

# Crystal Basin Reservoirs Recreation Plan—Loon Lake, Union Valley, Gerle Creek, and Ice House Reservoirs Sacramento Municipal Utility District

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Hydro License Implementation • October 2016

Upper American River Project

FERC Project No. 2101

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## Acronyms and Abbreviations

ENF	Eldorado National Forest
FERC	Federal Energy Regulatory Commission
Forest Service	U.S. Forest Service
LRMP	Land and Resource Management Plan
NFS	National Forest System
OHV	off-highway vehicle
Project	Upper American River Project (FERC Project No. 2101) or UARP
ROS	recreation opportunity spectrum
SMUD	Sacramento Municipal Utility District or Licensee
UARP	Upper American River Project (FERC Project No. 2101) or Project

## 1.0 INTRODUCTION

### 1.1 Scope and Content of the Crystal Basin Reservoirs Recreation Plan

By order dated July 23, 2014, the Federal Energy Regulatory Commission (FERC) issued a new License to the Sacramento Municipal Utility District (SMUD) for operating the Upper American River Project (UARP), FERC Project No. 2101. The new License incorporates conditions that are consistent with a Settlement Agreement between SMUD and stakeholders that resolved resource issues related to SMUD's Application for a New License to operate and maintain the UARP (SMUD 2007).

The purpose of the Crystal Basin Reservoirs Recreation Plan (Plan) is to comply with License Condition No. 45, "Specific Recreation Measures." This condition requires SMUD to develop a plan that identifies measures that address the (1) effects of the UARP on the lakeshore zone; islands; and other areas near Loon Lake, Union Valley, Gerle Creek, and Ice House Reservoirs from unmanaged recreation; and (2) need for additional day use opportunities at each of these four reservoirs. The Condition includes additional specific developments for each reservoir area, which are identified in the sections for each reservoir.

The Plan was developed to be consistent with the relevant portions of Condition No. 45, "Specific Recreation Measures". However, because the condition is based on field conditions that existed more than 10 years ago—before the Eldorado National Forest (ENF) implemented its Travel Management Plan (see Section 1.1.1, "Background"), SMUD considered the drastically different field conditions that currently exist to develop this plan. Accordingly, this Plan, including any variance that may exist from the requirements specified in Condition No. 45 and upon approval by the U.S. Forest Service (Forest Service), fulfills the requirements for recreation planning as specified in Condition No. 45 and the measures included herein take precedence over requirements contained in the condition.

The four reservoirs addressed in this Plan are located on public land that ENF manages in the Crystal Basin Recreation Area (Figure 1.1-1).

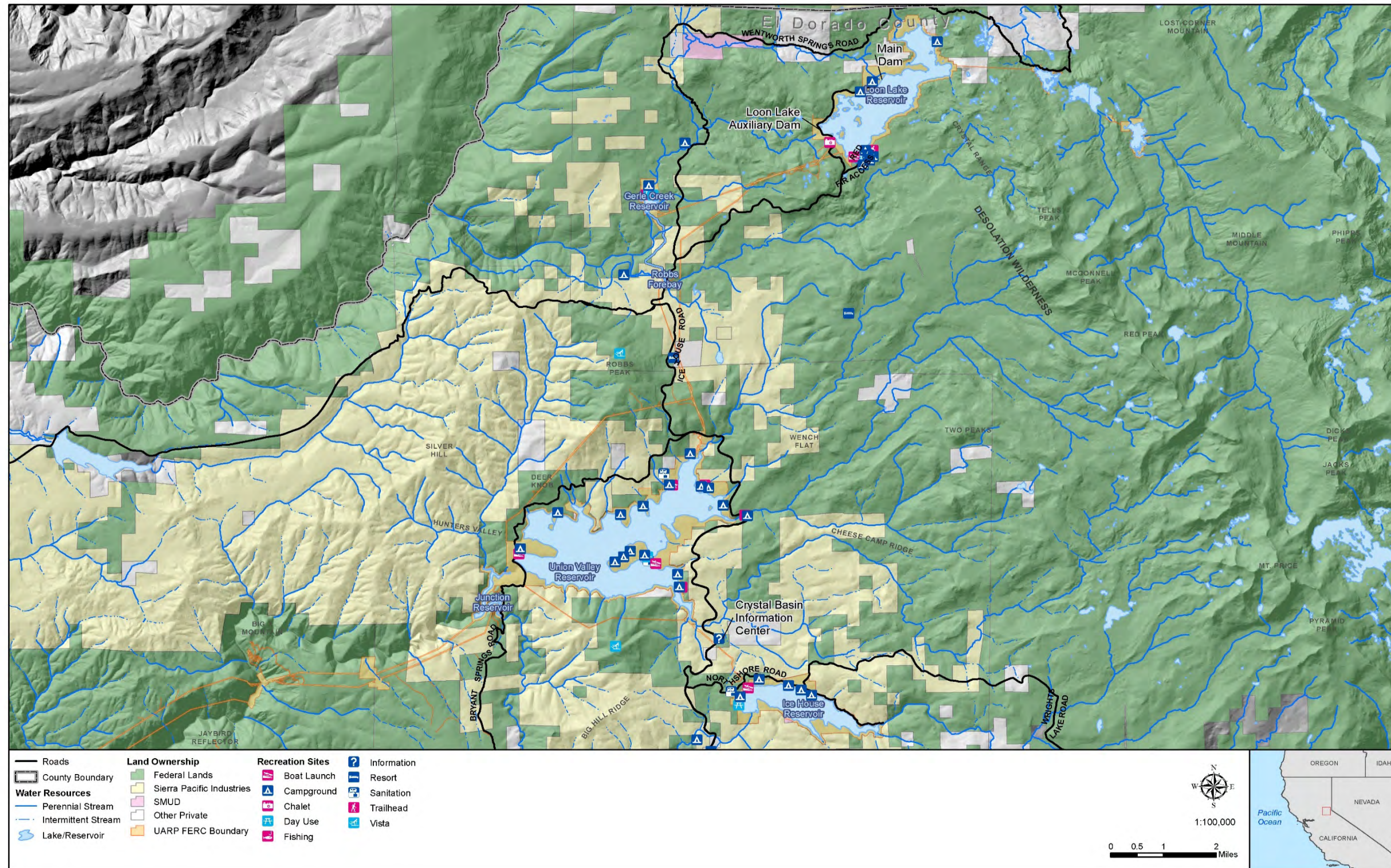


Figure 1.1-1. UARP reservoirs addressed in the Crystal Basin Reservoirs Recreation Plan.

### 1.1.1 Background

SMUD conducted studies in 2002–2003 to prepare its License Application for UARP. These studies revealed that widespread dispersed day and overnight use in the Crystal Basin near the four UARP reservoirs was causing environmental damage, such as pollution, litter, soil compaction and erosion, and vegetation removal, along with increased potential for wildland fires and user conflicts. Specific recreation measures were included in the Forest Service’s 4(e) conditions to address most of these effects, increase visitor capacity, and improve recreation facilities. However, the Forest Service included a planning element in Condition No. 45, “Specific Recreation Measures,” that requires SMUD to identify and implement additional measures and management actions that address ongoing effects from unmanaged recreation on National Forest System (NFS) land at locations where measures were not specified in the 4(e) conditions. This Plan fulfills this requirement.

In 2008, the Forest Service completed its Travel Management Plan for ENF, which restricted vehicle access to certain designated routes. SMUD conducted an extensive field inventory in 2010 of the shoreline, islands, and areas adjacent to the four reservoirs and outside the developed recreation facility boundaries. Results of the field inventory indicated that the restricted vehicular access associated with the Travel Management Plan profoundly changed recreation use and notably reduced environmental effects on the lands related to the recreation planning element required by Condition No. 45. The significantly improved resource conditions and reduced visitor conflicts resulting from implementing the Travel Management Plan have resolved many of the negative environmental impacts identified in the 2002–2003 relicensing studies. However, in reviewing SMUD’s 2010 field inventory data and consulting with ENF staff in 2015, SMUD identified: (1) specific locations for facility development and engineering solutions, and (2) management actions, which would address ongoing environmental effects of unmanaged recreation near the UARP reservoirs in the Crystal Basin and would improve recreation visitor experiences.

### 1.1.2 Plan Organization

This plan contains the following sections:

- 2.0—Development of the Crystal Basin Reservoirs Recreation Plan;
- 3.0—Recreational Setting of UARP Reservoirs in the Crystal Basin;
- 4.0—Recreation Management Measures for Crystal Basin Reservoirs;
- 5.0—Emergency Resource Protection Measures; and



- 6.0—References.

## **2.0 DEVELOPMENT OF CRYSTAL BASIN RESERVOIRS RECREATION PLAN**

In 2010, in anticipation of receiving its new License, SMUD began gathering data for this plan by conducting an extensive field investigation of lands and shorelines as specified in Condition No. 45. In 2014, SMUD reinitiated its planning efforts upon receipt of its new License by re-examining the 2010 field data and, as necessary, revisiting certain sites and shorelines to verify conditions and consulting with ENF staff.

### **2.1 Data Sources**

SMUD used two sources of field data to formulate recommended measures contained in this plan:

- Dispersed site inventory data collected in 2002-2003 and reported in relicensing technical reports for Recreation Supply (SMUD 2004a) and Recreation Carrying Capacity (SMUD 2004b); and
- Dispersed site inventory data collected in 2010 and reviewed in 2015.

The dispersed site inventory included locations where SMUD observed evidence of recurrent recreation use outside developed recreation sites. Within these areas, SMUD documented some locations with unauthorized vehicle use; overnight use within 200 feet of trails, streams, and lakes; insufficient vegetation clearance around fire rings; damaged or removed vegetation; bare or eroding soil; user-created amenities; improper sanitation; pollution; and vandalism. SMUD documented these locations and developed corrective treatments because the recreation use occurring at these places may (1) be inconsistent with SMUD or Forest Service regulations and management objectives, (2) cause environmental resource damage, or (3) create user conflicts.

Additionally, SMUD reviewed planned recreation development for areas adjacent to the lands addressed by this plan to ensure compatibility with the measures recommended in this plan (e.g., reconstructing North Union Valley Road, expanding Northshore RV Campground). SMUD also reviewed applicable management direction in the ENF Land and Resource Management Plan (ENF 1989) to ensure these measures will comply with Forest Service management direction.

### **2.2 Consultation with Forest Service and Consultation Group**

SMUD met with ENF staff in 2015 to visit each of the four UARP reservoirs in the Crystal Basin addressed in this plan and consult about those portions of Condition No. 45 requiring SMUD to prepare this plan. SMUD explained its field data collection efforts

and findings and exchanged ideas with ENF staff about the content and organization of the Plan. ENF staff explained its current recreation management objectives and challenges related to the lands associated with this planning effort. These field visits were held on:

- May 27, 2015—Loon Lake Reservoir;
- June 2, 2015—Ice House Reservoir (north shore) and Union Valley Reservoir;
- June 4, 2015—Union Valley Reservoir and Gerle Creek Reservoir; and
- July 10, 2015—Ice House Reservoir (south shore).

On April 14, 2016, SMUD provided a draft of this plan to the UARP Consultation Group for a 30-day review and comment period. SMUD received comments from ENF and American Whitewater and revised the draft to address the comments, as appropriate.

### **3.0 RECREATIONAL SETTING OF PROJECT RESERVOIRS IN THE CRYSTAL BASIN**

The four reservoir areas addressed in this plan are located in the Crystal Basin Recreation Area (Crystal Basin) of ENF. Each of the four reservoir areas has a unique recreational setting that is a function of many circumstances, including the size of the reservoir water surface, proximity to recreation opportunities (e.g., off-highway vehicles [OHV] trails), access, elevation, and applicable management rules and regulations. Since the UARP reservoirs were constructed, recreational use has evolved along with changes in demographics, and technology, NFS land management, visitor preferences and use patterns, and development of new sports (e.g., wakeboards and paddleboards). SMUD consulted with ENF to understand how it (1) manages these areas to provide a spectrum of recreation opportunities among the reservoirs in the Crystal Basin, and (2) emphasizes recreational opportunities and manages recreation use at each of the reservoirs to maximize recreational enjoyment, while minimizing user conflicts, protecting natural resources and accommodating future changes in visitor demands and preferences. This section describes the settings of each reservoir that SMUD considered when determining appropriate management measures to include in this Plan.

#### **3.1 Loon Lake Reservoir**

Located at an elevation of 6,545 feet, Loon Lake Reservoir has the highest altitude of the four Crystal Basin Reservoirs and requires the longest driving time for access, approximately 20 miles from Highway 50. Surfaced road access toward the crest of the Sierra Nevada mountain range ends and trail access to the Desolation Wilderness and

the Rubicon OHV Route begins at the reservoir. Abundant views of undisturbed, high elevation landscapes with sparse alpine vegetation and large granite outcrops attract visitors to this area. In addition to overnight visitors who stay overnight at or outside a developed campground at Loon Lake Reservoir, visitors staying at other Crystal Basin locations often drive to this reservoir for day use activities.

Although the reservoir has a large surface area of 1,450 acres, the reservoir is shallow, and rocks become exposed as this storage reservoir lowers over the summer, deterring high-speed boating use for activities such as water skiing or wakeboarding. High elevation water and air temperatures also discourage this use. Consequently, most motorized boats operate at slow speeds for activities such as angling; non-motorized boating is also popular at the reservoir. Road access only exists to about one-quarter of the shoreline and about one-third of the shoreline is accessible by trail. The shoreline is almost entirely undeveloped, aesthetically pleasing and accessible for public use.

The staging area for the Rubicon OHV Route, recognized as the premiere OHV route in the United States, is located at the base of Loon Lake dam. Visitors can travel from Loon Lake Reservoir to the end of the trail near Lake Tahoe or travel only a portion of the trail to visit points of interest. A considerable number of OHV trail users stay overnight at Loon Lake Reservoir (about 92 family sites and 4 group sites available) at the beginning or end of their journey on the OHV route, while some visitors take day trips on the route but return to the reservoir at the end of the day to camp. A similar use pattern is associated with visitors using the Loon Lake trailhead that provides access to the Desolation Wilderness.

The ENF Land and Resource Management Plan (LRMP) generally specifies managing the northeast side of the reservoir consistent with a semi-primitive motorized recreation opportunity spectrum (ROS) and the southwest side of the reservoir consistent with a Roded Natural ROS classification. The general direction for managing these lands is to maintain a range of recreation experiences. Abundant, suitable, and frequently used land for dispersed day and overnight recreation use occurs beyond the boundaries of the developed recreation facilities, which is an appropriate use and consistent with ENF land management direction as long as visitors' vehicles remain on designated routes.

SMUD consulted with ENF regarding existing conditions, ongoing management challenges, and areas with unmanaged recreation needs. In addition to following applicable LRMP direction, site-specific items the ENF staff mentioned during consultation include:

- Management strategies and development that separate OHV and reservoir-based user groups would minimize user conflicts.

- Management actions that provide for more day use opportunities would contribute to achieving the management goal of providing for a range of recreation experiences at Loon Lake Reservoir.
- By regulation, dispersed overnight use is not allowed within 150 yards of developed facility boundaries. Dispersed camping is encroaching on Northshore RV Campground and dispersed campers are using the restrooms.
- SMUD should consider ways to discourage or prevent overnight trailer parking, usually associated with the Rubicon OHV Route, in the planning and management of any day use areas.

### **3.2 Gerle Creek Reservoir**

Gerle Creek Reservoir is the smallest of the four Crystal Basin Reservoirs. Because it only has a surface area of 60 acres, boating is restricted to non-motorized watercraft for safety reasons (El Dorado County Ordinance 12.64.040, ENF 1995). Visitor access to the reservoir is concentrated at the north end of the reservoir near the 50-unit campground (which includes a day use area with hand-only boat launch), two small 4-unit day use areas, and nearby summer recreation residences. Except for a pedestrian trail along the northwest shoreline and the two small day use areas, the shoreline is undeveloped. Most visitors enjoy swimming, angling, and non-motorized boating use at the reservoir. Although most visitor use appears to be from those staying at Gerle Creek Campground, additional visitors make day trips to Gerle Creek Reservoir from their developed or dispersed campsites at other Crystal Basin locations. Suitable walk-in dispersed campsites are scattered along the east side of Gerle Creek between the reservoir and Wentworth Springs Road.

Although the ENF LRMP generally specifies managing the reservoir area consistent with a Roaded Natural ROS classification and maintaining a range of recreation experiences, it may be necessary to limit the types or locations of recreation experiences to minimize user conflicts. The small footprint of the reservoir area combined with a high level of recreation use creates a high potential for user conflicts. Proximity to Wentworth Springs Road and Airport Flat Campground, which provides access to the popular Rubicon OHV Route, and presence of summer cabins authorized by Forest Service special use permits further increase the potential for user conflicts at and near Gerle Creek Reservoir. Because of these circumstances, ENF does not allow dispersed camping on the Gerle Creek Reservoir shoreline (ENF 2015).

SMUD consulted with ENF regarding existing conditions, ongoing management challenges, and areas with unmanaged recreation needs. In addition to following applicable LRMP direction, site-specific items the ENF staff mentioned during consultation include:

- Prohibiting dispersed overnight use at the reservoir would maximize the amount of the small reservoir shoreline available for day use recreation.
- Directing dispersed overnight OHV use away from Gerle Creek Reservoir would minimize conflicts with reservoir-based recreation use.
- Prohibiting dispersed overnight use at the reservoir would reduce instances of trespassing and disturbance to recreation resident occupants by dispersed campers and would maintain private owners' use and enjoyment of cabins authorized by special use permit.

### **3.3 Union Valley Reservoir**

Union Valley Reservoir is the largest of the four Crystal Basin Reservoirs with a water surface of 2,860 acres. The large water surface is suitable and most popular for high-speed boating use (e.g., water skiing, wakeboarding, and tubing) and also provides boat angling opportunities. The reservoir shoreline receives abundant use from visitors who use the campgrounds (more than 400 sites), day use areas, swimming area, boat launches, and bicycle and pedestrian trails; much of the undeveloped shoreline is suitable for dispersed day and overnight (i.e., boat-in) use.

Located at about 15 miles from Highway 50, Union Valley Reservoir is within a reasonable driving distance for day users traveling from Placerville and Sacramento. Consequently, this reservoir is an important resource for providing day use opportunities for those staying in Crystal Basin as well as visitors from nearby communities who travel to the reservoir for the day. Of the four Crystal Basin Reservoirs, Union Valley Reservoir receives the highest recreation use, has the highest developed recreation facility capacity (about 407 family sites and 6 group sites available), and supports the widest range of water- and land-based recreation activities.

The ENF LRMP generally specifies managing the reservoir with a Roaded Natural ROS classification. The general direction for managing these lands is to maintain a range of recreation experiences. High recreation use has been accommodated by developing many recreation facilities, including boat-in campgrounds. Some of the smaller campgrounds (e.g., Camino Cove) were constructed over the last 15 years to address effects from unmanaged dispersed recreation. Despite the several developed recreation facilities at the reservoir, the northern shoreline has many suitable areas for dispersed

day and overnight use. Prior to 2008, when ENF implemented the Travel Management Plan, these areas could be accessed using boats and vehicles. After the plan was implemented, vehicle access to the north shoreline was prohibited, and recreation impacts, such as erosion, soil compaction, vegetation damage, as well as impacts to nearby private property, was notably reduced. Managing the north shoreline to accommodate dispersed day and overnight use is an appropriate use consistent with ENF land management direction as long as visitors' vehicles remain on designated routes.

SMUD consulted with ENF staff regarding existing conditions, ongoing management challenges, and areas with unmanaged recreation needs. In addition to following applicable LRMP direction, site-specific items the ENF staff mentioned during consultation include:

- Union Valley Reservoir's extensive shoreline, which can accommodate dispersed recreation use, should continue to be available for public use. As compared to the other Crystal Basin Reservoirs, Union Valley Reservoir provides the most diverse recreation opportunities for day and overnight use.
- The shoreline near Camino Cove and Westpoint Campgrounds is an area where resource damage from dispersed recreation use continues to be a problem.
- Additional closure barriers are being added by ENF along North Union Valley Road because vehicle use of closed routes along North Union Valley Road is an ongoing problem.
- Resurfacing the North Union Valley Road, as scheduled in 2019, will increase the amount of, and broaden the diversity of, recreational use on the north side of Union Valley Reservoir.
- ENF implemented engineering solutions to eliminate vehicle access to dispersed campsites along Jones Fork Silver Creek. Parking is now restricted to along the access road and parking areas. Recurrent heavy dispersed overnight use continues at this location, which is about 2 miles northeast of the intersection of Ice House and Jones Wreckum Road (and outside the FERC Project boundary).

### **3.4 Ice House Reservoir**

Ice House Reservoir is the second smallest of the four Crystal Basin Reservoirs with a water surface area of 678 acres. Visitor access to the reservoir is primarily along the north shoreline in the vicinity of the campgrounds, boat launch, and day use area. Many visitors also access the north shoreline for dispersed day use activities via Lakeshore Road. Most of the land along the south shore is privately owned and the access roads

to this area are not open for public use. A narrow band of NFS land extends upslope from the high water mark of the reservoir and allows public access to the shoreline by boat for dispersed day use. In addition to campground and day use visitors, Mountain Camp, a private camp, contributes to recreation use at Ice House Reservoir. The camp includes a beach where campers swim and access kayaks and other watercraft to use on the reservoir. Except for the three campgrounds, day use area, and private camp, the shoreline is undeveloped.

Many reservoir visitors camp at the campgrounds (about 114 available sites); however, the reservoir also receives a considerable amount of day use. Located only about 10 miles from Highway 50, this reservoir is the closest of the four reservoirs to local communities of Placerville and Sacramento. In addition to camping and picnicking at the reservoir, popular activities include swimming, motorized boating for watersports, angling (from the shoreline and boat), and non-motorized boating use. Visitors also hike and bicycle on a native surfaced trail along the north shore, which will eventually connect at its west end with the Union Valley Bike Trail.

Although the ENF LRMP generally specifies managing the reservoir area consistent with a Roaded Natural ROS classification and maintaining a range of recreation experiences, it may be necessary to limit the types or locations of recreation experiences to minimize user conflicts. The privately owned land and youth camp adjacent to the shoreline combined with a high level of recreation use creates competition among visitors for available space. As visitors seek to find their space to recreate, they sometimes trespass on private land, and the most desirable locations receive recurrent use. This use pattern creates a high potential for impacts from use such as soil and vegetation damage and sanitation issues on both public and private land. Wildland fire potential from improperly extinguished campfires is also a concern, particularly on the south shore where road access is limited. Because of these circumstances, dispersed overnight use is not allowed around Ice House Reservoir (ENF 1995).

SMUD consulted with ENF regarding existing conditions, ongoing management challenges, and areas with unmanaged recreation needs. In addition to following applicable LRMP direction, site-specific items the ENF staff mentioned during consultation include:

- Prohibiting dispersed overnight use at the reservoir would minimize user conflicts, use impacts, and effects on adjacent private land and the youth camp. This approach would also maximize the amount of the reservoir shoreline available for day use recreation.

- Visitors currently park near the gate at the dam to use the day use area to avoid paying the day use fee. Extending the fee day use parking area to the dam to formalize the use and collect fees for parking would be appropriate. This location is also the parking area used by whitewater boaters to access the South Fork Silver Creek whitewater boating releases.
- Planning should focus on providing day use opportunities, both developed and dispersed, because the reservoir is the first that visitors pass as they enter Crystal Basin, and because the reservoir and shoreline are somewhat small. Further, some recreation facility development required by the License (e.g., day use sites and hardened trails) will take place at areas currently used for dispersed recreation, thereby reducing the area available for dispersed recreation.
- Paving the Lakeshore Road, as scheduled in 2019, will increase the amount of and broaden the diversity of recreational use on the north side of Ice House Reservoir.
- Developing a small boat-in campground on the south shore would have challenges in terms of facility management, enforcement, and wildland fire prevention and suppression. The need for a boat-in campground at Ice House Reservoir is not clearly demonstrated at this time, and such development would displace existing day use recreation visitors.

#### **4.0 RECREATION MANAGEMENT MEASURES FOR CRYSTAL BASIN RESERVOIRS**

This Plan prescribes treatments and monitoring at specific areas at and near the four reservoirs consistent with current ENF recreation management objectives. Treatments consist of engineering solutions and restoration measures necessary to address recreation-related effects identified during SMUD's dispersed recreation site inventory.

Engineering solutions are proposed as means of hardening a site to accommodate recreation use or discourage inappropriate use at locations where visitors are disregarding rules and regulations. Examples of engineering solutions include installing or reinforcing physical closures on routes that are not authorized for vehicle use, installing information signs, and constructing parking areas. The intent of implementing these measures is to accommodate the existing use but provide for resource protection. SMUD will be responsible for implementing the proposed engineering solutions in this Plan. No additional property rights are required to facilitate day use recreation opportunities identified in this Plan.



Restoration measures are proposed at sites where some type of use or user-created amenity exists (e.g., fire ring, trail, or trash receptacle) that is inconsistent with a Forest Service rule or regulation, inconsistent with UARP operations, or is causing resource damage. Restoration measures include routine actions such as removing user-created amenities (e.g., fire rings or shelves) with the intent of discouraging a particular type or location of use. Consistent with the Rationale Report provided by ENF to support its 4(e) conditions (ENF 2005), ENF will use a portion of annual funding it receives from SMUD required by Condition No. 47, "Recreation Operation, Maintenance, and Administration," to rehabilitate impacted areas, cleanup shoreline, and implement resource protection measures within and immediately adjacent to the reservoirs. As such, ENF will be responsible for implementing the proposed restoration measures.

Monitoring is proposed for all sites where measures are implemented as well as many suitable locations identified for dispersed day and overnight use along the shorelines of the Crystal Basin Reservoirs. Although the ENF regulations require camping at least 100 feet from water bodies and removing trash, visitors do not always comply with these requirements. Additionally, visitors sometimes remove barriers to allow vehicular access the shoreline and suitable dispersed sites where ENF has closed vehicle routes to unauthorized use. Because of their slope, proximity to water, setting, and visitors' propensity to violate route closures, these areas will continue attracting dispersed use and require regular and ongoing monitoring to maintain route closures and remove trash, user created amenities (e.g., shelves and benches), and fire rings located too close to the shoreline.

Accordingly, sites that receive recurrent dispersed recreation use that were identified in the inventory will be monitored to assess treatment effectiveness and detect emerging resource issues that may require attention. Similar too, and in concert with, implementation of restoration measures described above, ENF will be responsible for implementing regular and ongoing monitoring measures. Funding for these activities is provided annually to ENF for operation, maintenance and administration of uses adjacent to or in the vicinity of UARP reservoirs (Condition No. 47, "Recreation Operation, Maintenance, and Administration"). After FERC approves this plan and consistent with the Rationale Report provided by ENF to support its 4(e) conditions (ENF 2005), ENF will use a portion of this funding to annually monitor the sites shown below in Figure 4.1-2, 4.2-1, 4.3-1, and 4.4-1 (e.g., picking up litter, area condition monitoring, enforcing rules and regulations). SMUD's funding provided to ENF is also used for performing regular and annual maintenance at Project recreation facilities; conducting patrols; providing public information; rehabilitating impacted areas; addressing sanitation needs; maintaining day use sites, including areas receiving concentrated use; maintaining trails, information signs, and regulatory signs; responding

to fires and other emergencies; assisting in search and rescue; and addressing resource impacts.

Monitoring of Project recreational use, including at Loon Lake, Union Valley, Gerle Creek and Ice House Reservoirs, is included in the recreation use monitoring program required by Forest Service 4(e) Condition No. 42 and FERC regulations at 18 C.F.R. § 8.11. In particular, monitoring will review and report effectiveness of recreation measures in terms of overcrowding, user conflicts and resource impacts. SMUD will assess recreation use at the UARP every 6 years at which time monitoring sites may be adjusted based on observed conditions. Monitoring by Forest Service staff will also include ongoing review at sites identified in this plan and for issues not specifically addressed but were documented in its development through fieldtrips, interviews and comment periods. Additionally, monitoring may identify new issues through information reported about recreation use, change in use, overcrowding, or other resource concerns. Potential sources of information include recreation-related incident reports and citations, reported user conflicts, comments reported by visitors on the National Recreation Reservation System, visitor use reported by concessionaire, National Visitor Use Monitoring data and other various forms of official data and documentation. Issues identified during this monitoring effort may trigger revisions to this plan to address recreation or resource concerns.

#### **4.1 Recreation Plan for Loon Lake Reservoir Area**

For Loon Lake Reservoir, Condition No. 45 specifies:

##### ***Loon Lake Recreation Plan***

*Within 2 years of license issuance, the licensee shall prepare a development plan, to be approved by FS, which addresses impacts to the lakeshore zone and islands from unmanaged recreation, and the need for additional day use opportunities. The licensee shall be responsible for developing sites and/or implementing the measures identified in this plan within 5 years of license issuance. The following elements shall be addressed:*

- *Sanitation.*
- *User conflicts.*
- *Carrying capacity.*
- *Day use versus overnight camping.*
- *Vehicle control.*

- *Boating access.*
- *Emergency resource protection measures.*

*In addition to the elements above, the following specific areas shall also be addressed:*

*Evaluate the need for improvements at the old construction road east of the auxiliary dam for use as a car-top boat launch. There is potential for day use and overnight (individual family or group) camping at this site.*

*Determine appropriate use for area between North Shore Recreational Vehicle Campground and the Main Dam. Consider day use, or continued dispersed camping with appropriate vehicle parking adjacent to the roadway.*

*Survey all existing dispersed sites to determine where use is suitable; engineer suitable dispersed sites to minimize impacts; and close and restore other dispersed sites in the area using standard FS techniques.*

#### 4.1.1 Planned Management Actions

The following sections describe the management actions that will be implemented to manage recreation use outside the developed recreation facilities in proximity to Loon Lake Reservoir. These actions consist of engineering solutions and restoration and may be accompanied by visitor education signage. All areas covered by this Plan will be monitored to assess treatment effectiveness and detect emerging resource issues that may require attention.

Consistent with priorities and management emphasis identified during consultation with ENF staff and considering the mix of existing and planned recreation development, the measures are focused on opportunities best suited to each reservoir, yet collectively maximize the diversity of recreation opportunities available at the Crystal Basin Reservoirs. Accordingly, SMUD considered measures for this reservoir area that would address the recreation effects, while emphasizing or enhancing (1) developed and dispersed overnight capacity; and (2) dispersed boat-in (particularly non-motorized) day and overnight use.

When implemented, elements in this Plan and the specific recreation measures contained in Condition 45 for the Loon Lake Area will increase developed overnight capacity and separate reservoir and OHV route users to reduce the concentration of visitors near the main dam, recreation use conflicts, and enforcement needs (i.e., prevent dispersed camping encroachment within 150 yards of developed

recreation facilities). It should also be noted that expanding the campground to the east and west (Figure 4.1-1) is a requirement of Condition No. 45(d), “Northshore Recreation Vehicle Campground.” Although the measures will displace dispersed use near the campground and dam, a mix of dispersed and developed recreation opportunities will still exist at the reservoir because abundant locations for dispersed camping exist between LL-12-E and the auxiliary dam (see Figure 4.1-2).



**Figure 4.1-1. Area for expanding Northshore Campground (LL-13-E and LL-14-E).**

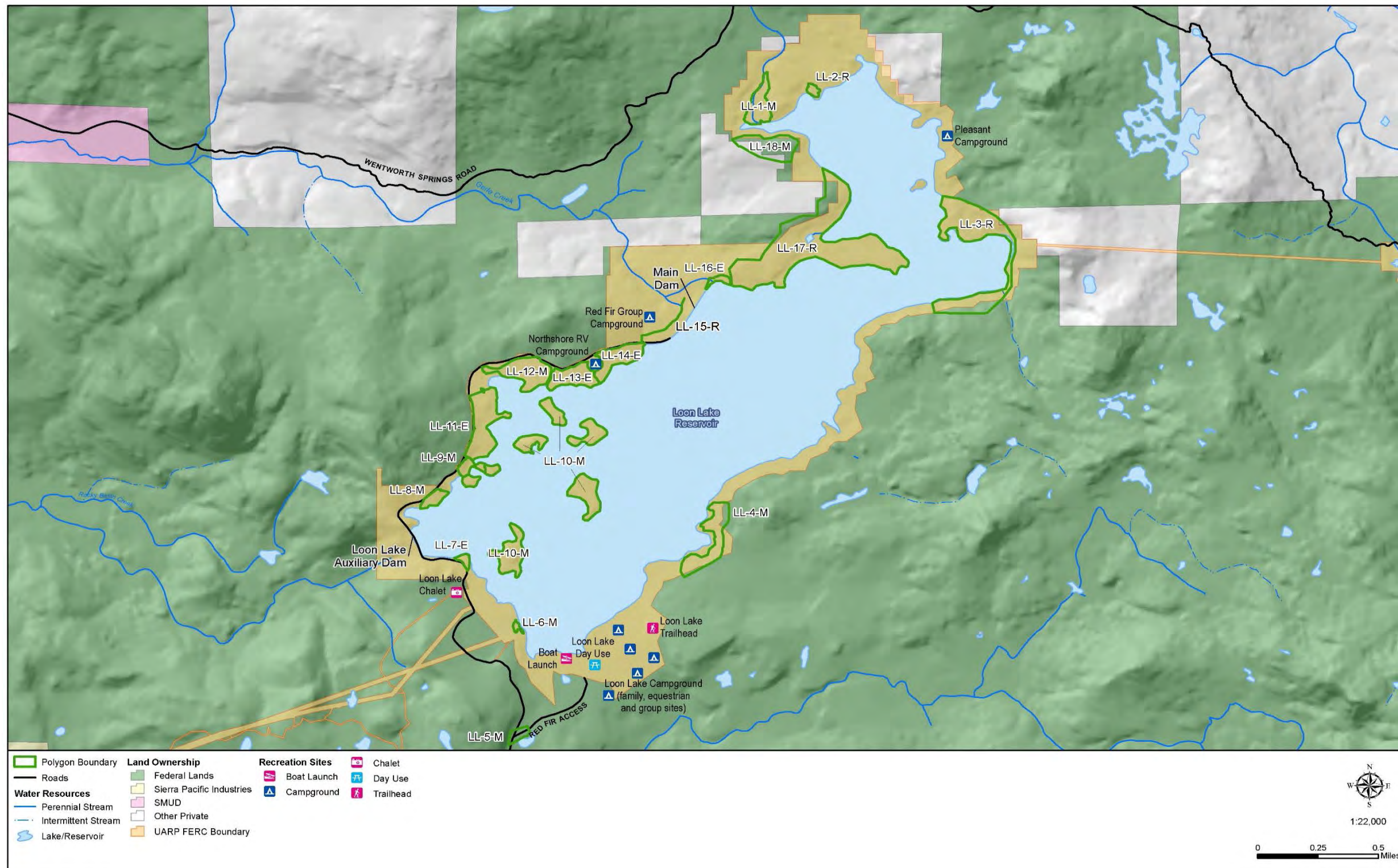


Figure 4.1-2. Engineering solutions and restoration measures at Loon Lake Reservoir.

Currently, only one developed day use area exists at Loon Lake Reservoir; however, this reservoir receives considerable day use from Crystal Basin visitors. Because of the shortage of developed day use facilities at Loon Lake Reservoir, providing additional facilities for day use along the north shore (LL-11-E shown on Figure 4.1-2) will contribute additional capacity for meeting visitor needs. Additionally, non-motorized boating access will be improved to the reservoir by providing an additional area to launch closer to the mid-point of the reservoir shoreline. Appendix B presents the conceptual drawing for this development.

#### 4.1.2 Engineering Solutions and Restoration Measures

Table 4.1-1 lists the proposed treatments with cross references to polygons of locations shown on Figure 4.1-2. The table lists actions that would address items in Condition No. 45 and would accommodate circumstances and priorities discussed with ENF during consultation.

Although consultation with ENF indicated vehicular access to the shoreline at LL-7-E is appropriate and should be allowed to continue, SMUD reviewed the Travel Management Plan and determined this is not a designated route where vehicle use is permitted. Accordingly SMUD includes an engineering solution for LL-7-E to prohibit vehicle use beyond the shoulder of Ice House Road.

Measures identified for LL-11-E were developed in consultation with ENF and address several circumstances associated with this site including the need to: (1) discourage overnight parking associated with Rubicon OHV Trail use; (2) continue to provide a primitive visitor experience to allow hand and vehicle launch at the mid-point of the reservoir shoreline; and (3) redirect restroom use by non-Northshore RV campground users. Appendix A contains additional details of SMUD's consultation with ENF regarding this site. Accordingly, SMUD and ENF determined the appropriate level of development will include a restroom and picnic sites with the potential for constructing a day use parking area in the future.

The table and figure also include areas identified during the inventory that do not require treatment at this time but should be monitored because these areas receive recurrent use and may require attention in the future. All engineering solutions in Table 4.1-1 will be implemented by December 31, 2019.

**Table 4.1-1. Engineering solutions, restoration measures, and monitoring locations at Loon Lake Reservoir.**

<b>Map Reference</b>	<b>Description of Engineering Solution or Restoration Measure</b>	<b>Purpose/Objective</b>
LL-1-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-2-R	Remove fire rings that are too close to the shoreline.	Protect resources.
		Discourage overnight use within 100 feet of water bodies.
LL-3-R	Remove fire rings that are too close to the shoreline.	Protect resources.
		Discourage overnight use within 100 feet of water bodies.
LL-4-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-5-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-6-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-7-E	Install barrier to restrict parking to area along Ice House Road.	Allow dispersed recreation use to continue but close vehicle access to road that is not designated in the ENF Travel Management Plan.
LL-8-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-9-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-10-M	None	These areas receive recurrent use and should be monitored for resource



Map Reference	Description of Engineering Solution or Restoration Measure	Purpose/Objective
		damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-11-E	Install restroom, picnic areas, and identify an area for a future aggregate base-surfaced day use parking area.	Allow dispersed recreation to continue at this site.
		Provide informal boat launch on the north shore to improve boating access to the reservoir.
		Provide restroom that can be used by OHV users that are traveling to the Rubicon OHV Route to reduce inappropriate use of the Northshore RV Campground restrooms by non-campers.
		Reduce impacts of improper sanitation associated with recurrent dispersed overnight use.
LL-12-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
LL-13-E and LL-14-E	Expand Northshore RV Campground to include these areas. <sup>a</sup>	Eliminate dispersed camping encroachment within 150 yards of Northshore RV Campground.
		Increase developed overnight capacity.
		Reduce impacts of improper sanitation.
		Reduce wildland fire potential.
LL-15-R	Remove (obliterate) unauthorized trail. Adjust and supplement existing barriers.	Prevent unauthorized vehicle use and remove user created trail.
LL-16-E	Install signage—No parking in front of gate.	Provide for public safety and maintain SMUD access for UARP operation.
LL-17-R	Remove fire rings that are too close to the shoreline. Remove trash.	Protect resources.
		Discourage overnight use within 100 feet of water bodies.
LL-18-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.

Notes: R—restoration measure; E—engineering solution; M—monitoring

- <sup>a</sup> Specific elements to be upgraded or incorporated at this recreation site are detailed in Condition No. 45, "Loon Lake Area (d)." Design of this upgrade will be completed in consultation with and is subject to ENF approval.

## 4.2 Recreation Plan for Gerle Creek Reservoir Area

This Plan includes area in the vicinity of Robbs Forebay as well as Gerle Creek Reservoir.

For Gerle Creek Reservoir, Condition No. 45 specifies:

### ***Gerle Creek Recreation Plan***

*Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by FS, that addresses impacts to the Gerle Creek area from unmanaged recreation, and the need for additional day use opportunities. Licensee shall be responsible for developing sites and/or implementation of measures identified in this plan within 15 years of license issuance. The following elements shall be addressed:*

- *Sanitation.*
- *User conflicts.*
- *Carrying capacity.*
- *Day use versus overnight camping.*
- *Vehicle control.*
- *Boating access.*
- *Emergency resource protection measures.*

#### 4.2.1 Planned Management Actions

The follow sections describe the management actions that will be implemented to manage recreation use outside the developed recreation facilities in proximity to Gerle Creek Reservoir. These actions consist of engineering solutions and restoration and may be accompanied by visitor education signage. All areas covered by this plan will be monitored to assess treatment effectiveness and detect emerging resource issues that may require attention.

Consistent with priorities and management emphasis identified during consultation with ENF staff and considering the mix of existing and planned recreation development, the measures are focused on opportunities best suited to each reservoir, yet collectively maximize the diversity of recreation opportunities available at the Crystal Basin Reservoirs. Accordingly, SMUD considered measures for this reservoir area that would address the recreation effects, while emphasizing or enhancing non-motorized boating and dispersed day use.

The small reservoir size, high visitation, and nearby recreation residences constrain the types of recreation opportunities that can be supported by areas beyond the boundaries of the developed recreation areas. Accordingly, this reservoir is suitable for non-motorized boating and developed day and overnight use but not dispersed overnight use because of potential user conflicts and high visitor densities. Consequently, SMUD encourages ENF to issue a Forest Order to restrict overnight use to the designated campground. This management approach would:

- Minimize user conflicts between reservoir-based users, adjacent recreation residence occupants, and OHV users;
- Protect privacy of recreation residence occupants;
- Avoid improper sanitation and resource damage along the small shoreline; and
- Maintain quality visitor experience by preventing overcrowding.

The need for this approach is demonstrated by conditions observed adjacent to nearby Airport Flat during relicensing studies, which documented heavy dispersed overnight use, much of it associated with OHV use. Despite implementing the ENF Travel Management Plan, a high potential for visitors to camp wherever it is not specifically prohibited still exists because of continued heavy recreation use of this area. Additionally, because there is low developed day use capacity at the reservoir, prohibiting dispersed overnight use of the shoreline would maintain as much of the shoreline as possible for day use. The demand for dispersed overnight use adjacent to water can be adequately met by the several nearby suitable dispersed campsites located upstream of the reservoir along Gerle Creek and Wentworth Springs Road.

Because of continued high recreation use and small reservoir size, SMUD encourages El Dorado County and ENF to continue prohibiting motorized use at Gerle Creek Reservoir. Managing boating use in this way would provide for public safety while allowing recreational enjoyment of the reservoir. Boating access at the reservoir is suitably provided at the hand-only boat launch and is conveniently located near the Gerle Creek Reservoir day use area and campground.

#### 4.2.2 Engineering Solutions and Restoration Measures

Table 4.2-1 lists the proposed treatments with cross references to polygons of locations shown on Figure 4.2-1. The table lists actions that would address items contained in Condition No. 45 and would accommodate circumstances and priorities discussed with ENF staff during consultation.

Although consultation with ENF indicated vehicular access to the South Fork Rubicon River at GC-2-E and GC-3-E is appropriate and should be allowed to continue, SMUD reviewed the Travel Management Plan and determined there are no designated routes in this area where vehicle use is permitted. Accordingly SMUD includes engineering solutions for these polygons prohibit vehicle use beyond the shoulder of Ice House Road.

SMUD will implement all engineering solutions by December 31, 2029.

**Table 4.2-1. Engineering solutions and restoration measure at Robbs Forebay near Gerle Creek Reservoir.**

Map Reference	Description of Engineering Solution	Purpose/Objective
GC-1-R	Remove fire ring.	Protect resources and discourage overnight use.
GC-2-E	Install barriers to prevent vehicular access and restore areas used by vehicles.	Allow pedestrian access for dispersed recreation use to continue at the forebay but protect soil and vegetation on steep slopes from damage. Prevent vehicle use on undesignated routes.
GC-3-E	Install barriers to prevent vehicular access and restore areas used by vehicles.	Allow pedestrian access for dispersed recreation use to continue along South Fork Rubicon River but protect soil and vegetation on steep slopes from damage. Prevent vehicle use on undesignated routes.

Notes: R—restoration measure; E—engineering solution

### 4.3 Recreation Plan for Union Valley Reservoir Area

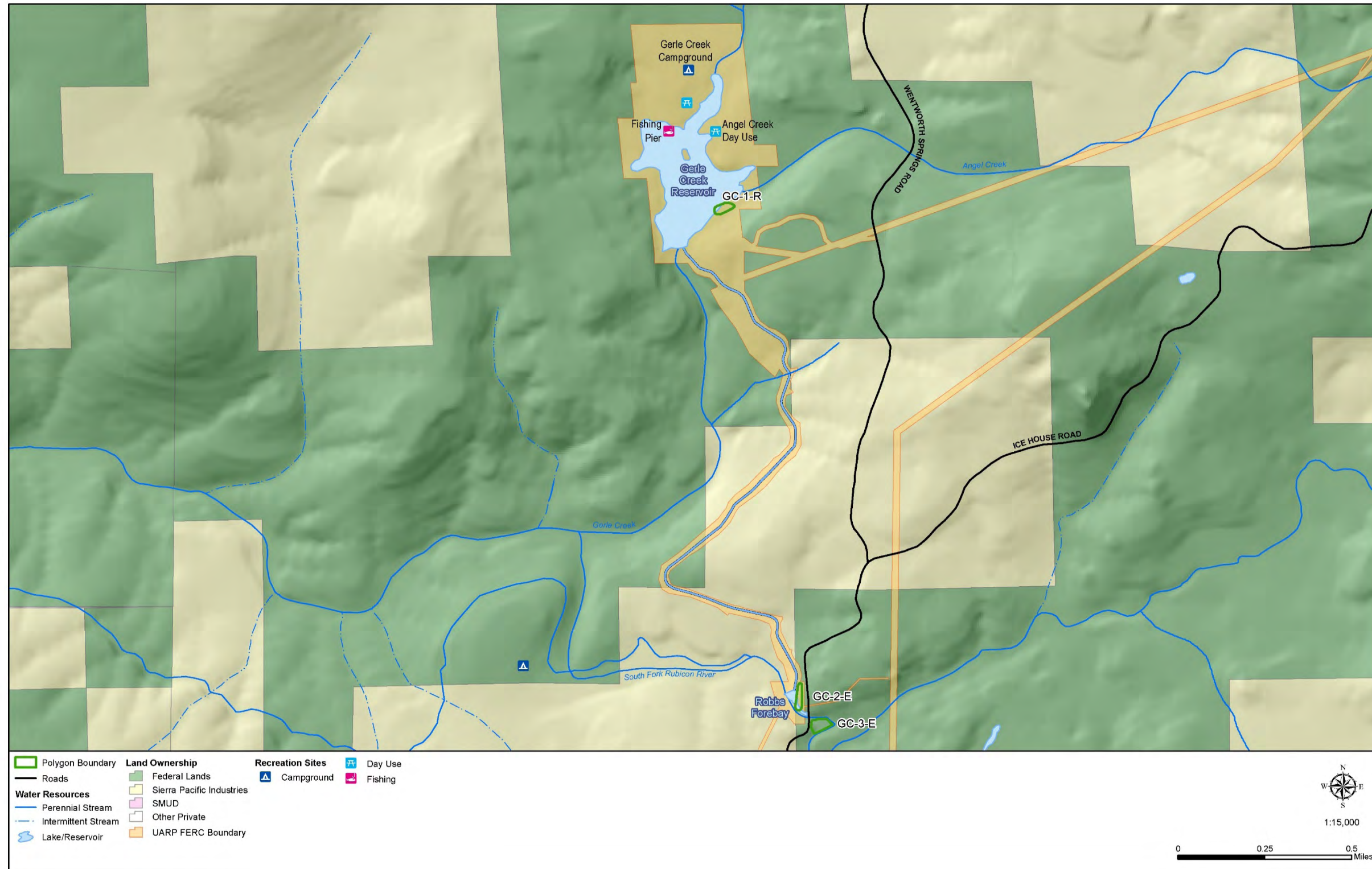
For Union Valley Reservoir, Condition No. 45 specifies:

#### ***Union Valley Recreation Plan***

*Within 2 years of license issuance, licensee shall prepare a development plan, to be approved by FS, that addresses impacts to the Union Valley area from unmanaged recreation, and the need for additional day use opportunities. Licensee shall be responsible for developing sites and/or implementing the measures identified in this plan within 10 years of license issuance. The following elements shall be addressed:*

- *Sanitation (including adequate facilities accessible near the Ice House Road/Jones Fork Silver Creek crossing).*
- *User conflicts.*
- *Carrying capacity.*
- *Day use versus overnight camping.*

- *Vehicle control.*
- *Boating access.*
- *Emergency resource protection measures.*



**Figure 4.2-1. Engineering solutions and restoration measures at Gerle Creek Reservoir and Robbs Forebay.**

#### 4.3.1 Planned Management Actions

The following sections describe the management actions that will be implemented to manage recreation use outside the developed recreation facilities in proximity to Union Valley Reservoir. These actions consist of engineering solutions and restoration and may be accompanied by visitor education signage. All areas covered by this plan will be monitored to assess treatment effectiveness and detect emerging resource issues that may require attention.

Consistent with priorities and management emphasis identified during consultation with ENF staff and considering the mix of existing and planned recreation development, the measures are focused on opportunities best suited to each reservoir, yet collectively maximize the diversity of recreation opportunities available at the Crystal Basin Reservoirs. Accordingly, SMUD considered measures for this reservoir area that would address the recreation effects, while emphasizing or enhancing dispersed boat-in day and overnight use.

Because of its large size and accessible shoreline, Union Valley Reservoir has few constraints that limit the types of recreation opportunities that areas beyond the boundaries of the developed recreation areas can support. This reservoir is the most suitable Crystal Basin reservoir for boat-in overnight use because of the extensive shoreline, which offers visitors the opportunity to disperse and maintains low visitor densities. Consequently, SMUD's measures are focused on accommodating and enhancing boat-in overnight opportunities at Union Valley Reservoir, while protecting natural resources.

The measures implemented at the shoreline where recurrent dispersed recreation occurs, will protect natural resources from damage caused by vehicle access and pollution and make these areas more appealing to users. By allowing continued use of areas with recurring dispersed overnight use, visitors will not be displaced and visitor density along the shoreline will not be increased. Increasing the quality of dispersed recreation opportunities combined with the existing and abundant developed recreation facilities contributes to the ENF objective of maintaining a range of recreation opportunities at this reservoir.

SMUD evaluated the need for a restroom in the area near Jones Fork Silver Creek crossing of Ice House Road. Because restrooms are located at the Crystal Basin Information Station and at Jones Fork Campground (about 0.6 mile to each location), visitors have adequate access to existing restrooms and no additional restroom will be installed. Additionally, the widespread unmanaged dispersed overnight use that led to requiring the evaluation in the 4(e) condition has been curtailed by the ENF vehicle



route closures implemented under the Travel Management Plan. Although dispersed recreation still occurs along Jones Fork Silver Creek, this use, which occurs more than 2 miles from the intersection along Jones Wreckum Road, is not related to UARP visitor use and is located outside the FERC Project Boundary.

#### 4.3.2 Engineering Solutions and Restoration Measures

Engineering solutions are proposed as means of hardening a site to accommodate recreational use—including whitewater boating use on South Fork Silver Creek—or discourage inappropriate use at locations where visitors are disregarding rules and regulations. Restoration measures are proposed at sites where some type of use or user-created amenity exists (e.g., fire ring, trail, or trash receptacle that is inconsistent with a Forest Service rule or regulation or UARP purpose or is causing resource damage. Table 4.3-1 lists the proposed treatments with cross references to polygons of locations shown on Figure 4.3-1. The table lists actions that would address items contained in Condition No. 45 and would accommodate circumstances and priorities discussed with ENF during consultation. The table and figure include areas identified during the inventory that do not require treatment at this time but should be monitored because these areas receive recurrent use and may require attention in the future. SMUD will implement all engineering solutions by December 31, 2024.

**Table 4.3-1. Engineering solutions, restoration measures, and monitoring locations at Union Valley Reservoir.**

<b>Map Reference</b>	<b>Description of Engineering Solution</b>	<b>Purpose/Objective</b>
UV-1-R	Remove fire rings that are too close to the shoreline. Remove trash.	Allow boat-in day and overnight use in this area but protect resources and discourage overnight use within 100 feet of water bodies.
UV-2-R	Remove fire rings that are too close to the shoreline.	Allow boat-in day and overnight use in this area but protect resources and discourage overnight use within 100 feet of water bodies.
UV-3-R	Remove fire rings that are too close to the shoreline.	Allow boat-in day and overnight use in this area but protect resources and discourage overnight use within 100 feet of water bodies.
UV-4-E	Install gate and prohibit overnight parking near the intake building.	Eliminate severe sanitation problem.

Map Reference	Description of Engineering Solution	Purpose/Objective
UV-5-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
UV-6-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
UV-7-E	Install barriers and construct parking area with signage and shoreline access trail. <sup>a</sup>	Allow pedestrian access to the shoreline for dispersed recreation use but protect soil and vegetation on steep slopes from damage. Prevent vehicle use on undesignated routes.
UV-8-E	Install barriers and construct parking area with signage and shoreline access trail. <sup>a</sup>	Allow pedestrian access to the shoreline for dispersed recreation use but protect soil and vegetation on steep slopes from damage. Prevent vehicle use on undesignated routes.
UV-9-E	Install barriers and construct parking area with signage and shoreline access trail. <sup>a</sup>	Allow pedestrian access for dispersed recreation use to continue at the shoreline but protect soil and vegetation on steep slopes from damage. Prevent vehicle use on undesignated routes.
UV-10-R	Remove fire rings that are too close to the shoreline. Remove trash.	Allow boat-in day and overnight use in this area but protect resources and discourage overnight use within 100 feet of water bodies.
SFSC-1-E	Provide portable restroom for whitewater boating take-out during whitewater boating flow releases. See Appendix B for a conceptual drawing of this development.	Provide sanitation at whitewater boating take-out.

Notes: R—restoration measure; E—engineering solution; M—monitoring

<sup>a</sup> Coordinate development with North Union Valley Road reconstruction.

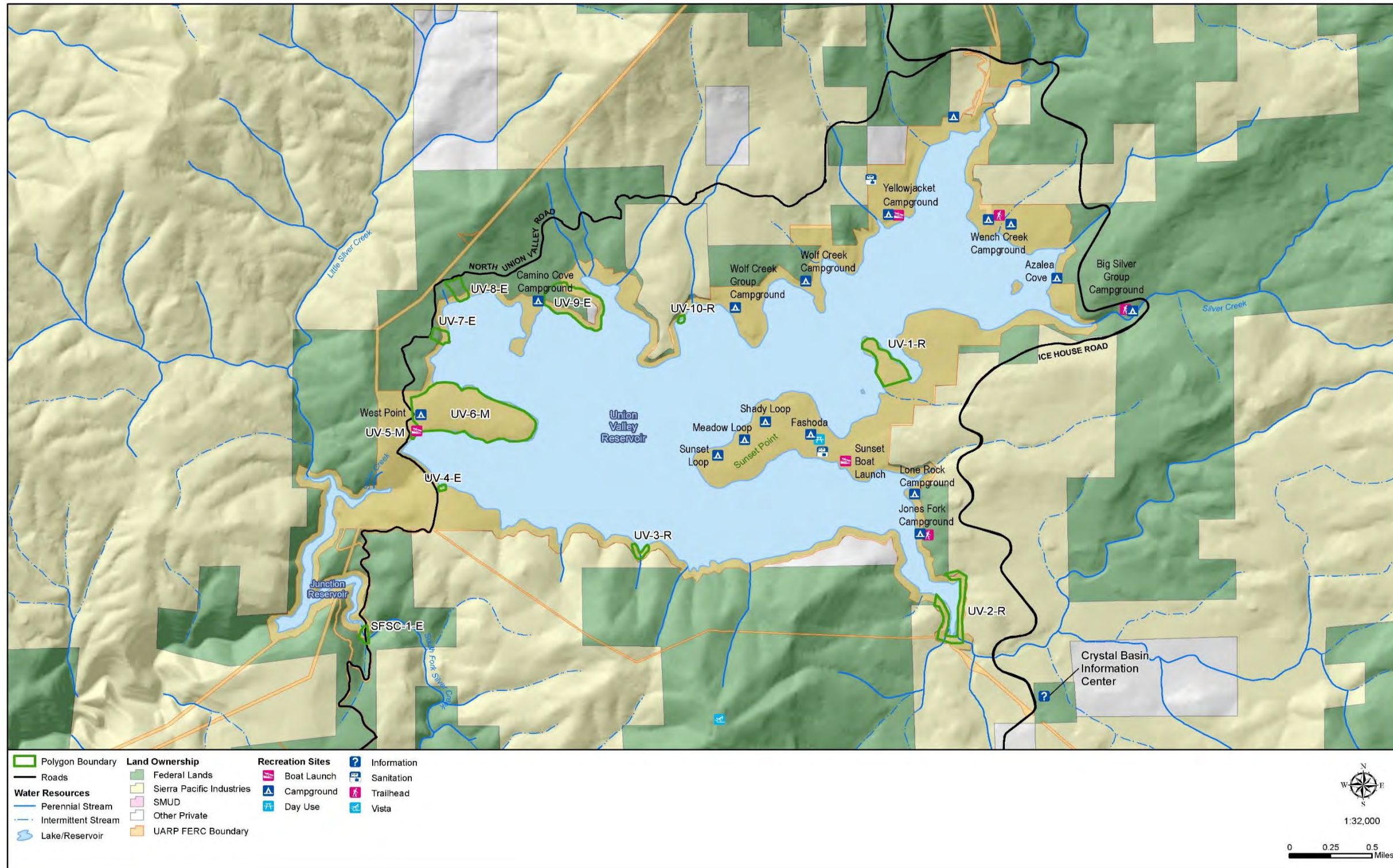


Figure 4.3-1. Engineering solutions and restoration measures at Union Valley Reservoir.

#### 4.4 Recreation Plan for Ice House Reservoir Area

For Ice House Reservoir, Condition No. 45 specifies:

##### ***Ice House Recreation Plan***

*Within 2 years of license issuance, the licensee shall prepare a development plan, to be approved by FS, that addresses impacts to the Ice House area from unmanaged recreation, and the need for additional day use opportunities. In addition, this plan shall address the whitewater recreation opportunities in South Fork Silver Creek, above and below Ice House Reservoir. The licensee shall be responsible for the development of sites and/or implementation of measures identified in this plan within 8 years of license issuance. The following elements shall be addressed:*

- *Sanitation.*
- *User conflicts.*
- *Carrying capacity.*
- *Day use versus overnight camping.*
- *Vehicle control.*
- *Boating access (including day use and overnight camping along the shore).*
- *Vehicle and foot access to the reservoir.*
- *Need for day use recreation opportunities at Ice House to mitigate impacts to surrounding areas (for example, Wrights Lake, Jones Fork, Lyons Creek, Silver Creek).*
- *Determine necessary put-ins, take-outs, and parking for whitewater activities.*
- *Redesign and reconstruct Silver Creek Campground, if necessary.*
- *Make a good faith effort to purchase at fair market value suitable real property as such property becomes available, or to obtain a long-term lease or easement for use of such property, to facilitate day use recreation opportunities identified in this plan.*
- *Emergency resource protection measures.*

- *On-river boat patrol.*

*In addition to the elements above, the following specific areas shall also be addressed:*

*At the south side of the reservoir, where several dispersed camping sites and user-created access roads exist along the shoreline, determine proper location and size for a small designated boat-in camping area (approximately five units). Determine restoration needs at other areas impacted by dispersed use on south side of reservoir.*

#### 4.4.1 Planned Management Actions

The following sections describe the management actions that will be implemented to manage recreation use outside the developed recreation facilities in proximity to Ice House Reservoir. These actions consist of engineering solutions and restoration and may be accompanied by visitor education signage. All areas covered by this Plan will be monitored to assess treatment effectiveness and detect emerging resource issues that may require attention.

Consistent with priorities and management emphasis identified during consultation with ENF staff and considering the mix of existing and planned recreation development, the measures are focused on opportunities best suited to each reservoir, yet collectively maximize the diversity of recreation opportunities available at the Crystal Basin Reservoirs. Accordingly, SMUD considered measures for this reservoir area that would address the recreation effects, while emphasizing or enhancing developed and dispersed day use.

Because Ice House Reservoir has the easiest and closest access from nearby communities, providing additional or enhanced day use opportunities at this reservoir would contribute to meeting the high day use demand. Further, ENF believes providing additional day use opportunities at Ice House Reservoir will relieve some of the pressure at other nearby non-UARP areas, such as Wrights Lake, that experience high day use visitation.

Ice House Reservoir is not suitable for dispersed overnight use because its proximity to a youth camp and private land raise concerns about trespassing, wildland fires, and user conflicts. Prohibiting dispersed overnight use along the shoreline would be consistent with emphasizing day use opportunities because overnight use would likely displace boat-in day use. Further, SMUD's measures for Union Valley Reservoir, a

location more suitable for dispersed overnight use, are intended to accommodate this need among the Crystal Basin Reservoirs. Consequently, SMUD encourages ENF to retain or reissue a Forest Order to prohibit overnight use outside the designated campgrounds at Ice House Reservoir. This management approach would:

- maximize the amount of shoreline available for dispersed day use;
- prevent dispersed camping encroachment within 150 yards of developed recreation facilities;
- protect private property from trespass and wildland fire; and
- avoid improper sanitation and resource damage along the shoreline.

Scheduled UARP water releases from Ice House Reservoir provide whitewater boating opportunities on South Fork Silver Creek between Ice House Dam and Junction Reservoir. License Condition No. 45 specifies SMUD determine whitewater boater put-in and take out locations; the Condition specifies developing a take-out location at Bryant Springs Road. The parking available near the dam accommodates visitors using the day use area as well as whitewater boaters. SMUD expects little overlap between these user groups considering the whitewater boating releases occur in spring whereas most of the visitation at the day use area occurs in the summer. Several existing turnouts along Bryant Springs Road near the take-out provide sufficient parking capacity for whitewater boating use. Restrooms at the put-in are provided at the day use area and a portable toilet will be placed at the take-out on Bryant Springs Road prior to recreational streamflow releases from Ice House Reservoir for whitewater boating.

SMUD will construct a pedestrian trail to the put-in with signage between the parking area and a point upslope of the shoreline. Boaters will use the gated access road to the dam outlet for pedestrian access to the put-in trail that will extend to a point upslope from several suitable put-in locations along the shoreline of South Fork Silver Creek (see conceptual drawing in Appendix B). The slope between the proposed end of the trail and the creek has small gentle-sloping rock outcrops interspersed with scattered rocks. SMUD expects boaters will disperse along the mostly hard-surfaced slope to reach the shoreline based on their abilities and presence of other boaters who are launching. Accordingly, SMUD will end the trail upslope of the shoreline to accommodate this expected use pattern.

Recreation needs related to whitewater boating use, such as additional or modified parking and access, will be assessed every 6 years in the *Report on Recreational Resources* required by Condition No. 42, "Recreation Survey," and consultation

required by Condition No. 44, “Review of Recreation Developments.” The need for a boat patrol for managing the on-water use will be assessed as part of the Whitewater Boating Monitoring Plan (SMUD 2015). The responsibility for providing any needed boat patrol is incorporated into the annual funding provided to ENF for operation, maintenance, and administration of uses adjacent to or in the vicinity of UARP reservoirs (Condition No. 47, “Recreation Operation, Maintenance, and Administration”). Consistent with the Rationale Report provided by ENF to support its 4(e) conditions (ENF 2005), ENF will use a portion of this funding to provide any necessary boat patrols.

#### 4.4.2 Engineering Solutions and Restoration Measures

Table 4.4-1 lists the proposed treatments with cross references to polygons of locations shown on Figure 4.4-1. The table lists actions that would address items contained in Condition No. 45 and would accommodate circumstances and priorities discussed with ENF during consultation. The table and figure include areas identified during the inventory that do not require treatment at this time but should be monitored because these areas receive recurrent use and may require attention in the future. SMUD will implement all engineering solutions by December 31, 2022.

Measures identified for IH-5-E were developed in consultation with ENF and address several challenges in providing a boat-in campground at this site, as specified in Condition No. 45. Challenges associated with allowing overnight use at this site include the lack of access for facility operation (e.g., enforcing campground rules) and fire suppression, increased fire hazard, user conflicts between day and overnight users, and trespass on adjacent private land. Appendix A contains additional details of SMUD’s consultation with ENF regarding this site. Accordingly, SMUD and ENF determined that it was appropriate to provide additional day use opportunities at Ice House Reservoir and harden the site for recreational use rather than construct a boat-in campground. This approach would increase day use opportunities and provide for resource protection. SMUD will construct a new boat-in day use area with five picnic tables and a restroom to provide a high quality destination for non-motorized boaters who desire a short paddling distance for day use. Lacking nearby road access for managing this development, the day use area will not have trash receptacles or fire grills and it will have a self-composting restroom. Consistent with the Roaded Natural ROS classification assigned to this area, facilities will be provided for site protection and visitor comfort with a moderate amount of site modification using native materials (e.g., native-surfaced trails). The site design will attempt to meet accessibility standards but

with slopes up to about 10 percent, it will not be possible to design a fully accessible day use area without drastically changing the desired character of the area.

ENF plans to expand the day use area and parking to include the area between the existing day use area and Ice House Dam (IH-11-E) (Figures 4.4-1 and 4.4-2). This development will accommodate the existing use and need for additional day use opportunities at Ice House Reservoir.<sup>1</sup>

**Table 4.4-1. Engineering solutions, restoration measures and monitoring locations at Ice House Reservoir.**

Map Reference	Description of Engineering Solution	Purpose/Objective
IH-1-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
IH-2-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-3-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.

<sup>1</sup> Notice posted on trees near the dam as of 09/09/2015 states, "Public Notice, Expansion of Fee Area Proposed by American Land and Leisure. The Forest Service is considering a proposal to enlarge the fee area along the 11N98 Road and the 11N98A Road in the vicinity of the Ice House Picnic Area. Currently American Land and Leisure is authorized to charge day use fees only for people who park in the parking lot for the Ice House Picnic Area. The current day use fee is \$8.00 per vehicle. American Land and Leisure operates and maintains the Ice House Picnic Area under a special use permit issued by the Forest Service. They operate the water system, maintain the picnic tables and picnic sites, clean and service the restrooms, remove litter along the shoreline and provide the garbage disposal. If you have comments or questions regarding the proposal to expand the fee area for the Ice House Picnic Area contact the [sic] John Jue at (530)335-5550 or email at [jjue@fs.fed.us](mailto:jjue@fs.fed.us) or send a letter to Georgetown Ranger District, Attn: Jon Jue, 7600 Wentworth Springs Road, Georgetown, CA 95634. We would like to receive your comments by September 30, 2015."



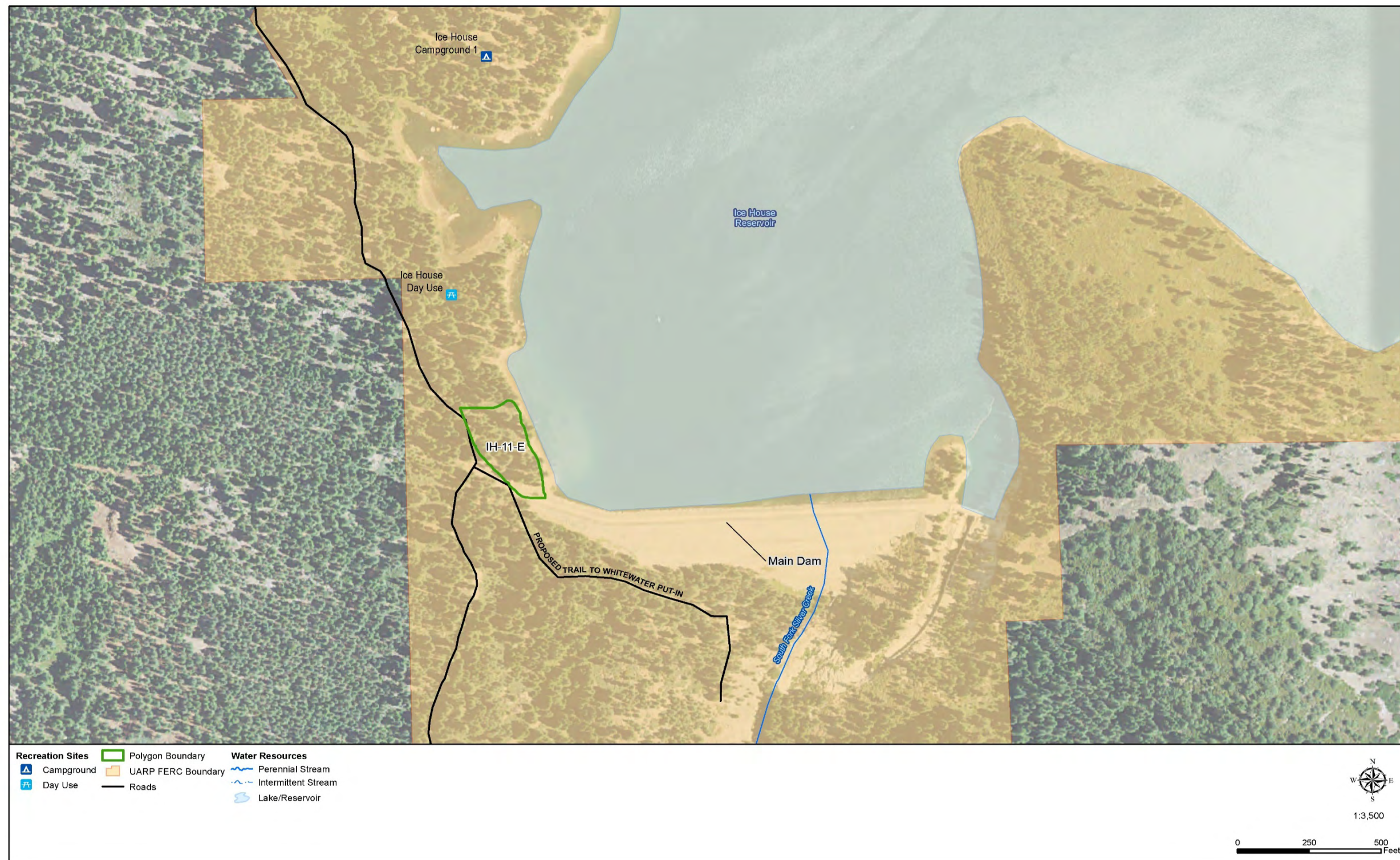
Map Reference	Description of Engineering Solution	Purpose/Objective
IH-4-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-5-E	Construct day use area with picnic sites (estimate five sites) and a restroom. Continue prohibiting fires. See Appendix B for a conceptual drawing of this development.	Provide additional developed day use opportunities.  Reduce sanitation impacts.
IH-6-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-7-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-8-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-9-R	Remove all fire rings.	Discourage overnight use at this shoreline area to comply with ENF forest order prohibiting overnight use and maximize amount of shoreline available for dispersed day use.
IH-10-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.

Map Reference	Description of Engineering Solution	Purpose/Objective
IH-11-E	Extend the boundary of day use site to the gate/dam. ENF plans to formalize parking at this location. Construct pedestrian access trail for whitewater boating put-in. See Appendix B for a conceptual drawing of whitewater boating put-in.	Provide additional developed day use opportunities.
		Reduce impacts to vegetation and soil.
		Provide parking and pedestrian access for whitewater boating put-in.
IH-12-E	Construct small parking area and shoreline access trail. <sup>a</sup>	Enhance dispersed day use opportunities.
		Protect soil and vegetation.
		Provide shoreline access.
IH-13-E	Construct small parking area and shoreline access trail. Remove/restore inappropriate trails. <sup>a</sup>	Enhance dispersed day use opportunities.
		Reduce impacts to soil and vegetation.
		Provide shoreline access.
IH-14-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.
IH-15-E	Construct small parking areas and shoreline access trails. Remove/restore inappropriate trails. <sup>a</sup>	Enhance dispersed day use opportunities.
		Reduce impacts to soil and vegetation.
		Provide shoreline access.
IH-16-E	Discourage parking and shoreline access with design for Lakeshore Road reconstruction.	Reduce impacts to soil and vegetation.
IH-17-E	Construct small parking areas and shoreline access trails. Remove/restore inappropriate trails. <sup>a</sup>	Enhance dispersed day use opportunities.
		Reduce impacts to soil and vegetation.

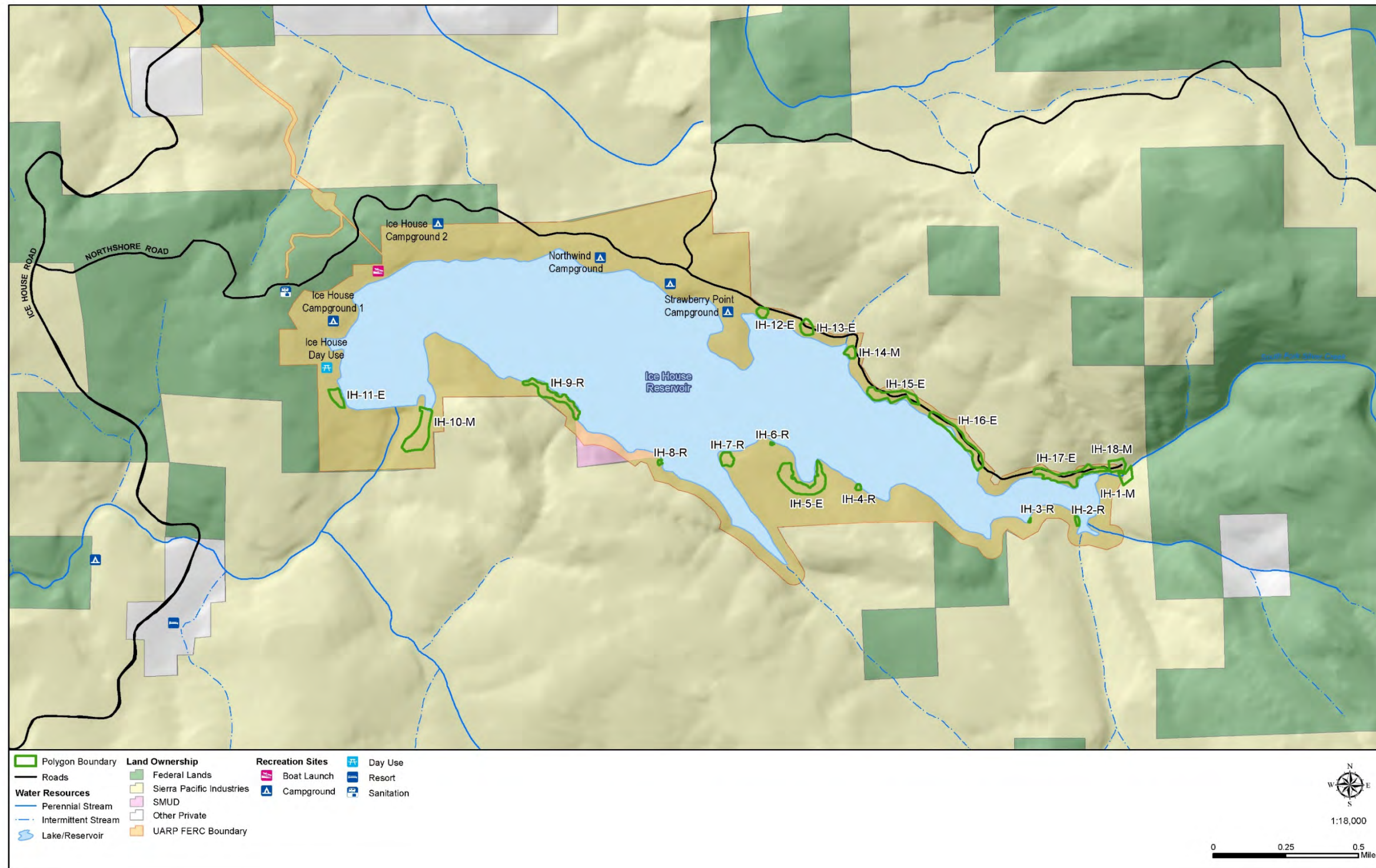
Map Reference	Description of Engineering Solution	Purpose/Objective
		Provide shoreline access.
IH-18-M	None	This area receives recurrent use and should be monitored for resource damage, inappropriate use, and to ensure effectiveness of previously implemented closures.

Notes: R—restoration measure; E—engineering solution; M—monitoring

<sup>a</sup> Coordinate development with Lakeshore Road reconstruction.



**Figure 4.4-1. Proposed Ice House day use area expansion (IH-11-E).**



**Figure 4.4-2. Engineering solutions and restoration measures at Ice House Reservoir.**

## **5.0 EMERGENCY RESOURCE PROTECTION MEASURES**

Emergencies at dispersed recreation areas, including wildland fires and inappropriate or criminal visitor behavior, can damage natural resources. To comply with Condition No. 47, "Recreation Operation, Maintenance, and Administration," SMUD provides funding to ENF for responding to fires and other emergencies and rehabilitating impacted areas. Consistent with the Rationale Report provided by ENF to support its 4(e) conditions (ENF 2005), ENF will use a portion of this funding for law enforcement personnel who have the responsibility to enforce federal laws and regulations related to the administration of NFS lands.

With regard to visitor behavior that may damage resources, El Dorado County also provides law enforcement services to the areas covered under this plan. SMUD provides funding for these services through a Cooperation Agreement with the county (SMUD 2005).

## 6.0 REFERENCES

- ENF (Eldorado National Forest). 2015. Recreation Opportunity Guide, Dispersed Camping, Eldorado National Forest. Eldorado National Forest, Placerville, CA.
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**Appendix A**  
**Consultation with Forest Service and Consultation Group**



# Meeting Notes

## SMUD License Implementation License Condition No. 45, Crystal Basin— Four Reservoir Recreation Plan

**Meeting with SMUD, Louis Berger Group (LBG), and USFS  
8:30 am to 3:30 pm, May 27, 2015  
Loon Lake**

**In Attendance:** Mark Swisher (SMUD), Darold Perry (SMUD), Grant Nelson (SMUD), Carol Efird (LBG), Debbie Gaynor (Eldorado NF, Pacific RD), Diana Erickson (Eldorado NF, Supervisor's Office), Isaac Sims (Eldorado NF, Supervisor's Office)

### NOTES:

- Mark explained the purpose of the meeting was to consult with the Forest Service regarding those portions of License Condition 45 requiring SMUD to prepare a plan to address unmanaged recreation use and impacts along the lakeshore and on islands and the need for additional day use opportunities in the Loon Lake area. Mark explained that the planning effort focuses on areas that were not specifically addressed in recreation facility development conditions elsewhere in the license.
- Debbie acknowledged that many of the unmanaged recreational impacts observed during relicensing studies were resolved by the Eldorado NF's 2008 Public Wheeled Motorized Travel Management Decision and subsequent implementation.
- Debbie explained that, in general, it would be advisable to separate the OHV and reservoir use user groups at Loon Lake. The existing and planned facilities near the main dam will accommodate overnight use. Plans to provide day use should be focused more toward the auxiliary dam to reduce conflicts between these user groups. This would improve access to the reservoir and avoid having day users compete with OHV users for parking at and near the main dam.
- Dispersed campers are encroaching on the Northshore Campground. Forest Service staff explained that, by regulation, dispersed camping is not allowed within 150 yards of campground boundaries.

- Expanding Northshore Campground to incorporate the land on the east and west sides (polygons labeled LL-16<sup>2</sup> and LL-17 in the attached map) and posting the campground boundaries would help address the problem.
- Forest Service staff would like to see a conceptual drawing of the footprint that could be included in the expanded campground.
- Design standards for sites will require wider/longer spurs to meet current standards. Campground design was discussed with some participants suggesting a mix of walk-in (maybe 25-30%), tent, and RV sites.
- Planning to allow for day use should take into account the need to discourage or prevent overnight trailer parking, which is usually associated with OHV use on the Rubicon Trail.
- Forest Service staff agree that use of the informal boat launch near the auxiliary dam (polygon labeled LL-14) should be allowed to continue with the vision of providing a primitive visitor experience to allow hand and vehicle launch on the native surfaced road. The existing road may require minor improvements and day and overnight use should be allowed to continue in this area.
- Locating a vault restroom adjacent to Ice House Road in the vicinity of the informal boat launch would serve OHV users en route to the Rubicon Trailhead, thereby reducing their use of the restroom at Northshore Campground. Additionally, this would provide for the sanitation needs associated with the dispersed overnight and day users at this area. Forest Service and SMUD agreed on a location for the restroom and a layout for the associated parking area, which would accommodate short-term parallel parking for vehicles with trailers. The Forest Service would like to see a conceptual drawing in the recreation plan that shows the general footprint of the facility. The footprint will include designs that could accommodate additional parking and possible day use facilities at this location. A vehicle circulation pattern could be provided if additional development is needed for parking in the future for the informal launch.
- Debbie explained that dispersed overnight recreation occurring in polygons labeled LL-11 and LL-12 and dispersed day use in polygons labeled LL-9 and LL-10, is acceptable and should be allowed to continue. Diana added that measures such as monitoring and removing fire rings located too close to the shoreline will need to continue at regular intervals.
- License Condition 45 specifies rerouting access to Chipmunk Bluff Road around the north side of the chalet and providing a gate to restrict non-chalet traffic from

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<sup>2</sup> The polygon numbers in these notes are based on the original mapping effort and do not correlate to the polygon numbers displayed on the maps contained in the plan.

the parking area. Debbie stated this is not necessary and should not be required. The License condition also specifies changing the primary access to the chalet to the south side of the building. Debbie said this would be unnecessary if the issues associated with drainage and ice accumulation can be addressed by reconstructing and incorporating design changes to the parking area. However, accessibility upgrades may warrant relocation of the main access.

### **Continued June 2, 2015—Ice House Reservoir and Union Valley Reservoir Areas**

**In Attendance:** Mark Swisher (SMUD), Darold Perry (SMUD), Ethan Koenigs (SMUD) Carol Efird (LBG), Richard Thornburgh (Eldorado NF, Pacific RD), Debbie Gaynor (Eldorado NF, Pacific RD), Diana Erickson (Eldorado NF, Supervisor's Office), Isaac Sims (Eldorado NF, Supervisor's Office)

#### **Ice House Reservoir Area**

- At Ice House Reservoir Forest Service staff explained that forest closure orders will be receiving more scrutiny in terms of documenting their need and relying on them for long term forest management. This is relevant at Ice House and Gerle reservoirs, where dispersed overnight use is currently prohibited by forest closure orders. The Forest Service wants the recreation plans to provide documentation that can be referenced to support forest closure orders, in the short term, and incorporated into future forest plan revisions, in the long term.
- The Forest Service staff supported the idea of using the area near the gate at Ice House dam to accommodate parking for the day use area and whitewater boating use. The area is already being used for no fee parking by those using the day use area and the shoreline between the dam and day use area. Forest staff would like for the currently no fee parking area to be transitioned into a user fee amenity when upgrades are made
- Forest Service staff believe planning for additional recreation opportunities should focus on dispersed and developed day use because of the small reservoir size and because it is the first reservoir that visitors pass as they enter the Crystal Basin (i.e., easiest access for Crystal Basin day users). Forest Service staff would like to provide a more balanced set of dispersed and developed day use opportunities at Ice House Reservoir. As specified in the measures, some developed facilities (e.g., day use sites, hardened trails) are planned in a way that seems to eliminate many of the opportunities for

- day use visitors to recreate in a dispersed manner that would allow a sense of discovery and exploration.
- The group viewed the spillway crossing and discussed fencing modifications that could be considered which would allow public access to the south shoreline for the planned mountain bike trail.
  - The following concerns and circumstances were discussed about the planned boat-in campground:
    - During relicensing the development was conceived to accommodate existing (unauthorized) dispersed overnight use.
    - Observations indicate these sites were being accessed by vehicle but we are not sure if they are being accessed by boat. Need to research visitor survey responses to see if boat-in camping was identified as a visitor need. Also review FS rationale document regarding this development.
    - Ice House has a small length of shoreline and the beach at this area already supports dispersed day use.
    - SPI land is adjacent to this area.
    - A 5-unit site would probably not be large enough, so visitors would likely expand beyond the designated area, creating an enforcement problem.
    - The concept of making this a boat-in day-use area (consistent with current forest order) instead of a campground was discussed.
    - A site visit will be planned with SMUD and FS for further evaluation. This follow up trip is currently scheduled for July 10, 2015.
  - At Strawberry Point there is evidence of some dispersed overnight use occurring in the vicinity of the designated campground.
  - At the upper end of the reservoir the following concerns and circumstances were discussed:
    - It is expected that paving the Lakeshore Road will significantly increase the amount and diversity of recreational use at the east end of the lake.
    - There was much discussion regarding the negative resource impacts of constructing a bridge across South Fork Silver Creek at the reservoir inlet, and siting day use amenities at its southern terminus. These items are specifically called out in License Condition 45, but it is not clear if these amenities are consistent with the FS vision for recreation in this area. The concept of providing the proposed amenities on the north side of the creek, rather than the south side of the creek, to meet the intent of providing for day use opportunities at this location was discussed, though some questioned the extent of developable area.

- Some participants expressed concerns about the feasibility of providing facilities accessible to persons with disabilities to and on the south side of the inlet to Ice House Reservoir is questionable considering the steep topography. Further site investigation will be required.
- The upstream extent of the planned trail up South Fork Silver Creek is not defined.
- The proposed mountain bike trail is planned to meet the Lakeshore Road at this location. The concept of a wet crossing that could be designed to connect the trail to the lakeshore road thereby creating a loop route was discussed.
- SMUD does not control any flow or have any effect on the flow or environmental resources upstream of the reservoir.
- A follow-up visit to the area on the south side of the creek was suggested to get a better sense of the day-use opportunities or lack thereof.

### **Union Valley Reservoir Area**

- Union Valley has an extensive shoreline that can accommodate dispersed overnight use. Forest Staff believe this use should be allowed to continue.
- At Granlee's Point we discussed the buoy line and bike trail use restrictions associated with the nearby bald eagle nest. The Forest Service staff stated it no longer implements temporary recreation closures because the eagle was delisted and the eagles are accustomed to the visitor use on the reservoir and on the bike trail.
- The main place where dispersed overnight use may be a problem at Union Valley Reservoir is along the shoreline near Camino Cove and West Point campgrounds. SMUD and Forest Service staff will visit this site on Thurs.

### **Continued June 4, 2015—Union Valley Reservoir and Gerle Reservoir Areas**

**In Attendance:** Mark Swisher (SMUD), Carol Efird (LBG), Charis Parker (Eldorado NF, Pacific Ranger District), Diana Erickson (Eldorado NF, Supervisor's Office), Isaac Sims (Eldorado NF, Supervisor's Office)

### **Union Valley Reservoir Area**

- 12N30 bridge crossing at South Fork Silver Creek (just upstream of Junction Reservoir). Discussed use for whitewater takeout in terms of parking, and a possible need to designate a trailer parking area if monitoring indicates user conflict. The site is used for dispersed overnight use but its use during flow events would not likely interfere with boaters taking out at this location. Consider

posting the day before to let potential overnight users at this site know about the event.

- West Point Boat Launch. Diana mentioned the need for early planning for extending the boat launch in order to accommodate time needed for site survey and possible grant submittal.
- West Point Campground. Discussed existing management issues and plans including: (1) visitors using OHVs in campground and North Union Valley Road; (2) planned campground expansion; and (3) ongoing road maintenance and closure measures related to travel management. This summer the Pacific RD will replace/relocate rocks and logs to block roads that are not authorized for motor vehicle use and place signage, as necessary, along North Union Valley Road.
- West Point Peninsula. Route closure measures are effectively restricting vehicle access.
- Shoreline between West Point and Camino Cove. Shoreline is being used for day and overnight dispersed recreation, which the Forest Service staff believe is appropriate as long as vehicles are restricted from the shoreline and resource impacts do not evolve. Unauthorized vehicle use occurs on this part of the shoreline. One potential vehicle access point is via gaps in barrier rocks in Camino Cove Campground.
- Camino Cove Campground. Discussed heavy use and congestion on loop roads because of narrow road width and visitors with large, long, and multiple vehicles and trailers.
- 12N30JE (road leading to private land from Camino Cove Campground access road). Vehicles are accessing the shoreline of the cove to the east of Camino Cove Campground. Forest Service will be enhancing the closure measures at this location this summer.
- North Union Valley Road. The road is scheduled for paving and this will significantly increase the amount and diversity of recreational use on the north side of Union Valley Reservoir.

### **Gerle Creek Reservoir Area**

- Robbs Forebay. Dispersed day and overnight use occurs at this location. Vehicle restrictions seem to be effective here. Forest Service staff believe the area currently available to vehicles is suitable for dispersed overnight use.
- Area between Gerle Creek and the beginning of the Rubicon OHV route near Wentworth Springs Road (south of creek). Forest Service has implemented

vehicle restrictions. This area receives heavy dispersed overnight use associated with the Rubicon OHV Route. Forest Service staff believe dispersed overnight use at this location is appropriate as long as vehicle use remains confined to within and adjacent to the road.

- Angel Creek Day Use. Improvements to the parking area are planned. Forest Service staff believe it is appropriate to continue prohibiting dispersed overnight use at the reservoir because of the small amount of shoreline at this reservoir. Fire rings on the east side of the reservoir, which were located during relicensing studies and the 2010 inventory work, are still being used. Rings should be removed to discourage future use.
- Gerle Creek Day Use Area. Although the Forest Service reconstructed the campground in 2011, the day use area still needs to be upgraded. Issues discussed included: (1) drainage problems in the day use parking lot near the restroom; (2) accessibility considerations for the Harvest Trail and picnic sites; and (3) boardwalk crossing (at wet area of the trail) and signage along the Harvest Trail.
- Dispersed camping area along Jones Fork Silver Creek along Jones Wreckum Road. Forest Service has installed rocks to confine vehicles to the road and adjacent parking area. This area continues to receive heavy dispersed overnight recreation use from forest visitors. Forest Service staff believes this is the location referenced in the license requiring SMUD to address sanitation near the Ice House Road/Jones Fork Silver Creek crossing; however, this location is about 2 miles northeast of the intersection.

### **Continued July 10, 2015—Ice House Reservoir Area**

**In Attendance:** Mark Swisher (SMUD), Ethan Koenigs (SMUD), Carol Efird (LBG), Charis Parker (Eldorado NF, Pacific Ranger District), Diana Erickson (Eldorado NF, Supervisor's Office), Isaac Sims (Eldorado NF, Supervisor's Office)

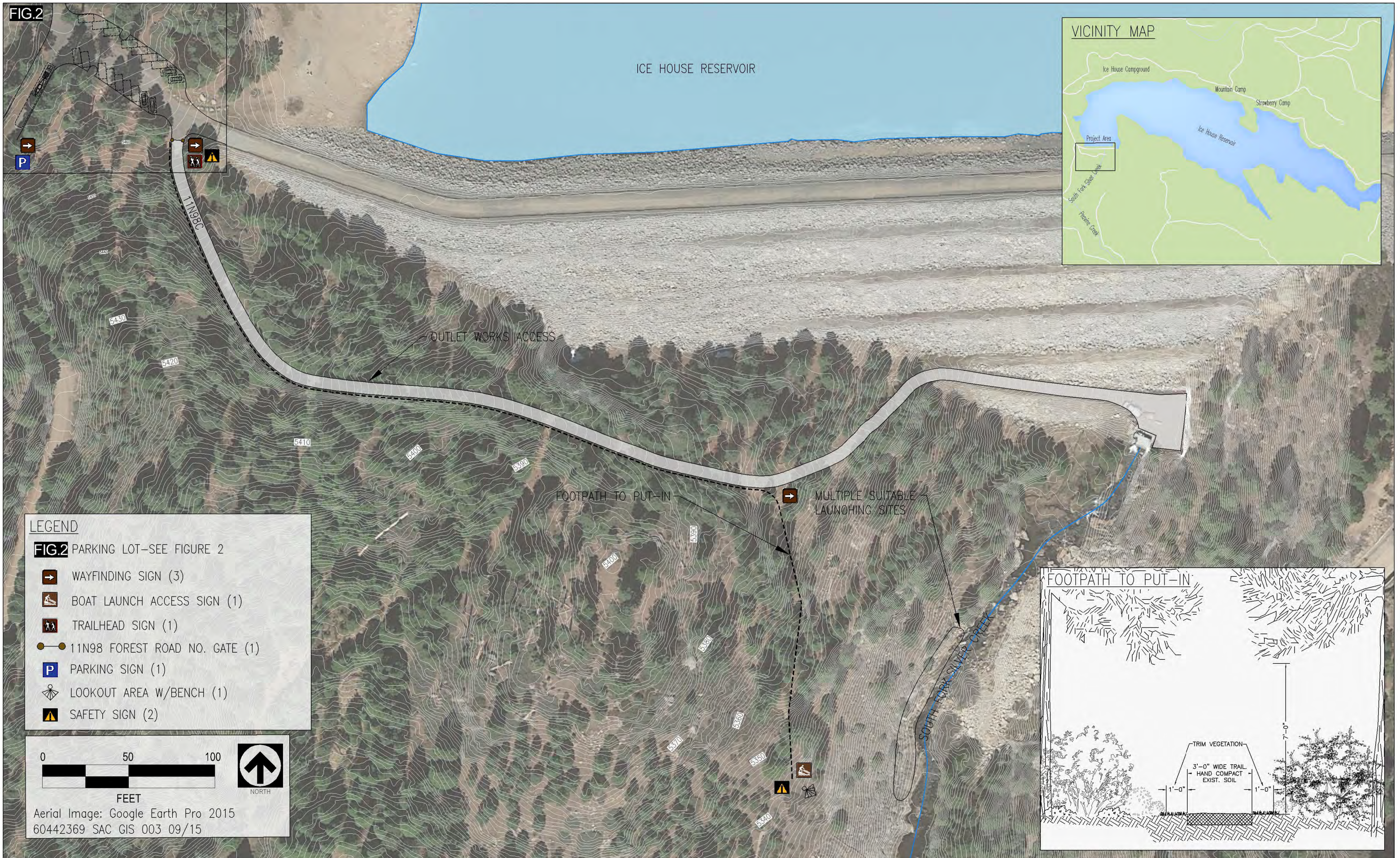
- Recreation use on south shore of Ice House Reservoir. Site inventory in 2010 identified several sites receiving recurrent overnight use by driving on SPI roads behind locked gates. No recent evidence of vehicle access was observed.
- The cove identified in site inventory (IH-5) appears suitable for day or overnight development with flat topography and attractive shoreline. This area probably receives boat-in day use. This area could be used for development to comply with the License requirement to locate a small designated boat-in camping area (approximately 5 units).

- We discussed the challenges, suitability, and appropriateness of day vs. overnight development at this location in terms of:
  - Enforcement
  - Fire hazards
  - Visitor needs
  - User conflicts
- We discussed potential types and locations of amenities, including tables and restrooms, which would be necessary for either day or overnight development. Access would be a challenge for pumping a vault restroom. Fire rings may or may not be appropriate considering lack of road proximity for fire suppression access.
- Overnight facility development could create a conflict with existing day use users and encourage overnight use beyond the limits of a developed site. Although the cove is located on National Forest System land, SPI lands are located nearby.
- If a day use facility is constructed at this location visitors may use the facility for camping. This could be an enforcement challenge because there is limited road access.
- A potential approach may be to design and construct a day use facility that could be modified in the future to accommodate overnight use if it is determined necessary to meet visitor demand and/or address resource issues.
- We were unsuccessful in an attempt to access the upstream end of the reservoir from the road system on the south side of the reservoir shoreline. Participants agreed that they would still like to investigate this area with regard to the development specified in the license as *Upper Silver Creek Day Use*.





**Appendix B**  
**Conceptual Drawings**



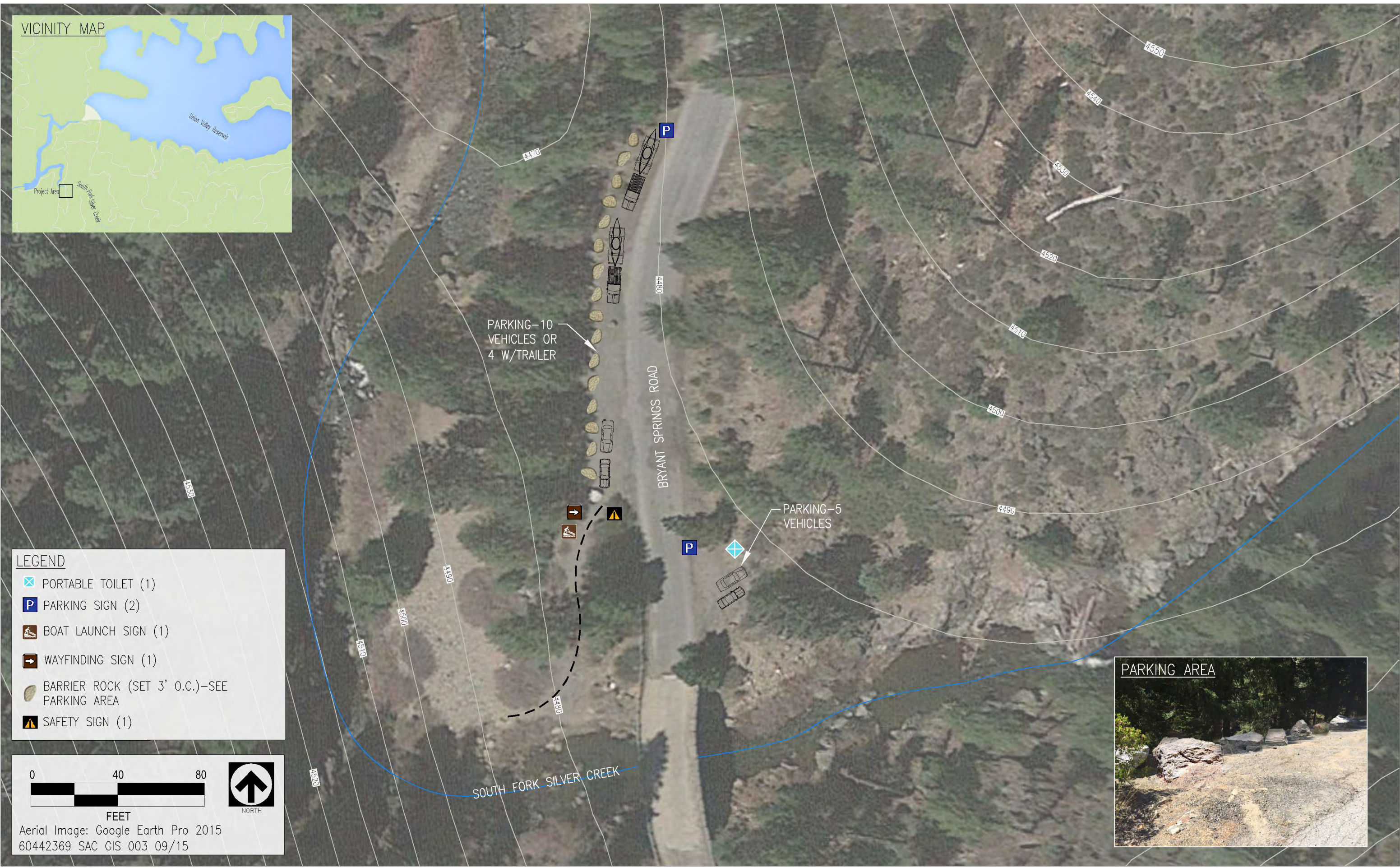
**FIGURE 1 - WHITEWATER BOAT PUT-IN**



FIGURE 2 - ICE HOUSE DAY USE PARKING LOT



FIGURE 3 - ICE HOUSE RESERVOIR DAY USE SITE



**FIGURE 4-WHITewater BOAT TAKE-OUT**



FIGURE 5-LOON LAKE RESERVOIR DAY USE AREA