetation and rocky terrain screen some views. The Rubicon OHV Trail skirts the northeast shore of the reservoir. OHV users regularly camp in this vicinity. The ENF viewshed in this vicinity is Crystal Basin-1. The ENF LRMP describes this viewshed as variety class A (distinctive landscapes). The entire foreground and middleground is within variety class A landscapes. These areas are managed for a VQO of Retention.

Project facilities at Buck Island Reservoir include the main dam, one auxiliary dam, a weir with a telemetered gauging station immediately downstream of the main dam, a helipad, and the inlet to the Buck-Loon Tunnel. In general, these structures are visible to visitors using the Rubicon OHV Trail and nearby dispersed campsites.

Loon Lake Reservoir

Loon Lake Reservoir is located at the north end of the Crystal Basin Recreation Area. The area surrounding Loon Lake Reservoir consists of a combination of large expanses of rocky terrain and heavily wooded coniferous forest (Jeffery pine, red fir, lodgepole pine). The shores vary from gently rolling terrain to near-sheer cliffs. Views to the reservoir and adjacent mountains are generally unobstructed, with the exception of the wooded southeast shore. The vegetation and rocky terrain screen some views. The ENF viewshed in this vicinity is Crystal Basin-1. The ENF LRMP describes this viewshed as variety class A (distinctive landscapes). The entire foreground and middleground is within variety class A landscapes. These areas are managed for a VQO of Retention.

The private Deer Crossing children’s camp is located on the southeast shore.

Public recreation facilities include two family campgrounds, three group campgrounds, one boat-in campground, a group equestrian campground, a boat ramp; a day use area, an RV dump station; and Loon Lake Chalet. Loon Lake Reservoir is a popular starting point for users of the Rubicon OHV trail. Users often tow or trailer their OHV to the Loon Lake Reservoir and stage from either below the main dam or immediately north of the Chalet.

This area receives heavy summertime use from day users, overnight campers in both developed and dispersed campsites, boaters, fishermen, and OHV users.

Project facilities at Loon Lake Reservoir include the main dam, two auxiliary dams, outlet works on the main dam, a telemetered gauging station about one quarter mile downstream of the main dam, a telemetered gauging station immediately downstream of the western auxiliary dam, a microwave reflector north of the western auxiliary dam, a meteorological station, a helipad, the intake structure, the powerhouse access building, the switchyard, and 69 kV transmission lines. In general, many of these structures are visible to visitors from Ice House Road, Loon Campground, and from the Reservoir.

Gerle Creek Reservoir

Gerle Creek Reservoir is located 4 air miles west of Loon Lake Reservoir. The area surrounding the reservoir is primarily coniferous forest (Jeffery pine, red fir, lodgepole pine) with some granite outcrops. The shores are mostly gently rolling terrain. The vegetation screens most views away from the reservoir. The ENF viewshed in this vicinity is Crystal Basin-1. The ENF LRMP describes this viewshed as variety class A (distinctive landscapes) in the foreground and variety class B (common landscapes) in the middleground. The foreground is managed for a VQO of Retention while the middleground is managed for a VQO of Partial Retention

Recreation facilities at Gerle Creek Reservoir include a family campground, a day use area, a fishing pier, a day use area, and two foot trails. This area receives heavy summertime use from day users, overnight campers, flat water boaters, and fishermen.

Project facilities at Gerle Creek Reservoir include the dam, outlet works on the dam, the Loon powerhouse tailrace tunnel outlet, and the Gerle Canal inlet. Most of these structures are visible to visitors from Gerle Campground, the day use areas, and from the Reservoir.

Robbs Forebay Reservoir

Robbs Forebay Reservoir is located 4.5 air miles southwest of Loon Lake Reservoir. It is not accessible to the public, yet it is visible from Ice House Road. The reservoir is on SMUD-owned land. The surroundings are wooded on the south and west sides and rocky outcrops on the east side. Gerle Canal dominates the north side. The ENF viewshed in this vicinity is Crystal Basin-1. The northern portion of the canal is on land managed by ENF with a VQO of Partial Retention. The ENF LRMP describes this viewshed as variety class B (common landscapes) in the foreground and middleground. While not on FS-managed land, EVC foreground views of the dam and surrounding area likely meet VQO designations of Partial Retention or Modification.

There are no recreation facilities at this location. Public access to the reservoir and canal are restricted by fences.

Project facilities include the dam, Robbs Powerhouse intake structure, and Gerle Canal. A weir with telemetered gauging is scheduled to be constructed 0.1 mile downstream of the dam in 2015. Most of these structures are visible from Ice House Road.

Union Valley Reservoir

Union Valley Reservoir is located 14 road miles north of Highway 50, on the southwest perimeter of the Crystal Basin Recreation Area. The area surrounding Union Valley Reservoir is primarily heavily wooded coniferous forest (Jeffery pine, Ponderosa pine, white fir, incense cedar). The shores vary from gently to moderately rolling terrain. Views to the reservoir and adjacent mountains vary from unobstructed to obstructed by vegetation. Views of the Crystal Range and Big Hill are available from many locations on and around the reservoir. The ENF viewshed in this vicinity is Crystal Basin-1. The ENF LRMP describes this viewshed as variety class B (common landscapes). With the exception of the area on the downstream side of the dam, the foreground is managed for a VQO of retention while the middleground is managed for a VQO of Partial Retention. See The Junction Reservoir discussion for the area on the downstream side of the dam.

The private SMUD Employees Association campground is located at the northeast corner of the reservoir near Robbs Peak powerhouse.

Public recreation facilities at Union Valley Reservoir include nine family campgrounds, six group campgrounds, three boat ramps, one day use facility, a paved class 1 bike trail, and an RV dump station. This area receives heavy summertime use from day users, overnight campers, boaters, and fishermen. West Point boat ramp and associated access roads are plowed of snow by SMUD during the winter season, allowing fishing use throughout the year

Project facilities at Union Valley Reservoir include Robbs Peak powerhouse, Robbs Peak penstock, Robbs Peak valve house, Robbs Peak surge basin, Robbs Peak switchyard, 69 kV and 230 kV transmission lines, Jones Fork powerhouse, Jones Fork penstock, Union Valley dam, Union Valley intake structure, Union Valley powerhouse, and Union Valley switchyard. These structures may be viewed from the Reservoir, commonly used recreation facilities, and from Bryant Springs Road.

Ice House Reservoir

Ice House Reservoir impounds the South Fork of Silver Creek and is located 3.5 air miles southwest of Union Valley Reservoir. The area surrounding Ice House Reservoir is primarily heavily wooded coniferous forest (Jeffery pine, Ponderosa pine, white fir, incense cedar). The shores vary from gently to moderately rolling terrain. Views to the reservoir and adjacent mountains vary from unobstructed to obstructed by vegetation. Views of the Crystal Range are available from many locations on and around the reservoir. The ENF viewshed in this vicinity is Crystal Basin-1. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground is managed for a VQO of retention while the middleground is managed for a VQO of Partial Retention.

The private Mountain Camp children's camp is located on the north shore near Strawberry Point campground.

Public recreation facilities at Ice House Reservoir include three family campgrounds, a boat ramp, a day use facility, an unpaved bike trail, and an RV dump station. This area receives heavy summertime use from day users, overnight campers, boaters, and fishermen. The boat ramp and associated access roads are plowed of snow by SMUD during the winter season, allowing fishing use throughout the year.

Project facilities at Ice House Reservoir include the main dam, two auxiliary dams, outlet works on the main dam, a telemetered gauging station about one quarter mile downstream of the main dam, a telemetered gauging station 0.1 mile upstream of the reservoir full pool inlet, an intake structure in the boat ramp parking lot, and a valve house at the top of the Jones Fork penstock. These structures may be viewed from the Reservoir and commonly used recreation facilities. Both gauging stations are on Sierra Pacific Industries property with no typical public access. Therefore, there is no associated VQO.

Junction Reservoir

Junction Reservoir is located in the Silver Creek drainage, immediately downstream of Union Valley Reservoir. The area surrounding Junction Reservoir is primarily heavily wooded coniferous forest (Ponderosa pine, white fir, incense cedar). The shores primarily are steep riverine canyon wall. Views to the reservoir and adjacent terrain are primarily obstructed by vegetation. The ENF viewshed in this vicinity is Bryant Springs-2. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground is managed for a VQO of partial retention while there is no designated middleground due to the terrain's steepness.

The only recreation facility at Junction Reservoir is a user-created native surface boat ramp and dispersed campsite with limited parking. This reservoir sees only limited recreational use.

Project facilities at Junction Reservoir include the dam, outlet works, Jaybird intake structure, a telemetered streamflow gauging station 0.1 mile upstream of the South Fork Silver Creek inlet, a streamflow gauging station 0.1 mile downstream of the dam, and a 4160 V feeder line running from Union Valley Switchyard. The transmission and feeder lines may be viewed from the reservoir and the informal boat ramp. The dam and intake structure are in an area not typically used by the public.

Big Hill

Big Hill is located immediately south of Union Valley Reservoir. Views of the Crystal Basin, the Crystal Range, and much of the nearby western slope of the Sierras are available here. The ENF viewsheds in this vicinity are Crystal Basin-1 and Big Hill-2. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground and middleground are managed for a VQO of Partial Retention.

The only recreation facility on Big Hill is a vista point. It sees very limited public use.

Project related facilities on Big Hill include a communications building and an antenna. The project facilities can be seen from the vista point.

Jaybird Powerhouse and Camino Reservoir

Jaybird Powerhouse and Camino Reservoir are on Silver Creek, 4.4 air miles southwest of Junction Reservoir. The area surrounding these facilities is primarily wooded mixed oak-coniferous forest (Ponderosa pine, white fir, incense cedar) and sheer rock faces. The surrounding terrain is steep riverine canyon wall. Views in this vicinity are only local. There is no assigned viewshed, variety class, or VQO.

There are no recreation facilities associated with this facility. A SMUD gate 1.5 miles from Silver Creek and Camino Reservoir restricts public vehicular access. Recreationists are not prohibited from walking in past the gate and evidence indicates occasional visits by fishermen.

Project facilities at Jaybird Powerhouse/Camino Reservoir include the powerhouse, switchyard, penstock, valve house, surge basin, 4160 V feeder line from the switchyard to the valve house, a telemetered gauging station 0.1 mile upstream of the powerhouse, a telemetered streamflow gauging station 0.3 mile downstream of the dam, the Camino Powerhouse intake structure, and a generator building at the west end of the dam.

Camino Powerhouse

Camino Powerhouse is located on the SFAR 3.0 air miles northwest of Pollock Pines. The area surrounding these facilities is primarily wooded mixed oak- coniferous forest (black oak, canyon live oak, Ponderosa pine, white fir, Douglas fir, incense cedar) and sheer rock faces. The surrounding terrain is steep riverine canyon wall. Views in this vicinity are only local. The ENF viewshed in this vicinity is American River-1. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground is managed for a VQO of Retention while the middleground is managed for a VQO of Partial Retention.

There are no recreation facilities associated with this facility. A SMUD gate restricts public vehicular access.

Project facilities at Camino powerhouse include the powerhouse, switchyard, penstock, valve house, surge basin, a telemetered streamflow gauging station 0.3 mile downstream of the powerhouse at Forebay Road bridge, and 230 kV transmission lines

Brush Creek Reservoir

Brush Creek Reservoir is an impoundment on Brush Creek located one air mile north of Camino powerhouse. The area surrounding Brush Creek Reservoir is primarily heavily wooded mixed oak-coniferous forest (Black Oak, Canyon Live Oak, Ponderosa pine, white fir, Douglas fir, incense cedar). The shores primarily are steep riverine canyon wall. Views

to the reservoir and adjacent terrain are primarily obstructed by vegetation. The ENF viewshed in this vicinity is Poho Ridge-2. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground and middleground are managed for a VQO of Partial Retention.

The only recreation facility at Brush Creek Reservoir is a boat ramp. Due to its remote location, this site sees light use, primarily from local fishermen.

Project facilities include the dam, Camino powerhouse intake structure, the outlet works, and a streamflow gauging station 0.1 mile downstream of the dam. Project facilities may be viewed from the Reservoir and the boat ramp.

Slab Creek Reservoir

Slab Creek Reservoir is an impoundment on the SFAR, located north of the towns of Camino and Pollock Pines. The area surrounding Slab Creek Reservoir is primarily heavily wooded mixed oak-coniferous forest (Black oak, Canyon Live oak, Ponderosa pine, foothill pine, white fir, Douglas fir, incense cedar). The shores primarily are steep riverine canyon wall. Views to the reservoir and adjacent terrain are primarily obstructed by vegetation. The ENF viewshed in this vicinity is American River-1. The ENF LRMP describes this viewshed as variety class B (common landscapes). The foreground is managed for a VQO of retention while the middleground is managed for a VQO of Partial Retention.

Recreation facilities include two informal boat launches, one about 0.7 mile upstream of the dam on the south side of the reservoir and the other at the reservoir inlet, on the north side, off of Forebay Road. The boat launches are suitable only for car top launching. Recreational users consist primarily of local flat water boaters and fishermen. Occasional personal watercraft use occurs.

Project facilities include the dam, Whiterock powerhouse intake structure, a small powerhouse incorporated into the outlet works, and a streamflow gauging station 0.2 mile downstream of the dam. Project facilities may be viewed from the Reservoir and the two vehicular access points. The Whiterock penstock, substation, and powerhouse are outside of the ENF and therefore are excluded from this Plan.

Other Project Facilities

Throughout the project area, meteorological, hydrological, and communication facilities are scattered. With the exception of the Loon Lake microwave reflector and the Loon Lake meteorological station, these facilities are generally small, unobtrusive, located in inaccessible areas, and are generally not visible from area viewpoints.

The Loon reflector was downsized and painted in 2014 in compliance with the FERC requirement discussed in Section 1.1. All meteorological stations will be painted in compliance with the FERC requirement discussed in Section 1.1 no later than fall of 2018.

2.2 Scenic Routes

Two scenic routes in the Project area have been designated by State and County agencies: U.S. Highway 50 and Ice House Road. Management of actions along these scenic corridors is jointly handled by ENF, Caltrans, and El Dorado County. Management actions may include regulation of development along the roadway, roadway maintenance and other improvements, and roadside advertising. Each of these scenic routes is briefly described below.

U.S. Highway 50

U.S. Highway 50, a heavily traveled route across the Sierra Nevada Mountains, is designated as a State Scenic Highway in the vicinity of the Project. Foreground and middle-ground views from U.S. Highway 50 include forested inclines, glimpses of the SFAR, rock cliffs, ridges, and peaks. None of the Project facilities are visible to travelers along U.S. Highway 50. The ENF manages this viewshed to meet a foreground VQO of Retention and a middle-ground VQO of both Retention and Partial Retention, depending on the variety class.

Ice House Road

Ice House Road joins U.S. Highway 50 at Riverton and provides access to the Crystal Basin Recreation Area. This route has been identified by El Dorado County as an important public scenic viewpoint and is a likely candidate for visual resource protection management by the County. Pursuant to policies listed under Objective 2.6.1 of the El Dorado County General Plan (El Dorado County 2004), Ice House Road (between U.S. Highway 50 and Loon Lake) may be considered for protection under a new County Scenic Corridor Ordinance. From Ice House Road on the east side of Union Valley Reservoir, the reservoir is briefly visible in the middleground. In this same area, Robbs Peak Powerhouse penstock is very briefly visible in the foreground. From Ice House Road in the vicinity of Loon Lake Reservoir the reservoir itself and several project facilities are visible in the foreground and middle ground. The Ice House Road viewshed is managed by FS for foreground Retention and middle-ground Partial Retention.

2.3 Regional Resource Management Plans

Several federal regional resource management plans provide guidance for aesthetic/visual resource management in the Project area. These plans are briefly described in this section and were considered during the development of appropriate visual resource implementation actions, described in Section 4.0 of the VRMP.

Land and Resource Management Plan: Eldorado National Forest

Adopted in 1988, the current ENF LRMP (USDA-FS 1988a) was intended to guide management of the Forest for a period of 10 to 15 years. Most of the Project facilities are located on FS-managed lands and are described in this VRMP. In terms of visual resource

management, the ENF LRMP contains a systematic discussion of VQOs (using the older FS Visual Management System (VMS), not the newer FS Scenery Management System [SMS]). The ENF LRMP also discusses the application of VMS VQO's to particular FS management areas and land use types. Additionally, discussion of public issues and management concerns related to energy production provides direction regarding future hydroelectric development, including general goals for addressing visual impacts on FS-managed lands. For example, "hydroelectric development will be made inconspicuous in locations where the Forest's visual quality objective is retention or partial retention of the natural landscape." However, the ENF LRMP does not provide specific visual quality guidelines or prescriptions, beyond those that are associated with the VMS VQOs (see Section 2.1).

The Built Environment Image Guide for the National Forests and Grasslands

In 2001, FS adopted The Built Environment Image Guide (USDA-FS 2001). This document provides a range of design guidelines for facilities according to the region in which they are located, as well as provides guidelines which apply across all regions. Guidelines focus on issues such as ecological and cultural influences on design, and address architectural form, materials, color, and sustainability. All Project facilities located on FS-managed lands are subject to these guidelines, in addition to LRMP requirements and other regulations specific to those lands.

3.0 Overview of the VRMP

The overall intent of the VRMP is to define SMUD's involvement, role, and responsibilities in implementing visual resource management directives as described in the FERC License terms and conditions (License Appendix B, Condition 53). In general, SMUD's responsibilities include enhancing the visual appearance of specific Project facilities and lands, and establishing a process for visual resource protection, as directed by the new FERC License.

Taken as a whole, the VRMP represents a single "umbrella" protection, mitigation, and enhancement (PM&E) measure for visual resources. More specifically, the VRMP is an implementation tool to be used to manage the visual appearance of Project resources throughout the term of the new FERC License. The VRMP is specific to SMUD's visual resource roles and responsibilities in the Project area. It does not make management or resource commitments for other entities, such as FS.

3.1 Goals

During the term of the new FERC License, the following three goals shall be used to help direct Project improvements/enhancements to visual resources and guide visual resource related decision-making:

Goal 1: Comply with FERC License Terms and Conditions Related to Project Visual Resources

SMUD will meet the terms and conditions set forth in License Appendix B, Condition 53. The appearance of specific Project facilities described in the new FERC License will be enhanced by SMUD, resulting in the overall improvement of visual resources seen by the public in the Project area.

Goal 2: Ensure that newly constructed or reconstructed facilities will incorporate applicable VRMP Implementation Actions

Identify and describe how newly constructed or reconstructed facilities will maintain or improve the existing visual conditions with respect to USDA-FS objectives, standards, and guidelines. This VRMP describes how SMUD will consult and coordinate with the USDA-FS when implementing future projects that have the potential to affect visual resources on National Forest Service (NFS) lands, including construction of new recreation or other project facilities and reconstruction of existing recreation or other project facilities.

Goal 3: Ensure that Ongoing/Routine Maintenance Practices Incorporate Applicable VRMP Implementation Actions

Ongoing and routine maintenance activities at the Project will be amended, as needed, to incorporate monitoring/inspection and other actions required by implementation of the VRMP. In addition to periodic inspection of Project facilities, ongoing maintenance practices will also be revised to incorporate VRMP processes (described herein) prior to actions that may affect visual resources in the Project area (e.g., painting, new facility construction, etc.).

3.2 Assumptions

The identification and understanding of relevant assumptions are important for the long-term successful implementation of the VRMP. Because the Project may potentially change over the term of the new FERC License, the issues and assumptions identified at this time may need to be reviewed and potentially revised in the future. Current VRMP issues and assumptions include the following:

- The VRMP applies to all Project facilities on lands within the ENF and within the FERC Project boundary
- In addition, this applies to all Project facilities within the ENF and covered under an ENF Special Use Permit, but not within the FERC project boundary
- The Iowa Hill Pumped Storage project, which was authorized under the new FERC License, will be addressed under a separate VRMP

- A License Amendment application for the proposed Slab Creek Flow Release Facility and Powerhouse Project has been submitted to FERC for. This project will also be covered under a separate VRMP

- Stakeholders (ENF) will periodically be given the opportunity to consult on future visual resource protection plans (Section 4.0), as needed, as well as the VRMP.

4.0 Roles, Responsibilities, and Coordination

This section describes the roles and responsibilities of SMUD as Licensee, as well as those of other stakeholders related to the implementation of the VRMP. This section also describes the coordination of SMUD's various resource management plan implementation actions (including those described in this plan) and the need for periodic review and update of the VRMP.

4.1 SMUD and Stakeholder Roles and Responsibilities

Implementation of the VRMP is the sole responsibility of SMUD as Licensee. SMUD's expectations of the basic roles of the stakeholders related to implementation of the VRMP are listed below. At this time, the primary VRMP stakeholder is ENF. It is acknowledged that SMUD cannot assign funding, staffing, or other resource allocation responsibilities to other entities unless specified in an adopted memorandum of agreement or understanding (or other legal document).

Implementation of the VRMP will involve the following anticipated responsibilities during the term of the new FERC License:

SMUD Roles and Responsibilities

- Implement the VRMP following FERC approval.

- Coordinate VRMP implementation actions with other Project resource management plans or actions.

- Review potential visual resource changes over time (via the visual inspection process described in Section 5.1.4), if any, and prepare periodic updates of the VRMP, if needed (an update would only be needed if there are significant changes to the visual character of the Project area).

- Ensure that SMUD facility operations and maintenance staff are aware of the requirements of the VRMP so that they can help implement applicable actions.

ENF Roles and Expected Responsibilities

- Provide timely review and feedback on the Draft VRMP and project specific VRPP's and any future updates, if needed, prior to submittal to FERC for approval.

- Provide timely review and feedback on VRMP and project specific VRPP implementation actions per the visual resource protection plan process described in Section 5.2 of this plan, including approval of visual resource protection plans (as stipulated in Condition 53 – see Section 1.1).

- Participate in periodic VRMP and project specific VRPP review meetings, if needed.

4.2 SMUD Management Plan Coordination

In addition to the VRMP, SMUD is required in the new FERC License (and associated Settlement Agreement) to also develop other resource-specific management plans (e.g., Historic Properties Management Plan, Recreation Resource Management Plan, Facility Management Plan, etc.) to help guide the decision-making process over the term of the new License. Prior to potential implementation of resource-specific management plan actions, specific actions will be reviewed for potential impacts to the visual resources of the Project area. For potential actions (e.g., new facility construction, maintenance, vegetative clearing, etc.) that may impact the visual quality of the Project area, applicable VRMP actions may be considered to mitigate identified impacts.

4.3 Periodic Review

Implementation actions associated with the VRMP essentially involve repainting several Project facilities and/or replacing fence fabric so as to help improve the existing visual conditions in the Project area. However, given the term of the new License (50 years), unanticipated changes may affect the visual quality of the Project area. As such, SMUD and ENF will review opportunities to improve how well Project facilities blend in with the surrounding landscape at least every 5 years (see Section 5.3) or to coincide with other periodic License implementation reviews. During these reviews, SMUD and ENF will discuss visual resource mitigation activities intended for the following five years on NFS land within the FERC project boundary and at project sites covered under SUP but outside the FERC Project boundary.

5.0 Implementation Actions

This section describes implementation actions of the VRMP. These actions are grouped into two broad categories: (1) Visual Enhancement/Mitigation Techniques, and (2) Visual Resource Protection Plan Process. Each of these categories of implementation actions, as well as an implementation schedule is described below.

5.1 Visual Enhancement/Mitigation Techniques

The visual enhancement/mitigation techniques described in this section are either required as specified in the new FERC License (see Section 5.3 Implementation Schedule), as specified in Condition 53, or are recommended actions that may be implemented, as needed, throughout the term of the new FERC License to help minimize and/or mitigate potential impacts to visual resources in the Project area. Any potential actions (excluding those actions directly required by Condition 53 of the new License) that are taken in the future related to visual resources should adhere to the project-specific visual resource protection plan process described in Section 5.2, which includes coordination with ENF. The examples provided in Sections 5.1.1 through 5.1.4 are examples visual enhancement/mitigation techniques. This is not a comprehensive list. Alternate techniques may be developed in consultation between SMUD and ENF.

5.1.1 Selection of Materials and Coloring

Selecting materials and colors to blend with the landscape or selecting appropriate paint colors can help reduce the visual impact of Project facilities on the surrounding natural landscape.

Where facilities are highly visible, consider use of natural-looking building materials that mimic the colors/textures in the surrounding environment such as natural rock faces on retaining walls. Materials should be selected to minimize reflected light that will make them stand out in the landscape, such as using non-specular conductors for the transmission lines and avoiding reflective metal roofs or surfaces.

Per Condition 53, SMUD will re-paint several Project facilities using a non-reflective black paint or other color as specified in Condition 53 or as specified by ENF.

In addition to applying non-reflective black paint on these Project facilities, other appropriate paint colors may be considered for future Project facility painting to help reduce the contrast between these facilities and the surrounding natural landscape (e.g., greens against forested backgrounds, grays against rock outcrop backgrounds, etc.). Paint colors will be chosen on a site and/or Project facility basis and will be coordinated with the ENF through the Visual Resource Protection Plan process (as described in Section 5.2). Regardless of the exact color that is chosen, paints with low levels of reflectivity are recommended.

In addition, materials or compounds designed to enhance the coloration of natural rock, concrete or metal surfaces may be used, such as integral or surface concrete colors and or weathering steel (such as Corten) to help facilities blend in with the surrounding area, or Permeon to darken freshly cut or blasted rock surfaces to blend with the weathered rock of the surrounding area.

Selection of materials and colors will be agreed to on a site and/or Project facility basis and will be coordinated with the ENF through the Visual Resource Protection Plan process (as described in Section 5.2).

5.1.2 Facility Siting and Design

New Project facilities may be needed over the term of the new License. Any new Project facilities constructed during the License term will be assessed for potential impact to visual resources. If visual impacts will likely result from new facility construction, then the facility will be sited and constructed so as to minimize these impacts, to the extent practicable.

When siting a new facility, SMUD will consider the following to minimize visual impacts:

- Where there is a choice of locations, locating new facilities in sites that are not highly visible
- Designing the new facility to conform to the natural contours of the site's topography to minimize blasting or grading;
- Orienting the facility to minimize visual exposure within the viewshed;
- Avoiding large flat surfaces into smaller areas; and
- Incorporating berms or planting areas into the project design to screen facilities.

5.1.3 Vegetative Screening

Vegetative screening is another technique for helping to reduce the visual impact of Project facilities on the surrounding natural landscape. Where feasible, native vegetation and landscaping may be used to visually screen Project facilities from public view points. Plantings will be chosen on a site-specific basis and will be coordinated with the ENF through the Visual Resource Protection Plan process (as described in Section 5.2).

5.1.4 Removal of Unneeded facilities

If a Project facility is no longer required for Project operations during the new License term, SMUD will consider it for potential removal.

5.1.4 Visual Inspections

Per Condition 53, SMUD will perform visual inspections on applicable Project facilities every 2 years and touch-up or re-paint as necessary to maintain the facility in good condition. Those facilities identified in Condition 53 include:

- Rubicon Reservoir gauging station, intake boom, telemetry facilities, and cable crossing. (The cable crossing bucket has been removed since the Settlement Agreement was reached.)

- Robbs Peak Forebay railings and building roof

For those Project facilities not specifically identified in Condition 53, visual inspections will occur every five years, as specified in the Facility Management Plan. Appropriate maintenance actions will be taken should issues be identified during this periodic visual inspection process.

5.2 Visual Resource Protection Plan Process

During the term of the new FERC License, changes to Project area conditions may necessitate additional actions to protect, enhance, or mitigate existing visual resources. As such, SMUD will file a visual resource protection plan with FERC for any potential Licensee-induced change (e.g., new facility construction, significant renovations, etc.) to the existing Project area visual environment that is planned during the term of the new License. In general, a visual resource protection plan will be required for any new, relocated, or significantly modified Project facility or other disturbance that has been determined by SMUD and/or the ENF to affect the overall visual quality of the Project area. If a Visual Impact Assessment is completed as part of California Environmental Quality Act and it has been reviewed and approved by the ENF, then a visual resource protection plan will not be required.

For project facility modifications that the ENF has deemed not significant enough to warrant the development of a visual resource protection plan, the following process shall be followed:

- Provide a narrative, drawings and/or photographs of the planned modifications to the ENF; and

- Acquire documented approval of modifications by ENF.

For Project area modifications that may result in changes to the visual environment, the process by which a project-specific visual resource protection plan would be developed is as follows (this process assumes a plan/design for any potential modification has already been developed):

- Notify ENF of planned facility modifications and identify any potential impacts to the existing visual environment of the Project area;

- If determined by the ENF that a project specific visual resource protection plan is required, develop a draft project specific visual resource protection plan that identifies the actions that will be taken to protect, enhance, and/or mitigate the visual resources impacted by the planned modification;

- Provide a draft project specific visual resource protection plan to the ENF for review (a minimum of 30 days will be provided to the ENF for their review);
- Revise and finalize the project specific visual resource protection plan, based on ENF review comments;
- Submit final project specific visual resource protection plan to the ENF for approval (per Condition 53); and
- File a final project specific visual resource protection plan with FERC. A copy of the final plan will also be provided to the ENF after being finalized.

At a minimum, the project-specific visual resource protection plan will include:

- A description of planned modifications to the existing visual environment;
- A description of the Visual Quality or Scenery Management Objectives for the project location and the primary locations of concern from which the project is visible.

Appropriate PM&E measures (see Section 5.1 for potential actions) that will be implemented as part of the project to meet the VQO's;

- A schedule for implementation of appropriate measures; and
- A record of consultation with the FS regarding the modification and appropriate visual measures.

5.3 Implementation Schedule

Table 5.3-1 provides an overview of the VRMP implementation schedule. The schedule for individual project specific VRPP's will be tied to the construction schedule for those projects.

Table 5.3-1. VRMP Implementation Schedule	
Implementation Action	**Year**
Condition 53 – Project facility visual improvements, multiple locations	2015
Condition 53 – Visual inspections	2016 and every subsequent 2 years (e.g. 2018, 2020, 2022, etc.)
Condition 53 – Project facility visual improvements, Jones Fork penstock	2017
Condition 53 – Project facility visual improvements, Weather Stations	2018
Visual resources status review	2019 and every subsequent 5 years (2024, 2029, 2034, etc.)
Condition 53 – Project facility visual improvements, Robbs Penstock	2022
Condition 53 – Project facility visual improvements, Union Valley Dam and Sub-station	2027
VRMP update	TBD, within one-year of ENF implementation of SMS

6.0 Plan Revisions

If SMUD or USFS collaboratively determine that revisions should be made to the plan, SMUD will make any revisions to the Plan in coordination and consultation with the listed resource agencies. Any revisions to the plan must be approved by USFS. Any revisions shall be filed with FERC for approval prior to implementing.

7.0 References and Literature Cited

El Dorado County. 2004. 2004 El Dorado County General Plan: A Plan for Managed Growth and Open Roads; A Plan for Quality Neighborhoods and Traffic Relief. Adopted by the Board of Supervisors on July 19, 2004. El Dorado County Planning Commission. Placerville, CA.

SMUD 2015 UARP Facilities Management Plan

USDA-FS 1974. *National Forest Landscape Management, Vol. 2, Chapter 1 (Visual Management System).* USDA Handbook Number 462. Washington, DC.

USDA-FS. 1988. *Land and Resource Management Plan: Eldorado National Forest.* Placerville, CA: USDA Forest Service.

USDA-FS. 1998. *Desolation Wilderness Management Guidelines: Land Management Plan Amendment.* Placerville, CA: USDA Forest Service, Pacific Southwest Region, Eldorado National Forest and Lake Tahoe Basin Management Unit.

USDA-FS. 2001. *The Built Environment Image Guide for the National Forests and Grasslands*. Available at URL = http://www.fs.fed.us/recreation/programs/beig/. Accessed August 15, 2007.

Exhibit A – ENF Consultation Record

Consultation regarding the development of the UARP VRMP includes:

- A meeting among Diana Erickson and Isaac Sims of ENF and Grant Nelson, Darold Perry, Ethan Koenigs, and Mark Swisher was held on 20 March, 2015. Various aspects of visual resources protection such as the Recreation Opportunity Spectrum, Visual Quality Objectives, the Visual Management System, and the Scenery Management System were discussed.
- A field visit to Loon Lake Reservoir, Gerle Creek Campground, and Union Valley Dam was held on April 22, 2015. Visual resource protection measures applicable to UARP facilities were discussed. Diana Erickson and Isaac Sims of ENF and Grant Nelson and Mark Swisher of SMUD were present.

Exhibit B. Photographic Guide to SMUD's UARP Facilities and Crystal Basin Recreation Facilities

Loon Lake Development

LL-1. Rubicon Dam (Main)

LL-2. Buck Island Dam and Stream Gauging Weir

Loon Lake Development

LL-3. Rubicon Reservoir

LL-4. Buck Island Reservoir and Helipad

Loon Lake Development

LL-5. Buck-Loon Tunnel Intake

LL-6. Loon Lake Main Dam

Loon Lake Development

LL-7. Loon Lake gate house

LL-8. Loon Lake Switchyard and Powerhouse Access Building

Loon Lake Development

LL-9. Loon Lake Helipad

LL-10. Loon Lake and the Loon Auxiliary Dam

Robbs Peak Development

RP-1. Gerle Creek Dam and Loon Tailrace Tunnel Outlet Structure

RP-2. Gerle Canal

Robbs Peak Development

RP-3. Robbs Peak Dam and Gerle Canal

RP-4. Robbs Peak Tunnel Intake/ Gate House

Robbs Peak Development

RP-5. Robbs Peak Penstock

RP-6. Robbs Peak Powerhouse

Robbs Peak Development

RP-7. Robbs Peak Penstock Valve House

RP-8. Robbs Peak Surge Basin

Robbs Peak Development

RP-9. Robbs Peak Switchyard

RP-10. Gerle Creek Reservoir

Jones Fork Development

JF-1. Ice House Dam

JF-2. Jones Fork Penstock

Jones Fork Development

JF-3. Jones Fork Powerhouse and Switchyard

JF-4. Ice House Dike 1

Jones Fork Development

JF-5. Ice House Dike 2

JF-6. Jones Fork Gate House

Jones Fork Development

JF-7. Jones Fork Valve House

JF-8. Ice House Outlet Structure

Union Valley Development

UV-1. Union Valley Dam

UV-2. Union Valley Powerhouse

Union Valley Development

UV-3. Union Valley Powerhouse

UV-4. Union Valley Switchyard

Union Valley Development

UV-5. Union Valley Switchyard

UV-6. Union Valley Spillway

Union Valley Development

UV-7. Union Valley Gatehouse

UV-8. Union Valley Reservoir

Jaybird Development

JB-1. Junction Reservoir Dam

JB-2. Junction Gate House

Jaybird Development

JB-3. Junction Reservoir

Jaybird Development

JB-4. Jaybird Powerhouse

JB-5. Jaybird Valve House

Jaybird Development

JB-6. Jaybird Powerhouse Switchyard

Camino Development

CM-1. Camino Dam

CM-2. Brush Creek Dam and Reservoir

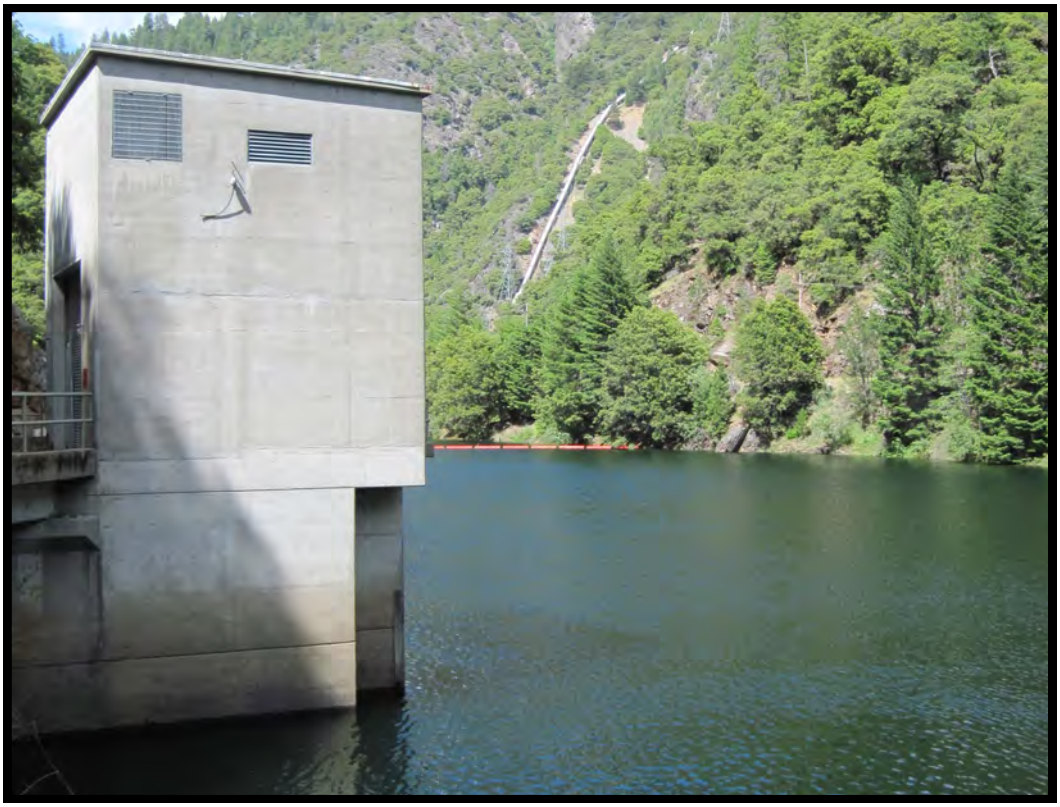
Camino Development

CM-3. Camino Penstock

CM-4. Camino Powerhouse

Camino Development

CM-5. Camino Valve House



CM-6. Camino Gate House

Camino Development

CM-7. Brush Creek Gate House

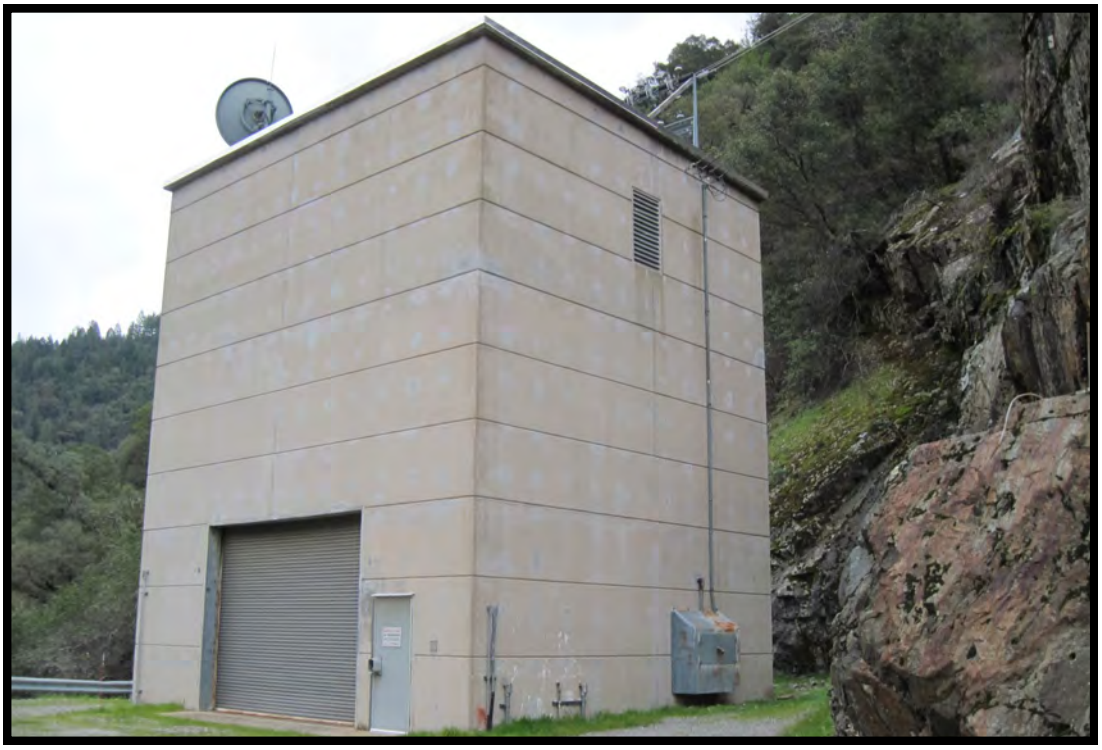
CM-8. Camino Surge Basin

White Rock Development

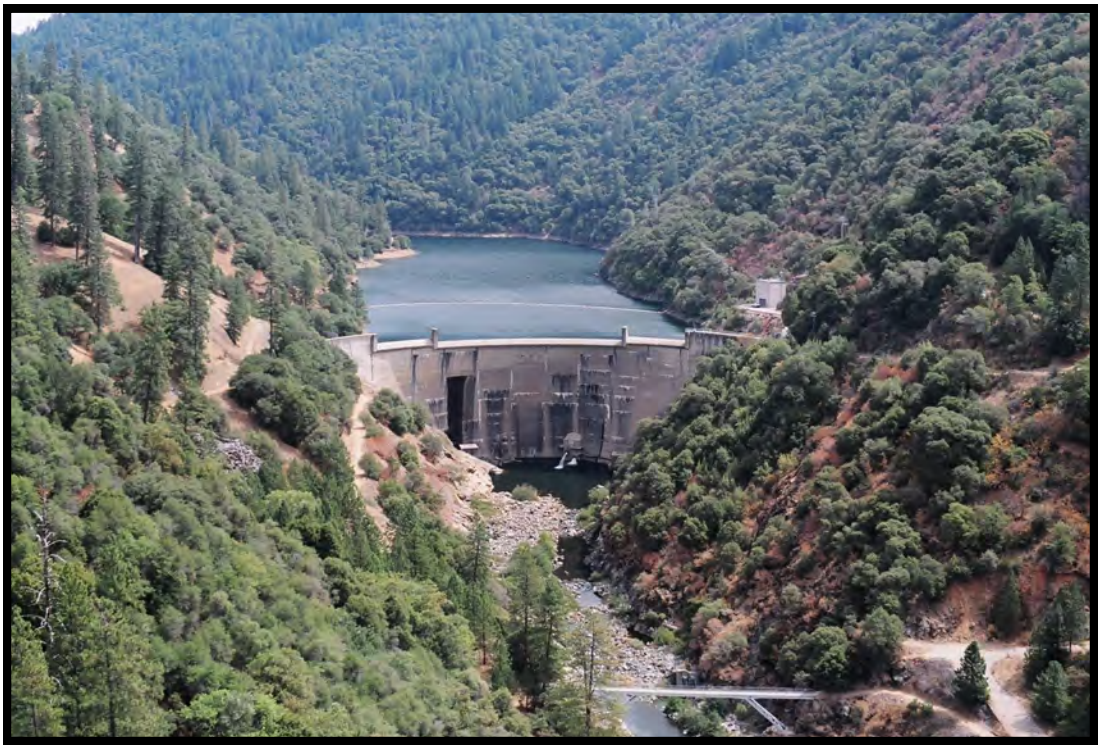
WR-1. Slab Creek Dam

WR-2. Slab Creek Powerhouse and Outlet

White Rock Development



WR-3. Slab Creek Gate House



WR-5. Slab Creek Reservoir

Recreation Facilities

REC-1. Loon Family Campground

REC-2. Loon RV Camping

Recreation Facilities

REC-3. Loon Lake Chalet

REC-4. Gerle Reservoir Fishing Pier

Recreation Facilities

REC-5 Union Valley Bike Trail

REC-6. Sunset Boat Ramp

Recreation Facilities

REC-7. Big Hill Vista Point

REC-8. Ice House Day Use

Transmission Towers & Lines

TL-1. Loon Lake to Union Valley 69 kV

Transmission Towers & Lines

TL-2. Loon Lake to Robbs 69 kV

Transmission Towers & Lines

TL-3. Jones Fork to Union Valley 5-pole Tower 69 kV

Transmission Towers & Lines

TL-4. Jones Fork to Union Valley 2-pole Tower 69 kV

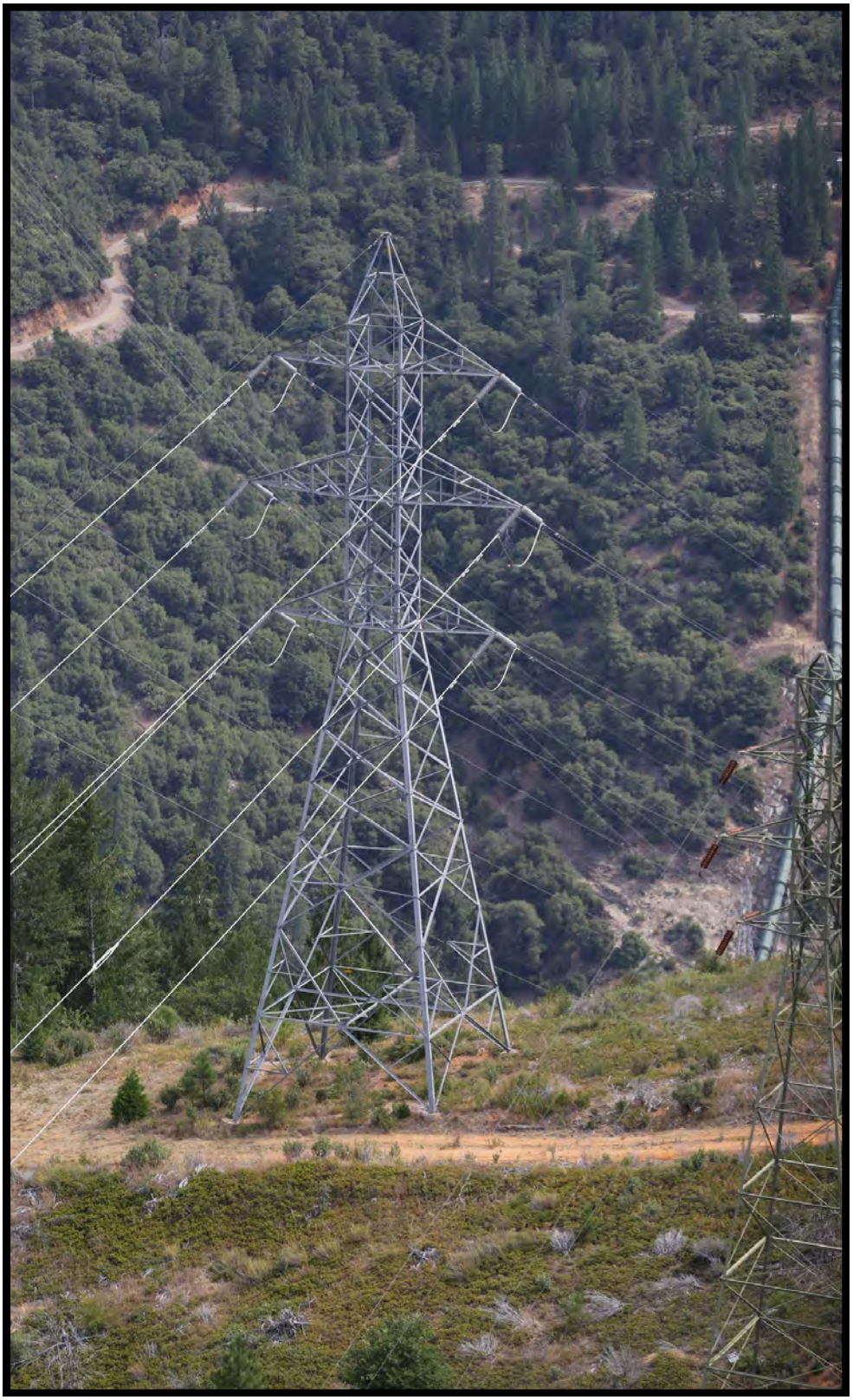
Transmission Towers & Lines

TL-5. Jaybird to Union Valley Tower 230 kV

Transmission Towers & Lines

TL-6. Jaybird to White Rock Tower 230 kV

Transmission Towers & Lines



TL-7. Camino to White Rock 230 kV

Miscellaneous

MC-1. Big Hill Telecom Site

MC-2. Sourdough Hill Telecom Site

Miscellaneous

MC-3. Stream Gaging Station Silver Creek near South Fork American River

MC-4. Loon Lake Microwave Reflector

Miscellaneous

MC-5. Loon Lake Meteorological Station

MC-6. Wrights Lake Meteorological Station

Miscellaneous

MC-7. Microwave Signal Reflector