SFPUC Alameda Creek Watershed Confluence (Grazing Unit 15) Alameda County, California

Hetch Hetchy
Regional Water System
Services of the San Francisco Public Utilities Commission

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February 3, 2026

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Acronyms

AUMs	animal unit months
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practices
Cal-IPC	California Invasive Plant Council
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
EDRR	Early Detection and Rapid Response
FR	Federal Register
Grazing Unit 15	Confluence
GU	Grazing Unit
GU-15	Confluence
GUMP	grazing unit management plan
IPM	Integrated Pest Management
MBTA	Migratory Bird Treaty Act
NNIP	non-native invasive plant
NRCS	Natural Resources Conservation Service
PG&E	Pacific Gas & Electric Company
RDM	residual dry matter
RMP	Rangeland Management Plan
SFPUC	San Francisco Public Utilities Commission
WMP	Watershed Management Plan

1. Introduction

1.1 Purpose of Grazing Unit Management Plan

This grazing unit management plan (GUMP) outlines the existing conditions and rangeland management goals for the Confluence (Grazing Unit 15 [GU-15]) lease. This document establishes management expectations between the San Francisco Public Utilities Commission (SFPUC) and the tenant for the grazing unit and guides program operations and capital improvements to achieve the SFPUC's Rangeland Management Plan (RMP) goals. This GUMP is consistent with and informed by the watershed-wide RMP, the Alameda Watershed Management Plan (WMP), and the Water Enterprise Environmental Stewardship Policy in which the SFPUC commits to proactively managing the watersheds in a manner that maintains the integrity of natural resources, restores habitats for native species, and enhances ecosystem function.

1.2 Rangeland Management Program

The SFPUC developed the Alameda Creek Watershed RMP to document the rangeland management program for livestock grazing applied across the SFPUC-owned and -managed grazing units of the Alameda Creek Watershed. The RMP establishes a rangeland management program that is consistent with plans and policies that apply to management of SFPUC watershed lands, as well as with current best practices in rangeland management.

The goals of the SFPUC rangeland management program are to:

- Protect and improve water quality;
- Preserve and enhance the health of ecological systems;
- Reduce the threat of wildland fire by decreasing fuel densities;
- Adaptively manage the RMP lands based on new information and conditions;
- Provide a basis for consistent management of the RMP lands; and
- Support an economically and ecologically sustainable grazing operation.

1.3 Rangeland Management Plan Objectives

To achieve these goals, the RMP outlines broad management objectives to protect water quality and natural resources. These objectives include the following:

- Maintain sufficient vegetative residual dry matter (RDM) to protect soil and water quality.
- Minimize negative impacts to sensitive aquatic habitats such as riparian and spring systems.
- Implement rangeland management practices that preserve and protect special-status species and their habitats.
- Maintain or improve native species biodiversity.
- Monitor and control non-native invasive plant (NNIP) and wildlife populations.
- Reduce the risk of introduction or spread of plant diseases, particularly from human activities.

- Reduce sediment sources to riparian habitats associated with road systems and insufficient vegetative cover.
- Reduce risk of introducing livestock- and wildlife-related pathogens into waterways of the RMP lands.

The RMP also includes the following objectives to promote effective administration of the grazing units:

- Use the results of monitoring and routine inspections to adaptively manage the RMP lands.
- Effectively communicate and implement rangeland management goals and expectations with the RMP grazing tenant(s).
- Consult with SFPUC rangeland staff and RMP grazing tenant(s) during the development of any policies that would change the management of RMP lands.
- Implement cost-sharing rangeland improvement projects between the SFPUC and its grazing tenant(s) in the RMP lands.
- Use grazing to manage wildland fuel loads.

2. Lease Overview

2.1 Confluence Lease, Grazing Unit 15

The Confluence lease covers Grazing Unit 15 (GU-15), which consists of approximately 857 acres in the northwestern portion of the SFPUC Alameda Creek Watershed (Figure 1). GU-15 is bounded by GU-14 (Niles Canyon) and private ranchland to the west, the town of Sunol to the east, private property to the south, and Alameda Creek and SFPUC land leased for farming to the north. As of 2021, the former Sunol Valley Golf Club has been incorporated into the GU-15 lease. Management considerations for this new addition include safety (vandalism has occurred on the property) and decommissioning of the former golf course infrastructure.

2.2 Environmental Conditions

Elevation in the Confluence grazing unit ranges from 212 feet to 1,103 feet above sea level. The grazing unit contains moderate to steep slopes with non-native annual grassland, oak savanna, oak woodland, and shrub habitat. Grasslands dominate the ridgelines while oak woodlands dominate the deep stream drainages and north aspect slope above Alameda Creek. Three intermittent streams in the lease drain from west to east into Alameda Creek. Two of the streams are impounded by six ponds on the eastern border of the lease (PA029, PA032, PA049, PA250, PA255, and PA252). A branch of one of the intermittent streams is impounded by two ponds (PA251 and PA258). There are additional ponds (PA249, PA253, and P259) on the former Sunol Valley Golf Club portion of the lease that are not associated with any other hydrological features. A short segment of Alameda Creek flows through and along the northern border of the grazing unit. The former golf course area has several decommissioned, formerly landscaped areas including horticultural plantings, sand pits, and fallow turfgrass. Horticultural plantings include palms and redwoods. The redwood trees are dying off in several areas, likely due to lack of water and encroachment of unmanaged turf grass.

The Confluence grazing unit contains 13 soil map units.[1] The dominant soil type is Los Gatos-Los Osos complex. Proposed livestock carrying capacity estimates for the property are established using forage production estimates based on soil class units derived from the Natural Resources Conservation Service (NRCS) Soil Survey and verified through site assessments and comparisons to historic stocking levels.

2.3 Easements

A Kinder-Morgan petroleum pipeline runs through the southeast portion of the grazing unit. The pipeline, which runs under the spillway of Pond PA029, was threatened when the spillway became severely eroded. Temporary erosion control measures are currently in place to prevent the problem from worsening. Two Pacific Gas & Electric Company (PG&E) transmission line towers are located in the southern portion of the grazing unit.

2.4 Grazing Operation

The Confluence grazing unit has been grazed as a cash-for-rent lease with its current grazing tenant for upwards of 30 years. Currently this grazing unit is used for stockers (heifers and steers)[2]. Cattle are dispersed across the grazing unit according to feed and water availability. The tenant primarily grazes GU-15 seasonally in the winter and spring, removing the cattle in the summer and fall when forage is low. However, cattle are sometimes present in the summer and fall.

2.5 Stocking Rates

Estimated grazing capacity and stocking rates for the lease were determined using NRCS soil productivity rates adjusted by vegetative cover and a fall RDM target of 1,000 pounds per acre. The baseline grazing capacity for the grazing unit is 552 animal unit months (AUMs) and will be adjusted annually by the SFPUC based on forage productivity, infrastructure updates, RDM levels, and vegetation condition.

When the lease is offered as an AUM-based lease instead of cash-per-acre lease, the stocking rates should prescribe allowable AUMs in the lease agreement.

3. Biological Conditions

3.1 Habitat Conditions

The Confluence grazing unit encompasses the former Sunol Golf Course, and therefore the southern part of the grazing unit contains many ponds within the golf course footprint. The ponds show signs of heavy cattle use, and the largest has an eroded spillway and is in need of repair. Riparian corridors appear dominated by bay (*Umbellularia californica*) and bigleaf maple (*Acer macrophyllum*) with healthy native understory, including poison oak (*Toxicodendron diversilobum*). Buckeye (*Aesculus californica*) seedlings were noted. Some riparian corridors appear incised with little riparian recruitment, with heavy cattle trailing parallel to the corridor. Riparian drainages are tributaries to Alameda Creek's sycamore woodland.

Road cuts are eroded in some places, and mineral feeders were placed along roads. Natural seasonal wetlands are mapped within the grasslands. Grasslands are wide open and appear

[1] SCS (USDA Soil Conservation Service), Soil Survey, The Alameda Area, California, March 1966.
[2] Mendoza, R. 2015. In person communication with former URS Rangeland Ecologist Dina Robertson and SFPUC Confluence grazing tenant Richard Mendoza.

evenly grazed, without much thick forage. Some grasslands appear to have patches of native bunchgrasses, as well as sage scrub. Upland oak woodlands contain mature valley oaks (*Quercus lobata*). A historic orchard of large, dead trees is on the norther region of the parcel.

3.2 Special-Status Species

The species known to occur in the grazing unit that are subject to regulation by the State of California and the federal government are listed in Table 1. Shrub habitat is limited in size but could provide suitable habitat for Alameda whipsnake (*Masticophis lateralis euryxanthus*). This grazing unit overlaps an active golden eagle (*Aquila chrysaetos*) territory and includes suitable nesting habitat.

In addition, this lease has a plant species identified by the East Bay Chapter of the California Native Plant Society (CNPS) as locally Rare, Unusual, and Significant[3]: California loosestrife (*Lythrum californicum*). It is on the Watch List (Rank B) and is significant because in Alameda County it is in decline; reaches its range limit; and/or occurs in habitats that are limited, isolated, or threatened. Plants with this status are within the purview of the Stewardship Policy[4] and may be monitored and managed by SFPUC staff.

Table 1 Special-Status Species Observed in Confluence (GU-15)

Common Name	Scientific Name	Listing Status[1]
Wildlife/Fisheries		
California red-legged frog	*Rana draytonii*	FT, SSC
California tiger salamander	*Ambystoma californiense*	FT, ST
Golden eagle	*Aquila chrysaetos*	BGEPA, MBTA, SP
Tricolored blackbird	*Agelaius tricolor*	MBTA, ST, SSC
Western pond turtle	*Actinemys marmorata*	FPT, SSC

[1] Source: California Natural Diversity Database (CNDDB), "Special Animals List," California Department of Fish and Wildlife, Sacramento, CA, July 2025:

Federal Status:
- FT = Federally listed as threatened
- FPT = Federally proposed for listing as threatened
- Western pond turtle is proposed to be listed as threatened as of October 2023; pending finalization (88 Federal Register [FR] 68370)
- BGEPA = Bald and Golden Eagle Protection Act
- MBTA = Migratory Bird Treaty Act

California (State) Status:
- ST = State listed as threatened
- SP = Fully protected. A fully protected species may not be taken or possessed at any time, except as specified in the Fish and Game Code.
- SSC = Species of Special Concern

[3] Database of Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties: https://ebcnps.org/ebrare-plant-database/.

[4] San Francisco Public Utilities Commission, Water Enterprise Environmental Stewardship Policy, June 27, 2006.

3.3 Native Vegetation Objectives

The Alameda WMP outlines general native vegetation goals that include the following:

- Protect, conserve, and enhance wetlands and riparian communities.
- Protect and restore unique, local, and/or indigenous plant species to maintain biodiversity and specialized habitat values.
- Manage grasslands and rangelands to balance, wherever possible, wildlife habitat values, the restoration of native perennial species, and the reduction of fuel loads and noxious weeds.
- Manage shrub communities to reduce fuel loads, prevent soil erosion and sedimentation, improve wildlife habitat access and use, and control invasive plants.
- Manage woodlands and forests to maintain healthy, vigorous, and diverse stands with a multiplicity of age and size classes.

Specific native vegetation strategies that apply to this grazing unit are listed in Table 2.

Table 2. Objectives and Strategies for Managing Native Vegetation

Objectives from the RMP	Grazing Unit Strategy
OBJECTIVE 2: Minimize negative impacts to sensitive aquatic habitats such as riparian and spring systems.	• Seasonal wetlands appear to be unprotected and difficult to see on the landscape; place mineral feeders far from roads and wet areas. • The largest pond is in need of spillway repair, and could benefit from slope stabilization with native grass or shrub seeding. • Water resources and infrastructure are concentrated in the southern end of the lease, and riparian corridors appear to be incised and could be at risk of further erosion. Evaluate methods for establishing erosional slopes.

RMP = Rangeland Management Plan

3.4 Non-Native Invasive Plants

SFPUC's Integrated Pest Management (IPM) program focuses on:

- Protecting rangeland productivity by reducing NNIPs that negatively impact forage quality; or
- Protecting high value habitat and ecosystem services by reducing the introduction or spread of NNIPs and plant pathogens.

A reconnaissance-level survey of NNIP species was conducted in 2009 and 2020 in the watershed.[5] This survey was spatially limited to select areas (along roads and other places more easily reached by foot) and not all species were identifiable at the time of the surveys. In

[5] Nomad Ecology, *Non-indigenous Plant Species Inventory and Mapping Alameda Watershed, Alameda and Santa Clara Counties, California*, Prepared for the SFPUC, 2009; and Nomad Ecology, *2020 Alameda Watershed Invasive Plant Report*, Prepared for the SFPUC, 2020.

2025, SFPUC staff conducted a survey to update occurrences and priorities for management. Table 3 lists NNIPs identified in the grazing unit during the 2009 and 2020 surveys, the 2025 staff survey, and discussions with the current tenant and SFPUC grazing manager. Species detections noted during periodic site visits may or may not have coincided with the optimal timing to identify certain NNIP species. The table also includes the California Invasive Plant Council (Cal-IPC) rating and the invasion curve level.[6] The SFPUC prioritizes NNIP management actions (i.e., prevention, eradication, or containment) based on invasion curve levels 1 through 4, which depict the area infested over time.

GU-15 contains the former Sunol Valley Golf Course, which poses NNIP management considerations. The former golf course land use and site disturbance have led to establishment of several NNIP populations that require ongoing management. There are substantial patches of fennel (*Foeniculum vulgare*), medusahead (*Elymus caput-medusae*), poison hemlock (*Conium maculatum*), stinkwort (*Dittrichia graveolens*), and yellow starthistle (*Centaurea solstitialis*) occurring along access roads and throughout the southeast portion of the grazing unit. GU-15 also contains scattered patches of purple starthistle (*Centaurea calcitrapa*).

Table 3 Non-Native Invasive Plants Managed in Confluence (GU-15)

Common Name	Scientific Name	GU-15 Invasion Curve Level[1]	Cal-IPC Rating[2]
Artichoke thistle	*Cynara cardunculus subsp. flavescens*	2	Moderate
Bermuda buttercup	*Oxalis pes-caprae*	1	High
Cape ivy	*Delairea odorata*	1	Moderate
Fennel	*Foeniculum vulgare*	3	High
Harding grass	*Phalaris aquatica*	2	High
Himalayan blackberry	*Rubus armeniacus*	2	High
Ice plant	*Carpobrotus chilensis*	2	Moderate
Jubata/ Pampas grass	*Cortaderia* sp.	2	Limited
Medusahead	*Elymus caput-medusae*	3	Moderate
Oleander	*Nerium oleander*	2	None
Poison hemlock	*Conium maculatum*	3	Moderate
Purple starthistle	*Centaurea calcitrapa*	2	Moderate
Stinkwort	*Dittrichia graveolens*	3	Moderate
Tree of heaven	*Ailanthus altissima*	1	Moderate
Yellow starthistle	*Centaurea solstitialis*	3	High

IPM = Integrated Pest Management
SFPUC = San Francisco Public Utilities Commission
[1] Non-Native Invasive Plants (NNIP) Management Approach by Level on Invasion Curve:
1. Prevention: SFPUC IPM will conduct Early Detection and Rapid Response (EDRR) surveys.
2. Eradication: SFPUC IPM will treat to eradicate.
3. Containment: SFPUC IPM will treat to protect high value resources or to eradicate isolated populations.

[2] California Invasive Plant Council (Cal-IPC) ratings (Cal-IPC 2024) rate NNIPs based on dispersal rate and environmental impact (https://www.cal-ipc.org/plants/inventory/).

[6] Department of Primary Industries, *Invasive plants and animals: policy framework*, Victoria Department of Primary Industries, Melbourne, Australia, 2010.

To help reduce NNIPs, expectations of tenants include the following:

- Attend an annual SFPUC training regarding NNIP Best Management Practices (BMPs).
- Report to the SFPUC any new observations of fennel, stinkwort, or barb goatgrass (*Aegilops triuncialis*).
- When cattle are transported to the grazing unit, notify the SFPUC and where feasible implement appropriate BMPs such as:
    - Provide weed-free forage or pelletized feed (approved by the SFPUC) to cattle for at least three days before transport onto the grazing unit
    - Utilize a transitional pasture within the grazing unit
    - Decontaminate vehicles and equipment entering the grazing unit according to the SFPUC's decontamination policy

3.5 Nuisance Wildlife

California ground squirrel (*Otospermophilus beecheyi*) overpopulation is an issue for this grazing unit, especially in heavily grazed areas. Wild pigs (*Sus scrofa*) are present in small numbers in the grazing unit.

4. Rangeland Infrastructure

A detailed grazing infrastructure survey of the watershed was conducted from 2013 to 2015, with an additional survey conducted in 2022 for the added parcels (Figure 2). Staff updated infrastructure data in 2025. The number, condition, and location of various types of infrastructure such as barns, corrals, springs, and troughs were assessed and are summarized in this section. This section of the also outlines recommendations for rangeland improvements.

4.1.1 Roads

Roads – The Confluence grazing unit has 3.44 miles of paved and unpaved roads. Primary access is via a gate off Andrade Road in the southeast portion of the grazing unit.

Recommendations – Existing access roads provide safe access within the grazing unit. The roads were found to be in relatively good condition in January 2015. Some roads are very steep and prone to erosion. Road maintenance and improvements to redirect water off the road surface at as many locations as possible will help reduce rill erosion. These roads require routine annual maintenance performed by the SFPUC and/or a contractor.

4.1.2 Fences

Fences – The Confluence grazing unit contains both perimeter and cross fencing. The perimeter fencing on the western, southern, and eastern boundaries of the grazing unit appears to be in fair to good condition. The fencing on the northern boundary of the grazing unit adjacent to Alameda Creek is old and needs frequent inspections and repairs.

Recommendations – Fencing in this grazing unit is mostly in good condition. The condition of the boundary fence along the intermittent drainage to Ponds PA029 and PA032 is not known, and the fence may require repair and maintenance by the grazing tenant. Similarly, the boundary fencing from the ridge down to Alameda Creek in the northwestern corner of the

grazing unit and along the railroad tracks and Alameda Creek has undergone extensive repairs by the grazing tenant. Fence lines should be checked prior to receiving cattle and following large storms, and regularly maintained.

4.1.3 Corrals and Barns

The grazing unit contains one corral that is owned by the current tenant and is located in the middle of the grazing unit (middle of Section 18). The corral has a mechanical squeeze chute and no water troughs.

4.1.4 Water Sources

Water Sources – The Confluence grazing unit contains 17 ponds that are accessible to cattle. One pond has completely failed and no longer provides water. Three large water storage ponds (PA029, PA032, and PA252) in the southeast provide year-round water for cattle. These three ponds receive water from an intermittent and ephemeral drainage as well as water pumped to the ponds from the Hetch Hetchy aqueduct. Three ponds (PA049, PA250, and PA255) located in an intermittent drainage are the primary water source for the southern portion of the grazing unit, although the drainage dries up in the summer months. The remaining seven ponds provide water on a seasonal basis once filled following winter rains. Table 4 provides the results of the pond assessments conducted in January 2015 and March 2022. There is an old wooden tank in the northwestern portion of the grazing unit that probably pulled water from the Sunol Aqueduct before the aqueduct was abandoned. The former golf course land added to GU-15 in 2020 has a fenced retention pond that is inaccessible to cattle.

Recommendations – GU-15 is currently dependent on two side-by-side ponds (PA029 and PA032) to provide water year-round. The remaining six ponds (mostly in the middle and northern portion of the grazing unit) only provide water on a seasonal basis.

Water availability largely dictates cattle dispersal across the grazing unit. Water availability is poor in the western, northeastern, and southern portions of GU-15. Adequate water may not be available to cattle in the northern half and southern portion of the grazing unit due to smaller capacity ponds that dry up early in the season. As a result, cattle congregate around the two perennial ponds, increasing the grazing impacts in the area. Should cattle need to be held on GU-15 beyond the point in time when the ponds in the middle and northern parts of the grazing unit go dry, then further water developments should be considered. Improvements to existing ponds may include activities to increase reliability, holding capacity, and thus water availability later in the season.

Table 4 2012-2015 Pond Assessment Results for Confluence (GU-15)

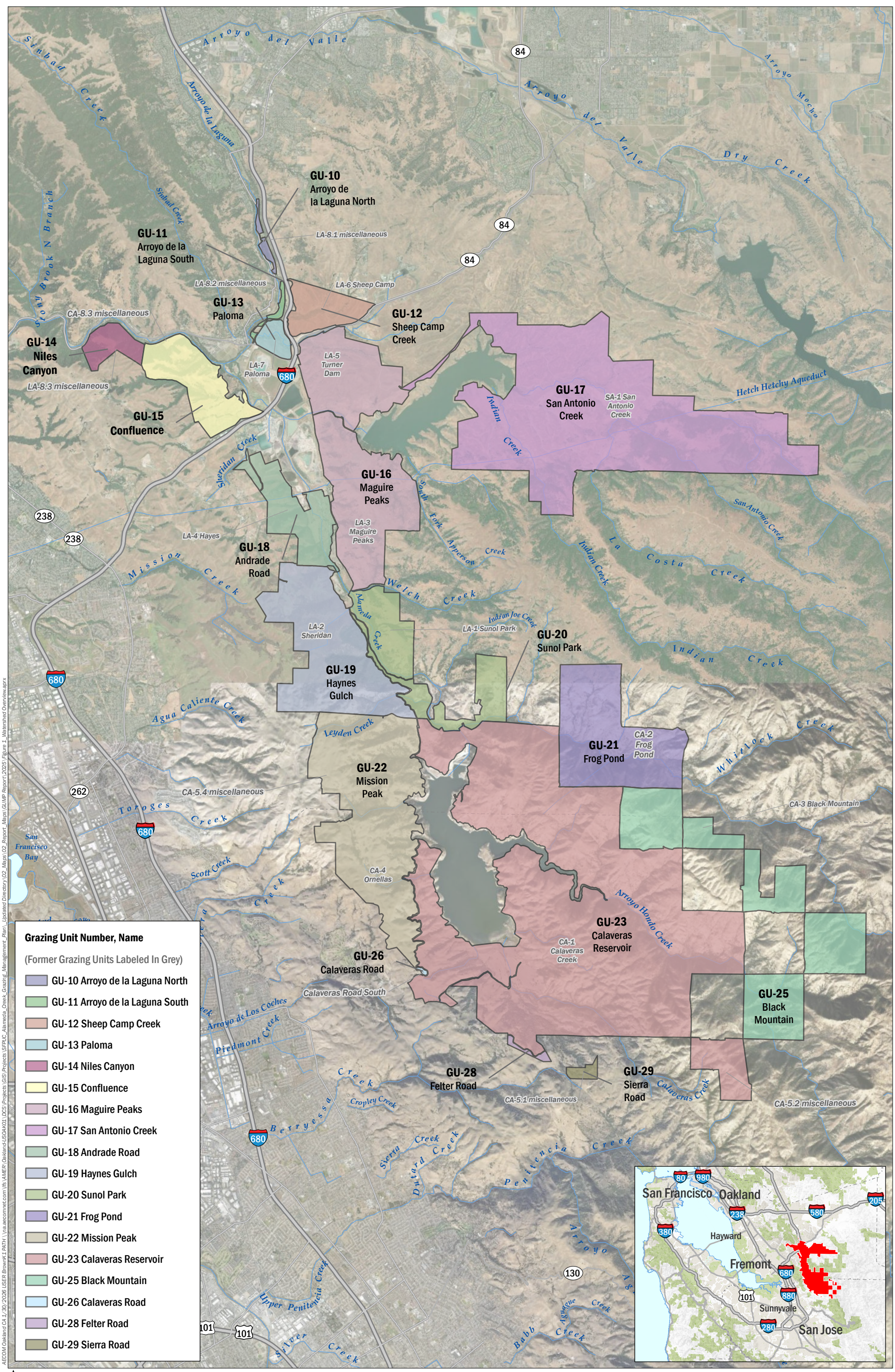
Pond ID	Pond Condition	Water Source
PA012	Good condition. Cattle have trampled down the elevation of the pond embankment, limiting the holding capacity.	Sheet flow
PA014	Good condition. The pond embankment may have been trampled down or eroded over time, lowering the pond capacity.	Sheet flow
PA016	Good condition.	Sheet flow
PA021	Moderate condition. The embankment has been trampled to the same elevation as the spillway, which could threaten the stability of the pond in the near future.	Shallow concentrated flow, sheet flow
PA024	Moderate condition. Erosion on spillway and embankment. Lots of California ground squirrel burrows in the embankment, which have likely led to soil pipe erosion on the embankment.	Stream flow, sheet flow
PA029	Moderate condition. Severe hillslope/embankment erosion at the end of a concrete spillway. Sediment supply to the pond is high as indicated by a large alluvial fan at the inlet stream to the pond.	Stream flow, shallow concentrated flow, sheet flow, water is imported from an alternate source (Hetch Hetchy aqueduct)
PA032	Good condition. A lot of sediment has been deposited in the pond from the erosion of the hillslope and embankment from upstream Pond PA029 and erosion from two small inlet channels.	Stream flow, sheet flow. Water is imported to PA029 from an alternate source (Hetch Hetchy aqueduct)
PA049	Moderate condition. Outlet culverts are prone to being plugged with woody debris. The pond overflows the adjacent access road when the culvert is plugged. High sediment supply from two gullies and the upstream channel.	Stream flow, sheet flow
PA155	Poor condition. Pond embankment has failed. The pond does not hold water.	Sheet flow
PA249	Moderate condition. Artificial pond from former golf course with island in middle. Bare ground around pond edge, heavily degraded by cattle trampling.	Sheet flow
PA250	Good condition. Eroded slopes, 5 inches deep along edge with moderate cattle use, three inlet culverts.	Stream flow, sheet flow
PA251	Good condition.	Stream flow, sheet flow
PA252	Good condition. Moderate cattle use. Solar pump installed in 2021.	Stream flow, sheet flow
PA253	Good condition. Drainage pump adjacent to a culvert present. Water very eutrophic.	Sheet flow
PA255	Poor condition.	Sheet flow, stream flow
PA258	Good condition.	Stream flow, sheet flow
PA259	Poor condition. Artificial pond from former golf course.	Sheet flow

ID = identification

5. Grazing Unit Management

This GUMP outlines the existing conditions and management goals for the lease to guide the long-term rangeland management of the grazing unit. Annual monitoring, inspections, and tenant meetings will be used to adapt the management based on seasonal variation and rangeland health. The SFPUC will conduct annual inspections of each grazing unit to evaluate infrastructure condition, rangeland health, and biological considerations relative to the goals of the RMP. In addition, the SFPUC will conduct rangeland monitoring, including composition monitoring and RDM monitoring in specified plots. The annual inspection and monitoring data will be summarized to share with the tenant and inform the Annual Operating Plan.

Each year, the SFPUC Rangeland Management Team will meet with the tenant to review the rangeland condition, document issues, and discuss goals for the grazing unit. The Rangeland Management Team includes the Rangeland Manager, the Watershed Resources Manager, the Senior Integrated Pest Management Specialist, the Senior Biologist, and the Watershed Forester. Based on this discussion, the SFPUC will develop an Annual Operating Plan that outlines specific management objectives for the following year. The Annual Operating Plan will document current monitoring and rangeland assessment data, outline stocking rates based on forage production and rangeland condition, and summarize annual management objectives for grazing infrastructure improvements, Managed Riparian Areas, NNIP management, and environmental stewardship. The SFPUC will prioritize investments in infrastructure and operations based the RMP goals and conditions in the grazing units across the watershed.



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San Francisco Water Power Sewer

AECOM

Figure 1: SFPUC Alameda Creek Watershed Grazing Unit Overview

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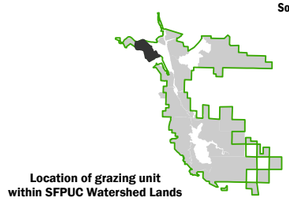
- SFPUC Grazing Unit Boundary
- Kinder Morgan LLC Easement
- Fence
- Paved road
- Unpaved road
- Trail
- Aqueduct
- Intermittent stream
- Pond

Grazing Infrastructure

Confluence (GU-15): Corral CO0028 is tenant-owned.

- Corral
- Solar Panel
- Solar Pump
- Stream Diversion
- Tank (non-functioning or unknown)
- Trough (functioning)



Location of grazing unit within SFPUC Watershed Lands

Sources: AECOM, 2025; ESRI Imagery, 2025; SFPUC, 2025; Rangeland Conservation Science, 2025.

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Figure 2: GRAZING UNIT 15 CONFLUENCE

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