SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

FINAL LICENSE APPLICATION

FINAL TECHNICAL REPORTS

VOLUME III

SOUTHERN CALIFORNIA EDISON

An EDISON INTERNATIONAL Company

JUNE 2022

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VOLUME III (1 OF 4)

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FINAL TECHNICAL REPORT
ASSESSMENT OF BISHOP CREEK RIPARIAN COMMUNITY (TERR 1)

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Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

TECHNICAL REPORT
ASSESSMENT OF BISHOP CREEK RIPARIAN COMMUNITY (TERR 1)

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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1.0 INTRODUCTION

SCE and stakeholders identified the potential need for a Bishop Creek Riparian Community Study during the study scoping process. Stakeholders discussed data reported from the 2014 field season (Read 2015) and anecdotal observations that black cottonwood (*P. balsamifera* ssp. *trichocarpa*) cover in riparian areas may be in decline; there was an interest in understanding potential causes and whether data collected in 2019 would show a continuation of this trend. In addition, stakeholders requested that a broader study using the "guild" approach of Lytle et al. (2017) be undertaken to address changes in the riparian community as a whole.

Data and preliminary results for this survey were previously reviewed with the Bishop Creek Technical Working Group (TWG) in May 2020, following distribution of Progress Report #2 to the TWG and FERC on April 14, 2020.

Further data was provided in the Initial Study Report filed with FERC on October 30, 2020. This report builds on those two previous documents but does not draw conclusions about potential Project effects. These analyses will be completed in conjunction with the completion of the License Application as part of the overall National Environmental Policy Act (NEPA) process and in consultation with the TWGs.

2.0 REVIEW OF EXISTING INFORMATION

Read (2015; 2020a) describes results from license-compliant riparian monitoring in 2014 and 2019 compared to previous years and the baseline, which was from 1991 to 1993, prior to implementation of the minimum instream flow program as required by the existing license. There is sufficient data from all these studies to re-analyze using the guild approach requested by stakeholders.

In addition, data obtained at all three monitored stream reaches Bishop Creek in 2014 showed a decline in black cottonwood abundance compared to baseline, with the greatest decline exhibited on one monitoring site downstream of Powerhouse No. 4. This loss is contrary to expectations that riparian vegetation would respond positively to the addition of stream flow in a reach that was normally dry during the summer prior to the implementation of the required instream flow release program in 1994.

Black cottonwoods were not present in monitored sites on Birch and McGee creeks in 2019 or previous years; however, possible reasons for their absence could be relevant to the decline on Bishop Creek, therefore these creeks were included in the black cottonwood study along with new data obtained from the 2019 field season.

3.0 LIFE HISTORY INFORMATION

Native plant species that occupy the riparian zone have a range of life histories that can be grouped into "guilds" using an approach described by Lytle et al. (2017). In many cases these life histories are well documented in the literature, making the guild approach a useful tool for analyzing data in an ecological context instead of species by species. For example, the life history of black cottonwood has been summarized by Steinberg (2001) and Sawyer et al. (2009). It is a deciduous tree that can live 200 years old or more. Reproduction is most asexually (clonal), through root suckers and sprouts. Sexual reproduction through seed dispersal often occurs when stream or river flows begin to decline in spring. However, while seed production can be prolific, seed viability lasts only a few weeks and successful seedling establishment is episodic. Establishment depends on a coincidence of events; wherein mature seeds are produced when there will be sufficient soil moisture during the first month of growth. Seedling mortality can be high if root growth is slower than recession of the water table or stream.

No diseases causing widespread mortality are known for black cottonwood except for a disease transmitted by an invasive insect native to Southeast Asia (polyphagous shothole borer [*Euwallacea* nr. *fornicates*]). However, this insect has not been reported to occur in Inyo County and its distribution appears limited to southern California counties at this time (CalInvasives, n.d.).

4.0 STUDY OBJECTIVES

This Bishop Creek Riparian Community Study has the following objectives:

- Re-analyze the long-term monitoring dataset generated from monitoring conducted in compliance with the existing license using the guild approach of Lytle et al. (2017);
- Review and assess black cottonwood abundance and determine whether the decline observed in 2014 continued through 2019.

4.1 STUDY AREA

Figure 4.1-1 shows the existing monitoring sites at which data were collected from 1991 through 2019 as part of the monitoring program under the existing license and re-analyzed for the guild part of this Riparian Community Study Report. Since black cottonwoods have not been observed on Birch and McGee Creeks, only records of black cottonwoods from monitored sites on Bishop Creek were analyzed for that study.

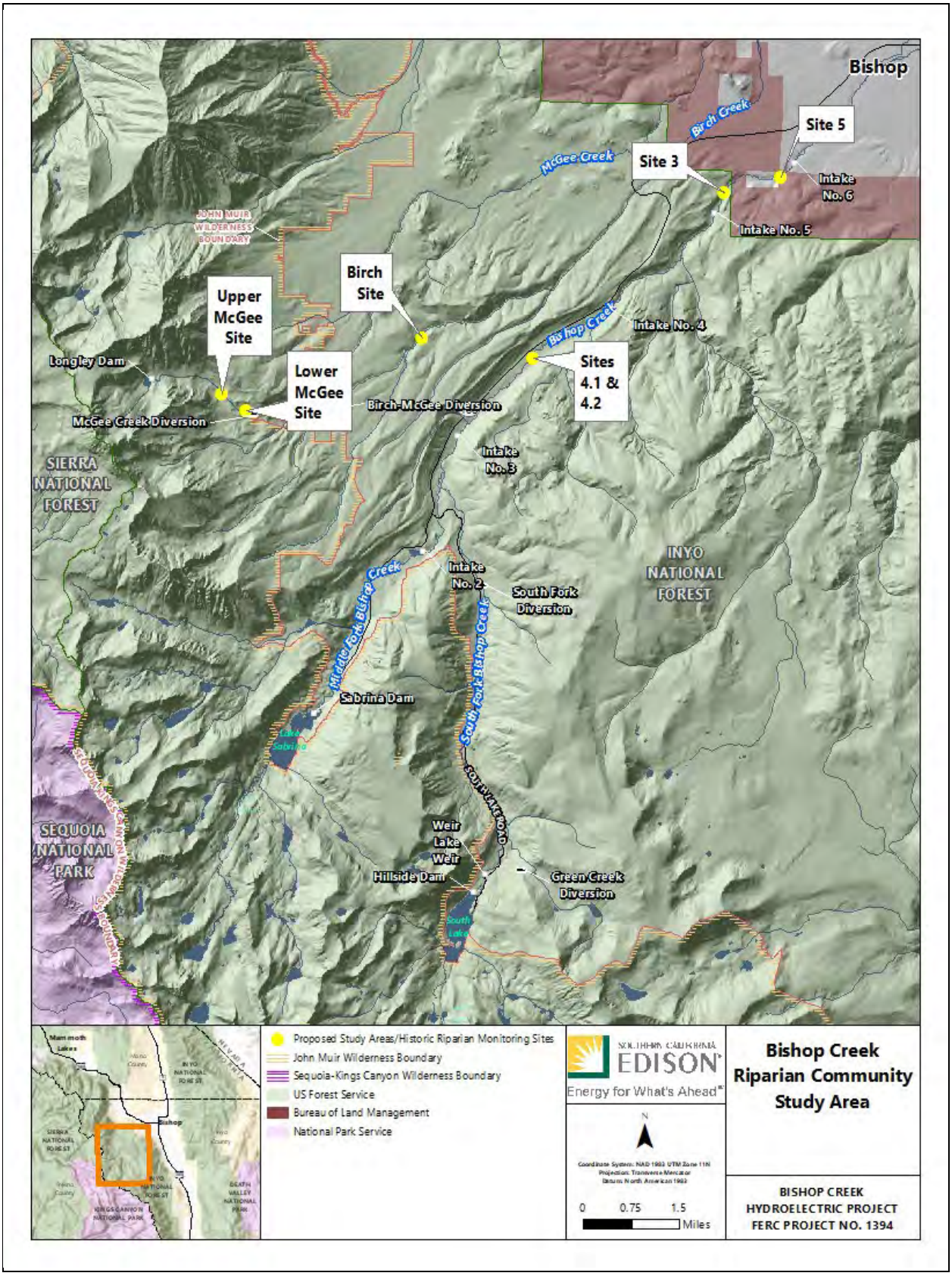

Figure 4.1-1 Riparian Community Study Area

5.0 METHODS

Monitoring data collected from 1991 through 2019 in compliance with Federal Power Act (FPA) Section 4(e) conditions of the existing license were re-analyzed using the guild approach of Lytle et al. (2017) to assess the condition of the riparian community. In this guild approach, species that share similar “vital rates” (fecundity, mortality, self-thinning) are analyzed as a group rather than as individual species. In addition to the guild study, cover by black cottonwoods in 2019 was compared to previous years to assess the extent to which the decline observed in 2014 at the Bishop Creek sites continued into 2019.

6.0 MODIFICATION TO METHODS

No changes to methods described in the study plan were made, other than to clarify as stated above that this study consisted of two parts: 1) analysis of existing data using the guild approach; and 2) analysis of existing black cottonwood cover data.

7.0 RESULTS

The riparian community study, which analyzed data collected as part of monitoring requirements under the existing license, is complete at this time. This section summarizes key findings.

7.1 GUILD ANALYSIS

Results of the guild analysis were consistent with previous analyses using a species-by-species approach, insofar as perennialization of a stream reach below Powerhouse No. 4 and of Birch and McGee creeks below the diversions, increased abundance of riparian vegetation after minimum instream flows began in 1994 (Read 2020). The analysis also confirmed that exceptionally high flows in 2019 flooded many areas occupied by mesoriparian meadow (herbaceous) vegetation, resulting in a decline in cover by this guild that had not been observed in previous years (Read 2020).

7.2 BLACK COTTONWOOD ABUNDANCE

Abundance data for black cottonwoods were analyzed separately and the results in Table 7.2-1 were presented at a TWG meeting on May 7, 2020. The analysis included all data collected for this species from 1991 through 2019.

At Site 5, where flow was ephemeral in dry to normal years, abundance of black cottonwoods increased after flow release began in 1994 but declined in 2004 for unknown reasons. At Site 4.1, abundance trended upward in 2019, but abundance at the adjacent Site 4.2 declined. There is no barrier between these sites so the cause for these differing trends remains unknown.

Table 7.2-1 Percent Cover of Black Cottonwood, 1991 through 2019

	1991[1]	1992[1]	1993[1]	1999[2]	2004[2]	2009[2]	2014[2]	2019[2]
Site 4.1	7.5	6.0	5.7	9.1	8.2	7.7	5.8	11.2
Site 4.2	12.6	11.9	13.2	15.2	12.3	10.7	7.3	2.2
Site 5	0.3			1.2	1.3	1.7	0.5	1.4

[1] Baseline before instream flows

[2] Post baseline

8.0 DISCUSSION

The guild classifications provide more insight into changes in diversity over time, as compared to lumping taxa into simple riparian vs. upland categories. This interpretation will be elaborated on in the Effects Analysis which will be distributed late in 2021 for discussion with the TWGs.

Chapter 2 of the Land Management Plan (Management Plan) for the Inyo National Forest (USDA 2019) discusses forest wide desired conditions and management direction. The chapter contains direction that applies forest-wide (across all lands of the Inyo), unless more stringent or restrictive direction is found following forest-wide direction. Forest-wide direction includes desired conditions, objectives, goals, standards, guidelines, and potential management approaches. SCE assessed the riparian community against the desired future conditions of Chapter 2, specifically those watershed conditions (WTR), which include riparian conservation areas and the riparian and aquatic environments contained within them, such as rivers, streams, meadows, springs, and seeps.

SCE has reviewed these Desired Conditions against data and observations from this report and the ongoing Riparian Monitoring effort as part of current license article 405 to determine if the relicensing of the Project would have an impact on the land manager's ability to achieve the desired condition.

8.1 SUMMARY OF DESIRED CONDITIONS

The Management Plan's relevant Desired Condition for riparian communities in watersheds is #01, which states that "adequate quantity and timing of water flows support ecological structure and functions, including aquatic species diversity and riparian vegetation" (USDA 2019). The Management Plan's Desired Condition for rivers and streams is #03, which states that "Instream flows are sufficient to sustain desired conditions of riparian, aquatic, wetland, and meadow habitats and retain patterns of sediment, nutrients, and wood routing as close as possible to those with which aquatic and riparian biota evolved."Monitoring data collected over nearly two decades, both before and after an instream flow program was implemented in 1994, indicates that health of riparian communities in the watershed and with the current instream flow program is consistent with these Desired Condition. No changes to Project operations are proposed, therefore the Project will continue to be consistent with these Desired Condition under the new license.

The Management Plan's Desired Condition #06 for watersheds is for the sediment regime within waterbodies to be within the range of natural variation. Desired Conditions #04, #05, and #06 for rivers and streams also reference flooding, sediment regime, and level of woody debris. Due to presence of barriers (dams) as part of the Project, it is assumed that flooding, sediment regimes, and levels of woody debris below the dams are not within a natural (pre-Project) range.

8.2 POTENTIAL MANAGEMENT APPROACHES

The Management Plan identifies potential management approaches. As SCE develops its licensing proposal, these will be reviewed with the Inyo National Forest for applicaility to any management plans developed or amended as potential Protection Mitigation and Enhancement (PME) measures, including management of sediment.

9.0 CONSULTATION SUMMARY

SCE distributed periodic progress reports on the following schedule:

- Progress Report 1: December 19, 2019
- Progress Report 2: April 14, 2020
- Progress Report 3: July 24, 2020
- Initial Study Report (Progress Report 4): October 30, 2020
- Initial Study Meeting: November 10, 2020
- Progress Report 1: March 2, 2021
- Progress Report 2: May 28, 2021
- Progress Report 3: August 27, 2021
- Updated Study Report Filing: November 4, 2021
- Updated Study Report Meeting: November 18, 2021

A technical memorandum summarizing the 2019 study results was submitted with Progress Report 2. Following that filing, SCE hosted a Technical Working Group (TWG) meeting on May 7, 2020 to discuss the 2019 study season, work completed to date, and the technical memoranda. An opportunity for further discussion was provided at the Initial Study Report (ISR Meeting on November 10, 2021). One comment specific to this study plan was received following the ISR meeting (Table 9-1).

Three progress reports were filed in 2021 after the ISR, as identified above. This Final Technical Report was submitted to agencies and stakeholders for a 60-day review period on August 26, 2021. The comment period was extended, at the request of the agencies, and comments received on this report are shown in Table 8.2-1. A meeting was held with CDFW on December 16, 2021, and with CDFW and USFS on December 21, 2021, to discuss those comments received as well as SCE's draft responses to them.

SCE held a Project Effects meeting on October 28, 2021, for all stakeholders and agencies to discuss what project effects (if any) had been identified through the implementation of each of the approved study plans.

The Updated Study Report (USR) was filed with FERC on November 4, 2021, and a USR Meeting was held on November 18, 2021. At this meeting, SCE only discussed those studies which were still in progress at the time of the ISR (Water Quality, Sediment and Geomorphology, Operations Model, Recreation Use and Needs, Recreation Facilities Condition Assessment, Project Lands and Boundary, and Cultural and Tribal Studies).

The Riparian Community Assessment was not discussed at the USR, and thus received no comments.

Table 8.2-1 Updated Responses to Comments from Technical Reports

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
4	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	The Vegetation Guild Analysis Technical Memorandum identified the primary goal of the original monitoring program was to determine relationships, if any, between variations in stream flow and changes in riparian habitat attributable to the Project. CDFW is concerned that the Technical Memorandum does not identify all of the goals and objectives within the Technical Study Plan.	The guild analysis was conducted in response to a request from USFS, and is largely a desktop exercise to re-evaluate existing data using the newer guild approach suggested by the USFS. The analysis was not intended to replace the more detailed analysis presented in the riparian monitoring report for the 2019 field season, submitted to FERC's compliance docket separately for agency comment as required under the existing license. Section 4 (Study Objectives) identifies two objectives of the riparian study: 1) an analysis of existing data using the guild approach; and 2) analysis of existing data pertaining to black cottonwood.
5	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	CDFW is concerned that the methods identified within the Technical Memorandum only assess the cover and guild assignment and do not adequately address all of the goals and objectives set by the Technical Study Plan. CDFW recommends the methodology and the analysis be modified to address all of the goals and objectives in the Technical Study Plan.	The methods in the guild analysis was provided to TWG members before and during the scoping process and was approved by FERC in its November 4, 2019 Study Plan Determination. The goals and objectives, relative to the relicensing study, are described and discussed in Section 4. Following review of the ISR in November 2020, the TWG members had an opportunity to discuss study plan methods and suggest adjustments as necessary. No comments were received at that time and therefore, the methods described in Section 5 were not adjusted and this study is considered complete.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
6	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	The Technical Memorandum should define what 'significant' means and how a decision of 'no significant difference' is made (i.e., black cottonwood cover declined but as of 2019 cover was not significantly different from 2014 and appears to have stabilized).	Black cottonwood cover data is described above in Section 7.2 in terms of trends rather than significance.
7	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	The Technical Memorandum concludes: In general, monitoring results have indicated that the minimum flow releases have been associated with significant growth of riparian vegetation in stream reaches that were historically dry in summer. CDFW recognizes there has been a significant growth of riparian vegetation in stream reaches that were historically dry in the summer, however, this conclusion does not address the goals and objectives of the Technical Study Plan.	This comment refers to the conclusions drawn from the guild analysis, which was just one of two analyses conducted for riparian communities. Section 4 further clarifies the objectives utilized for this study.
8	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	The Technical Memorandum categorizes the vegetation sampled during the field data collection into guilds as described in Lytle et al (2017). CDFW is concerned that the "lumping" of species into guilds blurs the results, analysis, and the intent of the Technical Study Plan's goals and objectives.	See Response to Comment #4 above
9	Vegetation Guild Analysis Technical	May 21, 2020	CDFW	The current methodology seems to ignore the second goal/objective entirely by continuing to use guilds. Additionally, it is difficult to determine	See Response to Comment #4 above. Section 7.2 (Black Cottonwood Abundance) of this report discusses results of the cottonwood analysis.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
	Memorandum (Riparian Communities)			the species composition of the riparian community and to look for trends in species abundance with the current methodology.	
10	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	It is unclear and should be considered whether the upstream barriers may be negatively impacting the downstream black cottonwood populations by altering flow regimes or if sediment capture and removal behind these barriers may be impacting these black cottonwood populations.	Section 7.2 (Black Cottonwood Abundance) of this report discusses results of the analysis of the cottonwood data. Two of the three study sites are adjacent to one another in the same stream reach without a barrier between them, yet they showed opposite trends in abundance of black cottonwood, additional discussion will be included in the Effects Analysis discussion for this study. This comment is also addressed in *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the Draft License Application (DLA).
11	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	CDFW recommends the following: 1. Document the changes between historic and current flow regimes. 2. Compare species distribution, composition, age classes, and growth rates of the dominant woody species. 3. Document the age structure of black cottonwood along Bishop Creek and compare with historic flow regimes or with nearby control sites. 4. Utilize data to develop and implement management actions to support the continued existence of black cottonwood in Bishop Creek. Management	SCE previously indicated these recommendations would be adopted for the ISR however, to keep process and content with the FERC regulations and with other studies, these analyses will be topics of discussion following the completion of the ISR and after completion multiple studies, including the Operations Model, are available. This comment is also addressed in *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
				actions could include, but are not limited to, downstream sediment deposition and/or altering flow regime based on natural conditions.	
12	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 21, 2020	CDFW	The technical study report should either list the specific desired conditions in the Technical Reports or list the Land Management Plan for the Inyo National Forest (INF) (USDA, 2019) in the reference section (hyperlink could be useful) with the appropriate Chapter, section, sub-section, and page numbers.	This information can be found in the Discussion section of this report (Section 8).
40	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 12, 2020	USFS	When the term “historically dry” is used to describe certain stream reaches, does this mean dry since Project construction? Or dry even since prior to Project construction?	The term refers to stream reaches that did not have perennial flow prior to minimum instream flow releases that began in 1994 per requirements of the existing license.
41	Vegetation Guild Analysis Technical Memorandum (Riparian Communities)	May 12, 2020	USFS	Include a more detailed investigation/discussion of black cottonwood condition and trend.	This information is included in this technical report in Section 7.2.
--	Riparian Communities Study Plan ISR Meeting	November 20, 2020	USFS	Please include a clarification about riparian monitoring sites included in the Initial Study Report (IRS) and its figures; include an explanation in meeting notes and in the Study Report.	This was completed and submitted as part of SCE’s ISR Comment Response FERC filing on December 23, 2020.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
--	TERR 1 Technical Report	November 12, 2021	CDFW	CDFW is concerned about the decline of over 80 percent of the black cottonwood (Populus trichocarpa) canopy cover at Site 4.2. CDFW questions SCE's determination that this significant black cottonwood canopy cover decline is not related to the Project. The Final Technical Report does not provide clarity on the cause of the black cottonwood cover decline. The Final Technical Report also does not support SCE's conclusion that the decline is not related to the Project.	While the data (graphs) show a decline of over 80 percent of the black cottonwood canopy cover at Site 4.2 since 1991, the data also show an increase of over 30 percent at Site 4.1, located downstream of Site 4.2 in the same perennial reach. This is the reason for stating that variability in canopy cover over time for this species in that reach remains unexplained but is unlikely to be related to the Project. This comment is also addressed in *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the Draft License Application (DLA).
--	TERR 1 Technical Report	November 12, 2021	CDFW	CDFW believes it possible that non-natural sediment regimes below the dams could explain changes in riparian habitat, including the significant reduction of the black cottonwood canopy cover observed at Site 4.2.	See Response above. In addition, the Technical Report points out that there is no dam between Sites 4.1 and 4.2, therefore those sites would be expected to have similar sediment regimes, leaving the variability in canopy cover over time unexplained and likely unrelated to the Project. We appreciate the reference to the Management Plan's Desired conditions; in the DLA we have attempted to distinguish the NEPA standard for Project Impacts (FERC projects is to address potential impacts of the proposed action against the current baseline) from the management objective. See *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
--	TERR 1 Technical Report	November 12, 2021	CDFW	The Final Technical Report further states, 'This loss is contrary to expectations that riparian vegetation would respond positively to the addition of stream flow in a reach that was normally dry during the summer prior to the implementation of the required instream flow release program in 1994.	This statement in the technical report refers to data compiled from 1991 through 2014, which indicated a decline in black cottonwood canopy cover at a site downstream of Powerhouse 4 that was normally dry in summer prior to implementation of the flow releases. However, data from 2019 indicates gradual recovery (Table 7.2-1). Further discussion can be found in *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
--	TERR 1 Technical Report	November 12, 2021	CDFW	CDFW is concerned that this conclusion is unsupported by data. CDFW does not understand the correlation that is being suggested between a decline in the black cottonwood population in Bishop Creek and the fact that black cottonwood do not exist in Birch and McGee Creeks. The absence of black cottonwood in Birch and McGee Creeks seems to be independent of factors affecting the black cottonwood population along Bishop Creek. The assumption that the absence of black cottonwood populations along Birch and McGee Creeks is related to the decline of black cottonwood populations along Bishop Creek is not supported by data presented in the	The Technical Report should have clarified that data for the Birch and McGee Creek sites was used in the guild analysis part of the riparian study, not the analysis of black cottonwood abundance. Since black cottonwoods were not observed on the Birch and McGee Creek sites there would have been no data to include in the analysis of black cottonwood abundance. To be clear, it was not our intention to imply that black cottonwoods are absent entirely from Birch and McGee creeks – only that this species was not observed at the monitoring sites. Regarding any analysis of sediment regime in relation to black cottonwood abundance, see Response above. This comment is also addressed in *the Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, including Black Cottonwood* section in the

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
				report. CDFW requests an analysis of the reduction of the black cottonwood population along Bishop Creek and the lack of natural sediment regimes.	*Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
--	TERR 1 Technical Report	November 12, 2021	CDFW	CDFW also recommends that the report include a graph to visually represent the results.	SCE agrees that more visual representation could be helpful to the discussion. Therefore, these graphs have been added as Table 7.2-1 of this report and as an appendix to the DLA.
--	TERR 1	November 16, 2021	USFS	Life History Information section: This is not accurate. The dominate method of production is through seeds. This requires bare mineral soil resulting from spring flood/scour and a gradually declining water-table. Please correct this. From Sawyer et al. 2009 "Germination: When moist mineral soil is exposed germination rates are high, particularly when moist conditions persist for a month after seed deposition. The process of germination is about 24 hours long. The high initial mortality of seedlings is "clearly a limiting factor in the life cycle of cottonwoods". In a subsequent email, it was clarified that the following reference and quotes were intended instead of Sawyer (2009): From Steinberg, P.D. 2001. Populus balsamifera subsp. trichocarpa. Fire Effects Information System. U.S. Department of Agriculture, Forest	At the study sites referenced, SCE has observed that reproduction of black cottonwood occurs both through asexual (clonal) and seedling germination. Sawyer et al. (2009) states that "Seed viability lasts a few weeks, and germination occurs on moist mineral soil. Seedling establishment is episodic, depending on the timing of mature seed and correct moisture conditions in the first month of growth. Seedling mortality is high if root growth is slower than the recession of the water table. Seedlings are able to stand inundation and sediment deposition. Vegetative regeneration occurs by root suckers and coppice sprouts (Steinberg 2001a) and by shedding of branches via formation of an abscission layer (cladoptosis) to form vegetative propagules during winter or spring…" The statements from Sawyer et al. (2009) and Steinberg (2001) are consistent with what is stated in the technical report. With seed germination and seedling survival episodic and dependent on timing and moisture conditions, clonal growth and expansion (vegetative regeneration) is the most common mode of reproduction. This is a common

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
				Service, Rocky Mountain Research Station, Fire Sciences Laboratory. https://www.fs.fed.us/database/feis/plants/tree/popbalt/all.html. Accessed August 17, 2018: "Germination: When moist mineral soil is exposed germination rates are high, particularly when moist conditions persist for a month after seed deposition. The process of germination is about 24 hours long. The high initial mortality of seedlings is 'clearly a limiting factor in the life cycle of cottonwoods'." "Major causes of decline of black cottonwood stands in eastern Oregon include: conversion of stands for pasture, farmland, or urbanization, conversion of streams from multiple to single channel systems, restriction of lateral movement of streams across floodplains, and control of flooding with dams. Overbrowsing by livestock, elk, and deer, reduced fire frequency, and logging for firewood, lumber, and pulp have also had impacts."	life history trait of the willow family (Salicaceae) to which black cottonwoods belong. To be clear, we are not minimizing the importance of sexual reproduction (seedling recruitment) to genetic diversity of the black cottonwood population – only that asexual (clonal) growth and expansion is more frequent. Further discussion is included in *the Black Cottonwood* section of the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
--	TERR 1	November 16, 2021	USFS	Results section: Need charts, tables, and data.	The paragraph in this section summarizes results from Read (2020): Riparian Guild Analysis for 2019 and Comparison to Previous Years. Report prepared for Kleinschmidt, April 13, 2020. The details that USFS requests are provided in that report and have been shared with stakeholders.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
--	TERR 1	November 16, 2021	USFS	Black Cottonwood Abundance section: How old are these trees?	Ages for the black cottonwoods that were included in this study are not known. A study conducted in a perennial reach downstream, referred to in that study as Reach 2 and located above the confluence of Coyote and Bishop Creeks, included tree cores collected in 1994. As of that date, tree ring analysis showed one tree to be 146 years old, but most to be much younger and dating back to the 1930-1940 time period (Read, E.A. 1994. Relationships Between Cottonwood Growth, Hydrology, and Climate for Bishop Creek, Inyo County, California. Final technical report by Psomas for Southern California Edison). Further discussion is included in the *Black Cottonwood* section of the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
	TERR 1	November 16, 2021	USFS	Is there a yearly scour in this reach to provide conditions for seed germination and success?	As the monitoring studies were conducted at five-year intervals, they did not detect whether or not scour occurs annually. However, the field methods include searches for seedlings present on each site. The data show observations of black cottonwood seedlings in some years and not in others. Flows in 2019 were particularly high due to weather conditions the previous winter, which flooded many of the sample plots located next to the stream and may have provided sufficient scour (exposed moist soil) to favor seedling establishment. Seedlings will be searched for during the next monitoring season, currently scheduled for 2024.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
					Further discussion is included in the *Black Cottonwood* section of the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
	TERR 1	November 16, 2021	USFS	I will include some examples of the information that is usable. Each of the major riparian species should include charts like the example and the raw data (POPTRI, POPFRE, ROBPSE).	We have reviewed those examples. One set of graphs shows number of trees vs. tree height for black cottonwoods at Site 4.1 for 2009, 2014, and 2019. The second set of graphs shows number of trees vs. year for black cottonwoods at Sites 4.1 and 4.2. The Relicensing Team believes that counting numbers of trees is not an accurate metric of abundance in the case of clonal species such as black cottonwoods, where in the field two trees may be distinguished in one year but counted as one tree five years later. That is why the abundance metric provided in the technical report consists of percent canopy cover at each site. This metric provides meaningful comparisons of sites and years without the "noise" that would be introduced by variability in tree counts of a clonal species from year to year. Further discussion is included in the *Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, Including Black Cottonwood* section of the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
--	TERR 1	November 16, 2021	USFS	Black Cottonwood Abundance section: Restoration of POPTRI population may require alteration of water flows to produce a more natural seasonal scour in the riparian zone.	Scour may benefit seedling recruitment of black cottonwoods, but adversely affect other native vegetation, especially wetland or riparian herbs and mosses that also favor streamside growth. That is why the monitoring program under the existing license took an ecosystem-level approach

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
					by measuring a wide variety of metrics rather than focus on individual species.
--	TERR 1	November 16, 2021	USFS	Discussion section: As stated above, some species need to be separated from the "guild" and analyzed separately.	By grouping species with similar life history traits, the guild analysis was requested by the USFS as another way of looking at the data and an alternative to the more simplistic "riparian vs. upland" approach. Separating out species would defeat the purpose of the guild approach. Further discussion is included in the *Black Cottonwood* and *Potential Impacts of Continued Project Operation and Maintenance on the Riparian Community as a Whole, Including Black Cottonwood* sections of the *Wetlands, Riparian, and Littoral Resources* section of Exhibit E of the DLA.
--	TERR 1	November 16, 2021	USFS	Summary of Desired section: Unless environmental changes (GCC) are extreme enough to require a change in management to meet desired conditions.	Noted. As has been the case under the current license, Project operations are closely tied to changes in environmental conditions over which SCE has no control, and to legal agreements with water users downstream. This will continue to be the case under the new license.
--	TERR 1	November 16, 2021	USFS	Data section: all reports should be accompanied by the raw data in a spreadsheet and the spatial data in a .shp format.	Where available, spatial and raw data was provided to the USFS in December 2021 and January 2022.

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SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

FINAL TECHNICAL REPORT
INVASIVE PLANTS (TERR 2)

SOUTHERN CALIFORNIA EDISON®

An *EDISON INTERNATIONAL*® Company

June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

FINAL TECHNICAL REPORT
INVASIVE PLANTS (TERR 2)

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

Revised June 2022

Support from:

Kleinschmidt

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ATTACHMENTS

1.0 INTRODUCTION

SCE and stakeholders identified the need for an Assessment of Invasive Plants to determine the type and distribution of invasive plants observed at the Project site, as well as assess the potential for other invasive species, and to determine control and management protocols. This Final Technical Report details the study objectives, study area, methods, results, and a discussion for this assessment.

Invasive plant species have been observed near Powerhouse No. 4, along stream reaches, and along access roads in the study area. An assessment of invasive plants in the Project area is important to plan for appropriate long-term operations and maintenance (O&M) best practices under a new license.

Data and preliminary results for this survey were previously reviewed with the Bishop Creek Technical Working Group (TWG) in May 2020, following distribution of Progress Report #2 to the TWG and FERC on April 14, 2020.

Further data was provided in the Initial Study Report filed with FERC on October 30, 2020. This report builds on those two previous documents, but does not draw conclustions about potential Project effects. These analyses will be completed in conjunction with the completion of the License Application as part of the overall Nataional Environmental Policy Act (NEPA) process and in consultation with the TWGs.

2.0 REVIEW OF EXISTING INFORMATION

Data collected as part of license-compliant monitoring (Read 2015 2020) confirms that one invasive tree species, black locust (*Robinia pseudoacacia*), appeared for the first time at monitoring sites located between Powerhouse No. 4 and 5 after the minimum instream flow program under the existing license was implemented in 1994. The trees are also present downstream of Powerhouse No. 5 and the landscaped areas around Powerhouse No. 4; therefore, it is unclear where the new plants at the monitoring sites originated. Given the species' popularity in landscaping, the INF indicated that containment would be a more realistic goal compared to complete eradication. The INF proposes containment for cheatgrass (*Bromus tectorum*), an invasive grass, that expanded in the Birch and McGee creek watersheds after the Forks fire of 2009, and prickly Russian thistle (*Salsola tragus*).

3.0 STUDY OBJECTIVES

This assessment classifies and maps existing populations of invasive plants in the Project area. This information will be incorporated into a plan for control/containment to ensure that future Project facilities and operations are consistent with the Desired Conditions, Goals, and Standards described in the Land Management Plan for the INF (USDA 2019) as they relate to ecological sustainability and biodiversity.

3.1 STUDY AREA

The study area includes various locations that together constitute a subset of the Project Area as a whole. These locationsconsisted of Project facilities subject to frequent visits by O & M personnel, including powerhouses, dams, diversions, valve houses and access roads that include 500-foot survey area around each facility; this buffer also encompasses recreation facilities in the Project Area. Due to its location in a wilderness area, lack of observations of invasive plants at a monitoring site downstream, and infrequency of maintenance visits, Longley Lake was not surveyed for invasive plants, in accordance with study methods described in the TSP filed with FERC in 2019. A dense population of the invasive black locust was observed immediately downstream of Powerhouse No. 4; other invasive plant species may be present in that reach. Therefore, the survey area was expanded beyond 500 feet from Powerhouse No. 4 and extended upstream to Powerhouse 3 to document these populations and possible expansion upstream (Figure 3.1-1).

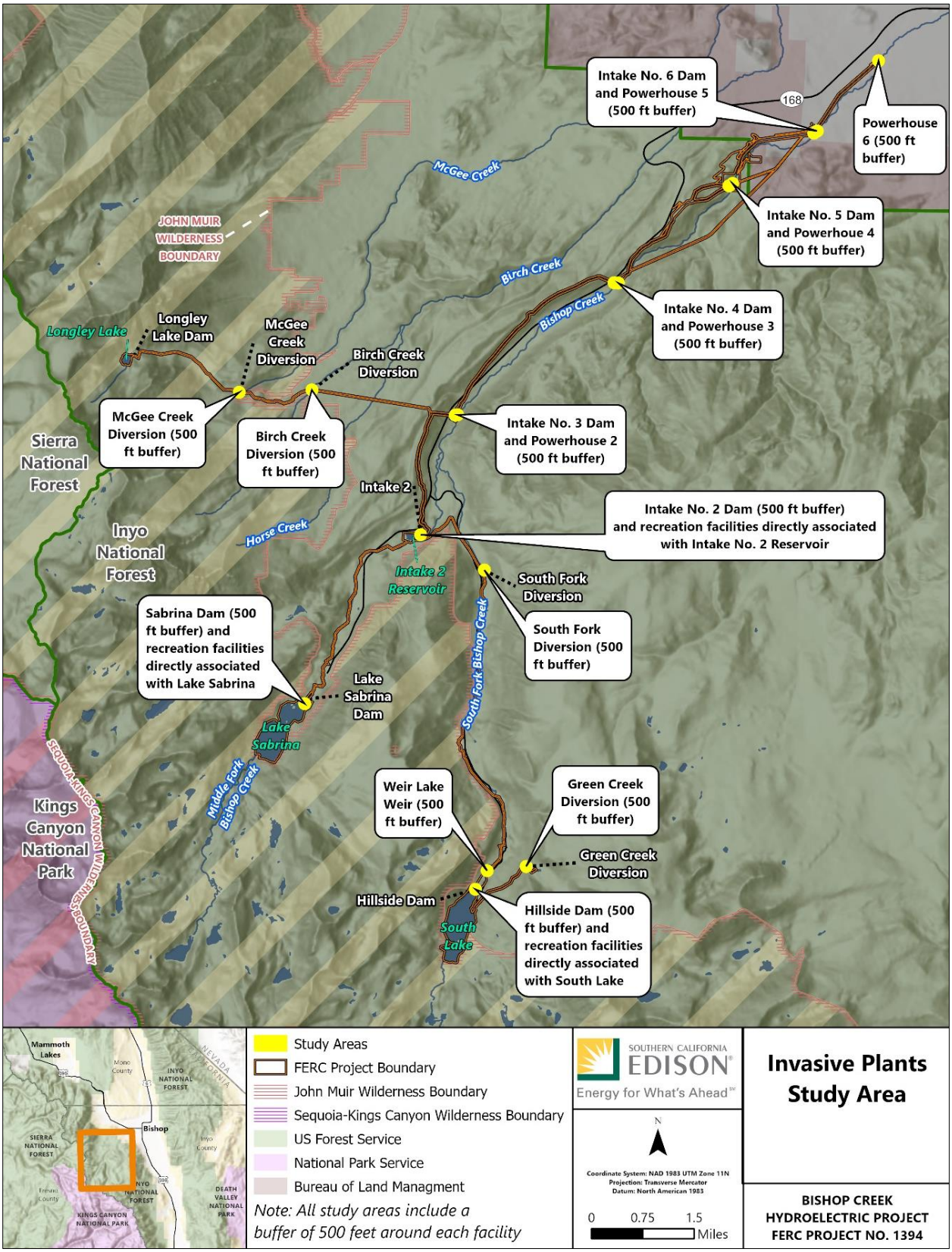

Figure 3.1-1 Study Areas for Invasive Plants Assessment

4.0 METHODS

The study focused on invasive species of concern to the Inyo National Forest (INF) and species ranked by the California Invasive Plant Council (Cal-IPC) that have a high or moderate threat to native ecosystems. Some of these species have not been reported to occur in the Project region but would be placed on a watch list for surveys during the term of the new license. The watch lists will be used to develop protocols for SCE control and management, including review of future landscape plans for power facilities if they are proposed within the terms of the new license. Field surveys were conducted in June and August 2019 and August 2020. Pedestrian surveys were conducted to ensure 100 percent visual coverage of the survey area. Inaccessible areas (i.e., private property or steep topography) were surveyed remotely via binoculars and were not directly accessed. Plant species were identified in the field or collected for later identification. Plants were identified using taxonomic keys, descriptions, and illustrations in Jepson Flora Project (2019), Baldwin et al. (2012), and Munz (1974). Nomenclature of plant taxa conform to the Jepson eFlora (Jepson Flora Project 2019).

5.0 MODIFICATIONS TO METHODS

One modification was made to this Study: 1) at the request of the INF, a survey for black locust was conducted in 2020 upstream of Powerhouse No. 4, in conjunction with surveys for invasive plants in the recreation areas. The survey for black locust was limited to the reach between Powerhouse No. 4 and 3. If black locust was detected, the plan was to continue the survey upstream of Powerhouse No. 3.

Additionally, Upper McGee Creek (Longley Lake) was not surveyed. This follows the methods included in the Final Technical Study Plans filed with FERC in August 2019, which state: *"Surveys around higher elevation facilities (i.e. Longley Lake) will be limited to one-time observational reconnaissance unless invasive species are detected".* The 2019 surveys were conducted immediately following the 5-year monitoring as required under the current license, and no invasive plants were observed in the Upper McGee Creek area during that effort. Due to its infrequent maintenance requirements and remote location in a wilderness area away from roads and public/SCE facilities, the occurrence of invasive plants is highly unlikely. Therefore, no formal surveys were conducted there. This decision is not a modificaiton to the methods, as it is consitent with the TSP, but is included here for transparency.

6.0 RESULTS

6.1 SURVEYS OF FACILITIES AND RECREATION AREAS

Table 6.1-1 summarizes a total of 17 invasive plant species (mapped in Attachment A) and 12 non-native species that were observed in the 2019 and 2020 surveys. Attached to the Invasive Species Memorandum (Attachment A) is a technical memo with details of population sizes observed in the facility areas and recreation areas, respectively.

Table 6.1-1 Summary of Cal-IPC Invasive Plant Species Observed in Project Study Area

Scientific Name	Common Name	CAL-IPC Rank
Agrostis stolonifera	Creeping bent grass[b]	Limited
Bromus diandrus	Ripgut grass	Moderate
Bromus rubens	Red brome	High
Bromus tectorum	Cheat grass[a]	High
Cirsium vulgare	Bull thistle[a]	Moderate
Cynnodon dactylon	Bermuda grass[a]	Moderate
Dactylis glomerata	Orchard grass[b]	Limited
Descuriania sophia	Tansy mustard[a]	Limited
Erodium cicutarium	Redstem filaree[b]	Limited
Festuca arundinacea	Tall fescue[a]	Moderate
Holcus lanatus	Common velvet grass[b]	Moderate
Hordeum murinum	Wall barley[b]	Moderate
Lactuca serriola	Prickly lettuce[b]	--
Lathyrus latifolius	Perennial sweet pea[a]	Watch
Lepidium appelianum	Hairy White-top	--
Medicago sp.	Alfalfa[b]	Limited
Melilotus alba	White sweetclover[a]	--
Plantago lanceolata	English plantain[a]	Limited
Robinia pseudoacacia	Black locust[b]	Limited
Rubus armeniacus	Himalayan blackberry[b]	High
Rumex crispus	Curly dock[a]	Limited
Salsola tragus	Russian thistle[a]	Limited
Sisymbrium altissimum	Tumble mustard[a]	--
Sonchus sp.	Sow thistle	--

Scientific Name	Common Name	CAL-IPC Rank
Taraxacum officinale	Common dandelion[b]	--
Tribulus terrestris	Puncture vine[b]	Limited
Trifolium repens	White clover[a]	--
Ulmus pumila	Siberian elm[b]	--
Verbascum thapsus	Woolly mullein[a]	Limited

Source: Psomas 2021

[a] Previously known to occur in Project boundary (CalFlora, 2022)

[b] Observed non-native (not mapped)

6.2 SURVEYS FOR BLACK LOCUST

The survey of August 2020 targeted black locust between Powerhouse No. 4 and 3 and did not detect any plants in the riparian zone along the stream. As part of this reach was not accessible on foot, drone video taken as part of the aquatic habitat component of the technical studies. This footage was reviewed and further confirmed that no black locust plants were detected in this reach.

During surveys of the recreational facilities for black locust, several plants with characteristics of black locust were observed in the Four Jeffrey campground. How the plants arrived at this relatively isolated location, disjunct from the infested reach downstream of Powerhouse No. 4, is not known.

7.0 DISCUSSION

As discussed in Section 4.0 above, one of the primary objectives of this Study is to ensure that Project Operations are consistent with the Desired Conditions, Goals, and Standards described in the Land Management Plan (Management Plan) for the INF. Chapter 2 of the 2019 Management Plan (USDA 2019) describes forest-wide conditions and management direction. This direction applies across all lands of the Inyo, including desired conditions, objectives, goals, standards, guidelines, and potential management approaches. Using the results obtained from this study, SCE assessed invasive plant populations against the desired future conditions stated in Chapter 2, specifically those which include management of invasive species.

SCE has reviewed these Desired Conditions against data and observations from this report to determine if the relicensing of the Bishop Creek Hydroelectric Project (Project) would have an impact on the land manager's ability to achieve the desired condition as detailed below.

7.1 SUMMARY OF DESIRED CONDITIONS

The Management Plan has two Desired Conditions for invasive species. Desired Condition #01 states that "terrestrial and aquatic invasive species are controlled or eradicated when possible, and establishment of new populations is prevented." Desired Condition #02 states that "the area affected by invasive species and introduction of new invasive species is minimized."

The Project is being managed in a way consistent with these Desired Conditions and no changes are currently proposed to Project O&M activities. For all of the invasive plants observed as part of this study, the extent to which Project operations may contribute to the establishment and spread of these species, as compared to recreational activities and anglers, is not clear. A Vegetation Management Plan will be developed to continue to achieve the desired conditions and ensure that the Project continues to remain consistent with the desired conditions of the INF Management Plan throughout the term of the new license. This plan will be shared with stakeholders once it is complete.

7.2 POTENTIAL MANAGEMENT APPROACHES

The Management Plan identifies potential management approaches for invasive botanical species. As SCE develops its licensing application, these will be reviewed with the Inyo National Forest for applicability to any management plans developed or amended as potential Proection Mitigation and Enhancement (PME) measures, including prioritizing the plant species to be controlled or eradicated.

Based on information gathered from the 2019 and 2020 surveys, SCE will develop a Vegetation Management Plan which will include details on the management of invasive species under the new license. This new plan will be provided to stakeholders for comment as part of the licensing process.

8.0 CONSULTATION SUMMARY

SCE distributed periodic progress reports on the following schedule:

- Progress Report 1: December 19, 2019
- Progress Report 2: April 14, 2020
- Progress Report 3: July 24, 2020
- Initial Study Report (Progress Report 4): October 30, 2020
- Initial Study Meeting: November 10, 2020
- Progress Report 1: March 2, 2021
- Progress Report 2: May 28, 2021
- Progress Report 3: August 27, 2021
- Updated Study Report Filing: November 4, 2021
- Updated Study Report Meeting: November 18, 2021

A technical memorandum summarizing the 2019 study results was submitted with Progress Report 2. Following that filing, SCE hosted a Technical Working Group (TWG) meeting on May 7, 2020 to discuss the 2019 study season, work completed to date, and the technical memoranda. An opportunity for further discussion was provided at the Initial Study Report (ISR Meeting on November 10, 2020). One comment specific to this study plan was received following the ISR meeting (Table 8.1-1).

Three progress reports were filed in 2021 after the ISR, as identified above. This Final Technical Report was submitted to agencies and stakeholders for a 60-day review period on August 26, 2021. The comment period was extended, at the request of the agencies, and comments received on this report are shown in Table 8.1-1. A meeting was held with the USFS on December 16th, and with the USFS and CDFW on December 21, 2021 to discuss those comments received as well as SCE's draft responses to them.

SCE held a Project Effects meeting on October 28, 2021 for all stakeholders and agencies to discuss what project effects (if any) had been identified through the implementation of each of the approved study plans.

The Updated Study Report (USR) was filed with FERC on November 4, 2021, and a USR Meeting was held on November 18, 2021. At this meeting, SCE only discussed those studies which were still in progress at the time of the ISR (Water Quality, Sediment and Geomorphology, Operations Model, Recreation Use and Needs, Recreation Facilities Condition Assessment, Project Lands and Boundary, and Cultural and Tribal Studies). The Invasive Plants Study was not discussed at the USR, and thus received no comments.

Table 8.1-1 Updated Responses to Final Technical Reports

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
13	Invasive Plants Study Plan Technical Memorandum (TERR 2)	May 21, 2020	CDFW	There was no assessment of this goal/objective: Assess the extent to which the Project may contribute to the spread of invasive plants which could adversely impact native ecosystems in the study area. CDFW recommends the technical memorandum provide an assessment of Project related contributions to the spread of invasive plants.	The technical memoranda were provided as a supplement to the progress reports and are interim work-products intended to summarize work to date. At the time of the filing of the DLA, the link between Project Operations and the spread of invasive plants was unclear. However, sufficient information to develop an Invasive Species Management Plan has been developed and is included in Appendix B of Exhibit E of the FLA.
14	Invasive Plants Study Plan Technical Memorandum (TERR 2)	May 21, 2020	CDFW	This goal/objective was not addressed: Ensure that future Project facilities and operations are consistent with the Desired Conditions, Goals, and Standards described in the Land Management Plan for the INF (USDA, 2019) as related to ecological sustainability and biodiversity. The technical memorandum should either list the specific desired conditions in the Technical Reports or list the Land Management Plan for the INF (USDA, 2019) in the reference section (hyperlink could be useful) with the appropriate chapter, section, subsection, and page numbers.	The technical memoranda were provided as a supplement to the progress reports and are interim work-products intended to summarize work to date. Desired Future Conditions are discussed in Section 7.1. SCE agrees that this would be appropriate and useful information when we are conducting the impact analysis, relative to our goals and objectives and has included this information in Section 9.6.4.3 of Exhibit E of the FLA.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
42	Invasive Plant and RTE Plant Plans	May 12, 2020	INF	Study area in both plans includes recreation sites-when will these be surveyed?	Surveys were completed in August 2020, as described in this report.
43	Invasive Plant and RTE Plant Plans	May 12, 2020	INF	Invasive Study Area: Surveys are needed upstream from Powerhouse No. 4 for black locust for effective plan management and control measures.	Surveys were completed upstream of Powerhouse 4, up to Powerhouse 3, in August 2020. No *Robinia* plants were detected.
44	Invasive Plant and RTE Plant Plans	May 12, 2020	INF	*Lepidium appelianum* (hairy whitetop) is listed by Cal-IPC as Limited.	Agree. This species has been added to the list of species observed. Its current distribution appears to be limited to the landscaped area at Powerhouse 4.
45	Invasive Plant and RTE Plant Plans	May 12, 2020	INF	Follow up with surveyors to verify that whitebark pine was targeted during Project surveys Endangered Species Act (ESA) candidate with proposed ruling expected Fall 2020).	This species was not specifically targeted, but all species observed during the surveys were recorded and listed in an appendix to the technical memorandum. Whitebark pine was not observed in the 2019 or 2020 surveys.
46	Invasive Plant and RTE Plant Plans	May 12, 2020	INF	Submit copies of geographic information system (GIS) data for invasive and special status species to INF Botanist, as well as photos of species, populations, sites.	This information was sent to USFS in January 2021.
47	Invasive Plant Study Plan Initial Study Report	November 10, 2020	INF	Add Lepidium *appelianum* to the table of invasive species observed	This species was added to the revised Table 6.1-1 in this report and an updated table was also included with SCE's ISR Comment Response FERC filing on December 23, 2020.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
48	Invasive Plant Technical Report	October 4, 2021	INF	Clarify Project vs. Study Area; clarify Methods; provide details of invasive population sizes and locations	Clarifying language has been added to the Technical Report as well as the DLA. Attachments to the Report providing details of population sizes and locations have been added. GIS shapefiles of locations provided to CDFW under separate cover.
--	TERR 2 Final Technical Report	November 12, 2021	CDFW	CDFW is requesting life history information for the species discussed in these reports.	Life history for the RTE species observed will be addressed as part of management plans prepared for RTE and invasive plants to be filed with the FLA. General life history discussion around invasives (eg. annual vs perennial) and their challenges for management will also be included.
--	TERR 2	November 16, 2021	INF	Study Objectives section: What is the project area?	The Project area is defined as the FERC Project Boundary; the study area for invasive plants was smaller and focused primarily on facility and recreation areas plus (for black locust only) a reach upstream of Plant 4.
--	TERR 2	November 16, 2021	INF	Study Area section: Same as the project area?	See answer above.
--	TERR 2	November 16, 2021	INF	Figure 3.1-1: Need detailed maps, to include surveys at REC sites	Shapefiles of invasive plant locations identified during the 2019 and 2020 surveys have been provided to USFS.
--	TERR 2	November 16, 2021	INF	Methods section: In person communication 20210928 with consultant specified transects were not used. Please update methods.	Transects in the sense of walks along straight lines would not be appropriate and were not used. The description of methods has been updated to clarify that surveys were conducted in a manner that ensured complete visual coverage of the survey areas.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
--	TERR 2	November 16, 2021	INF	Modifications to Methods section: "Upper McGee Creek (Longley Lake) was not surveyed due to its remote location in a wilderness area way from roads and public/SCE facilities, making occurrence of invasive plants highly unlikely" Did the INF approve this?	In 2019, surveys were conducted after riparian monitoring required under the existing license was completed. Following the approved TSP, surveys around Longley Lake and other high-elevation facilities, were to be limited to one-time observational occurrences. As no invasives were observed in the monitored reaches in 2019, and because there was higher potential for invasives and possible dispersal by SCE personnel and the public at lower elevations, no formal surveys were performed at Upper McGee Creek. This decision to drop Longley from the study area did not require INF approval as it was consistent with the TSP language. Language in Section 6.0 has been updated for clarity.
--	TERR 2	November 16, 2021	INF	Modifications to Methods section: Did INF approve omission of Upper McGee Creek (Longley Lake)?	See above response.
--	TERR 2	November 16, 2021	INF	Results section: Is this really all the results reported?	Yes. Further discussion is included in Section 8.6 of Exhibit E of the DLA.
--	TERR 2	November 16, 2021	INF	Results section: Where, how large of a pop and/or # of individuals?	This information has been included in Section 8.6 of Exhibit E of the DLA.
--	TERR 2	November 16, 2021	INF	Data section: all reports should be accompanied by the raw data in a spreadsheet and the spatial data in a .shp format.	Shapefiles and data have been provided to the USFS.

9.0 REFERENCES

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ATTACHMENT A

INVASIVE PLANT SPECIES MEMORANDUM

MEMORANDUM

April 6, 2020

To:
Mr. Finlay Anderson
Kleinschmidt Group

From:
Brad R. Blood, PhD
Allison Rudalevige
Psomas

Edith Read
E Read and Associates

Subject: Results of Invasive Plant Surveys for the Bishop Creek Hydroelectric Power Project (FERC No. 1394–080) Relicensing, Inyo County, California

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This memorandum presents the results of the 2019 invasive plant surveys in support of relicensing efforts for the Bishop Creek Hydroelectric Power Project (Federal Energy Regulatory Commission [FERC] Project No. 1394–080) (hereinafter referred to as the "Project"). The Project is located along Bishop Creek southwest of the City of Bishop in Inyo County, California (Exhibit 1, Project Vicinity).

PROJECT BACKGROUND

Southern California Edison Company (SCE) is the licensee, owner, and operator of the existing hydroelectric facilities subject to the relicensing effort. The Project is predominantly located on Bishop Creek and includes facilities on Birch and McGee Creeks. SCE operates the Project under a 30-year license issued by FERC on July 19, 1994. As the current license is due to expire on June 30, 2024, SCE has initiated a formal relicensing process utilizing using FERC's Integrated Licensing Process. No changes in Project operations or existing facilities are anticipated if a new license were issued.

In advance of filing the Notice of Intent (NOI) and Pre-Application Document (PAD), SCE, Kleinschmidt, Psomas, and others have worked with stakeholders to identify necessary studies, with the goal of accelerating FERC's ability to issue a Study Plan Determination. Efforts began more than one year prior to formal initiation of the process with FERC, through a series of Technical Working Group meetings held in Bishop, California.

During the Technical Working Group meetings, stakeholders identified the need to conduct a study to determine the presence invasive plant species with a high potential of occurring within the Project boundary.

Environmental Setting

The Project facilities lie in the Owens Valley and along the eastern slope of the Sierra Nevada mountains. The Project facilities include powerhouses, dams, impoundments (including South Lake and Lake Sabrina), diversions, weirs, outbuildings, valve houses, access roads, and a flowline. The Project's facilities are situated along Bishop Creek and its tributaries including South Fork, Middle Fork, Green Creek, Birch Creek, and McGee Creek. Bishop Creek is tributary to the Owens River. Project facilities occur across privately and federally held properties (federal lands include those held and managed by the US Forest Service [USFS] and US Bureau of Land Management [BLM]). Subsequently, land uses adjacent to the Project also vary and include residential, grazing, public recreation, and federally-designated Wilderness land.

The Project area is typified by moderate to steep ridge and valley topography. Elevations within the drainages range from approximately 4,000 feet above mean sea level (msl) to over 13,000 feet above msl. Bishop Creek is a major stream with a total drainage area of approximately 70 square miles, flowing northeastward approximately 28 miles from its headwaters in the Sierra Nevada to its confluence with the Owens River at the City of Bishop. The North, Middle, and South Forks of Bishop Creek originate in nearby glacial basins separated by ridges. South Lake and Lake Sabrina are the major storage reservoirs in the watershed.

Project Facilities Use

Table 1, Bishop Creek Hydroelectric Project Invasive Plant Survey Areas, lists each Project facility, its elevation, and its surrounding plant communities/landcovers included in the invasive plant survey. A description of each plant community/landcover is located in Attachment A.

TABLE 1
BISHOP CREEK HYDROELECTRIC PROJECT
INVASIVE PLANT SURVEY AREAS

Project Facilities	Elevation	Surrounding Plant Communities
South Lake (Hillside) Dam	9,765 ft	Barren, Basin Sagebrush, Subalpine Conifers, Lodgepole Pine
Sabrina Lake Dam	9,145 ft	Quaking Aspen, Basin Sagebrush, Urban-related Bare Soil, Perennial Lake or Pond
McGee Creek Diversion	9,206 ft	Quaking Aspen, Eastside Pine, Great Basin Mixed Scrub
Birch Creek Diversion	8,319 ft	Quaking Aspen, Eastside Pine, Great Basin Mixed Scrub
Green Creek Diversion	10,272 ft	Quaking Aspen, Subalpine Conifers, Barren
Bishop Creek South Fork Diversion Dam	8,224 ft	Quaking Aspen, Basin Sagebrush, Curleaf Mountain Mahogany
Bishop Creek Intake 2 Dam	8,110 ft	Quaking Aspen, Basin Sagebrush, Great Basin Mixed Scrub, Perennial Lake or Pond
Bishop Creek Powerhouse No. 2 and Intake 3	7,147 ft	Eastside Pine, Bitterbush, Basin Sagebrush, Singleleaf Pinyon Pine, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 3 and Intake 4	6,311 ft	Eastside Pine, Great Basin Mixed Scrub, Bitterbush, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 4 and Intake 5	5,183 ft	Blackbush, Eastside Pine, Great Basin – Desert Mixed Scrub, Riparian Mixed Hardwood, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 5 and Intake 6	4,781 ft	Great Basin – Desert Mixed Scrub, High Desert Mixed Scrub, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 6	4,516 ft	High Desert Mixed Scrub, Saltbush, Willow

The Project consists of 13 dams/diversions, and 5 powerhouses with a combined generating capacity of 28.565 megawatts (MW). The Project diverts water for power generation from the Middle and South forks of Bishop Creek, McGee Creek and Birch Creek through the five powerhouses and associated intakes as follows: (1) Powerhouse No. 2, immediately below the confluence of the Middle and South forks of Bishop Creek; (2) Powerhouse No. 3, 3 miles below Powerhouse No. 2; (3) Powerhouse No. 4,

approximately 3 miles below Powerhouse No. 3; (4) Powerhouse No. 5, approximately 1 mile below Powerhouse No. 4; and (5) Powerhouse No. 6, approximately 2 miles below Powerhouse No. 5.

Reservoirs

South Lake is operated as a store and release facility for water storage and downstream hydroelectric generation. South Lake holds and releases spring runoffs to allow for regulated flows during the summer months to the powerhouses, and also provides opportunities for water recreation. South Lake has a net storage capacity of 12,883 acre-foot at normal full pool elevation 9,751.3 feet msl. The surface area of the reservoir when full is approximately 173 acres. The flow is regulated with an unlined tunnel with a capacity of 178 cubic feet per second (cfs). The submerged outlet tunnel intake portal is located approximately 1,200 feet upstream of the dam.

Lake Sabrina has a net storage capacity of approximately 8,376 acre-foot at normal maximum reservoir level elevation 9,131.62 feet msl. The surface area of the reservoir when full is approximately 184 acres. Water is released to the downstream channel via low-level outlets; the intake is a fully submerged concrete box supporting three steel trash racks that is integral with the upstream side the dam. The invert of the intake is at elevation 9,067.42 feet msl.

Dams and Diversions

Green Creek Diversion is located 0.8 mile east northeast of the Hillside Dam (South Lake) spillway. A wooden head gate, 3 feet long by 2 feet high, is located approximately 80 feet downstream from Bluff Lake on Green Creek. The head gate diverts water into an open channel approximately 1,400 feet in length to the Green Creek diversion intake. The diversion is earth and rockfill, located at 10,264 feet msl, approximately 51 feet along the crest and 9 feet above the streambed. The diversion is equipped with a 12.5-foot-wide by 1-foot-deep spillway. The intake consists of a 16-inch diameter steel pipe with a slide gate and a trash rack. A 16-inch diameter drainpipe passes through the intake chamber which is constructed of concrete masonry. A 16-inch diameter steel pipe, approximately 4,750 feet long, extends into a natural channel, 1,150 feet in length, and carries water to South Lake.

South Fork Diversion is earth and rockfill with a crest elevation at 8,211 feet msl, crest length of approximately 65 feet, and crest height of 10 feet above the streambed. The diversion is equipped with a 40-foot wide by 6-foot deep spillway. A 38-inch diameter steel pipe with a gate valve and trash rack comprises the outlet. The spillway height may be raised or lowered with 4 inch by 6-inch flashboards, each 4 feet in length. A 12-inch diameter drainpipe passes through the base of the intake chamber and a 36-inch diameter drainpipe passes through the diversion. The flowline consists of approximately 4,104 feet of 38-inch diameter steel pipe connected to 4,059 feet of 34-inch diameter steel pipe. The flowline extends from the South Fork diversion to Intake No. 2 reservoir. The flowline is protected with air valves, expansion joints, a sand box and a sand trap. The sand box is concrete lined, and approximately 17 feet by 24 feet with exit to a 38-inch diameter steel pipe extending to Intake No. 2. The sand box has two drain gates.

Hillside Dam is an 81.5-foot-high rockfill timber face (covered with geomembrane) dam completed in 1910 to enlarge an existing natural lake (South Lake). The crest is 645 feet long and is at an elevation of 9,757.6 feet msl. There is a 40-foot spillway, and a 1,900-foot unlined outlet tunnel that discharges into the South Fork of Bishop Creek, 600 feet downstream of the dam. The reservoir is operated as a regulating reservoir for a series of hydroelectric powerhouses including Bishop Creek Powerhouses 2 through 6.

Weir Lake Weir, located approximately 1,800 feet below Hillside Dam, is used for flow monitoring. Weir Lake Weir, also known as South Lake Weir, is a structure of concrete approximately 70 feet long and varying in height from 2 feet to 4 feet. The weir is 25 feet wide by 1 foot high.

Sabrina Dam and associated facilities consist of a 70-foot by 900-foot timber face (covered with geomembrane) rockfill dam, an uncontrolled main spillway formed by an ogee crest, an uncontrolled auxiliary spillway formed by a concrete wall, and three low-level outlets. The dam forms Lake Sabrina, which is operated as a regulating reservoir for a series of hydroelectric powerhouses which include Bishop Creek Powerhouses 2 through 6.

Longley Dam is an earth and rockfill dam constructed with a reinforced concrete core wall. The dam has a crest elevation of 10,708 feet msl, crest length of 120 feet, and crest height of 27 feet above streambed. The upstream face of the dam has a slope of 2 to 1 and the downstream face has a slope of 1.5 to 1. There are two 8-inch diameter steel outlet pipes encased in concrete which pass through the base of the dam. Flow is controlled by two 10-inch gate valves. The spillway is 8 feet wide by 2 feet deep. The spillway channel is excavated in 8-foot-wide solid rock where water is diverted into McGee Creek.

Intake No. 2 Dam is an earthfill dam standing 41 feet high and 443 feet long, with a concrete core wall extending over approximately half its length. The concrete core wall is discontinued on the right side of the dam where the dam is less than 20 feet high. There is a service spillway with an ogee crest and an auxiliary spillway with an ungated concrete ogee crest, two low-level outlet conduits, and one intake structure. Water is conveyed to Flowline/Penstock No. 2 through a 48-inch diameter steel pipe that passes under the dam near the left abutment. The steel pipe connects to a second hydraulically operated, 48-inch diameter butterfly valve located in a small building at the downstream toe of the dam. The butterfly valve controls flow through a 48-inch to 60-inch diameter expansion to the 60-inch diameter flowline to Bishop Creek Powerhouse No. 2. The valves are normally open but are operable remotely from the SCE's Bishop Control Center located next to Powerhouse No. 4.

A 24-inch diameter sand sluice pipe runs parallel to the 48-inch diameter pipe and passes under the dam. A 20-inch fish-water release pipe branches off the 24-inch sluice line directly above the valve house. The fish-water release piping was reconfigured and a new acoustic velocity meter (AVM) to measure flow was installed in 2008 to monitor and record minimum flow releases.

Intake No. 3 Dam: 20-foot by 225-foot concrete arch; 40-foot by 3.5-foot spillway; 60 inch by 6,421-foot-long steel pipe; 60-inch by 6,209-foot steel pipe; 54-foot to 48-inch by 4,673-foot penstock.

Intake No. 4 Dam: 28-foot by 323-foot concrete arch; 50-foot by 5-foot spillway; 60-foot steel intake pipe; 60-inch by 6,242-foot steel pipeline; 30-foot by 24-inch by 5,314-foot penstock; 30-inch by 5,665-foot penstock.

Intake No. 5 Dam: 20-foot by 275-foot concrete; 60-inch by 3-foot spillway; 60-foot steel pipe; 60-inch by 2,933-foot steel pipe; 60-inch by 540-foot concrete pipe; two 42-inch by 4,800-foot penstocks.

Intake No. 6 Dam: 26-inch by 320-foot concrete dam; 6-foot spillway; 3,000-foot steel pipe; 54-inch by 4,360-foot penstock.

Diversion Pipe: The Birch-McGee Diversion pipe connects to the lower end of Flowline No. 2. This 24-inch diameter steel pipe conveys water from Birch and McGee creeks to Flowline No. 2. The rated

capacity of the Birch-McGee Diversion pipe is approximately 40 cfs. The flowline collects water from the following:

- Birch-McGee Diversion: a 6-foot by 22-foot stone and concrete diversion dam; a 22-inch steel pipe connects to Penstock 2 above Powerhouse 2.
- McGee Creek Diversion is a 6-foot by 22-foot concrete dam on McGee Creek, with a 12-foot by 1-foot spillway. Water is diverted into an 18-inch steel outlet pipe and into a flowline, which discharges into Birch Creek above the Birch Creek Diversion.

METHODS

Definitions

For the purposes of this document, a non-native, invasive plant species is considered to be a species that (1) is non-native to, yet can spread into, wildland ecosystems, and that also (2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes (Cal-IPC 2017). The California Invasive Plant Council (Cal-IPC) categorizes plants as high, moderate, or limited according to the degree of ecological impact in California:

- High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- Moderate – These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Limited – These species are invasive but ecological impacts are minor on a statewide level (or not enough information to justify a higher score). Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

Literature Review

Cal-IPC was queried to obtain a list of non-native, invasive plant species based on two parameters:

- Jepson region: geographic floristic provinces and subdivisions within California as described by the Jepson Manual (Baldwin et al. 2012).
- Habitat types: a comparison with vegetation alliances within one mile of the Project; three habitat types were selected (grassland, riparian, and woodland).

The query of the Cal-IPC yielded a list of 54 species that have the potential to occur in the Project vicinity (Table 2, Invasive Plant Species Potentially Occurring in the Project Vicinity). We have also included species observed along stream reaches that are included in the riparian monitoring program required under the existing license. As such these species have potential to appear in the facility areas in the future, even if they were not observed during the 2019 surveys of the facilities. Examples include

cheat grass (*Bromus tectorum*) and black locust (*Robinia pseudoacacia*). One species, white-top (*Lepidium appelianum*, formerly *Cardaria pubescens*) has been tentatively identified as occurring in the landscaped area near Plant 4; however, this species does not currently occur on the Cal-IPC inventory.

TABLE 2
INVASIVE PLANT SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

Scientific Name	Common Name	Cal-IPC Rating
Agrostis stolonifera	creeping bent	Limited
Ailanthus altissima	tree of heaven	Moderate
Arundo donax	giant reed	High
Asparagus asparagoides	bridal creeper	Moderate
Avena barbata	slender wild oat	Moderate
Avena fatua	wild oat	Moderate
Bassia hyssopifolia	five-hook bassia	Limited
Brassica tournefortii	Sahara mustard	High
Bromus diandrus	ripgut grass	Moderate
Bromus japonicus	Japanese brome	Limited
Bromus rubens	red brome	High
Bromus tectorum	cheat grass	High
Centaurea diffusa	diffuse knapweed	Moderate
Centaurea melitensis	tocalote	Moderate
Centaurea solstitialis	yellow star-thistle	High
Cirsium arvense	Canada thistle	Moderate
Cirsium vulgare	bull thistle	Moderate
Conium maculatum	poison-hemlock	Moderate
Cynodon dactylon	Bermuda grass	Moderate
Dactylis glomerata	orchard grass	Limited
Descurainia sophia	tansy mustard	Limited
Digitalis purpurea	foxglove	Limited
Dipsacus fullonum	wild teasel	Moderate
Dittrichia graveolens	stinkwort	Moderate
Elaeagnus angustifolia	Russian olive	Moderate
Erodium cicutarium	redstem filaree	Limited
Festuca arundinacea	tall fescue	Moderate
Foeniculum vulgare	fennel	Moderate
Halogeton glomeratus	saltlover	Moderate
Helminthotheca echioides	bristly ox-tongue	Limited
Hirschfeldia incana	short-pod mustard	Moderate
Holcus lanatus	common velvet grass	Moderate
Lepidium appelianum (formerly *Cardaria pubescens*)	white-top	Formerly Limited
Lepidium latifolium	perennial pepperweed	High
Marrubium vulgare	horehound	Limited

TABLE 2
INVASIVE PLANT SPECIES POTENTIALLY OCCURRING
IN THE PROJECT VICINITY

Scientific Name	Common Name	Cal-IPC Rating
Plantago lanceolata	English plantain	Limited
Poa pratensis ssp. *pratensis*	Kentucky blue grass	Limited
Polypogon monspeliensis	rabbitfoot grass	Limited
Rhaponticum repens (formerly *Acroptilon repens*)	Russian knapweed	Moderate
Ricinus communis	castor bean	Limited
Robinia pseudoacacia	black locust	Limited
Rubus armeniacus	Himalayan blackberry	High
Rumex acetosella	sheep sorrel	Moderate
Rumex crispus	curly dock	Limited
Salsola paulsenii	barbwire Russian thistle	Limited
Salsola tragus	Russian thistle	Limited
Saponaria officinalis	bouncing-bet	Limited
Schismus arabicus	Mediterranean grass	Limited
Sisymbrium irio	London rocket	Limited
Spartium junceum	Spanish broom	High
Stipa miliacea var. miliacea	smilo grass	Limited
Tamarix aphylla	athel	Limited
Tribulus terrestris	puncture vine	Limited
Verbascum thapsus	woolly mullein	Limited
Cal-IPC: California Invasive Plant Council		

Invasive Plant Field Survey

Areas targeted for the invasive plant survey (Exhibit 2, Invasive Plant Survey Area) consist of Project facilities including powerhouses, dams, diversions, lakes and other impoundments, the flowline starting at Intake No. 2, valve houses, other outbuildings, and access roads and includes an approximate 500-foot survey area buffer surrounding each of the above-listed Project components. The survey area includes lakes and streams within the Project boundaries, to the extent that some invasive plants are associated with mesic soils or aquatic habitats. Note: only those areas of lakes and other impoundments within 500 feet of a Project facility were included in the focused survey Inaccessible areas (i.e., private property or steep topography) were surveyed remotely via binoculars and were not directly accessed

Psomas Senior Biologist Allison Rudalevige and Botanist Katie Gallagher performed the invasive plant survey in June and August 2019. The survey was performed concurrently with a special status plant survey; see Psomas (2020) for detailed results and a complete inventory of species observed in the survey area. Table 3 provides the survey dates for each portion of the Survey Area. Surveys were conducted by walking transects to ensure 100 percent visual coverage of the Survey Area. Plant species were identified in the field or collected for later identification. Plants were identified using taxonomic keys, descriptions, and illustrations in Jepson Flora Project (2019), Baldwin et al. (2012), and Munz (1974). Nomenclature of plant taxa conform to the Jepson eFlora (Jepson Flora Project 2019).

TABLE 3
INVASIVE PLANT SURVEY DETAILS

Project Facilities	Survey Date(s)	Approximate Survey Time	Notes
South Lake (Hillside) Dam	August 8, 2019	1445–1645	The northern portion of the Survey Area was inaccessible.
Sabrina Lake Dam	August 7, 2019	0815–1045	The northern portion of the Survey Area was inaccessible.
McGee Creek Diversion	August 6, 2019	0845–1345	
Birch Creek Diversion	August 6, 2019	1500–1830	
Green Creek Diversion	August 8, 2019	0800–1345	
Bishop Creek South Fork Diversion Dam	August 7, 2019	1200–1430	The southeastern portion of the Survey Area was inaccessible.
Bishop Creek Intake 2 Dam	August 5, 2019	0930–1215; 1315–1515	
Bishop Creek Powerhouse No. 2 and Intake 3	August 9, 2019	0830–1230	The eastern portion of the Survey Area was inaccessible.
Bishop Creek Powerhouse No. 3 and Intake 4	June 11 and 12, 2019	1500–1545; 0825–1400	
Bishop Creek Powerhouse No. 4 and Intake 5	June 11, 2019	1000–1115; 1145–1420	
Bishop Creek Powerhouse No. 5 and Intake 6	June 10 and 11, 2019	1345–1500; 0740–0940	The eastern portion of the Survey Area was inaccessible.
Bishop Creek Powerhouse No. 6	June 10, 2019	0740–1320	Areas of private property were not surveyed.

RESULTS

A total of 57 non-native plant species were observed in the Survey Area (Attachment A). Of the 54 non-native, invasive plant species listed in Table 2, 19 were observed in the Survey Area. In addition, cotoneaster (*Cotoneaster* sp.), wall barley (*Hordeum murinum*), and greater periwinkle (*Vinca major*) are species rated as Moderate by Cal-IPC that were observed in the Survey Area. Exhibit 3 shows the location of non-native plant species observed during the surveys.

If you have any questions or comments, please contact Allison Rudalevige at Allison.Rudalevige@psomas.com or Brad Blood at bblood@psomas.com.

Signed,
PSOMAS

Brad R. Blood, PhD
Senior Biologist/Associate

Allison D. Rudalevige
Senior Biologist

Enclosures: Exhibits 1–3
Attachment A – Plant Community Descriptions

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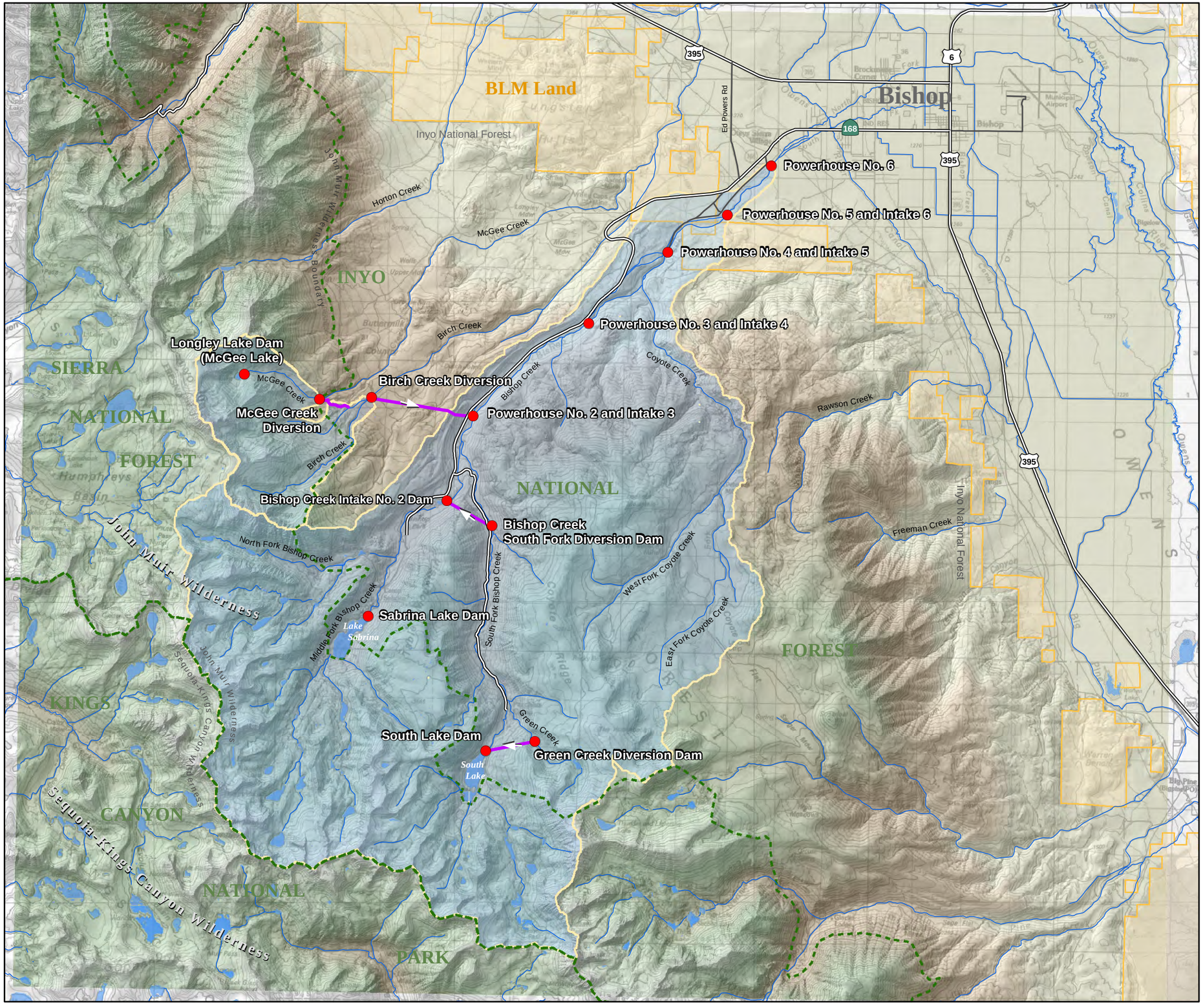
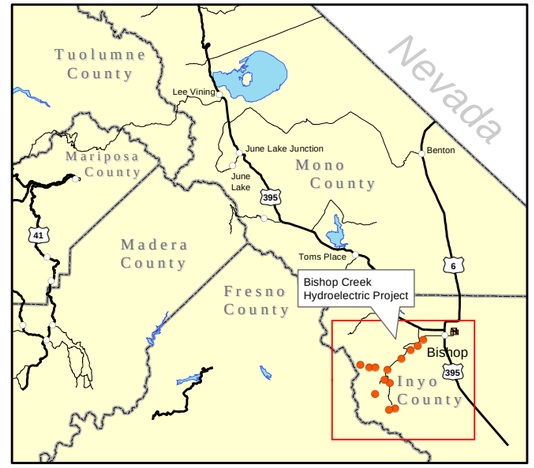
Munz, P.A. 1974. A Flora of Southern California. Berkeley, CA: University of California Press.

Psomas. 2020. *Results of Special Status Plant Surveys for the Bishop Creek Hydroelectric Power Project (FERC No. 1394-080) Relicensing, Inyo County, California*. Santa Ana, CA: Psomas.





Regional Location

Legend

- Project Facility Site Locations
- Diversion Channels, Pipelines, & Penstocks
- Project Contributing Watershed
- National Forest/National Park Boundary
- Wilderness Area Boundary
- Bureau of Land Management (BLM) Boundary

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2 1 0 2 Miles

Project Vicinity — Exhibit 1

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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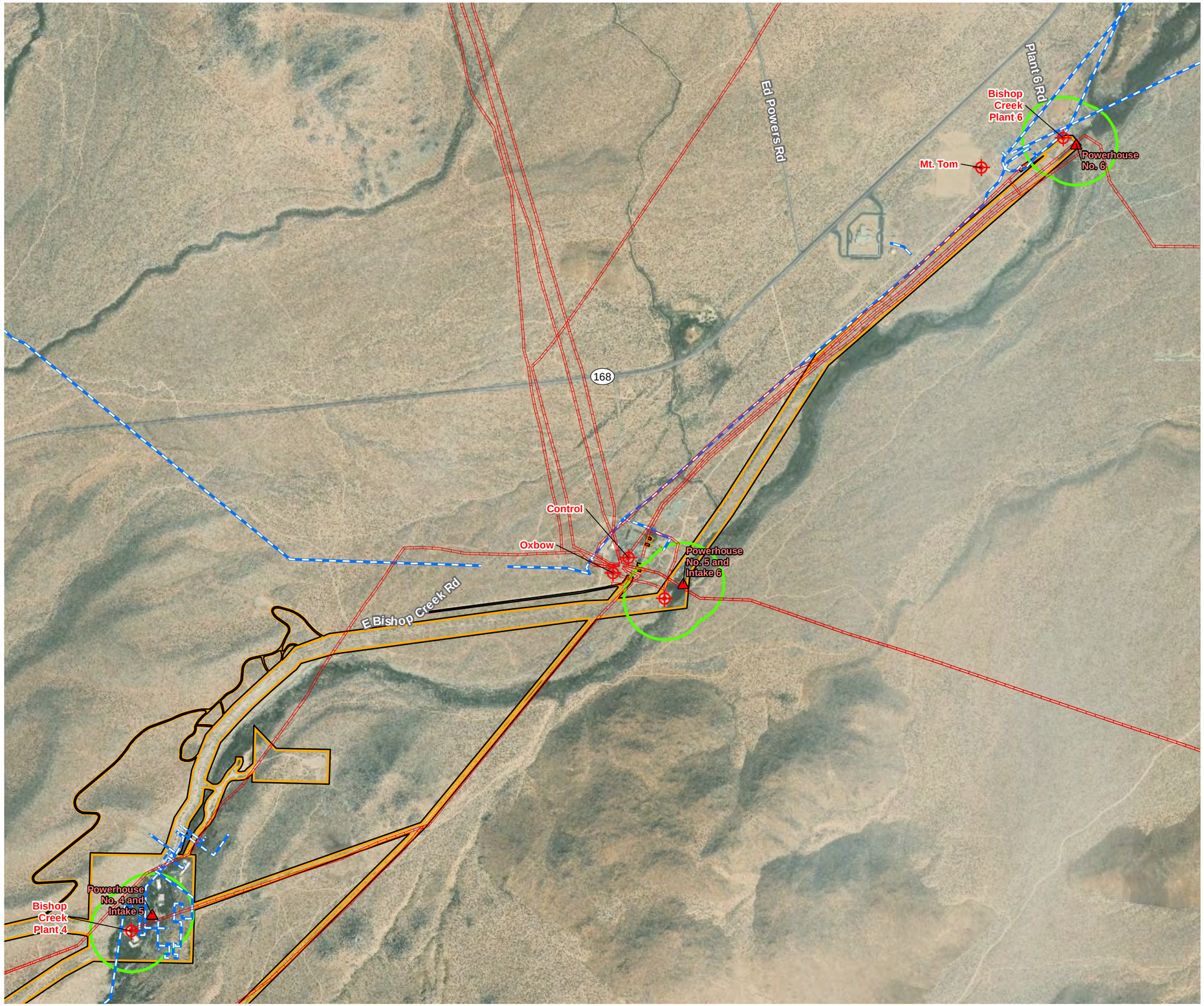

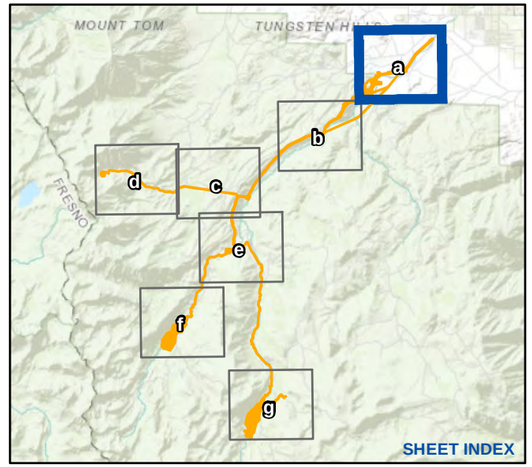

- Powerhouse
- Utility
- Transmission Line
- Powerline
- FERC Boundary
- Invasive Plant Species Survey Area

N
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1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2a

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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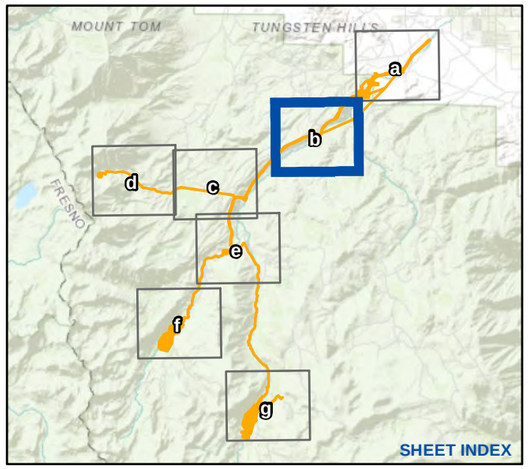

- Powerhouse
- Utility
- Gage
- Transmission Line
- Powerline
- FERC Boundary
- Invasive Plant Species Survey Area

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1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2b

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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Match Line - Sheet d

Birch Creek Diversion

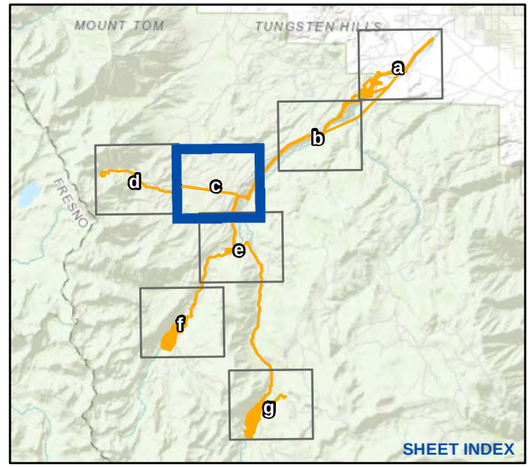
Match Line - Sheet e

Bishop Creek Plant 2

Powerhouse No. 2 and Intake 3

168

Big Trees Rd



- Powerhouse
- Utility
- Diversion
- Penstock
- Transmission Line
- Powerline
- FERC Boundary
- Invasive Plant Species Survey Area

N
W E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2c

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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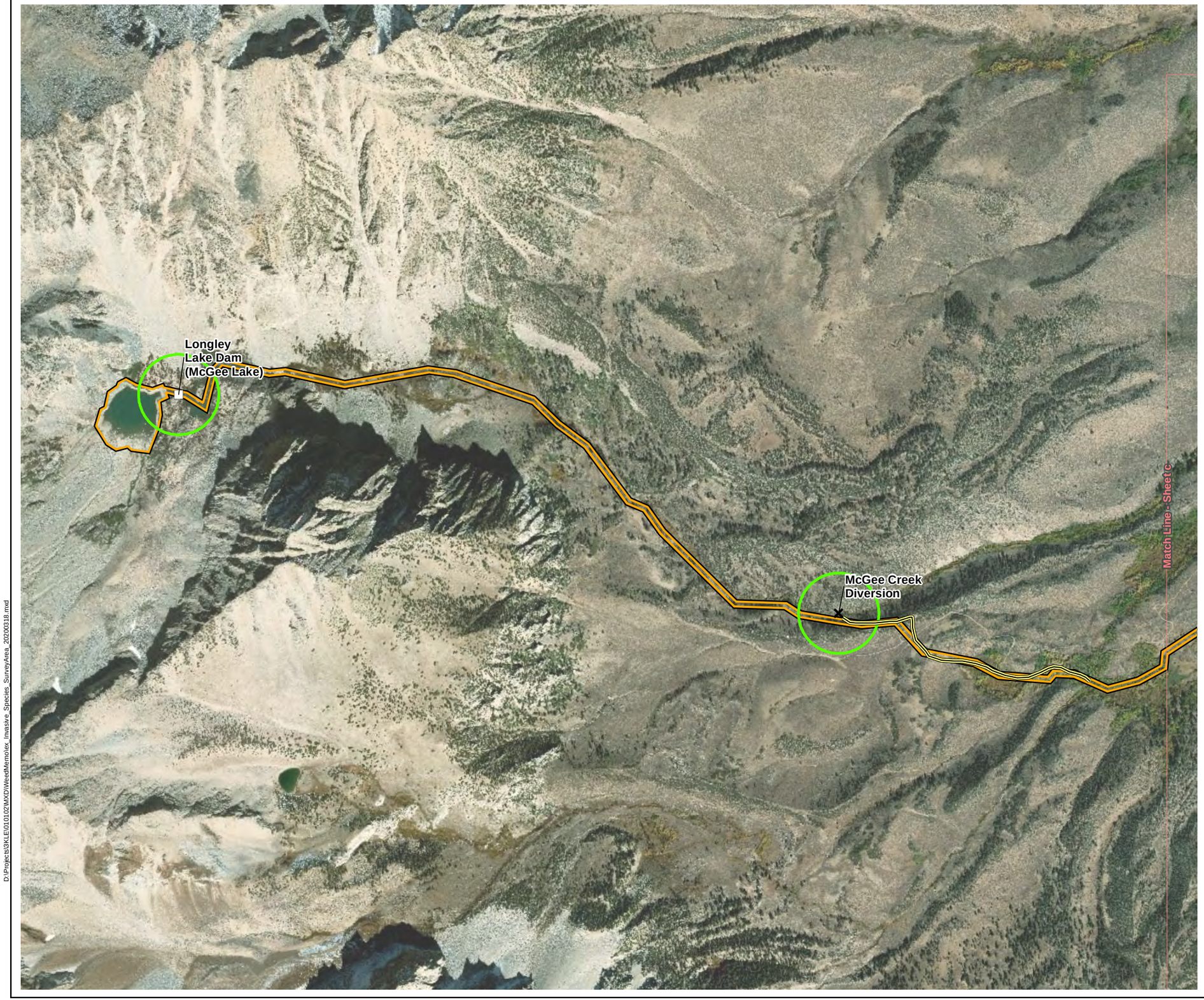

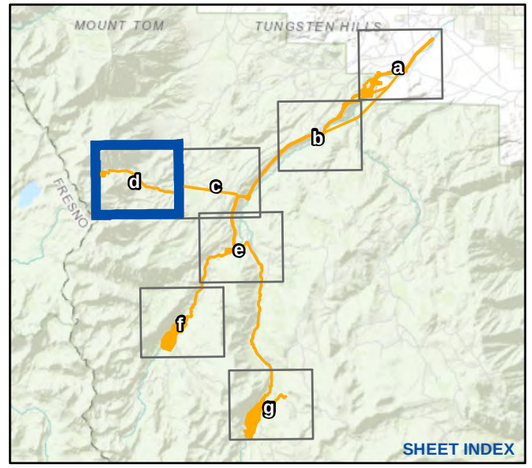

- Diversion
- Dam
- Penstock
- FERC Boundary
- Invasive Plant Species Survey Area

N
W E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2d

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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Match Line - Sheet c

Big Tees Rd

S Lake Rd

168

Bishop Creek Intake No. 2 Dam

Cataract Rd

South Creek Diversion Gaging Station

Bishop Crk South Fork Diversion

Columbine Dr

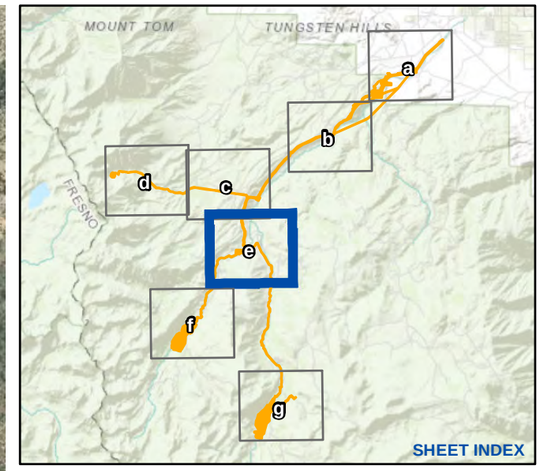
Sage Dr

Iris Dr

Alpine Dr

Cardinal Rd

Canyon Dr



- Diversion
- Dam
- Gage
- Penstock
- Powerline
- FERC Boundary
- Invasive Plant Species Survey Area

N
W E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2e

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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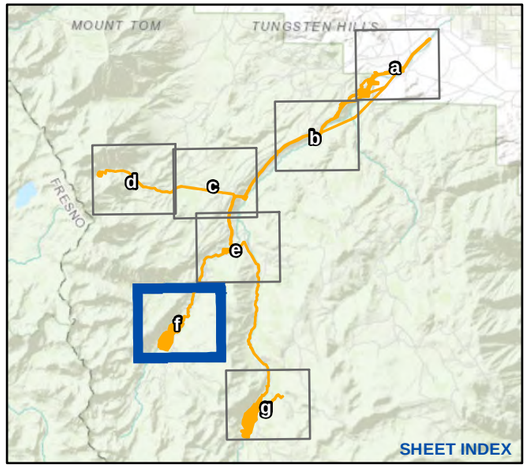

Dam
Powerline
FERC Boundary
Invasive Plant Species Survey Area

N
W
E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2f

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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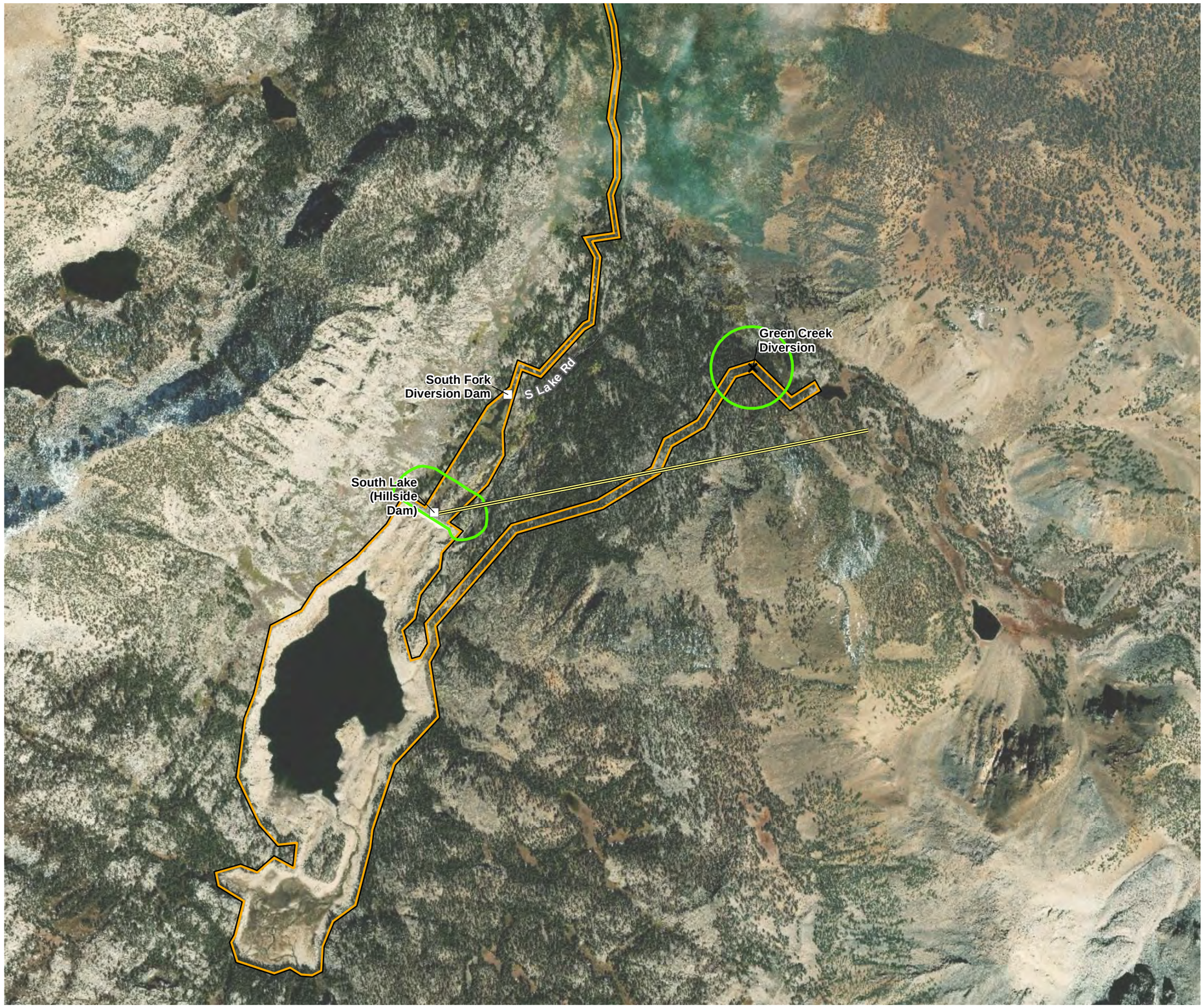

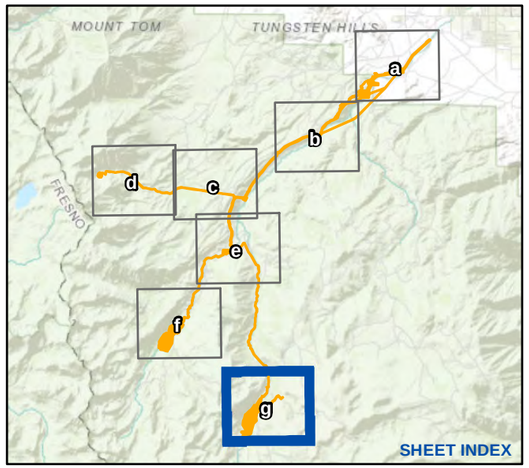

- Diversion
- Dam
- Penstock
- FERC Boundary
- Invasive Plant Species Survey Area

N
W E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Invasive Plant Species Survey Area

Exhibit 2g

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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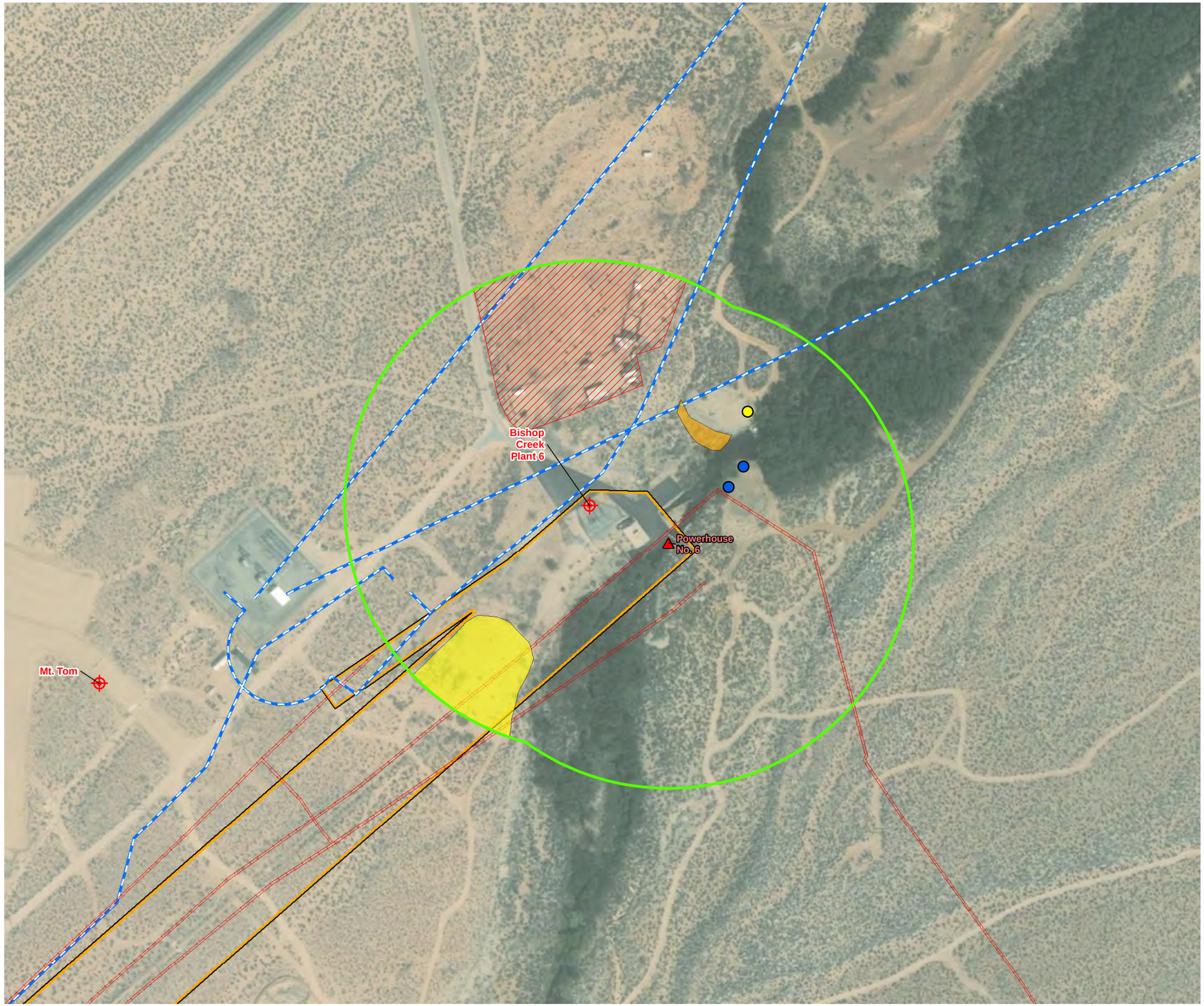

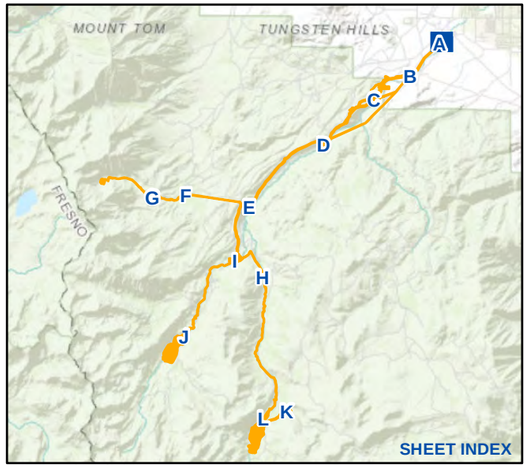

Bishop Creek Powerhouse No. 6

- Powerhouse
- Transmission Line
- Powerline
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- curly dock
- tumble mustard
- miscellaneous weeds
- woolly mullein
- Not Surveyed (Private Property)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations Exhibit 3A

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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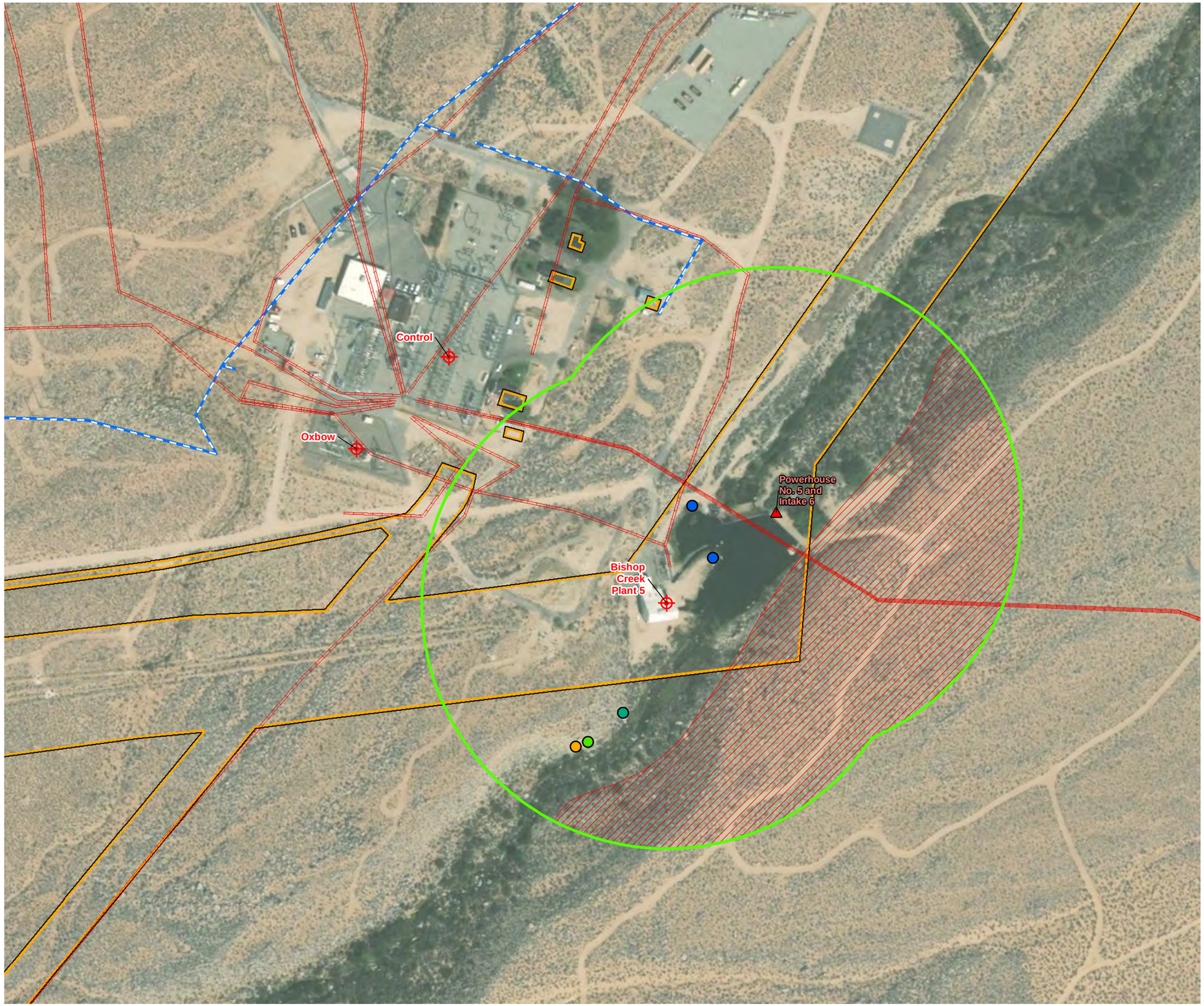

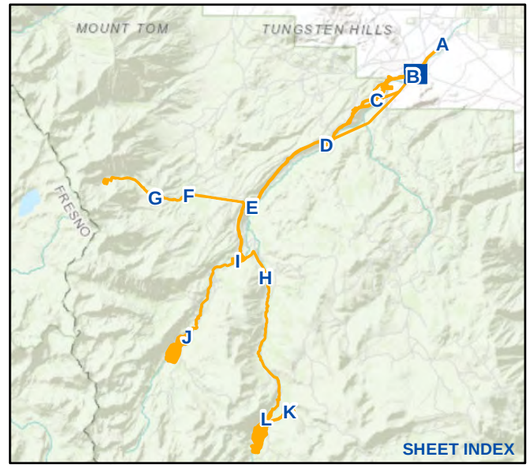

Bishop Creek Powerhouse No. 5 and Intake 6

- Powerhouse
- Transmission Line
- Powerline
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- Bermuda grass
- perennial sweet pea
- tumble mustard
- woolly mullein
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3B

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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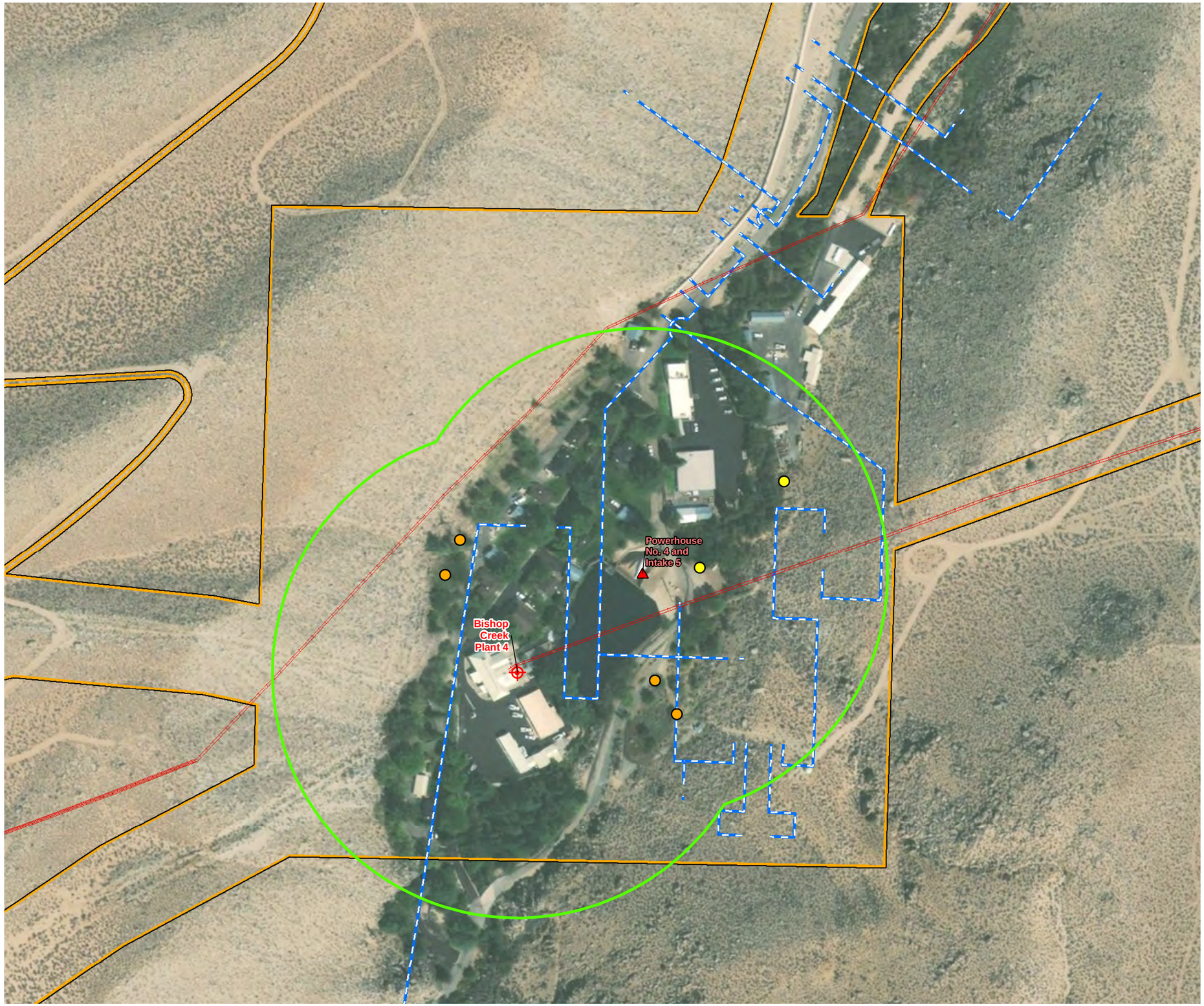

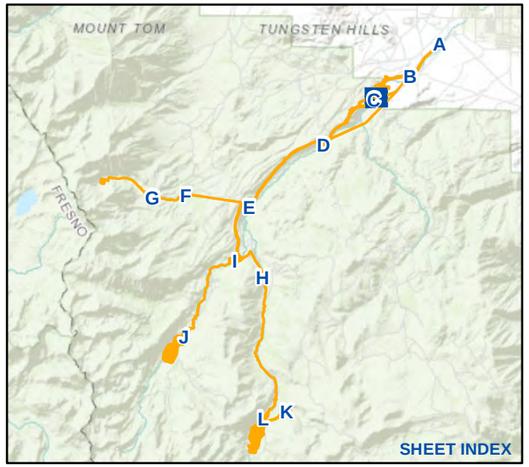

Bishop Creek Powerhouse No. 4 and Intake 5

- Powerhouse
- Transmission Line
- Powerline
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- curly dock
- woolly mullein

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations Exhibit 3C

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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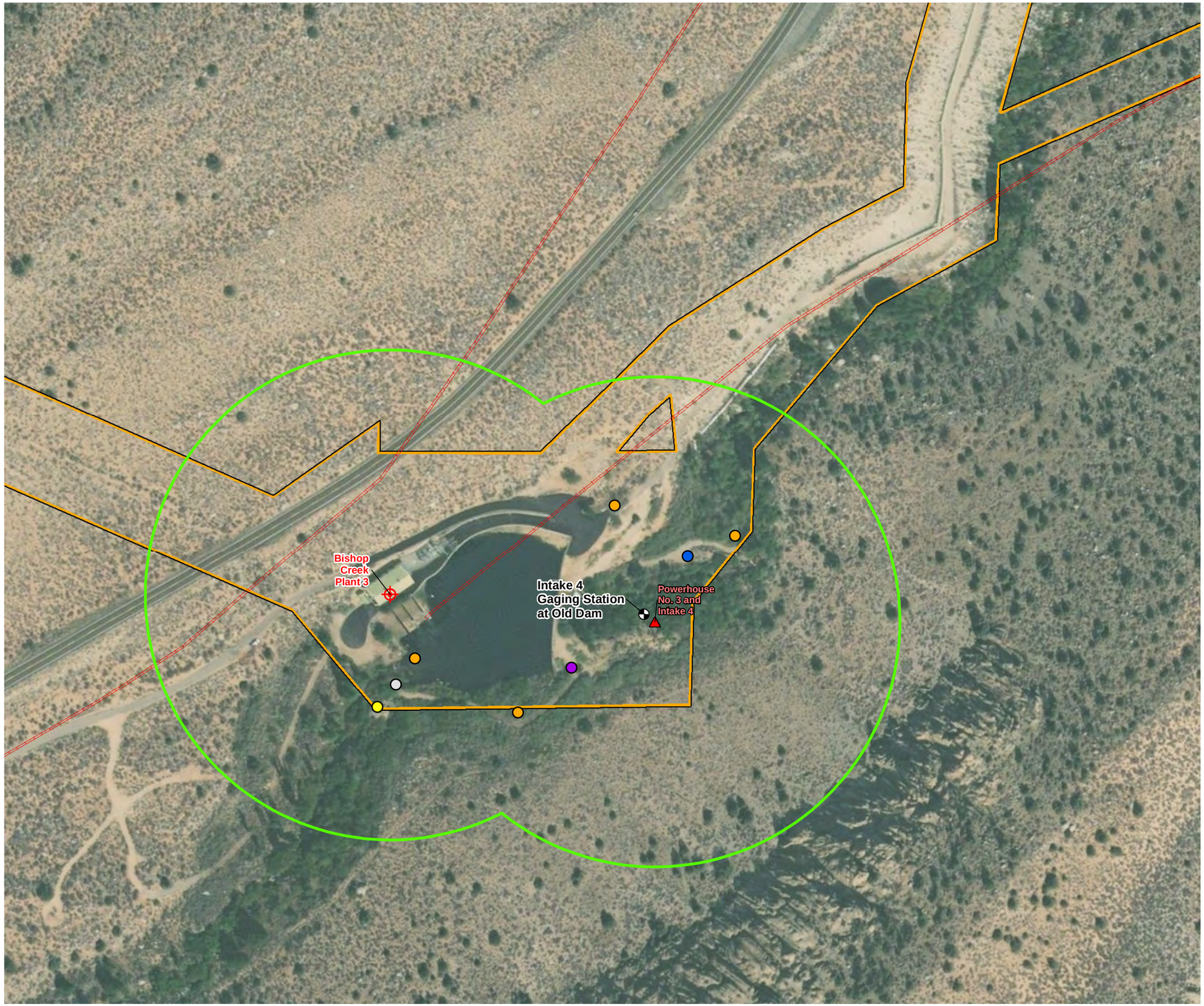

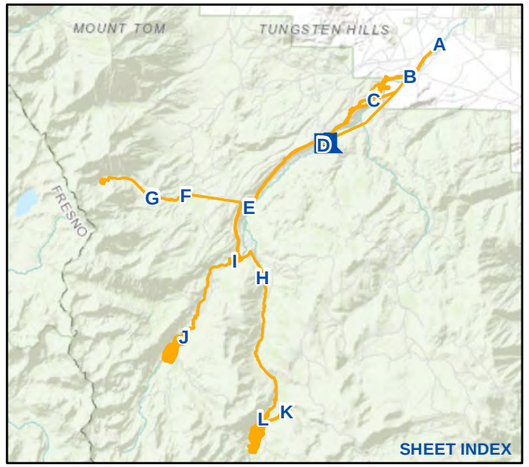

Bishop Creek Powerhouse No. 3 and Intake 4

- Powerhouse
- Gage
- Transmission Line
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- bull thistle
- curly dock
- Russian thistle
- tumble mustard
- woolly mullein

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations Exhibit 3D

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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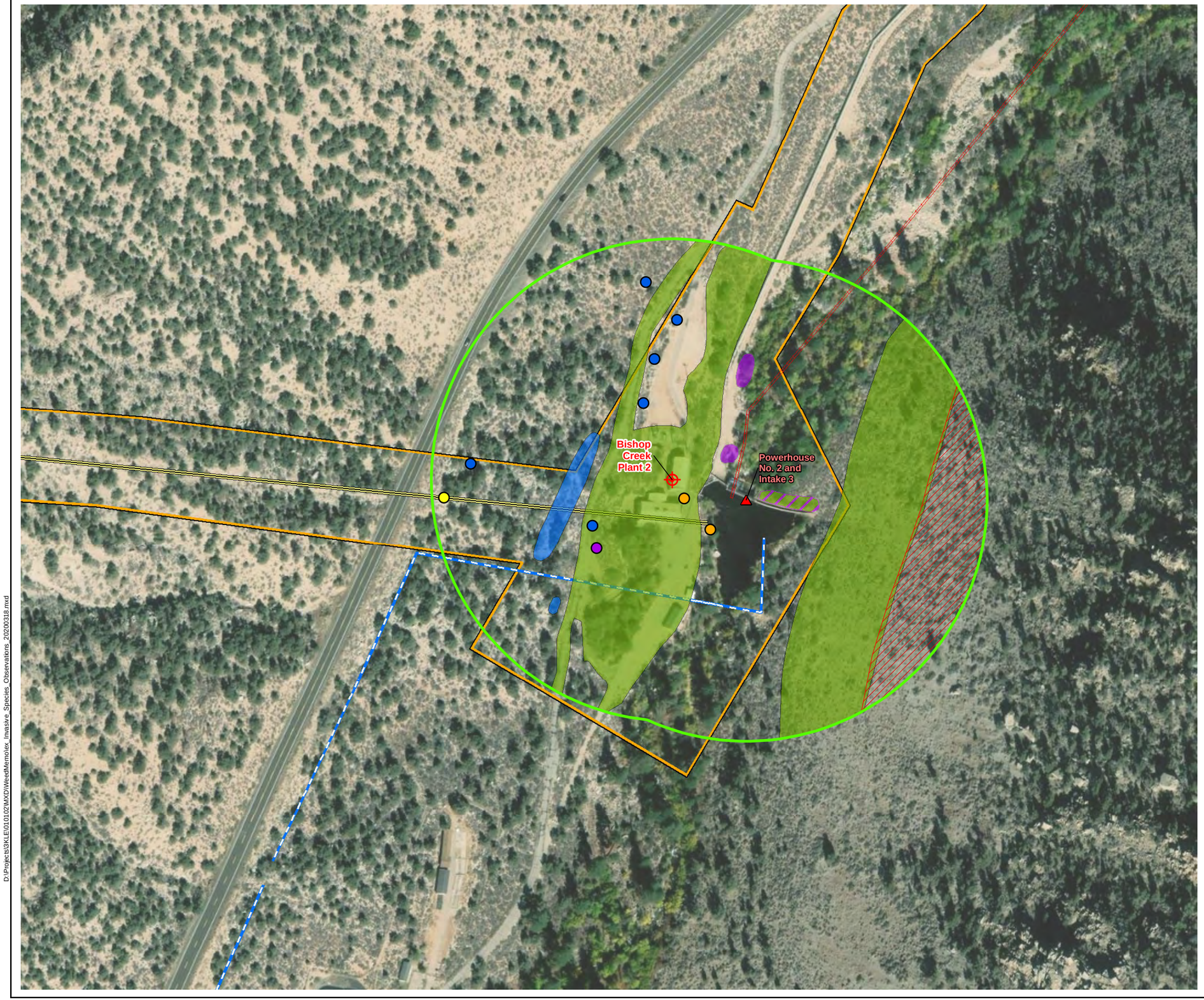

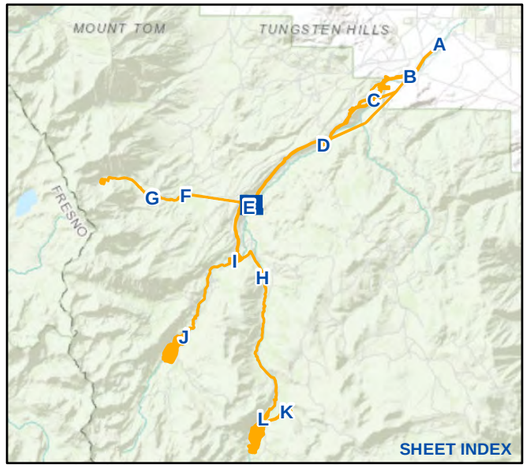

Bishop Creek Powerhouse No. 2 and Intake 3

- Powerhouse
- Penstock
- Transmission Line
- Powerline
- Invasive Plant Survey Area
- FERC Boundary

Invasive Plant Species

- curly dock
- Russian thistle
- tumble mustard
- woolly mullein
- cheat grass
- cheat grass and Russian thistle
- tumble mustard
- white sweetclover
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3E

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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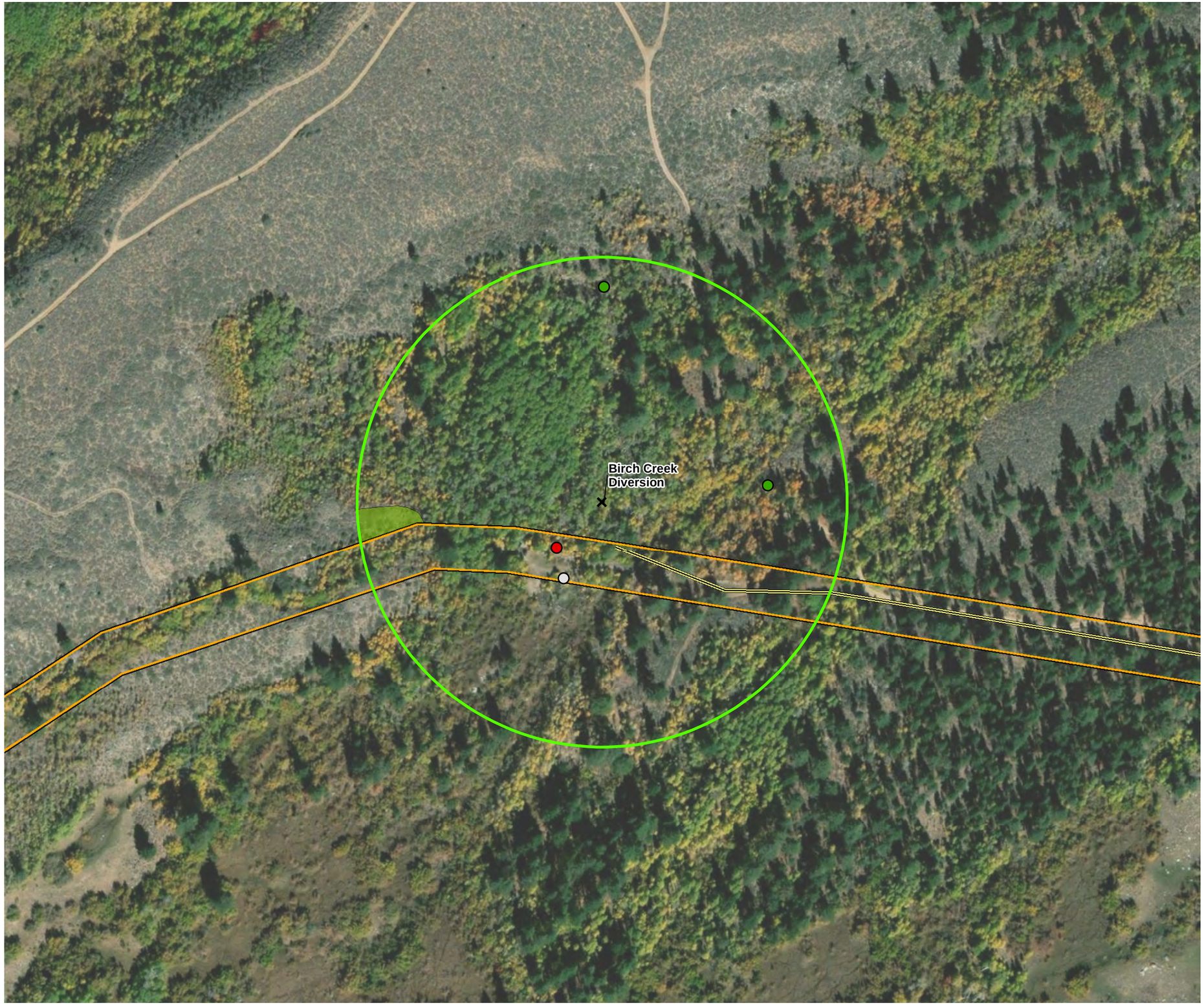

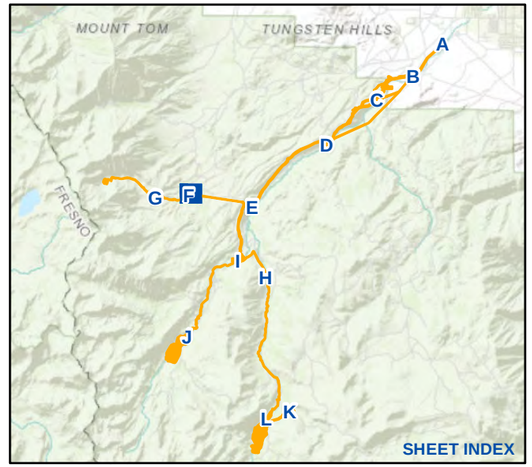

Birch Creek Diversion

- Penstock
- Diversion
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- bull thistle
- cheat grass
- English plantain
- cheat grass

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3F

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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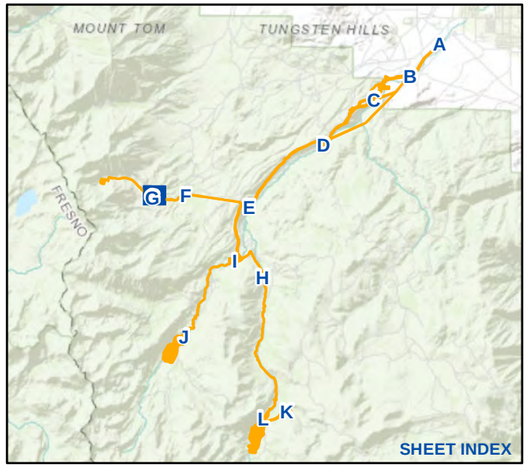

McGee Creek Diversion

- Penstock
- Diversion
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- cheat grass

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3G

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 04/01/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\Weed_Memo\ex_InvasivePlantObs.pdf

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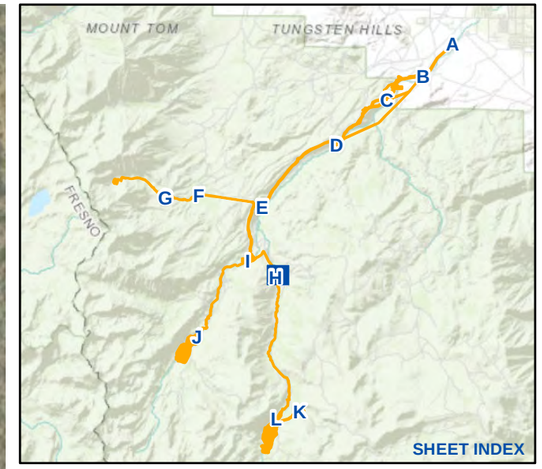
South Creek
Diversion
Gaging Station

Bishop Crk
South Fork
Diversion



Bishop Creek South Fork Diversion Dam

- Penstock
- Diversion
- Gage
- Powerline
- Invasive Plant Survey Area
- FERC Boundary

Invasive Plant Species

- woolly mullein
- cheat grass
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations Exhibit 3H

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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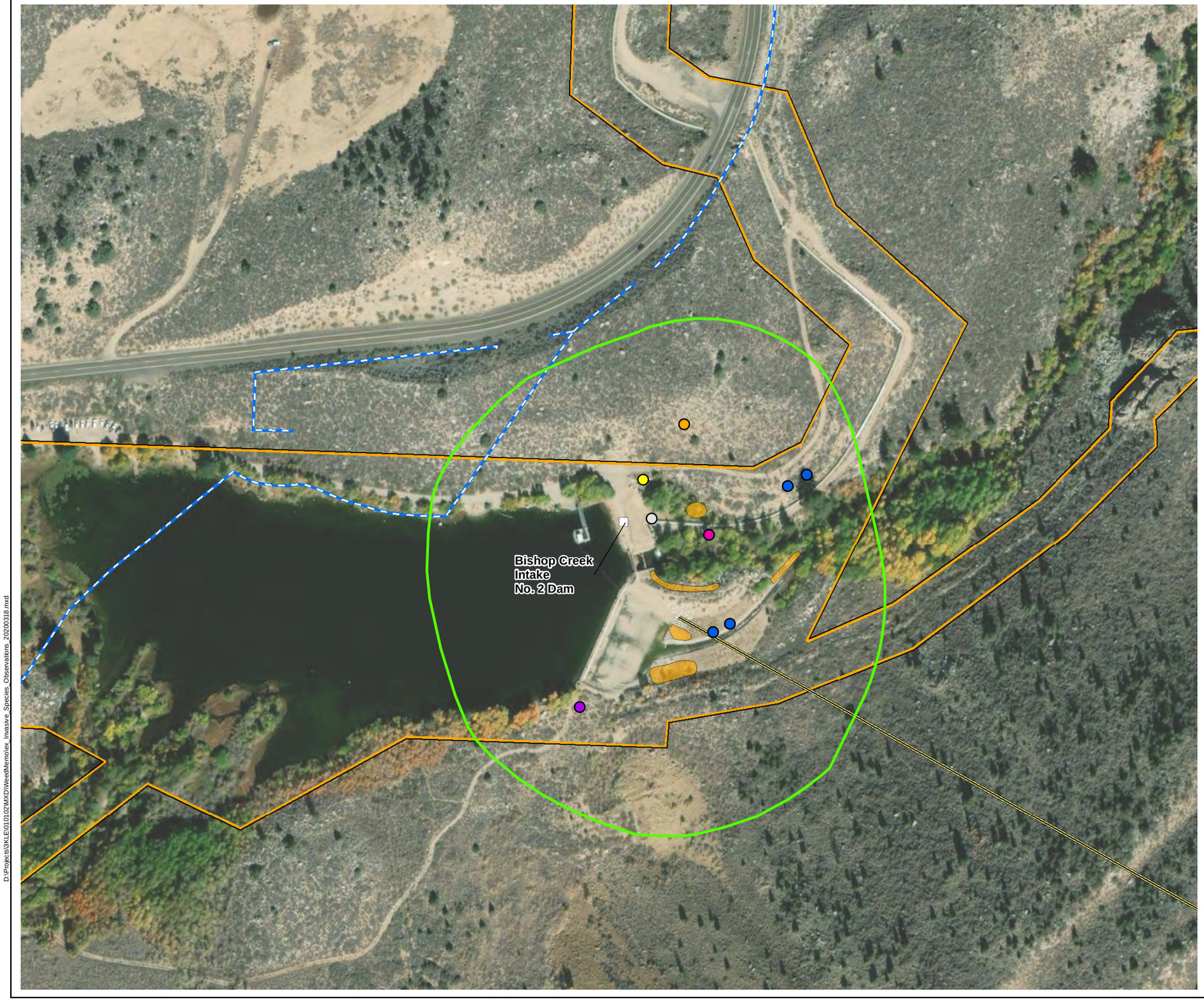

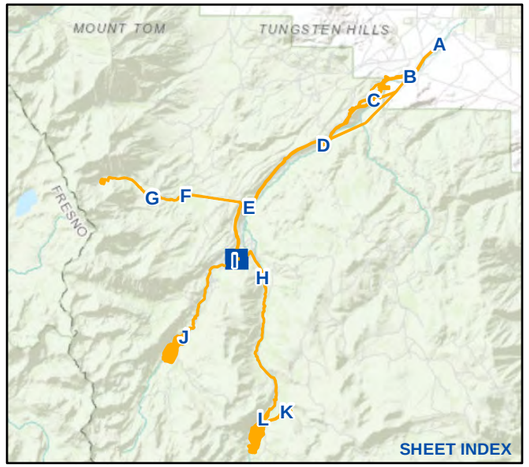

Bishop Creek Intake No. 2 Dam

- Penstock
- Dam
- Powerline
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- bull thistle
- curly dock
- Russian thistle
- tall fescue
- tumble mustard
- woolly mullein
- woolly mullein

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3I

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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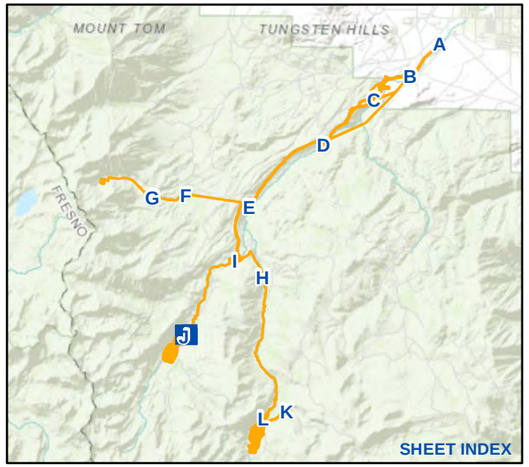

Sabrina Lake Dam

- Dam
- Invasive Plant Survey Area
- FERC Boundary

Invasive Plant Species

- cheat grass
- cheat grass and woolly mullein
- woolly mullein
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3J

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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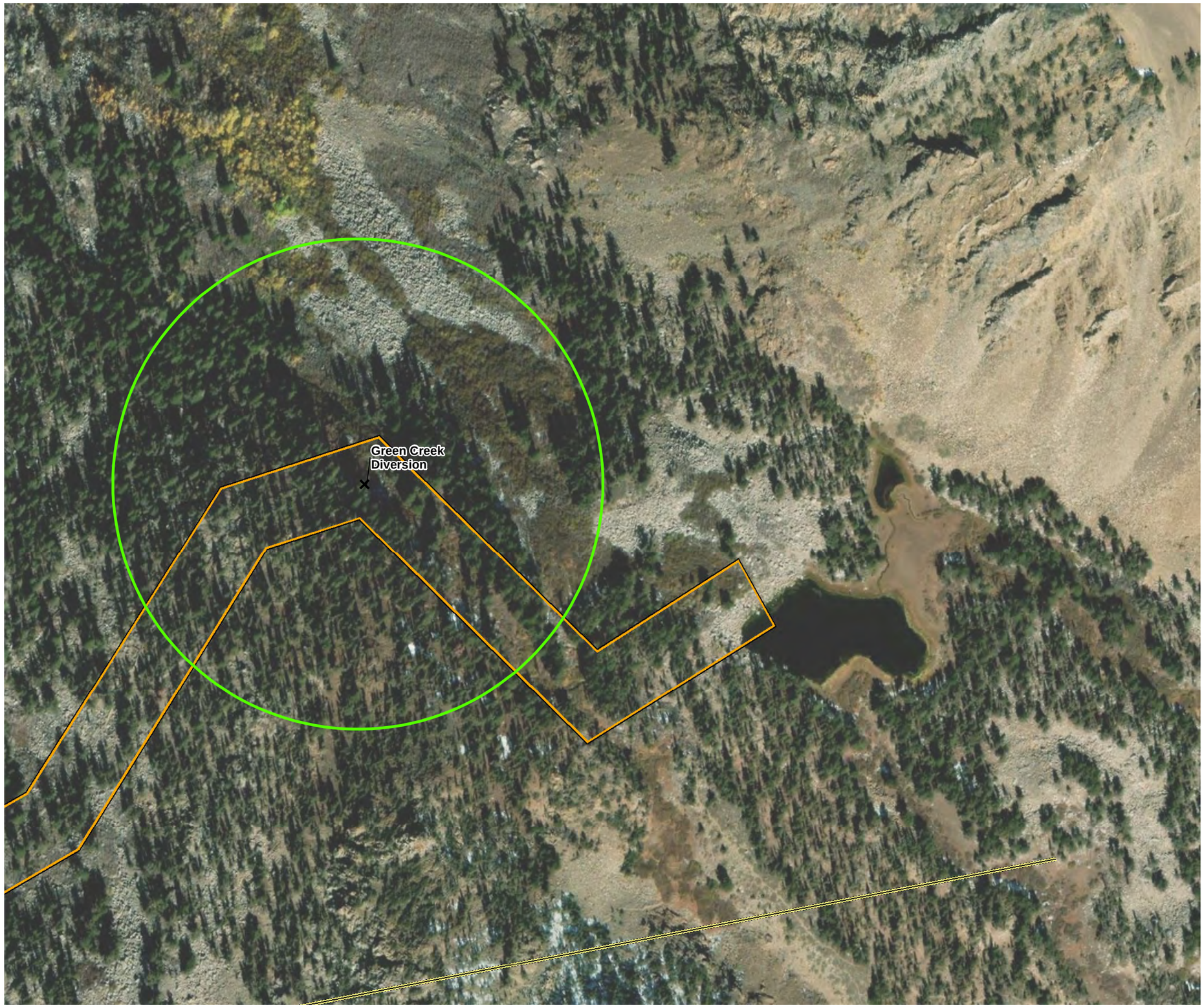

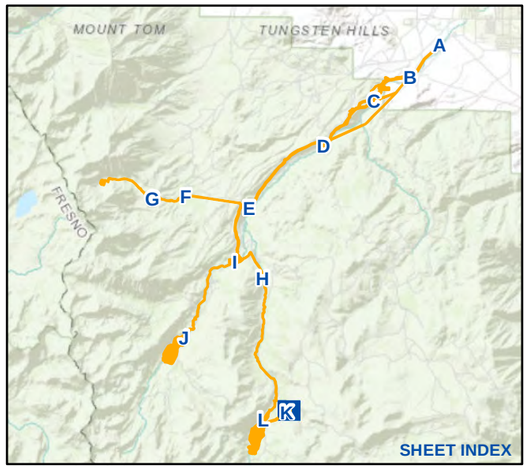

Green Creek Diversion

- Penstock
- Diversion
- Invasive Plant Survey Area
- FERC Boundary

Invasive Plant Species

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3K

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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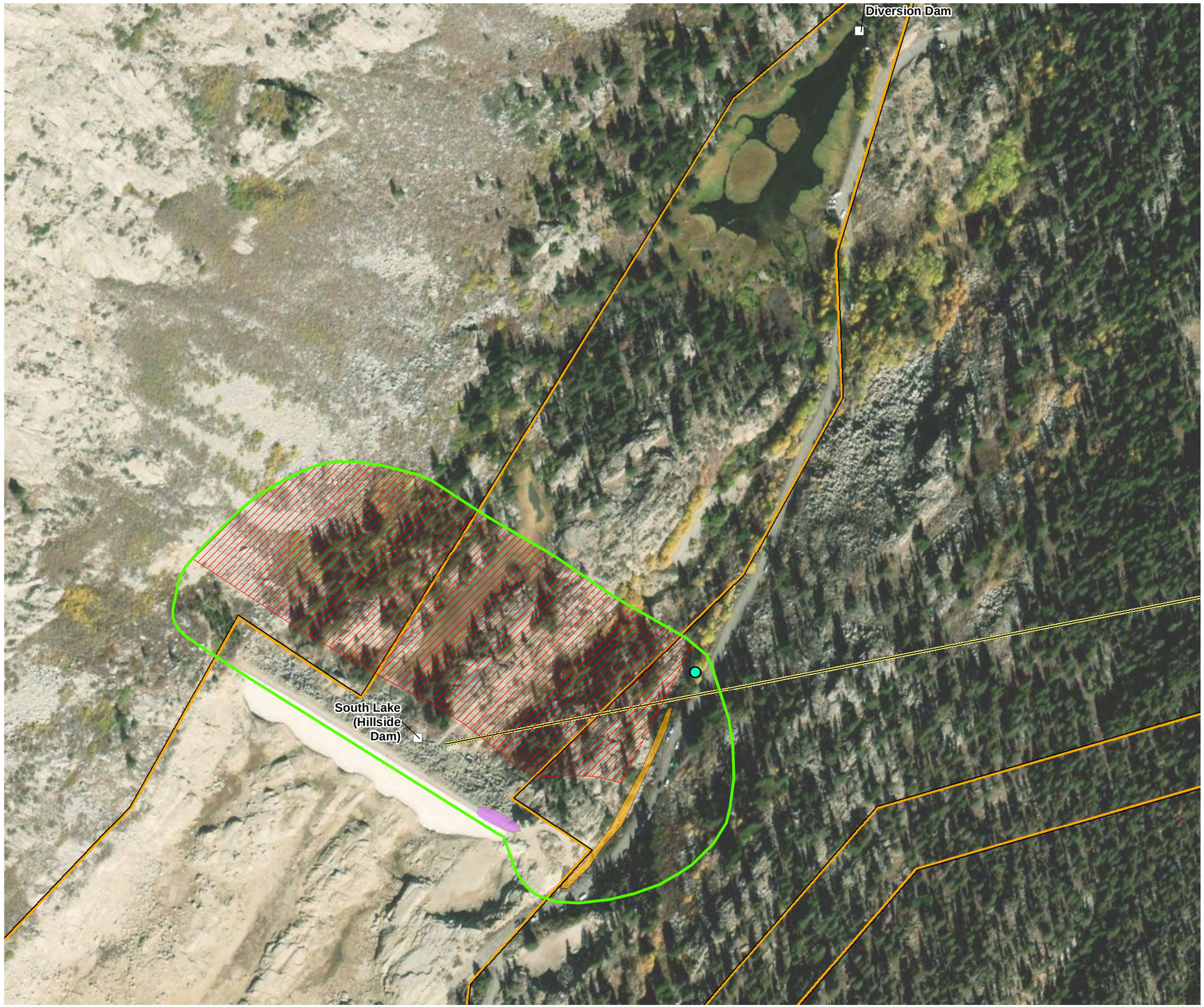

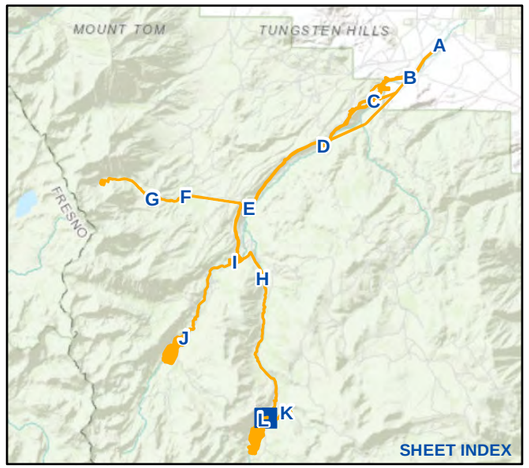

South Lake (Hillside) Dam

- Penstock
- Dam
- Invasive Plant Survey
- FERC Boundary

Invasive Plant Species

- white sweetclover
- wise tansy mustard
- woolly mullein
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Invasive Plant Species Observations

Exhibit 3L

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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ATTACHMENT A

PLANT COMMUNITY DESCRIPTIONS

PLANT COMMUNITIES

Upland Botanical Resources

This section is based on keys and descriptions from the USFS using the Calveg[1] classification system. This is the preferred key in use by the Inyo National Forest and is used here to be consistent with the Inyo National Forest Plan (USFS 2018a). In this system, differences between community types (also referred to as alliances) are based on canopy cover as determined from aerial photography and satellite imagery.

Tree Dominated

Canyon Live Oak

With a canopy cover of at least 50 percent, the canyon live oak (*Quercus chrysolepis*) community generally occurs on relatively dry, shallow colluvial soils in steep canyons between approximately 1600 feet and 8400 feet. Understory shrubs can include deerbrush (*Ceanothus integerrimus*) and whiteleaf Manzanita (*Arctostaphylos viscida*), as well as annual grasses and forbs.

Eastside Pine

This community is defined by presence of Jeffrey pine (*Pinus jeffreyi*), either alone or in combination with ponderosa pine (*P. ponderosa*), with a canopy cover of at least 75 percent. The community generally occurs at moderate to upper montane elevations, especially in an elevation range of approximately 5400 feet to 10,000 feet.

Limber Pine

With a canopy cover of at least 75 percent, the limber pine (*Pinus flexilis*) community is associated with dry, steep, high elevation sites generally in the range of 8000 feet to 10,600 feet. These slopes are often east facing, eroded, rocky, coarse-textured, and with low soil nutrient levels.

Lodgepole Pine

The lodgepole pine (*Pinus contorta* ssp. *murrayana*) alliance, with at least 75 percent canopy cover of this species, generally occurs at elevations from approximately 5800 feet to 11,200 feet. Lodgepole pine is an important invader species following fire or disturbance.

Singleleaf Pinyon Pine

With a canopy cover of at least 75 percent, the singleleaf pinyon pine (*Pinus monophylla*) community typically occupies dry slopes within a wide elevation range. Understory shrub species commonly include big sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), cacti (*Opuntia* spp.) and rabbitbrush (*Chrysothamnus* spp.).

[1] The CALVEG ("Classification and Assessment with Landsat of Visible Ecological Groupings") system was initiated in January 1978 by the Region 5 Ecology Group of the U.S. The Calveg team's mission was to classify California existing vegetation communities for use in statewide resource planning considerations. It is a hierarchical classification originally based on "formation" categories: forest, woodland, chaparral, shrubs and herbaceous in addition to non-vegetated units. They were originally identified by distinctions calculated among canopy reflectance values used in the LANDSAT satellite. Since then, the classification has been expanded from an initial 129 types occurring throughout the eight regions of the state to the current 213 occurring in nine regions, and image resolution has been enhanced. https://www.fs.fed.us/r5/rsl/Projects/classification/system.shtml accessed January 16, 2019.

Subalpine Conifers

A combination of two or more conifer species, with a canopy cover of at least 50 percent, comprises this community. Depending on location, the mixture may include three or more of the following species: mountain hemlock (*Tsuga mertensiana*), lodgepole pine (*Pinus contorta* ssp. *murrayana*), limber pine (*P. flexilis*) and/or whitebark pine (*P. albicaulis*). The elevation range of this community is approximately 7600 feet to 11,800 feet.

Whitebark Pine

With a canopy cover of whitebark pine (*Pinus albicaulis*) of at least 75 percent, this community occurs on high windswept ridges within an elevation range of 8600 feet to 12,000 feet. In these areas, a krummholzed form is common, but an upright form also grows in areas of glacial scouring where soil development is poor.

Shrub Dominated

Alpine Mixed Scrub

Alpine Mixed Scrub communities consist of a mixture of tall and dwarf shrubs and some low graminoid and forb species, often including cushion or rosette-leaved plants that survive harsh climatic conditions above timberline. In the Sierra Nevada, the Alpine Mixed Scrub Alliance has been mapped chiefly in the range of approximately 8000 feet to 12,600 feet. Common shrubs include creambush oceanspray (*Holodiscus discolor*), Greene's goldenweed (*Ericameria greenei*) and mountain white heather (*Cassiope mertensiana*). Shrubby willows (*Salix* spp.) are also common in this type. Non-shrub species include those represented in the Alpine Grasses and Forbs Alliance.

Bitterbrush

Bitterbrush (*Purshia tridentata*) is dominant in this alliance and can include the varieties antelope bitterbrush (*P. t.* var. *tridentata*) and desert bitterbrush (*P. t.* var. *glandulosa*). The alliance has been mapped at elevations from approximately 4800 feet to 8000 feet. Bitterbrush is a high value forage species that is associated with species such as big sagebrush (*Artemisia tridentata*), singleleaf pinyon pine (*Pinus monophylla*) and Jeffrey pine (*P. jeffreyi*).

Blackbush

This community is defined by occurrence of blackbush (*Coleogyne ramosissima*) with a canopy cover of at least 50 percent. Other upland shrubs, especially Mormon tea (*Ephedra* spp.), white bursage (*Ambrosia dumosa*) and saltbush (*Atriplex* spp.) may be present.

Curlleaf Mountain Mahogany

This community occurs on gently to steeply sloping mountain uplands and ridge tops, usually in association with rocky outcrops. Curlleaf mountain mahogany (*Cercocarpus ledifolius*) has been mapped more frequently in its shrub form than as a tree in the southern Sierras. It is abundant mainly at elevations above approximately 5400 feet.

Great Basin Mixed Scrub/Big (Basin) Sagebrush

A mixture of common Great Basin shrubs, with big basin sagebrush (*Artemisia tridentata* ssp. *tridentata*) cover of at least 50 percent, defines this type. It commonly occurs in the range of approximately 5000 feet to 10,600 feet in the southern Sierras. Other species can include mountain sagebrush (*A. t.* ssp. *vaseyana*),

bitterbrush (*Purshia tridentata*), curlleaf mountain mahogany (*Cercocarpus ledifolius*), currant (*Ribes* spp.), snowberry (*Symphoricarpos* spp.) and/or interior rose (*Rosa woodsii*).

High Desert Mixed Scrub

This mixture of shrub species, found up to approximately 7400 feet, is defined by the presence of abundant (but not dominant) ephedra species, especially green ephedra (*Ephedra viridis*), spiny menodora (*Menodora spinescens*) and horsebrush (*Tetradymia* spp.).

Rabbitbrush

This community occurs on dry slopes and flats that are dominated by various species of rabbitbrush (*Chrysothamnus* spp.). In the Sierra Nevada it occurs chiefly within an elevation range of approximately 2600 feet to 9000 feet, often in proximity to the annual grasses and Forbs Alliance.

Saltbush

This alliance is a combination of shadscale (*Atriplex confertifolia*), fourwing saltbush (*A. canescens*), and/or other *Atriplex* species. It generally occurs at elevations of approximately 3000 feet to 5000 feet. Other alkaline desert shrub species such as rabbitbrush (*Chrysothamnus* spp.) can be closely associated with this type.

Herbaceous Dominated

Alpine Grasses and Forbs

Prostrate or low-growing herbaceous species predominate in this botanically diverse community rather than shrubs or trees. The community occurs most often within an elevation range of approximately 8200 feet to more than 13,000 feet. Due to high evaporative potential, the short growing season and abrasion or desiccation by wind, morphological adaptions by particular species are often similar to those in the desert. For example, several cushion-forming plants occur within these rocky sites, as well as species with basal rosette-type leaves. Nevertheless, there are a rich variety of herbaceous species that may be found in this Alliance, partially due to diverse habitats and moisture. On dry, open fell-fields, phlox (*Phlox condensata*) often dominate a site and on granite and metamorphics, oval-leaved buckwheat (*Eriogonum ovalifolium*) is a prominent species in many areas. Other species that may be identified in this community include prostrate sibbaldia (*Sibbaldia procumbens*), knotweed (*Polygonum davisiae*), buttercup (*Ranunculus eschscholtzii*), rockcress (*Arabis lemmonii*), mountain sorrel (*Oxyria digyna*), pussypaws (*Calyptridium umbellatum*), Indian paintbrush (*Castilleja lemmonii*), and (on moist sites) columbine (*Aquilegia pubescens*).

Annual Grasses and Forbs

This community is dominated by annual grasses such as bromes (*Bromus* spp.), needlegrass (*Achnatherum* spp.) and wild oats (*Avena* spp.), as well as forbs such as owl's clover (*Orthocarpus* spp.), fiddleneck (*Amsinckia intermedia*) and stork's bill (*Erodium* spp.). This community is often associated with burn areas, xeric or disturbed conditions.

Perennial Grasses and Forbs

This community consists of at least 50 percent cover of perennial grasses and forbs, retaining some moisture in mid-summer and growing in an elevation generally within approximately 6400 feet to 12,000 feet. Upper elevations are often associated with subalpine conifers such as whitebark pine (*Pinus albicaulis*) and lodgepole pine (*P. contorta* ssp. *murrayana*).

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

FINAL TECHNICAL REPORT
ASSESSMENT OF SPECIAL STATUS PLANTS (TERR 3)

SOUTHERN CALIFORNIA EDISON®

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June 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project

(FERC Project No. 1394)

FINAL TECHNICAL REPORT

ASSESSMENT OF SPECIAL STATUS PLANTS (TERR 3)

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

January 2022

Support from:

Kleinschmidt

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1.0 INTRODUCTION

During TWG meetings, SCE and stakeholders identified the need for an Assessment of Sensitive or Special Status Plants. This assessment identifies sensitive plant species with potential for occurring within the Project boundary and reports results of field surveys conducted in 2019 and 2020.

Data and preliminary results for this survey were previously reviewed with the Bishop Creek Technical Working Group (TWG) in May 2020, following distribution of Progress Report #2 to the TWG and FERC on April 14, 2020.

Further data was provided in the Initial Study Report filed with FERC on October 30, 2020. This report builds on those two previous documents, but does not draw conclustions about potential Project effects. These analyses will be completed in conjunction with the completion of the License Application as part of the overall Nataional Environmental Policy Act (NEPA) process and in consultation with the TWGs.

2.0 REVIEW OF EXISTING INFORMATION

A review of the existing literature was conducted to determine the potential for special status plant species to occur in the Project region, defined as the following U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles: Coyote Flat, North Palisade, Tungsten Hills, Mount Darwin, Mount Tom, Bishop, and Mount Goddard. To obtain information on known special status plant species reported to occur in the Project region, the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2018) and the California Native Plant Society (CNPS) Inventory of Rare, Threatened and Endangered Plants (RTE) (CNPS 2018) were queried for occurrences of special status plant species in the above-mentioned quadrangles. In addition, this review included previous biological reports prepared for individual projects within the Special Status Plants Survey Area (Psomas 2004a, 2004b, 2005, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2010, and 2014) and the environmental analysis for the Project (FERC 1991). The resulting list of plants with potential to occur is provided in Section 6.0 (Results).

3.0 STUDY OBJECTIVES

The objective of this assessment is to classify and map the existing distribution of special status plants (including aquatic plants) in the Project area and Project-affected reaches. This information will be used to develop a plan under the new license to ensure that future Project facilities and operations are consistent with the Desired Conditions, Goals and Standards described for plant species in the Land Management Plan for the Inyo National Forest (INF; USDA 2019).

3.1 STUDY AREA

The study area (Figure 4-1) consists of locations subject to regular O&M activities, including powerhouses, dams, diversions, valve houses and access roads including a 500-foot survey area buffer around each facility and encompasses recreation facilities directly associated with the Project. In total these constitute a subset of the Project area as a whole.

4.0 METHODS

Field surveys of facilities were conducted in June and August 2019 with recreational area surveys conducted in June 2020. A list was prepared of all plants observed during the surveys. Plants were identified in the field to species or the lowest taxonomic category possible with formal identification completed in the office.

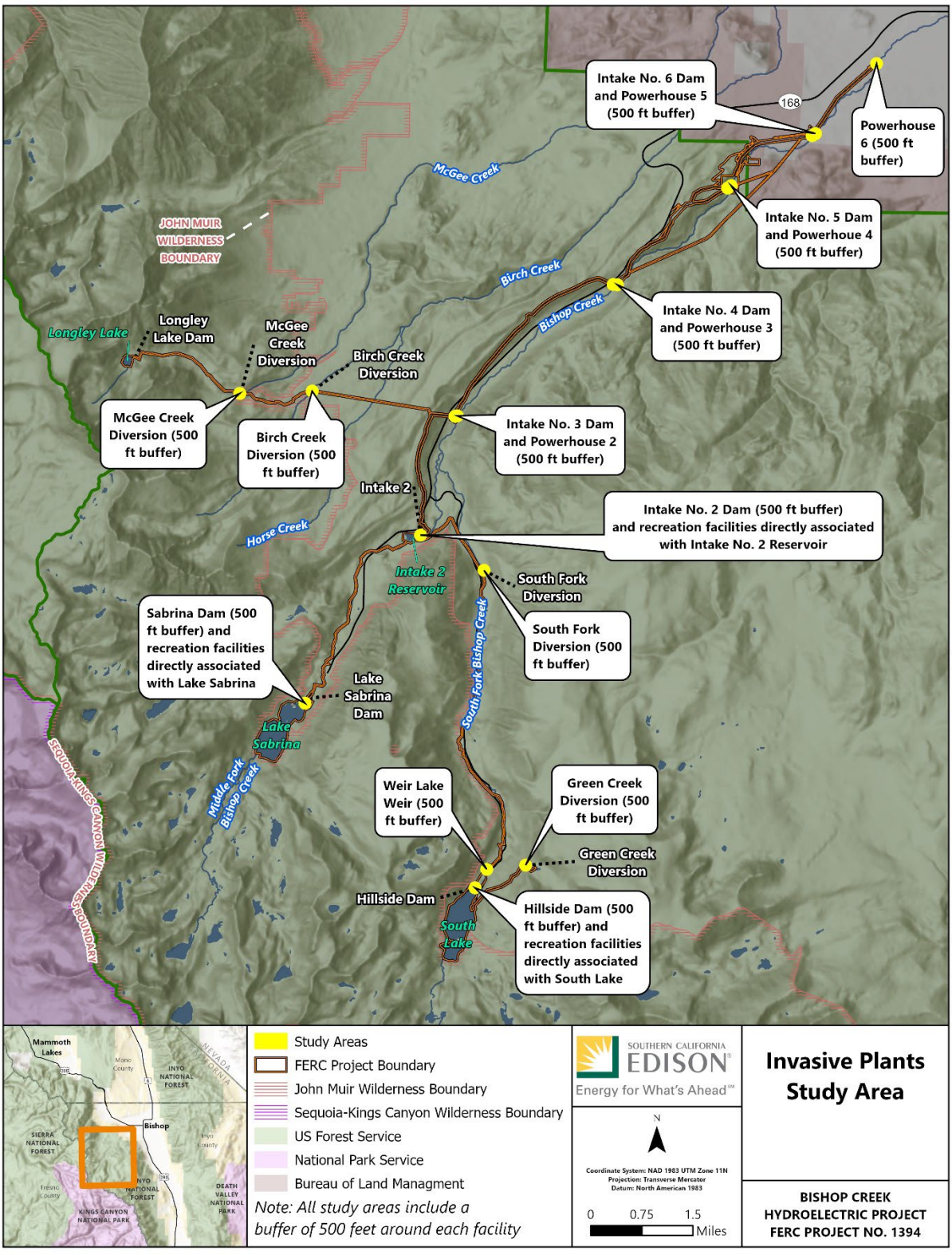

Figure 4-1 Assessment of Special Status Plants Study Areas

5.0 MODIFICATIONS TO METHODS

Two modifications to methods were made to this study: 1) the Longley Lake area was not surveyed due to its location in a wilderness area, infrequency of maintenance, no previously observed special status plants, and no changes in operations anticipated in the new license period; 2) stream reaches within the FERC boundary but outside of powerhouse and recreation buffer areas were not surveyed.

6.0 RESULTS

Table 6-1 lists the species that were reviewed and determined to have potential for occurrence and summarizes the results from the 2019 and 2020 field surveys of the facilities and recreation areas respectively. Notes on species observed during the surveys are provided in **bold type** in the Habitat Suitability/Survey Results column of Table 6-1.

Table 6-1 Survey Results for Special Status Plants with Potential to Occur in the Project Vicinity

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
Antennaria pulchella beautiful pussy-toes	–	CRPR 4.3	June–September	Alpine boulder and rock field (stream margins) and meadows and seeps from 9,186 ft. to 12,139 ft.	Recorded 1.6 miles south of South Lake (Hillside) Dam. Not observed in 2019 and 2020 surveys. While an *Antennaria* species was observed, it was identified as a common species.
Boechera dispar pinyon rock cress	–	CRPR 2B.3	March–June	Granitic, gravelly slopes and mesas in Joshua tree woodland, pinyon, and juniper woodland, and Mojavean desert scrub from 3,297 ft. and 9,202 ft.	Recorded outside of the Project watershed, 1.5 miles southeast of Powerhouse No. 4, east of Coyote Creek. Not observed during 2019 and 2020 surveys. While *Boechera* species were observed, they were identified as common species.
Boechera tularensis Tulare rockcress	USFS_SCC	CRPR 1B.3	June–July	Rocky slopes in subalpine coniferous forest, upper montane coniferous forest from 5,987ft. to 11,007 ft.	Recorded 3.3 miles to the west of the Project watershed's western boundary, 6 miles west of Lake Sabrina. Not observed during 2019 and 2020 surveys. While *Boechera* species were observed, they were identified as common species.
Botrychium crenulatum scalloped moonwort	USFS_SCC	CRPR 2B.2	June–September	Moist meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes, and swamps from 3,887 ft. to 10,203 ft.	Recorded within the Project watershed boundary, 4.3 miles east of South Fork Bishop Creek and 4.8 miles southeast of Bishop Creek South Fork Diversion Dam, along the East Fork Coyote Creek. Not observed during 2019 and 2020 survey effort.
Bruchia bolanderi Bolander's bruchia	USFS_SCC	CRPR 4.2	N.A.	Moss which grows on damp clay soils in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest; ephemeral nature and	Recorded 2 miles south of the Project watershed's southern boundary, 5.5 miles south of South Lake. Not observed during 2019 and 2020 surveys.

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
				disturbance adapted; from 5,282 ft. to 10,958 ft.	
Calochortus excavatus Inyo County star-tulip	BLMS, USFS_SCC	CRPR 1B.1	April–July	Mostly on fine, sandy loam soils with alkaline salts; grassy meadows and seeps in shadscale scrub from 393 ft. to 7,201 ft.	Recorded outside the Project's northeastern watershed boundary, 2.9 miles northeast of Powerhouse No. 6 off Highway 168 in Bishop. Not observed in during 2019 and 2020 surveys.
Carex congdonii Congdon's sedge	–	CRPR 4.3	July–August	Alpine boulder and rock field and subalpine coniferous forest (rocky) from 8,530 ft. to 12,795 ft.	Reported 2.8 miles west of Longley Lake. Not observed during 2019 and 2020 surveys. While *Carex* species were observed, they were identified as common species.
Carex scirpoidea ssp. pseudoscirpoidea western single-spiked sedge	USFS_SCC	CRPR 2B.2	July–September	Often on limestone in alpine boulder and rock field, meadows and seeps, and subalpine coniferous forest from 6,988 ft. to 12,007 ft.	Recorded within the Project watershed boundary, 4 miles east of Bishop Creek South Fork Diversion Dam, along West Fork Coyote Creek. Not observed during 2019 and 2020 surveys. *Carex* species were observed but identified as common species.
Cryptantha glomeriflora clustered-flower cryptantha	–	CRPR 4.3	June–September	Great Basin scrub, meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest from 5,906 ft. to 12,303 ft.	Reported along Highway 168 in 1941, 0.6 miles north of Lake Sabrina. Not observed during 2019 and 2020 surveys. *Cryptantha* species were observed but identified as common species.
Draba praealta tall draba	–	CRPR 2B.3	July–August	Meadows, seeps, and wetlands from 9,596 ft. to 11,302 ft.	Suitable mesic habitat for this species is present. Species reported from along Lake Sabrina, south of Lake Sabrina Dam. Not observed in 2019 or 2020 surveys.
Eriastrum sparsiflorum few-flowered eriastrum	–	CRPR 4.3	May-September	Chaparral, cismontane woodland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, and	Suitable habitat for this species at lower elevation recreation areas. **Observed in 2019** at multiple locations downstream of the Bishop Creek South Fork Diversion Dam. Species also reported adjacent to Highway 168, 0.6 miles

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
				pinyon and juniper woodland from 3,527 ft. to 5,610 ft.	northwest of Powerhouse 3 and Intake 4. Not observed in 2020 surveys of the recreational areas.
Helodium blandowii Blandow's bog moss	USFS_SCC	CRPR 2B.3	N.A.	Moss growing on damp soil, especially under willows among leaf litter in meadows, seeps, and subalpine coniferous forest from 6,108 ft. to 8,858 ft.	Recorded 1.3 miles south of the Project watershed southern boundary, 3.6 miles south of South Lake and 4.8 miles south of South Lake Dam, along Middle Fork Kings River. Not observed during 2019 and 2020 surveys.
Lomatium rigidum stiff lomatium	–	CRPR 4.3	April-May	Great Basin scrub and pinyon and juniper woodland from 3,937 ft. to 7,218 ft.	Suitable habitat for this species at lower elevation recreation areas but species was not observed in the 2020 surveys of these areas. Species was **observed in 2019** at multiple locations within the Project vicinity.
Lupinus padre-crowleyi Father Crowley's lupine	USFS_SCC	SR; CRPR 1B.2	June–August	Great Basin scrub, riparian forest, riparian scrub, and upper montane coniferous forest from 7,218 ft. to 13,123 ft.	Reported 2.6 miles from the Project vicinity. Not observed during 2019 and 2020 surveys. While *Lupinus* species were observed, they were identified as common species.
Mentzelia inyoensis Inyo blazing star	BLMS, USFS_SCC	CRPR 1B.3	April–October	Great Basin scrub, pinyon-juniper woodland from 3,789 ft. to 6,496 ft.	Reported from along Bishop Creek, 0.4 miles north of Bishop Creek South Fork Diversion Dam. Suitable habitat is present at lower elevation recreation areas, but species was not observed during the 2020 surveys. While a *Mentzelia* species was observed, it was identified as a common species.
Muilla coronata crowned muilla	–	CRPR 4.2	Mar–April	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland from 2,198 ft. to 6,430 ft.	Suitable habitat is present. Reported at two locations within the Project vicinity, with one located 0.6 miles east of Powerhouse 6 and the other located 0.8 miles northeast of Powerhouse 5 and Intake 6. Not observed during 2019 and 2020 surveys.

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
Myurella julacea small mousetail moss		CRPR 2B.3	N.A.	Alpine boulder and rock field, subalpine coniferous forest, growing on damp limestone rock and soil; crevices, under hangs, shelves, in filtered light; sometimes on granite, from 8,858 ft. to 9,842 ft.	Suitable habitat is present. Reported from along Middle Fork Bishop Creek 0.6 miles northeast of Lake Sabrina Dam. Not observed in Survey Area during 2019 and 2020 surveys.
Packera indecora rayless mountain ragwort	–	CRPR 2B.2	July–August	Mesic meadows and seeps from 5,593 ft. to 10,006 ft.	Recorded 3.7 miles west of the Project watershed's western boundary, 6.3 miles west of Lake Sabrina. Not observed during 2019 and 2020 surveys.
Parnassia parviflora small-flowered grass-of-Parnassus	–	CRPR 2B.2	August–September	Wet areas, meadows, and rocky seeps from 6,594 ft. to 9,104 ft.	Suitable habitat for this species is present in mesic areas. **Observed in 2019** at the Birch Creek Diversion. Last recorded in 1937 in Buttermilk Country, outside the Project watershed's northern boundary, 1.9 miles north of Birch-McGee Diversion. Not observed during the 2020 surveys of recreation areas.
Penstemon papillatus Inyo beardtongue	–	CRPR 4.3	June–July	Pinyon and juniper woodland and subalpine coniferous forest from 6,562 ft. to 9,843 ft.	Reported at multiple locations within the Project vicinity, with the closest one 570 feet south of the Survey Area at Lake Sabrina. Not observed during 2019 survey effort around the facilities but was **observed in 2019** at the riparian monitoring site located downstream of the McGee Creek Diversion Dam. Not observed in the recreation areas in 2020. While *Penstemon* species were observed, they were identified as common species.
Phacelia inyoensis Inyo phacelia	USFS_SCC	CRPR 1B.2	April–August	Meadows and seeps (alkaline) from 3,002 ft. to 10,499 ft.	Reported 1.4 miles west of Powerhouse 4 and Intake 5. Not observed during 2019 and 2020 surveys. While *Phacelia* species were observed, they were identified as common species.

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
Pinus albicaulis Whitebark pine	Candidate for USFS_SCC		July–August	Tree found in Subalpine forest from 10,000 ft. to 12,100 ft.	Reported 1.2 miles northwest and 1.3 miles southeast of Lake Sabrina, and 1.8 miles southeast of South Lake (Hillside) Dam. Not observed in Survey Area during 2019 and 2020 surveys.
Plagiobothrys parishii Parish's popcornflower	USFS_SCC	CRPR 1B.1	March–June	Alkaline soils; mesic sites in Great Basin scrub and Joshua tree woodland from 8,071 ft to 15,069 ft.	Recorded outside the Project watershed's northern boundary, located in a meadow along Highway 395 approximately 1.5 miles east of Bishop in 1913; more recent records are along the Owens River. Not observed during 2019 and 2020 surveys.
Potamogeton robbinsii Robbins' pondweed	–	CRPR 2B.3	July–August	Deep water, lakes, marshes, and swamps from 5,003 ft. to 11,466 ft.	Recorded 1.7 miles southeast of the Project watershed's eastern boundary, 4.6 miles southeast of South Lake Dam, along Fourth Lake. Not observed during 2019 and 2020 surveys.
Ranunculus hydrocharoides frog's-bit buttercup	USFS_SCC	CRPR 2B.1	June–September	In or bordering shallow springs or freshwater marshes and seeps from 4,133 ft. to 7,611 ft.	Suitable mesic habitat for this species is present. **Observed in 2019 in mesic habitat near Powerhouse 3/Intake 4** Species also recorded outside the Project watershed's northern boundary, 3.5 miles from Powerhouse No. 6, located in a channel within the town of Bishop. Not observed during 2020 surveys of the recreation areas.
Sabulina stricta bog sandwort	–	CRPR 2B.3	July–September	Moist, granitic gravelly sites in sedge meadows, seeps, alpine boulder and rock field, and alpine dwarf scrub from 8,000 ft. to 12,992 ft.	Last recorded in 1977 along Coyote Ridge within the Project watershed, 1.5 miles east of Green Creek Diversion Dam. Not observed during 2019 and 2020 surveys.
Sidalcea covillei Owens Valley checkerbloom	–	SE; CRPR 1B.1	April–June	Chenopod scrub and meadows and seeps from 3,593 ft. to 4,642 ft.	Reported 2 miles northwest of Powerhouse No. 6. Not observed during 2019 and 2020 surveys.

Scientific/ Common Name	Federal Status	State Status and CRPR[1] Rank	Estimated Detectability Period	Habitat	Habitat Suitability/Survey Results
					While a *Sidalcea* species was observed, it was identified as a common species.
Solorina spongiosa fringed chocolate chip lichen	USFS_SCC	CRPR 2B.2	N.A.	Meadows and seeps, including seeps within subalpine coniferous forest, on moss mats in areas with calcareous seepage. Generally, in high altitude sites with north or east exposure, from 9,498 ft.	Suitable mesic habitat for this species is present. Reported from 0.5 mile north of South Lake Dam, along South Lake Road within South Fork Bishop Creek Drainage but was not observed during the 2019 and 2020 surveys.
Tonestus peirsonii Peirson's tonestus	–	CRPR 4.3	July–August	Alpine boulder and rock field and subalpine coniferous forest (rocky) from 9,514 ft. to 12,139 ft.	Reported 2 miles west of Lake Sabrina. Not observed during 2019 and 2020 surveys.
Trichophorum pumilum little bulrush	USFS_SCC	CRPR 2B.2	August	Limestone soils within bogs and fens, marshes and swamps, and riparian scrub from 9,448 ft. to 10,662 ft.	Suitable mesic habitat for this species is present. Reported from 0.5 mile north of South Lake Dam, along South Lake Road within South Fork Bishop Creek Drainage. Not observed during 2019 and 2020 surveys.
Triglochin palustris marsh arrow-grass	–	CRPR 2B.3	July–August	Meadows and seeps, freshwater marsh, subalpine coniferous forest from 6,988 ft. to 11,597 ft.	Suitable mesic habitat for this species is present. **Observed in 2019 at one location within the Project vicinity**. Recorded 0.8 miles southwest of Bishop Creek Intake No. 2, 0.15 miles east of Highway 168.
Viola pinetorum ssp. grisea grey-leaved violet	–	CRPR 1B.2	April–July	Dry mountain peaks and slopes in subalpine coniferous forest, upper montane coniferous forest, meadows, and seeps from 5,183 ft. to 12,139 ft.	Recorded 1.3 miles southeast of the Project watershed's eastern boundary, 4.3 miles southeast of South Lake Dam, along Fifth Lake. Not observed during 2019 and 2020 surveys.

LEGEND:
FT = Federal Threatened

SE = State Endangered
USFS_SCC = U.S. Forest Service Species of Conservation Concern
SR = State Rare
BLMS = Bureau of Land Management Sensitive
CRPR = California Rare Plant Rank
1B = Plants Rare, Threatened, or Endangered in California and elsewhere
2B = Plants Rare, Threatened, or Endangered in California but more common elsewhere
Plants about which we need more information – A Review List
Plants of limited distribution – A Watch List

CRPR Threat Code Extensions
Seriously threatened in California (over 80% of occurrences threatened, high degree and immediacy of threat)
Fairly threatened in California (20–80% of occurrences threatened, moderate degree and immediacy of threat)
Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)
Source: USFS_SCC U.S. Forest Service Species of Conservation Concern (Appendix G, Inyo National Forest Land Management Plan, 2019)

7.0 DISCUSSION

As indicated in Table 6-1 a total of five special status plant species were observed during the surveys. With one exception, none of the species are forest sensitive or federal/state listed as RTE but do have a special status rank with the CNPS. Frog's-bit buttercup (*Ranunculus hydrocharoides*) is a Forest Species of Conservation Concern in addition to its special status rank with the CNPS.

It is recognized that for all species, special status rank may change during the term of the new license, and habitat conditions may change in the future such that species not observed during the 2019 and 2020 surveys may occur. Under the existing license, SCE has an Implementation Plan for Mitigation of Impacts to Sensitive or Endangered Plant and Animal Species. While no changes to Project operations are proposed under the new license, and therefore no impacts to species identified in Table 6-1 are anticipated, SCE will update that 1995 implementation plan for consistency with the Inyo National Forest Land Management Plan's (2019) desired conditions, goals, and standards for Species of Conservation Concern.

8.0 FOREST LAND USE MANAGEMENT PLAN CONSISTENCY ANALYSIS

Chapter 2 of the 2019 Inyo National Forest Land Management Plan (Management Plan) describes the Desired Conditions, Goals, Standards and Guidelines for animal and plant species, including those plants considered to be at-risk. For the purposes of this analysis, at-risk plants would include those discussed in this study that have a designated special status at the state or federal level.

8.1 DESIRED CONDITIONS (SPEC-FW-DC)

Desired Conditions 2, 3 and 4 of the Management Plan refer specifically to at-risk species. The Project is currently consistent with these desired conditions of the Management Plan. There are currently no proposed changes to operation or maintenance activities. SCE will develop a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when Project-related maintenance activities occur in habitats that have the potential to support special status species, including plants.

8.2 GOALS (SPEC-FW-GOAL)

Goals 1, 3, 4, and 5 of the Management Plan refer specifically to at-risk species. The Project is currently consistent with these desired conditions of the Management Plan. There are currently no proposed changes to operation or maintenance activities. SCE will develop a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when Project-related maintenance activities occur in habitats that have the potential to support special status species, including plants.

Goal 5 details a regional whitebark pine conservation and restoration strategy. While whitebark pine was previously reported 1.2 miles northwest and 1.3 miles southeast of Lake Sabrina, and 1.8 miles southeast of South Lake (Hillside) Dam, it was not observed in the Survey Area during 2019 and 2020 surveys. SCE will continue to collaborate with agencies as needed on this matter.

8.3 STANDARDS (SPEC-FW-STD)

Standards 1, 2, 3, 4 and 5 refer specifically to at-risk species. The Project is currently consistent with these desired conditions of the Management Plan. There are currently no proposed changes to operation or maintenance activities. SCE will develop a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when Project-related maintenance activities occur in habitats that have the potential to support special status species, including plants.

9.0 CONSULTATION SUMMARY

SCE distributed three periodic progress reports on the following schedule:

- Progress Report 1: December 19, 2019
- Progress Report 2: April 14, 2020
- Progress Report 3: July 24, 2020
- Initial Study Report (Progress Report 4): October 30, 2020
- Initial Study Report Meeting: November 10, 2020
- Progress Report 4: March 2, 2021
- Progress Report 5: May 28, 2021
- Progress Report 6: August 27, 2021
- Updated Study Report: November 4, 2021
- Updated Study Report Meeting: November 18, 2021

A technical memorandum summarizing the 2019 study results was submitted with Progress Report 2. Following that filing, SCE hosted a Technical Working Group (TWG) meeting on May 7, 2020 to discuss the 2019 study season, work completed to date, and the technical memoranda. An opportunity for further discussion was provided at the Initial Study Report (ISR Meeting on November 10, 2020). One comment specific to this study plan was received following the ISR meeting (Table 9-1).

Three progress reports were filed in 2021 after the ISR, as identified above. This Final Technical Report was submitted to agencies and stakeholders for a 60-day review period on August 26, 2021. The comment period was extended, at the request of the agencies, and comments received on this report are shown in Table 9-1.

SCE held a Project Effects meeting on October 28, 2021 for all stakeholders and agencies to discuss what project effects (if any) had been identified through the implementation of each of the approved study plans. Meetings were held with the USFS on December 16th, and with CDFW and the USFS on December 21, 2021 to discuss comments received on the technical report as well as SCE's draft responses to them.

The Updated Study Report (USR) was filed with FERC on November 4, 2021, and a USR Meeting was held on November 18, 2021. At this meeting, SCE only discussed those studies which were still in progress at the time of the USR (Water Quality, Sediment and Geomorphology, Operations Model, Recreation Use and Needs, Recreation Facilities Condition Assessment, Project Lands and Boundary, and Cultural and Tribal Studies).

The Assessment of Special Status Plants was not discussed at the USR, and thus received no comments.

Table 9-1 Comment Response Table

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
15	Bishop Creek RTE Plant Survey	May 21, 2020	CDFW	There was no assessment of this goal/objective: Assess the extent to which the Project may affect rare, threatened, endangered or other special status species. CDFW recommends the technical memorandum address the extent of Project related impacts to rare, threatened, endangered or other special status plant species.	SCE agrees that this will be appropriate and useful information when conducting the impact analysis, relative to goals and objectives. This analysis is included in the effects analysis discussion on special status plants in Sections 9.8.4 and 9.8.10 of Exhibit E of the FLA.
16	Bishop Creek RTE Plant Survey	May 21, 2020	CDFW	This goal/objective was not addressed: Ensure that future Project facilities and operations are consistent with the Desired Conditions, Goals and Standards described for animal and plant species in the Land Management Plan for the INF (USDA, 2019). Should either list the specific desired conditions in the technical reports or list the Land Management Plan for the INF (USDA, 2019) in the reference section (hyperlink could be useful) with the appropriate Chapter, section, sub-section, and page numbers.	This information is covered in Section 8 of this report.
17	RTE Draft Technical Report	October 4, 2021	USFS	Clarify Project Area vs. Study Area; provide map and details of where plants were found	Clarifying language has been added to the Technical Report. GIS shapefiles with locations have been sent to USFS under separate cover, to supplement the summary table in the report.
18	Special Status Plant Assessment Initial Study Report	November 10, 2021	USFS	Make corrections to the Special Status Plant Table to include Forest Service SCC and remove references to the Forest Service Sensitive status.	This was added to the revised Table 6-1 in this report and an updated table was also included with SCE's ISR Comment Response FERC filing on November 23, 2020.

Comment Number	Study	Date of Comment	Entity	Comments	SCE Response
19	TERR 3	November 16, 2021	USFS	"The study area" is this the same as the Project area above?	The study area for RTE plants was smaller than the project area (FERC boundary) due to need to focus on facilities and recreational areas where potential for disturbance and impacts to RTE plants was highest.
20	TERR 3	November 16, 2021	USFS	Why were so many areas not actually surveyed, when they meet the criteria for needing surveys?	See response above.
21	TERR 3	November 16, 2021	USFS	Need map and GIS data of area surveyed and what was found. Did surveys include REC areas?	This information has been previously provided via ShareFile
22	TERR 3	November 16, 2021	USFS	All reports should be accompanied by the raw data in a spreadsheet and the spatial data in a .shp format.	This information has been provided as previously requested on October 5, 2021: requests for all raw data to be included reports are being handled on a case-by-case basis, as this request is coming at the end of the reporting process.

10.0 REFERENCES

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Psomas. 2014. Determination of No Effect on Listed Species for Southern California Edison Company's South Lake Tunnel Intake Improvements Project, Inyo County, California.

Psomas. 2010. Biological Resources Evaluation Technical Report for The Southern California Edison South Lake Dam, Agnew Lake Dam, Saddlebag Lake Dam, And Tioga Lake Dam, And Auxiliary Dam Maintenance and Geo-Membrane Lining Projects.

Psomas. 2008a. Determination of No Effect on Federally Listed or Candidate Species for Proposed Work at Southern California Edison Company's Bishop Creek Plant 6, Sediment Removal Project, Inyo County, California (FERC Project No. 1394).

Psomas. 2008b. Project Description: Long Term Streambed Alteration Agreement for SCE eastern Sierra Hydro Projects.

Psomas. 2007a. Determination of No Effect on Listed Species for the Bishop Creek Intake 2 AVM and Pipe Installation Project Southern California Edison Company's Bishop Hydroelectric Power Project, Inyo County, CA.

Psomas. 2007b. Determination of No Effect on Listed Species for the Bishop Creek Intake 4 Project Southern California Edison Company's Bishop Hydro Project, Inyo County, CA (Chamber drain).

Psomas 2006a. Determination of No Effect on Listed Species for the Bishop Creek Intake 4 Project Southern California Edison Company's Bishop Hydro Project, Inyo County, CA (weir sediment removal).

Psomas. 2006b. Determination of No Effect on Listed Species for Maintenance Activities to Abelour Ditch, Southern California Edison Company Inyo County, CA.

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MEMORANDUM

March 31, 2020

To:
Mr. Finlay Anderson
Kleinschmidt Group

From:
Brad R. Blood, PhD
Allison Rudalevige
Psomas
Edith Read
E Read and Associates

Subject: Results of Special Status Plant Surveys for the Bishop Creek Hydroelectric Power Project (FERC No. 1394-080) Relicensing, Inyo County, California

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This memorandum presents the results of the 2019 surveys for special status plant species in support of efforts to relicense Southern California Edison's Bishop Creek Hydroelectric Power Project (Federal Energy Regulatory Commission [FERC] Project No. 1394-080) (hereinafter referred to as the "Project"). The Project is located along Bishop Creek southwest of the City of Bishop in Inyo County, California (Exhibit 1, Project Vicinity).

PROJECT BACKGROUND

Southern California Edison Company (SCE) is the licensee, owner, and operator of the existing hydroelectric facilities subject to the relicensing effort. The Project is predominantly located on Bishop Creek and includes facilities on Birch and McGee Creeks. SCE operates the Project under a 30-year license issued by FERC on July 19, 1994. As the current license is due to expire on June 30, 2024, SCE has initiated a formal relicensing process utilizing using FERC's Integrated Licensing Process. No changes in Project operations or existing facilities are anticipated if a new license were issued.

In advance of filing the Notice of Intent (NOI) and Pre-Application Document (PAD), SCE, Kleinschmidt, Psomas, and others have worked with stakeholders to identify necessary studies, with the goal of accelerating FERC's ability to issue a Study Plan Determination. Efforts began more than one year prior to formal initiation of the process with FERC, through a series of Technical Working Group meetings held in Bishop, California.

During the Technical Working Group meetings, stakeholders identified the need to conduct a study to determine the presence or absence of special status plant species with a high potential of occurring within the Project boundary, assess the potential for the Project to impact any such species, and identify mitigation measures for the species with high potential for occurrence. A preliminary list and map of occurrences was developed and presented to the resource agencies. No change to Project operations is proposed, but because some species received special status protection after the existing license was issued, field surveys of facilities were determined necessary.

Environmental Setting

The Project facilities lie in the Owens Valley and along the eastern slope of the Sierra Nevada mountains. The Project facilities include powerhouses, dams, impoundments (including South Lake and Lake Sabrina), diversions, weirs, outbuildings, valve houses, access roads, and a flowline. The Project's facilities are situated along Bishop Creek and its tributaries including South Fork, Middle Fork, Green Creek, Birch Creek, and McGee Creek. Bishop Creek is tributary to the Owens River. Project facilities

occur across privately and federally held properties (federal lands include those held and managed by the US Forest Service [USFS] and US Bureau of Land Management [BLM]). Subsequently, land uses adjacent to the Project also vary and include residential, grazing, public recreation, and federally-designated Wilderness land.

The Project area is typified by moderate to steep ridge and valley topography. Elevations within the drainages range from approximately 4,000 feet above mean sea level (msl) to over 13,000 feet above msl. Bishop Creek is a major stream with a total drainage area of approximately 70 square miles, flowing northeastward approximately 28 miles from its headwaters in the Sierra Nevada to its confluence with the Owens River at the City of Bishop. The North, Middle, and South Forks of Bishop Creek originate in nearby glacial basins separated by ridges. South Lake and Lake Sabrina are the major storage reservoirs in the watershed.

Project Facilities Use

Table 1, Bishop Creek Hydroelectric Project Special Status Plant Survey Areas, lists each Project facility, its elevation, and its surrounding plant communities/landcovers included in the special status plant surveys. A description of each plant community/landcover is located in Attachment A.

TABLE 1
BISHOP CREEK HYDROELECTRIC PROJECT
SPECIAL STATUS PLANT SURVEY AREAS

Project Facilities	Elevation	Surrounding Plant Communities
South Lake (Hillside) Dam	9,765 ft	Barren, Basin Sagebrush, Subalpine Conifers, Lodgepole Pine
Sabrina Lake Dam	9,145 ft	Quaking Aspen, Basin Sagebrush, Urban-related Bare Soil, Perennial Lake or Pond
McGee Creek Diversion	9,206 ft	Quaking Aspen, Eastside Pine, Great Basin Mixed Scrub
Birch Creek Diversion	8,319 ft	Quaking Aspen, Eastside Pine, Great Basin Mixed Scrub
Green Creek Diversion	10,272 ft	Quaking Aspen, Subalpine Conifers, Barren
Bishop Creek South Fork Diversion Dam	8,224 ft	Quaking Aspen, Basin Sagebrush, Curleaf Mountain Mahogany
Bishop Creek Intake 2 Dam	8,110 ft	Quaking Aspen, Basin Sagebrush, Great Basin Mixed Scrub, Perennial Lake or Pond
Bishop Creek Powerhouse No. 2 and Intake 3	7,147 ft	Eastside Pine, Bitterbush, Basin Sagebrush, Singleleaf Pinyon Pine, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 3 and Intake 4	6,311 ft	Eastside Pine, Great Basin Mixed Scrub, Bitterbush, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 4 and Intake 5	5,183 ft	Blackbush, Eastside Pine, Great Basin – Desert Mixed Scrub, Riparian Mixed Hardwood, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 5 and Intake 6	4,781 ft	Great Basin – Desert Mixed Scrub, High Desert Mixed Scrub, Urban-related Bare Soil, Perennial Lake or Pond
Bishop Creek Powerhouse No. 6	4,516 ft	High Desert Mixed Scrub, Saltbush, Willow

The Project consists of 13 dams/diversions, and 5 powerhouses with a combined generating capacity of 28.565 megawatts (MW). The Project diverts water for power generation from the Middle and South forks of Bishop Creek, McGee Creek and Birch Creek through the five powerhouses and associated intakes as follows: 1) Powerhouse No. 2, immediately below the confluence of the Middle and South forks of Bishop Creek; 2) Powerhouse No. 3, 3 miles below Powerhouse No. 2; 3) Powerhouse No. 4, approximately 3 miles below Powerhouse No. 3; 4) Powerhouse No. 5, approximately 1 mile below Powerhouse No. 4; and 5) Powerhouse No. 6, approximately 2 miles below Powerhouse No. 5.

Reservoirs

South Lake is operated as a store and release facility for water storage and downstream hydroelectric generation. South Lake holds and releases spring runoffs to allow for regulated flows during the summer months to the powerhouses, and also provides opportunities for water recreation. South Lake has a net storage capacity of 12,883 acre-foot at normal full pool elevation 9,751.3 feet msl. The surface area of the reservoir when full is approximately 173 acres. The flow is regulated with an unlined tunnel with a capacity of 178 cubic feet per second (cfs). The submerged outlet tunnel intake portal is located approximately 1,200 feet upstream of the dam.

Lake Sabrina has a net storage capacity of approximately 8,376 acre-foot at normal maximum reservoir level elevation 9,131.62 feet msl. The surface area of the reservoir when full is approximately 184 acres. Water is released to the downstream channel via low-level outlets; the intake is a fully submerged concrete box supporting three steel trash racks that is integral with the upstream side the dam. The invert of the intake is at elevation 9,067.42 feet msl.

Dams and Diversions

Green Creek Diversion is located 0.8 mile east northeast of the Hillside Dam (South Lake) spillway. A wooden head gate, 3 feet long by 2 feet high, is located approximately 80 feet downstream from Bluff Lake on Green Creek. The head gate diverts water into an open channel approximately 1,400 feet in length to the Green Creek diversion intake. The diversion is earth and rockfill, located at 10,264 feet msl, approximately 51 feet along the crest and 9 feet above the streambed. The diversion is equipped with a 12.5-foot-wide by 1-foot-deep spillway. The intake consists of a 16-inch diameter steel pipe with a slide gate and a trash rack. A 16-inch diameter drainpipe passes through the intake chamber which is constructed of concrete masonry. A 16-inch diameter steel pipe, approximately 4,750 feet long, extends into a natural channel, 1,150 feet in length, and carries water to South Lake.

South Fork Diversion is earth and rockfill with a crest elevation at 8,211 feet msl, crest length of approximately 65 feet, and crest height of 10 feet above the streambed. The diversion is equipped with a 40-foot wide by 6-foot deep spillway. A 38-inch diameter steel pipe with a gate valve and trash rack comprises the outlet. The spillway height may be raised or lowered with 4 inch by 6-inch flashboards, each 4 feet in length. A 12-inch diameter drainpipe passes through the base of the intake chamber and a 36-inch diameter drainpipe passes through the diversion. The flowline consists of approximately 4,104 feet of 38-inch diameter steel pipe connected to 4,059 feet of 34-inch diameter steel pipe. The flowline extends from the South Fork diversion to Intake No. 2 reservoir. The flowline is protected with air valves, expansion joints, a sand box and a sand trap. The sand box is concrete lined, and approximately 17 feet by 24 feet with exit to a 38-inch diameter steel pipe extending to Intake No. 2. The sand box has two drain gates.

Hillside Dam is an 81.5-foot-high rockfill timber face (covered with geomembrane) dam completed in 1910 to enlarge an existing natural lake (South Lake). The crest is 645 feet long and is at an elevation of 9,757.6 feet msl. There is a 40-foot spillway, and a 1,900-foot unlined outlet tunnel that discharges into the South Fork of Bishop Creek, 600 feet downstream of the dam. The reservoir is operated as a regulating reservoir for a series of hydroelectric powerhouses including Bishop Creek Powerhouses 2 through 6.

Weir Lake Weir, located approximately 1,800 feet below Hillside Dam, is used for flow monitoring. Weir Lake Weir, also known as South Lake Weir, is a structure of concrete approximately 70 feet long and varying in height from 2 feet to 4 feet. The weir is 25 feet wide by 1 foot high.

Sabrina Dam and associated facilities consist of a 70-foot by 900-foot timber face (covered with geomembrane) rockfill dam, an uncontrolled main spillway formed by an ogee crest, an uncontrolled auxiliary spillway formed by a concrete wall, and three low-level outlets. The dam forms Lake Sabrina, which is operated as a regulating reservoir for a series of hydroelectric powerhouses which include Bishop Creek Powerhouses 2 through 6.

Longley Dam is an earth and rockfill dam constructed with a reinforced concrete core wall. The dam has a crest elevation of 10,708 feet msl, crest length of 120 feet, and crest height of 27 feet above streambed. The upstream face of the dam has a slope of 2 to 1 and the downstream face has a slope of 1.5 to 1. There are two 8-inch diameter steel outlet pipes encased in concrete which pass through the base of the dam. Flow is controlled by two 10-inch gate valves. The spillway is 8 feet wide by 2 feet deep. The spillway channel is excavated in 8-foot-wide solid rock where water is diverted into McGee Creek.

Intake No. 2 Dam is an earthfill dam standing 41 feet high and 443 feet long, with a concrete core wall extending over approximately half its length. The concrete core wall is discontinued on the right side of the dam where the dam is less than 20 feet high. There is a service spillway with an ogee crest and an auxiliary spillway with an ungated concrete ogee crest, two low-level outlet conduits, and one intake structure. Water is conveyed to Flowline/Penstock No. 2 through a 48-inch diameter steel pipe that passes under the dam near the left abutment. The steel pipe connects to a second hydraulically operated, 48-inch diameter butterfly valve located in a small building at the downstream toe of the dam. The butterfly valve controls flow through a 48-inch to 60-inch diameter expansion to the 60-inch diameter flowline to Bishop Creek Powerhouse No. 2. The valves are normally open but are operable remotely from the SCE's Bishop Control Center located next to Powerhouse No. 4.

A 24-inch diameter sand sluice pipe runs parallel to the 48-inch diameter pipe and passes under the dam. A 20-inch fish-water release pipe branches off the 24-inch sluice line directly above the valve house. The fish-water release piping was reconfigured and a new acoustic velocity meter (AVM) to measure flow was installed in 2008 to monitor and record minimum flow releases.

Intake No. 3 Dam: 20-foot by 225-foot concrete arch; 40-foot by 3.5-foot spillway; 60 inch by 6,421-foot-long steel pipe; 60-inch by 6,209-foot steel pipe; 54-foot to 48-inch by 4,673-foot penstock.

Intake No. 4 Dam: 28-foot by 323-foot concrete arch; 50-foot by 5-foot spillway; 60-foot steel intake pipe; 60-inch by 6,242-foot steel pipeline; 30-foot by 24-inch by 5,314-foot penstock; 30-inch by 5,665-foot penstock.

Intake No. 5 Dam: 20-foot by 275-foot concrete; 60-inch by 3-foot spillway; 60-foot steel pipe; 60-inch by 2,933-foot steel pipe; 60-inch by 540-foot concrete pipe; two 42-inch by 4,800-foot penstocks.

Intake No. 6 Dam: 26-inch by 320-foot concrete dam; 6-foot spillway; 3,000-foot steel pipe; 54-inch by 4,360-foot penstock.

Diversion Pipe: The Birch-McGee Diversion pipe connects to the lower end of Flowline No. 2. This 24-inch diameter steel pipe conveys water from Birch and McGee creeks to Flowline No. 2. The rated capacity of the Birch-McGee Diversion pipe is approximately 40 cfs. The flowline collects water from the following:

- Birch-McGee Diversion: a 6-foot by 22-foot stone and concrete diversion dam; a 22-inch steel pipe connects to Penstock 2 above Powerhouse 2.
- McGee Creek Diversion is a 6-foot by 22-foot concrete dam on McGee Creek, with a 12-foot by 1-foot spillway. Water is diverted into an 18-inch steel outlet pipe and into a flowline, which discharges into Birch Creek above the Birch Creek Diversion.

METHODS

Definitions

For the purposes of this document, a special-status plant is defined as a plant species considered by one or more branches of the federal government (e.g., USFWS, USDA, USFS or BLM) or by the State of California to merit regulatory consideration in association with prosecution of a Project. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitations of its population size, geographic range, and/or distribution resulting in most cases from habitat loss.

A federally Endangered species is one facing extinction throughout all or a significant portion of its geographic range. A federally Threatened species is one likely to become Endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species or Candidate species are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed project.

The State of California considers an Endangered Species to be one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened Species as one present in such small numbers throughout its range that it is likely to become an Endangered Species in the near future in the absence of special protection or management; and a Rare Species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare Species designation applies only to California native plants.

The CRPR, formerly known as the California Native Plant Society (CNPS) List, is a ranking system by the Rare Plant Status Review group and managed by the CNPS and the CDFW (CDFW 2020). A CRPR ranking summarizes information on the distribution, rarity, and endangerment of California's vascular plants. Plants with a CRPR of 1A are presumed extirpated from the State because they have not been seen in the wild in California for many years and they are either rare or extinct elsewhere. Plants with a CRPR of 1B are Rare, Threatened, or Endangered throughout their range. Plants with a CRPR of 2A are presumed extirpated from California but are more common elsewhere. Plants with a CRPR of 2B are considered Rare, Threatened, or Endangered in California, but are more common elsewhere. Plants with a CRPR of 3 require more information before they can be assigned to another rank or rejected; this is a

"review" list. Plants with a CRPR of 4 are of limited distribution or are infrequent throughout a broader area in California; this is a "watch list". The Threat Rank is an extension that is added to the CRPR to designate the plant's endangerment level. An extension of .1 is assigned to plants that are considered to be "seriously threatened" in California (i.e., over 80 percent of the occurrences are threatened or have a high degree and immediacy of threat). Extension .2 indicates the plant is "fairly threatened" in California (i.e., between 20 and 80 percent of the occurrences are threatened or have a moderate degree and immediacy of threat). Extension .3 is assigned to plants that are considered "not very threatened" in California (i.e., less than 20 percent of occurrences are threatened or have a low degree and immediacy of threat or no current threats are known). The absence of a threat code extension indicates that this information is lacking for the plant(s) in question.

Literature Review

A review of the existing literature was conducted to determine the potential for special status plant species to occur in the Project region, defined as the following U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles: Coyote Flat, North Palisade, Tungsten Hills, Mt. Darwin, Mount Tom, Bishop, and Mt. Goddard. To obtain information on known special status plant species reported to occur in the Project region, the CDFW's California Natural Diversity Database (CNDDB) (CDFW 2018a) and the CNPS's Inventory of Rare, Threatened and Endangered Plants (CNPS 2018) were queried for occurrences of special status plant species in the above mentioned quadrangles. In addition, this review included previous biological reports prepared for individual projects within the Special Status Plants Survey Area (Psomas 2004a, 2004b, 2005, 2006a, 2006b, 2007a, 2007b, 2008a, 2008b, 2010, and 2014) and the EA for the Bishop Creek Project (FERC 1991). This resulting list was then evaluated to determine which plant species have the potential to occur or are known to occur in the Project region based a review of Supplemental information (e.g., habitat descriptions and known occurrences) obtained from a review of the following Project-specific sources:

- Psomas Biological Survey Reports (a total of 14 reports prepared for SCE between 2004 and 2014)
- Environmental Assessment (EA), Bishop Creek Project (FERC Project No. 1394 – 004) (FERC 1991)

Plant species on the list were then categorized as follows:

- Known to occur in the Project vicinity: Special-status plants with recorded populations in the Project region, as determined by CNDDB or SCE studies;
- May potentially occur in the Project vicinity: Special-status plants that may potentially occur in the Project vicinity based on the geographic location and elevation of the Project and vegetation alliances and other habitat features present; and
- Unlikely to occur in the Project vicinity: Special-status plants that are unlikely to occur because their range does not overlap the Project area; or for which the Project vicinity does not support appropriate habitat.

Special Status Plant Species Field Survey

Areas targeted for focused surveys of special status plants (Exhibit 2, Special Status Plant Survey Area) consist of Project facilities including powerhouses, dams, diversions, lakes and other impoundments, the

flowline starting at Intake No. 2, valve houses, other outbuildings, and access roads and includes an approximate 500-foot survey area buffer surrounding each of the above listed Project components. The focused survey area includes lakes and streams within the Project boundaries, to the extent that some rare plant species are associated with mesic soils or aquatic habitats. Note: only those areas of lakes and other impoundments within 500 feet of a Project facility were surveyed. Inaccessible areas (i.e., private property or steep topography) were surveyed remotely via binoculars and were not directly accessed. In addition to the areas of focused surveys, incidental occurrence observations of special status plants obtained from locations that are part of the riparian monitoring program for Bishop Creek under the existing license are also provided in this Memorandum.

Botanical surveys were floristic in nature and consistent with the protocols created by the CDFW (CDFW 2018b). Psomas Senior Biologist Allison Rudalevige and Botanist Katie Gallagher performed special status plant surveys in June and August 2019. Table 2 provides the survey dates for each portion of the Survey Area. A total of approximately 98 person hours was spent performing the special status plant surveys at the project facilities. Surveys were conducted by walking transects to ensure 100 percent visual coverage of the Survey Area. All plant species observed were recorded in field notes and a complete list of species observed in the Survey Area is included in Attachment B. Plant species were identified in the field or collected for later identification. Plants were identified using taxonomic keys, descriptions, and illustrations in Jepson Flora Project (2019), Baldwin et al. (2012), Hickman (1993), and Munz (1974) to the taxonomic level necessary to determine whether or not they are a special status species. Nomenclature of plant taxa conform to the Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2020) for special status species and the Jepson eFlora (Jepson Flora Project 2019) for all other taxa. Any special status plant species observed were mapped and data for species with a CRPR of 1 or 2 were collected on the number and phenology of individuals (estimated for large populations), microsite characteristics such as slope, aspect, soil texture, surrounding habitat, and associated species. This information is reported on California Native Species Field Survey Forms (Attachment C).

TABLE 2
SPECIAL STATUS PLANT SURVEY DETAILS

Project Facilities	Survey Date(s)	Approximate Survey Time	Notes
South Lake (Hillside) Dam	August 8, 2019	1445-1645	The northern portion of the Survey Area was inaccessible.
Sabrina Lake Dam	August 7, 2019	0815-1045	The northern portion of the Survey Area was inaccessible.
McGee Creek Diversion	August 6, 2019	0845-1345	
Birch Creek Diversion	August 6, 2019	1500-1830	
Green Creek Diversion	August 8, 2019	0800-1345	
Bishop Creek South Fork Diversion Dam	August 7, 2019	1200-1430	The southeastern portion of the Survey Area was inaccessible.
Bishop Creek Intake 2 Dam	August 5, 2019	0930-1215; 1315-1515	
Bishop Creek Powerhouse No. 2 and Intake 3	August 9, 2019	0830-1230	The eastern portion of the Survey Area was inaccessible.
Bishop Creek Powerhouse No. 3 and Intake 4	June 11 and 12, 2019	1500-1545; 0825-1400	
Bishop Creek Powerhouse No. 4 and Intake 5	June 11, 2019	1000-1115; 1145-1420	
Bishop Creek Powerhouse No. 5 and Intake 6	June 10 and 11, 2019	1345-1500; 0740-0940	The eastern portion of the Survey Area was inaccessible.
Bishop Creek Powerhouse No. 6	June 10, 2019	0740-1320	Areas of private property were not surveyed.

RESULTS

Table 3 identifies the special status plant species reported from the literature review with their status, blooming period, habitat, potential to occur in the Project vicinity, and the survey results.

A total of 47 species were reported from the Project region. Of these, five species were observed in the Survey Area during 2019 special status plant surveys (Exhibit 3, Special Status Plant Species Observations); these are discussed below. One additional species was not observed during special status plant surveys but was observed during riparian monitoring activities.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Observed in the Survey Area in 2019					
Eriastrum sparsiflorum few-flowered eriastrum	–	CRPR 4.3	May-Sept	Chaparral, cismontane woodland, Great Basin scrub, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland from 3,527 ft. to 5,610 ft.	Observed in the Survey Area at six Project facilities during the 2019 survey effort and along stream reaches downstream of Powerhouse 4, and along a reach of Birch Creek downstream of the diversion during riparian monitoring activities. This species has also been reported adjacent to Highway 168, 0.6 miles northwest of Powerhouse 3 and Intake 4.
Lomatium rigidum stiff lomatium	–	CRPR 4.3	Apr-May	Great Basin scrub and pinyon and juniper woodland from 3,937 ft. to 7,218 ft.	Observed in the Survey Area at four Project facilities during the 2019 survey effort. This species has been reported at multiple locations within the Project vicinity, with the closest ones 200 feet west of Powerhouse 2 and Intake 3, and in 2009 at a riparian monitoring site upstream of Powerhouse 5.
Parnassia parviflora small-flowered grass-of-Parnassus	–	CRPR 2B.2	Aug–Sept	Wet areas, meadows and rocky seeps from 6,594 ft. to 9,104 ft.	Observed in the Survey Area at one Project facility during the 2019 survey effort. This species was last recorded in 1937 in Buttermilk Country, outside the Project watershed's northern boundary, 1.9 miles north of Birch-McGee Diversion.
Penstemon papillatus Inyo beardtongue	–	CRPR 4.3	Jun–Jul	Pinyon and juniper woodland and subalpine coniferous forest from 6,562 ft. to 9,843 ft.	This species has been reported at multiple locations within the Project vicinity, with the closest one 570 feet south of the Survey Area at Lake Sabrina. Not observed during 2019 survey effort around the facilities, but was observed in 2019 at the riparian monitoring site located downstream of the McGee Creek diversion dam.
Ranunculus hydrocharoides frog's-bit buttercup	–	CRPR 2B.1	Jun–Sept	In or bordering shallow springs or freshwater marshes and seeps from 4,133 ft. to 7,611 ft.	Observed in the Survey Area at one Project facility during the 2019 survey effort. This species has been recorded outside the Project watershed's northern

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PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
					boundary, 3.5 miles from Powerhouse No. 6, located in a channel within the town of Bishop.
Triglochin palustris marsh arrow-grass	–	CRPR 2B.3	July–Aug	Meadows and seeps, freshwater marsh, subalpine coniferous forest from 6,988 ft. to 11,597 ft.	Observed in the Survey Area at one Project facility during the 2019 survey effort. This species has been recorded 0.8 miles southwest of Bishop Creek Intake No. 2, 0.15 miles east of Highway 168.
Reported to Occur but Not Observed in 2019					
Draba praealta tall draba	–	CRPR 2B.3	July–Aug	Meadows, seeps, and wetlands from 9,596 ft. to 11,302 ft.	This species has been reported from along Lake Sabrina, south of Lake Sabrina Dam. Not observed in Survey Area during 2019 survey effort.
Mentzelia inyoensis Inyo blazing star	BLMS, USFS_S	CRPR 1B.3	Apr–Oct	Great Basin scrub, pinyon-juniper woodland from 3,789 ft. to 6,496 ft.	This species has been reported from along Bishop Creek, 0.4 miles north of Bishop Creek South Fork Diversion Dam. Not observed in Survey Area during 2019 survey effort.
Muilla coronata crowned muilla	–	CRPR 4.2	Mar–Apr	Chenopod scrub, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland from 2,198 ft. to 6,430 ft.	This species has been reported at two locations within the Project vicinity, with one located 0.6 miles east of Powerhouse 6 and the other located 0.8 miles northeast of Powerhouse 5 and Intake 6. Not observed in Survey Area during 2019 survey effort.
Myurella julacea small mousetail moss	–	CRPR 2B.3	N.A.	Alpine boulder and rock field, subalpine coniferous forest, growing on damp limestone rock and soil; crevices, under hangs, shelves, in filtered light; sometimes on granite, from 8,858 ft. to 9,842 ft.	This species has been reported from along Middle Fork Bishop Creek 0.6 miles northeast of Lake Sabrina Dam. Not observed in Survey Area during 2019 survey effort.

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PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Solorina spongiosa fringed chocolate chip lichen	–	CRPR 2B.2	N.A.	Meadows and seeps, including seeps within subalpine coniferous forest, on moss mats in areas with calcareous seepage. Generally, in high altitude sites with north or east exposure, from 9,498 ft.	This species has been reported from0.5 miles north of South Lake Dam, along South Lake Road within South Fork Bishop Creek Drainage. Not observed in Survey Area during 2019 survey effort.
Trichophorum pumilum little bulrush	–	CRPR 2B.2	Aug	Limestone soils within bogs and fens, marshes and swamps, and riparian scrub from 9,448 ft. to 10,662 ft.	This species has been reported from0.5 miles north of South Lake Dam, along South Lake Road within South Fork Bishop Creek Drainage. Not observed in Survey Area during 2019 survey effort.
May Potentially Occur					
Allium atrorubens var. atrorubens Great Basin onion	–	CRPR 2B.3	May–Jun	In sandy, rocky, gravelly, or sometimes clay soils in Great Basin scrub and pinyon-juniper woodland from 3,937 ft. to 3,937 ft.	May potentially occur. This species has been recorded outside the Project boundary, 2.2 miles north of Birch Creek Diversion, on McGee Creek. Not observed in Survey Area during 2019 survey effort.
Antennaria pulchella beautiful pussy-toes	–	CRPR 4.3	Jun–Sept	Alpine boulder and rock field (stream margins) and meadows and seeps from 9,186 ft. to 12,139 ft.	May potentially occur. This species has been recorded 1.6 miles south of South Lake (Hillside) Dam. Not observed in Survey Area during 2019 survey effort.
Boechera dispar pinyon rock cress	–	CRPR 2B.3	Mar–Jun	Granitic, gravelly slopes and mesas in Joshua tree woodland, pinyon and juniper woodland, and Mojavean desert scrub from 3,297 ft. and 9,202 ft.	May potentially occur. This species has been recorded outside the Project watershed, 1.5 miles southeast of Powerhouse No. 4, east of Coyote Creek. Not observed in Survey Area during 2019 survey effort.
Boechera tularensis Tulare rockcress	USFS_S	CRPR 1B.3	Jun–Jul	Rocky slopes in Subalpine coniferous forest, upper montane coniferous forest from 5,987ft. to 11,007 ft.	May potentially occur. This species has been recorded 3.3 miles to the west of the Project watershed's western boundary, 6 miles west of Lake Sabrina. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Botrychium crenulatum scalloped moonwort	USFS_S	CRPR 2B.2	Jun–Sept	Moist meadows and seeps, upper montane coniferous forest, lower montane coniferous forest, marshes and swamps from 3,887 ft. to 10,203 ft.	May potentially occur. This species has been recorded within the Project watershed boundary, 4.3 miles east of South Fork Bishop Creek and 4.8 miles southeast of Bishop Creek South Fork Diversion Dam, along the East Fork Coyote Creek. Not observed in Survey Area during 2019 survey effort.
Bruchia bolanderi Bolander's bruchia	USFS_S	CRPR 4.2	N.A.	Moss which grows on damp clay soils in lower montane coniferous forest, meadows and seeps, and upper montane coniferous forest; ephemeral nature and disturbance adapted; from 5,282 ft. to 10,958 ft.	May potentially occur. This species has been recorded 2 miles south of the Project watershed's southern boundary, 5.5 miles south of South Lake. Not observed in Survey Area during 2019 survey effort.
Calochortus excavatus Inyo County star-tulip	BLMS, USFS_S	CRPR 1B.1	Apr–Jul	Mostly on fine, sandy loam soils with alkaline salts; grassy meadows and seeps in shadscale scrub from 393 ft. to 7,201 ft.	May potentially occur. This species has been recorded outside the Project's northeastern watershed boundary, 2.9 miles northeast of Powerhouse No. 6 off Highway 168 in Bishop. Not observed in Survey Area during 2019 survey effort.
Carex congdonii Congdon's sedge	–	CRPR 4.3	Jul–Aug	Alpine boulder and rock field and subalpine coniferous forest (rocky) from 8,530 ft. to 12,795 ft.	May potentially occur. This species has been reported 2.8 miles west of Longley Lake. Not observed in Survey Area during 2019 survey effort.
Carex scirpoidea ssp. pseudoscirpoidea western single-spiked sedge	–	CRPR 2B.2	Jul–Sept	Often on limestone in alpine boulder and rock field, meadows and seeps, and subalpine coniferous forest from 6,988 ft. to 12,007 ft.	May potentially occur. This species has been recorded within the Project watershed boundary, 4 miles east of Bishop Creek South Fork Diversion Dam, along West Fork Coyote Creek. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Cryptantha glomeriflora clustered-flower cryptantha	–	CRPR 4.3	Jun–Sept	Great Basin scrub, meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest from 5,906 ft. to 12,303 ft.	May potentially occur. This species has been reported along Highway 168 in 1941, 0.6 miles north of Lake Sabrina. Not observed in Survey Area during 2019 survey effort.
Helodium blandowii Blandow's bog moss	USFS_S	CRPR 2B.3	N.A.	Moss growing on damp soil, especially under willows among leaf litter in meadows, seeps, and subalpine coniferous forest from 6,108 ft. to 8,858 ft.	May potentially occur. This species has been recorded 1.3 miles south of the Project watershed southern boundary, 3.6 miles south of South Lake and 4.8 miles south of South Lake Dam, along Middle Fork Kings River. Not observed in Survey Area during 2019 survey effort.
Lupinus padre-crowleyi Father Crowley's lupine	–	SR; CRPR 1B.2	Jun–Aug	Great Basin scrub, riparian forest, riparian scrub, and upper montane coniferous forest from 7,218 ft. to 13,123 ft.	May potentially occur. This species has been reported 2.6 miles from the Project vicinity. Not observed in Survey Area during 2019 survey effort.
Packera indecora rayless mountain ragwort	–	CRPR 2B.2	Jul–Aug	Mesic meadows and seeps from 5,593 ft. to 10,006 ft.	May potentially occur. This species has been recorded 3.7 miles west of the Project watershed's western boundary, 6.3 miles west of Lake Sabrina. Not observed in Survey Area during 2019 survey effort.
Phacelia inyoensis Inyo phacelia	USFS_S	CRPR 1B.2	Apr–Aug	Meadows and seeps (alkaline) from 3,002 ft. to 10,499 ft.	May potentially occur. This species has been reported 1.4 miles west of Powerhouse 4 and Intake 5. Not observed in Survey Area during 2019 survey effort.
Plagiobothrys parishii Parish's popcornflower	USFS_S	CRPR 1B.1	Mar–Jun	Alkaline soils; mesic sites in Great Basin scrub and Joshua tree woodland from 8,071 ft to 15,069 ft.	May potentially occur. This species was recorded outside the Project watershed's northern boundary, located in a meadow along Highway 395 approximately 1.5 miles east of Bishop in 1913; more recent records are along the Owens River. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Potamogeton robbinsii Robbins' pondweed	–	CRPR 2B.3	Jul–Aug	Deep water, lakes, marshes and swamps from 5,003 ft. to 11,466 ft.	May potentially occur. This species has been recorded 1.7 miles southeast of the Project watershed's eastern boundary, 4.6 miles southeast of South Lake Dam, along Fourth Lake. Not observed in Survey Area during 2019 survey effort.
Sabulina stricta bog sandwort	–	CRPR 2B.3	Jul–Sept	Moist, granitic gravelly sites in sedge meadows, seeps, alpine boulder and rock field, and alpine dwarf scrub from 8,000 ft. to 12,992 ft.	May potentially occur. This species was last recorded in 1977 along Coyote Ridge within the Project watershed, 1.5 miles east of Green Creek Diversion Dam. Not observed in Survey Area during 2019 survey effort.
Sidalcea covillei Owens Valley checkerbloom	–	SE; CRPR 1B.1	Apr–Jun	Chenopod scrub and meadows and seeps from 3,593 ft. to 4,642 ft.	May potentially occur. This species has been reported 2 miles northwest of Powerhouse No. 6. Not observed in Survey Area during 2019 survey effort.
Tonestus peirsonii Peirson's tonestus	–	CRPR 4.3	Jul–Aug	Alpine boulder and rock field and subalpine coniferous forest (rocky) from 9,514 ft. to 12,139 ft.	May potentially occur. This species has been reported 2 miles west of Lake Sabrina. Not observed in Survey Area during 2019 survey effort.
Viola pinetorum ssp. grisea grey-leaved violet	–	CRPR 1B.2	Arp–Jul	Dry mountain peaks and slopes in subalpine coniferous forest, upper montane coniferous forest, meadows, and seeps from 5,183 ft. to 12,139 ft.	May potentially occur. This species has been recorded 1.3 miles southeast of the Project watershed's eastern boundary, 4.3 miles southeast of South Lake Dam, along Fifth Lake. Not observed in Survey Area during 2019 survey effort.
Unlikely to Occur (due to extreme distance from Project vicinity and/or lack of habitat)					
Arabis repanda var. *greenei* Greene's rockcress	–	CRPR 3.3	Jun–Aug	Subalpine coniferous forest and upper montane coniferous forest from 7,694 ft. to 11,811 ft.	Unlikely to occur. This species has been reported in 1933 from Ruby Lake, 12 miles northwest of the McGee Creek Diversion. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Astragalus inyoensis Inyo milk-vetch	–	CRPR 4.2	May–Jul	Great Basin scrub and pinyon and juniper woodland from 4,921 ft. to 10,007 ft.	Unlikely to occur. This species has been reported east of the Owens River, with the closest location 9.72 miles east of Bishop Creek Powerhouse No. 6. Not observed in Survey Area during 2019 survey effort.
Astragalus kentrophyta var. *danaus* Sweetwater Mountains milk-vetch	–	CRPR 4.3	Jul–Sep	Alpine boulder and rock field and subalpine coniferous forest (rocky, talus) from 9,843 ft. to 12,008 ft.	Unlikely to occur. This species has been reported in 1937, 2.3 miles west of the McGee Creek Diversion; however, the only reported occurrence in Inyo County since 1970 is 25 miles south of the Project vicinity. Not observed in Survey Area during 2019 survey effort.
Astragalus lentiginosus var. *piscinensis* Fish Slough milk-vetch	FT	CRPR 1B.1	Jun–Jul	Alkaline playas from 3,707 ft. to 4,265 ft.	Unlikely to occur. This species has not been reported since 1979, 9 miles northeast of the Project vicinity. Additionally, the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.
Boechera lincolnensis Lincoln rockcress	–	CRPR 2B.3	Mar–May	Chenopod scrub and Mojavean desert scrub from 3,609 ft. to 8,875 ft.	Unlikely to occur. This species has been reported east of the Owens River with the nearest location 20 miles away from the Project vicinity.
Botrychium ascendens upswept moonwort	USFS_S	CRPR 2B.3	Jul–Aug	Grassy fields, meadows and seeps, coniferous woods near springs and creeks in lower montane coniferous forest from 3,658 ft. to 10,712 ft.	Unlikely to occur. This species was last recorded in 1920, outside the Project watershed's eastern boundary, 1.9 miles east of Powerhouse No. 5 and Intake No. 6, along Rambaud Creek. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Botrychium minganense Mingan moonwort	USFS_S	CRPR 2B.2	Jul–Sept	Creekbanks in lower montane coniferous forest, upper montane coniferous forest, bogs and fens, meadows and seeps from 3,904 ft. to 10,810 ft.	Unlikely to occur. This species was last recorded in 1920, 6.6 miles south of the Project watershed's southern boundary, 9 miles south of South Lake, along Kings River. Not observed in Survey Area during 2019 survey effort.
Carex incurviformis Mt. Dana sedge	–	CRPR 4.3	Jul–Aug	Alpine boulder and rock field from 12,139 ft. to 13,320 ft.	Unlikely to occur. The Project vicinity lies outside this species' elevation range and the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.
Carlquistia muirii Muir's tarplant	–	CRPR 1B.3	Jul–Aug	Chaparral (montane), lower montane coniferous forest, and upper montane coniferous forest from 2,477 ft. to 8,202 ft.	Unlikely to occur. This species has been reported 12.5 miles south of South Lake (Hillside Dam). Not observed in Survey Area during 2019 survey effort.
Crepis runcinata fiddleleaf hawksbeard	–	CRPR 2B.2	May–Aug	Moist, alkaline valley bottoms in Mojavean desert scrub and pinyon and juniper woodland from 1,246 ft. to 10,200 ft.	Unlikely to occur. This species was last recorded 4.6 miles east of the Project watershed's eastern boundary, 10 miles east of Powerhouse No. 2 and Intake No. 3, near Rawson Creek. Not observed in Survey Area during 2019 survey effort.
Dedeckera eurekensis July gold	USFS_S	SR; CRPR 1B.3	May–Aug	Mojavean desert scrub (carbonate) from 3,986 ft. to 7,218 ft.	Not likely to occur. This species has been reported east of the Owens River with the exception of one location west of the Owens River, 6.3 miles north of the Birch Creek Diversion. Not observed in Survey Area during 2019 survey effort.
Delphinium inopinum unexpected larkspur	–	CRPR 4.3	May–Jul	Upper montane coniferous forest (rocky, metamorphic) from 6,201 ft. to 9,186 ft.	Not likely to occur. The closest reported occurrence of this species is 23 miles southwest of the Project vicinity. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Draba sierrae Sierra draba	–	CRPR 1B.3	Jun–Aug	In coarse sandy and gravelly soil; granitic or carbonate substrate in alpine boulder and rock fields from 11,482 ft. to 13,992 ft.	Unlikely to occur. Although this species has been recorded within the Project's watershed boundary (1.5 miles northeast of Green Creek Diversion Dam along Coyote Ridge) it is unlikely to occur because the Project vicinity lies outside this species' elevation range and the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.
Elymus salina Salina Pass wild-rye	–	CRPR 2B.3	May–Jun	Pinyon and juniper woodland (rocky) from 4,429 ft. to 7,005 ft.	Unlikely to occur. The nearest reported occurrence of this species is from Fish Slough in 1983, 6.4 miles north of the Survey Area. However, this species has been primarily reported southeast of the Owens River with the nearest occurrence located 106 miles away from the Project vicinity. Not observed in Survey Area during 2019 survey effort.
Fimbristylis thermalis hot springs fimbristylis	–	CRPR 2B.2	Jul–Sept	Near hot springs in meadows and seeps from 378 ft. to 5,200 ft.	Unlikely to occur. This species was last recorded in 1964, 5.2 miles east of the Project watershed's eastern boundary, 10 miles east of Bishop Creek South Fork Diversion Dam, at Keough Hot Springs. Additionally, the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.
Lupinus magnificus var. hesperius McGee Meadows lupine	BLMS	CRPR 1B.3	Apr–Jun	Sandy substrates in Great Basin scrub and upper montane coniferous forest from 5,298 ft. to 7,103 ft.	Unlikely occur. This species was last recorded in 1942; the nearest reported occurrence is 1 mile west of the Project watershed's western boundary, 1.6 miles northwest of Powerhouse No. 3 and Intake No. 4, and 2 miles west

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
					of Powerhouse No. 4 and Intake No. 5, near McGee Meadow. Not observed in Survey Area during 2019 survey effort.
Oryctes nevadensis Nevada oryctes	–	CRPR 2B.1	Apr–Jun	Chenopod scrub and Mojavean desert scrub from 3,609 ft. to 8,317 ft.	Unlikely to occur. This species has been reported near the Owens River with the nearest occurrence located 25 miles southeast of the Project vicinity. Not observed in Survey Area during 2019 survey effort.
Petrophytum caespitosum ssp. *acuminatum* marble rockmat	–	CRPR 1B.3	Aug-Sept	lower montane coniferous forest and upper montane coniferous forest (carbonate or granitic, rocky) from 3,330 ft. to 7,546 ft.	Unlikely to occur. This species has been reported 13.8 miles south of South Lake (Hillside Dam). Not observed in Survey Area during 2019 survey effort.
Poa lettermanii Letterman's blue grass	–	CRPR 2B.3	Jul–Aug	Sandy or rocky sites in alpine boulder and rock fields from 11,040 ft. to 14,009 ft.	Unlikely to occur. Although this species has been recorded within the Project watershed boundary (1.8 miles northeast of Green Creek Diversion Dam and located at the head of West Fork Coyote Creek), it is unlikely to occur because the Project vicinity is outside the species' elevation range, and the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.
Pohlia tundrae tundra thread moss	–	CRPR 2B.3	N.A.	Moss growing on gravelly, damp soil in alpine boulder and rock fields from 8,858 ft. to 9,842 ft.	Unlikely to occur. Although this species has been recorded within the Project watershed boundary (2 miles southeast of South Lake Dam along Long Lake), the Project vicinity does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.

TABLE 3
PLANT SPECIES OCCURRENCE IN PROJECT VICINITY

Scientific/ Common Name	Federal Status	State Status and CRPR Rank	Blooming Period/ Fertile	Habitat	Likelihood for Occurrence/Occurrence Notes
Potentilla morefieldii Morefield's cinquefoil	USFS_S	CRPR 1B.3	Jul–Aug	Low areas in alpine calcareous (or granite) rocks in alpine boulder and rock fields from 10,712 ft. to 13,123 ft.	Unlikely to occur. Although this species has been recorded within the Project watershed boundary (1.3 miles northeast of Green Creek Diversion Dam along Coyote Ridge) the Project vicinity lies outside the species elevation range and does not support habitat appropriate for this species. Not observed in Survey Area during 2019 survey effort.

ft.: feet; N.A.: not applicable

LEGEND:

Federal Status

FT	Threatened
USFS_S	U.S. Forest Service Sensitive
BLMS	Bureau of Land Management Sensitive

State Status

SE	Endangered
SR	Rare

CRPR

1B	Plants Rare, Threatened, or Endangered in California and elsewhere
2B	Plants Rare, Threatened, or Endangered in California but more common elsewhere
3	Plants about which we need more information – A Review List
4	Plants of limited distribution – A Watch List

CRPR Threat Code Extensions

.1	Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2	Fairly threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3	Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

The following species were observed in the Survey Area of the facilities: few-flowered eriastrum (*Eriastrum sparsiflorum*), stiff lomatium (*Lomatium rigidum*), small-flowered grass-of-Parnassus (*Parnassia parviflora*), frog's-bit buttercup (*Ranunculus hydrocharoides*), and marsh arrow-grass (*Triglochin palustris*). Few-flowered eriastrum was also observed in 2019 during the license-required riparian monitoring of stream reaches downstream of Powerhouse 4 and the Birch Creek diversion. Inyo beardtongue (*Penstemon papillatus*) was observed in 2019 at a monitoring site downstream of the McGee Creek diversion dam. Table 4 summarizes the number of individuals observed at each Project facility. A blank cell indicates that there were no observations of special status plants. Attachment C provides California Native Species Field Survey Forms for small-flowered grass-of-Parnassus, marsh arrow-grass, and frog's-bit buttercup, species with a CRPR of 2B. It should be noted that the field survey form contains partial data for frog's-bit buttercup because the species was not positively identified as having special status at the time of field collection.

TABLE 4
PLANT SPECIES OCCURRENCE/FREQUENCY IN 2019

Project Facilities	Species (Number of Individuals Observed)					
	Few-flowered Eriastrum	Stiff Lomatium	Small-flowered grass-of-Parnassus	Marsh Arrow-grass	Frog's-bit Buttercup	Inyo Beardtongue
South Lake (Hillside) Dam						
Sabrina Lake Dam						
McGee Creek Diversion		300				
Birch Creek Diversion			10	5		
Green Creek Diversion						
Bishop Creek South Fork Diversion Dam	150	1				
Bishop Creek Intake 2 Dam	10	50				
Bishop Creek Powerhouse No. 2 and Intake 3	100	100				
Bishop Creek Powerhouse No. 3 and Intake 4	1,000	2			<10	
Bishop Creek Powerhouse No. 4 and Intake 5	100					
Bishop Creek Powerhouse No. 5 and Intake 6	1,000					
Bishop Creek Powerhouse No. 6	1,000					
Incidental Observations						
Bishop Creek between Powerhouses 4 and 5	infrequent, less than 1% cover					
McGee Creek below diversion dam						infrequent, less than 1% cover

Critical Habitat

No critical habitat for special status plant species occurs with the Survey Area.

If you have any questions or comments, please contact Allison Rudalevige at Allison.Rudalevige@psomas.com or Brad Blood at bblood@psomas.com.

Enclosures: Exhibits 1–3
Attachment A – Plant Community Descriptions
Attachment B – Plant Compendium
Attachment C – California Native Species Field Survey Forms

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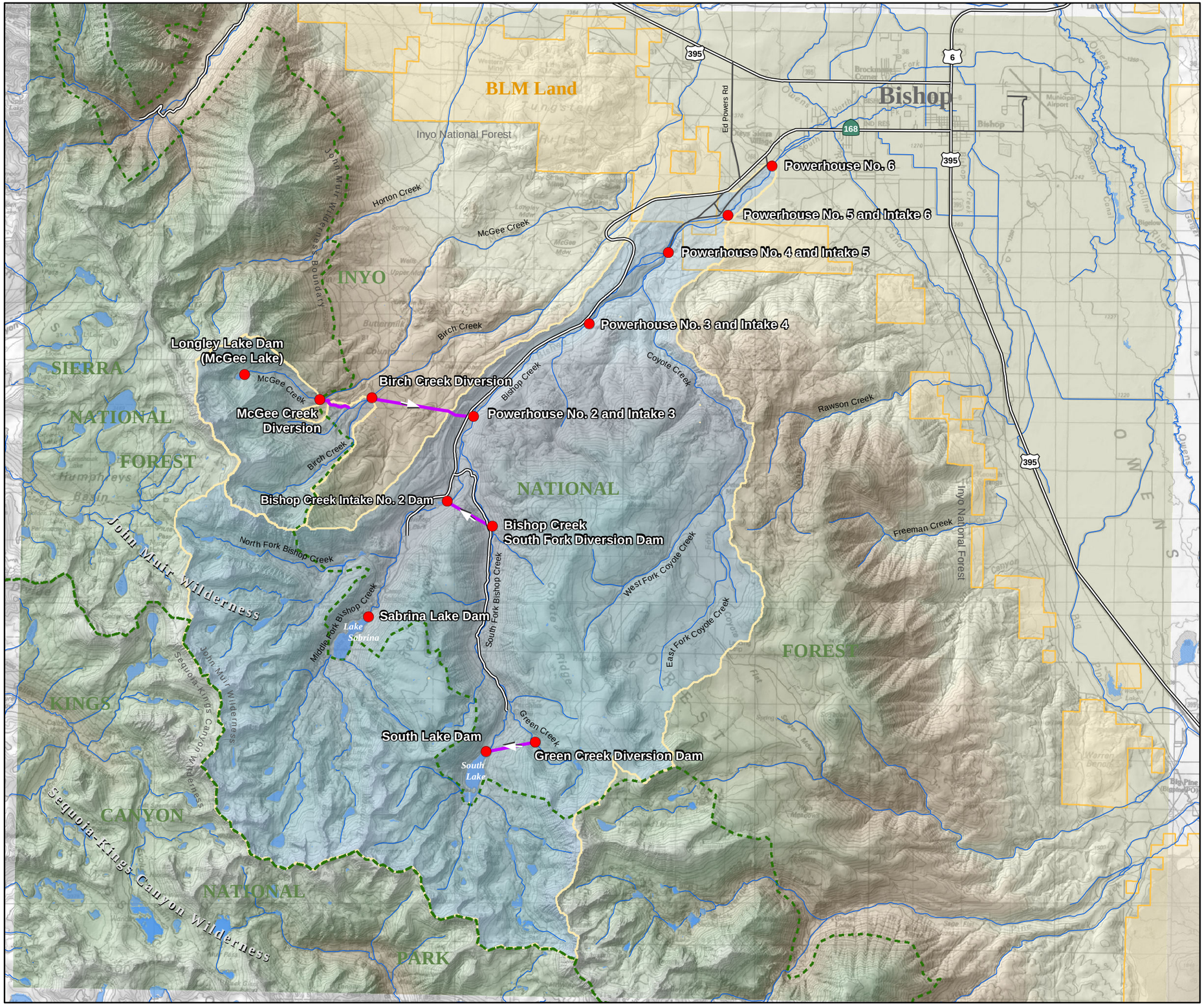

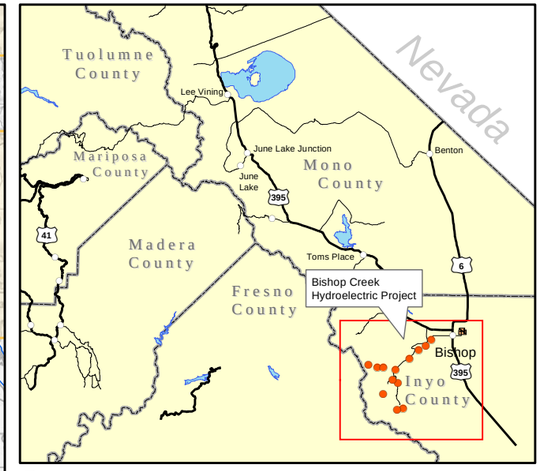

Regional Location

Legend

- Project Facility Site Locations
- Diversion Channels, Pipelines, & Penstocks
- Project Contributing Watershed
- National Forest/National Park Boundary
- Wilderness Area Boundary
- Bureau of Land Management (BLM) Boundary

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Project Vicinity — Exhibit 1

Bishop Creek Hydroelectric Relicensing Project

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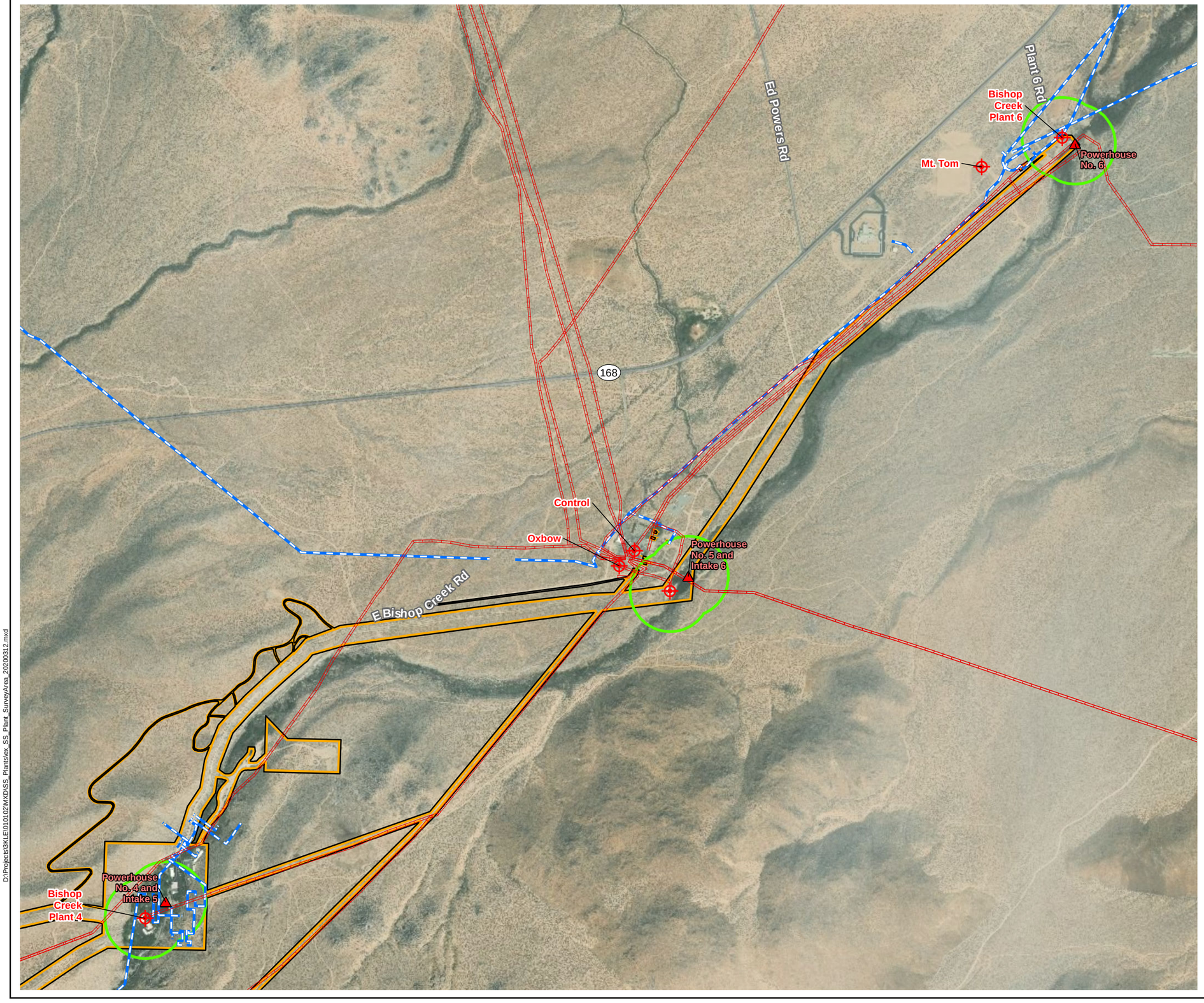

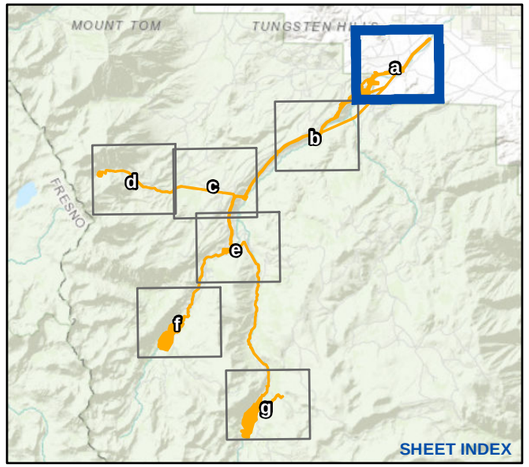

- Powerhouse
- Utility
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2a

Bishop Creek Hydroelectric Relicensing Project

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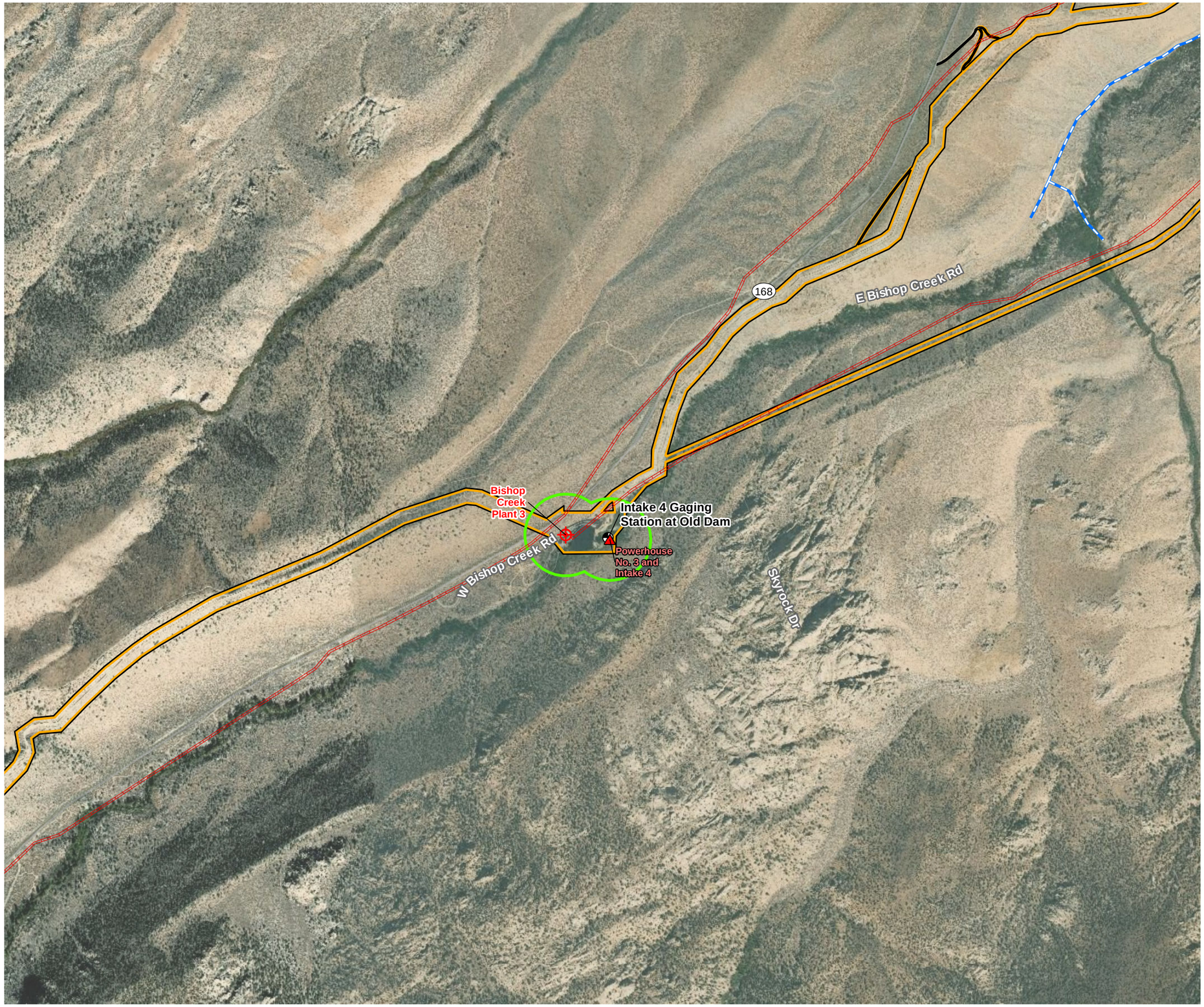

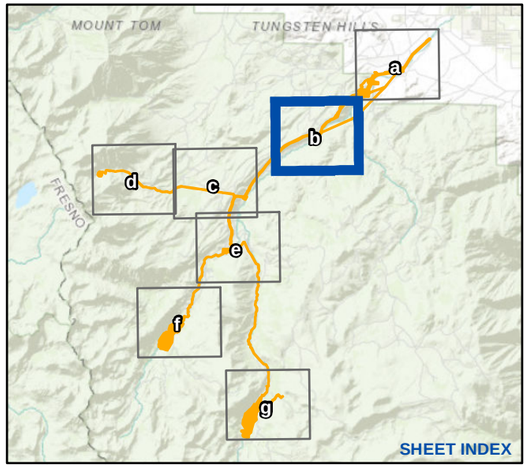

- Powerhouse
- Utility
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- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2b

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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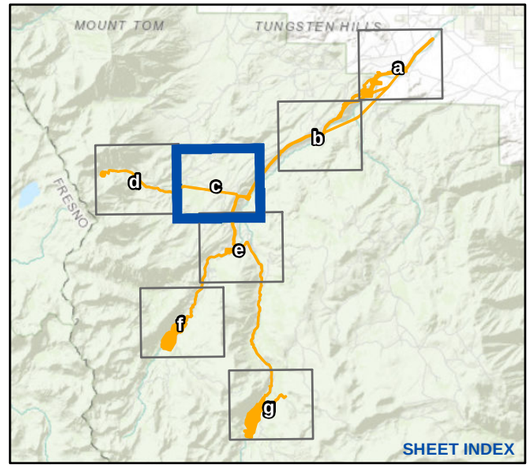

- Powerhouse
- Utility
- Diversion
- Penstock
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2c

Bishop Creek Hydroelectric Relicensing Project

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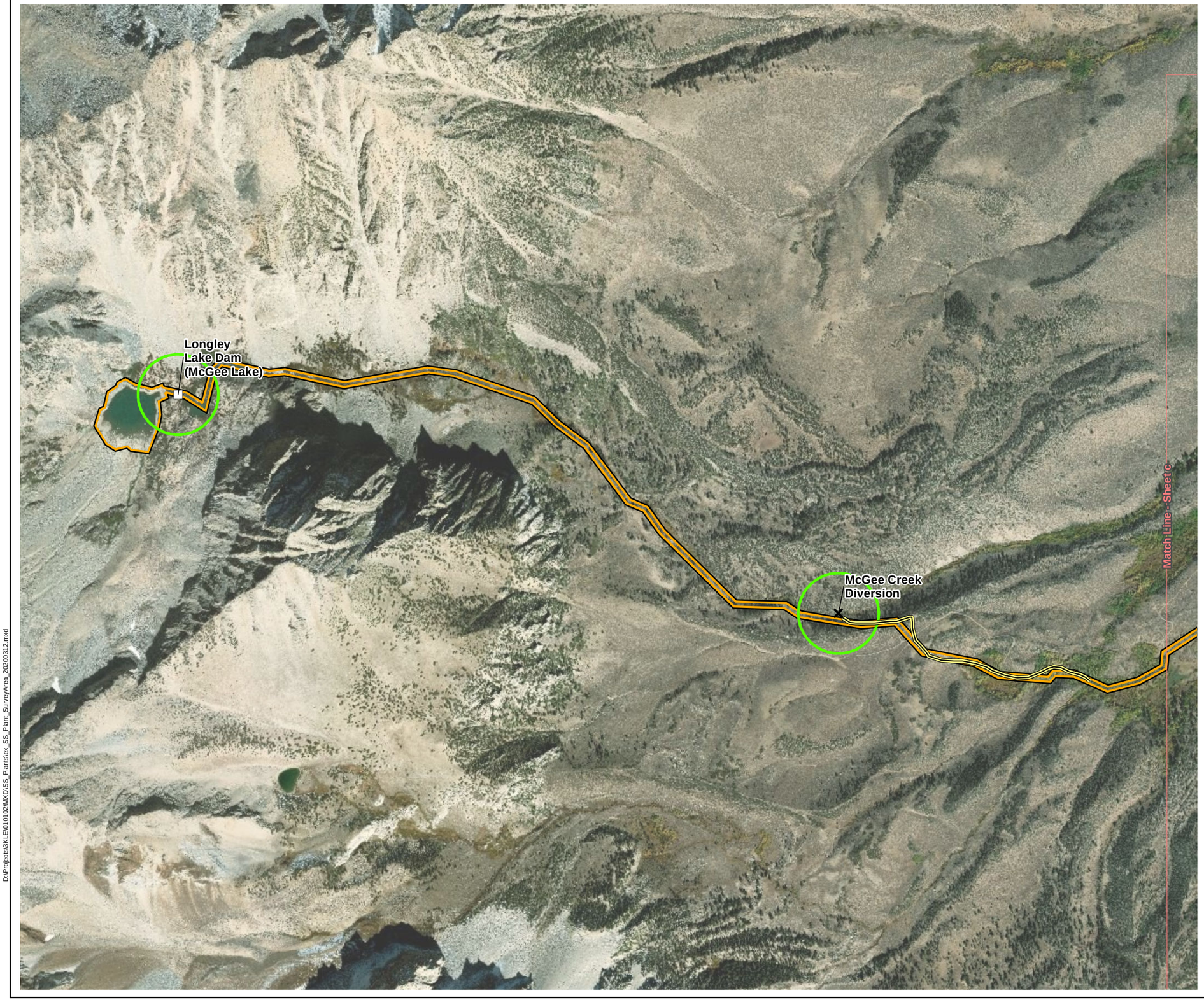

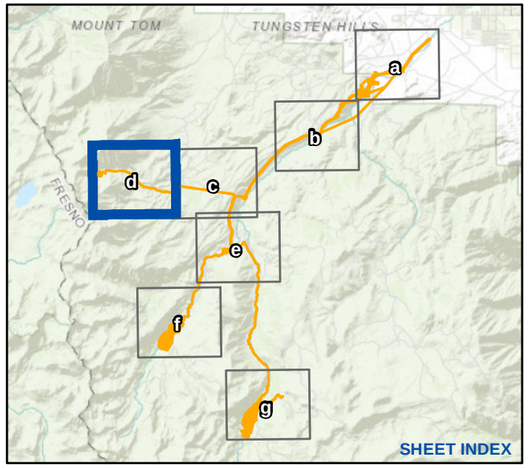

- Diversion
- Dam
- Penstock
- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2d

Bishop Creek Hydroelectric Relicensing Project

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Match Line - Sheet c

Big Tees Rd

S Lake Rd

168

Bishop Creek
Intake
No. 2 Dam

Cataract Rd

South Creek
Diversion
Gaging Station

Bishop Crk
South Fork
Diversion

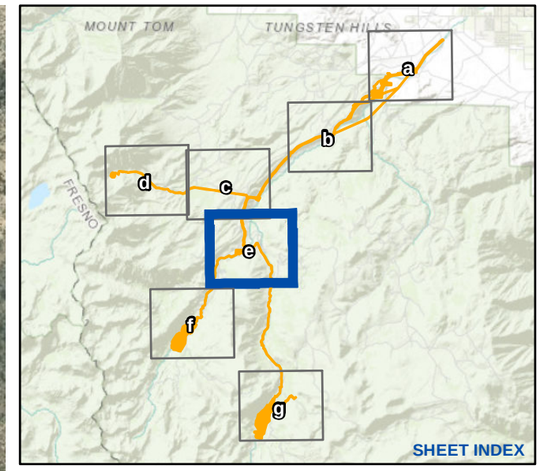
Columbine Dr

Sage Dr

Alpine Dr

Cardinal Rd

Canyon Dr



- Diversion
- Dam
- Gage
- Penstock
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2e

Bishop Creek Hydroelectric Relicensing Project

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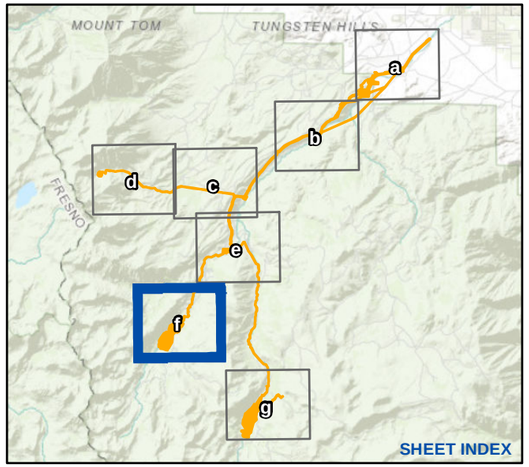

- Dam
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

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Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2f

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

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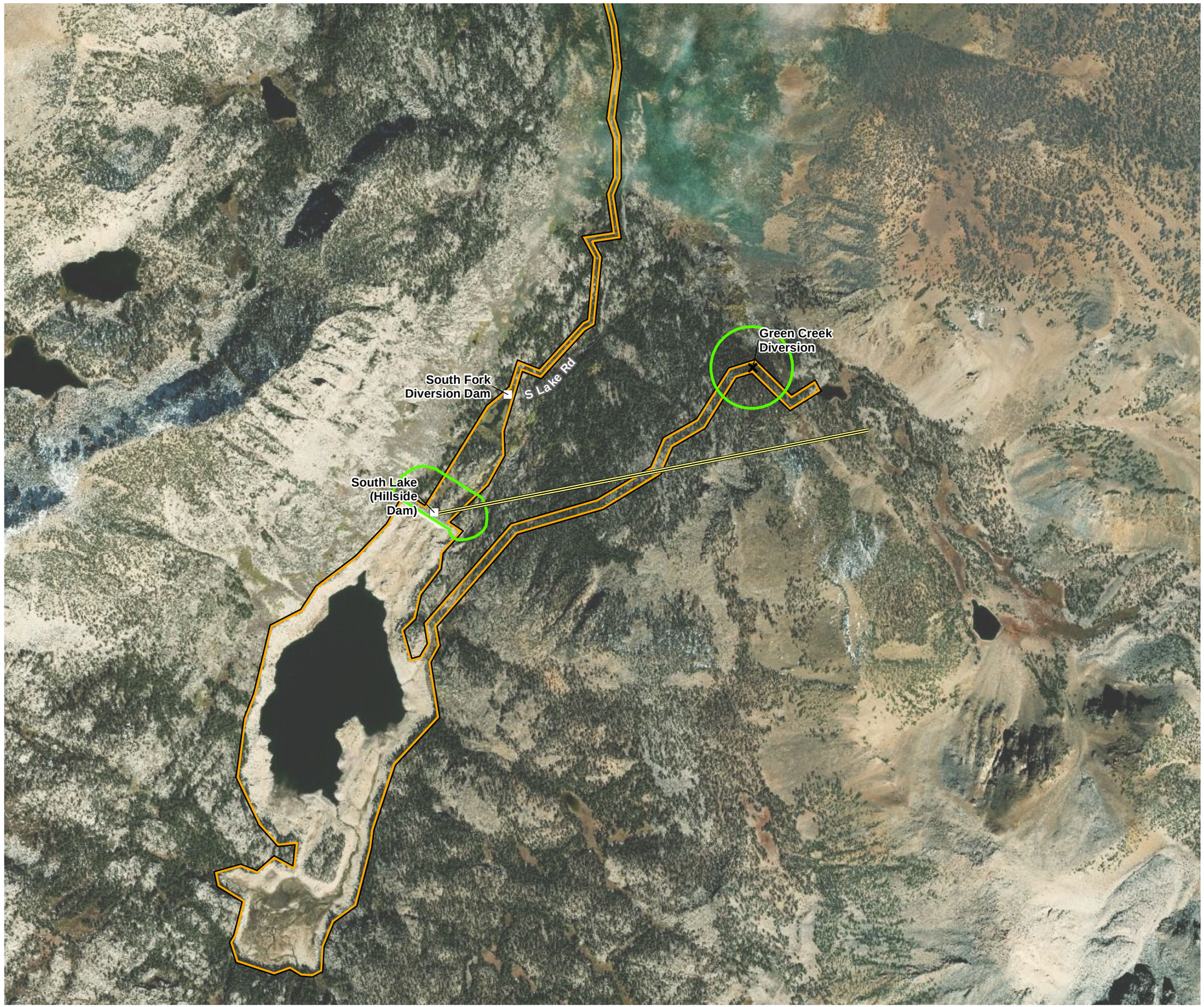

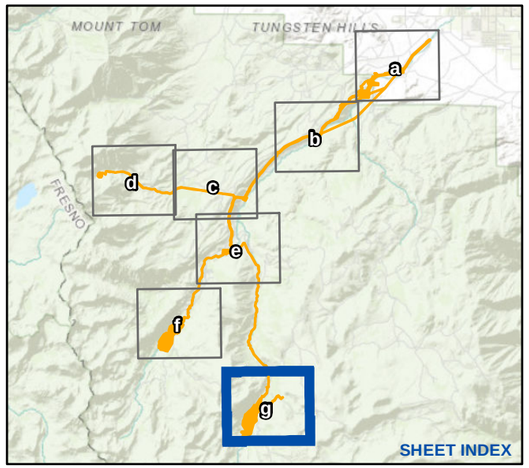

- Diversion
- Dam
- Penstock
- FERC Boundary
- Special Status Plant Survey Area

N
W E
S

1,200 600 0 1,200
Feet

Aerial Source: Esri, DigitalGlobe 2018

Special Status Plant Survey Area

Exhibit 2g

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/12/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_SurveyArea.pdf

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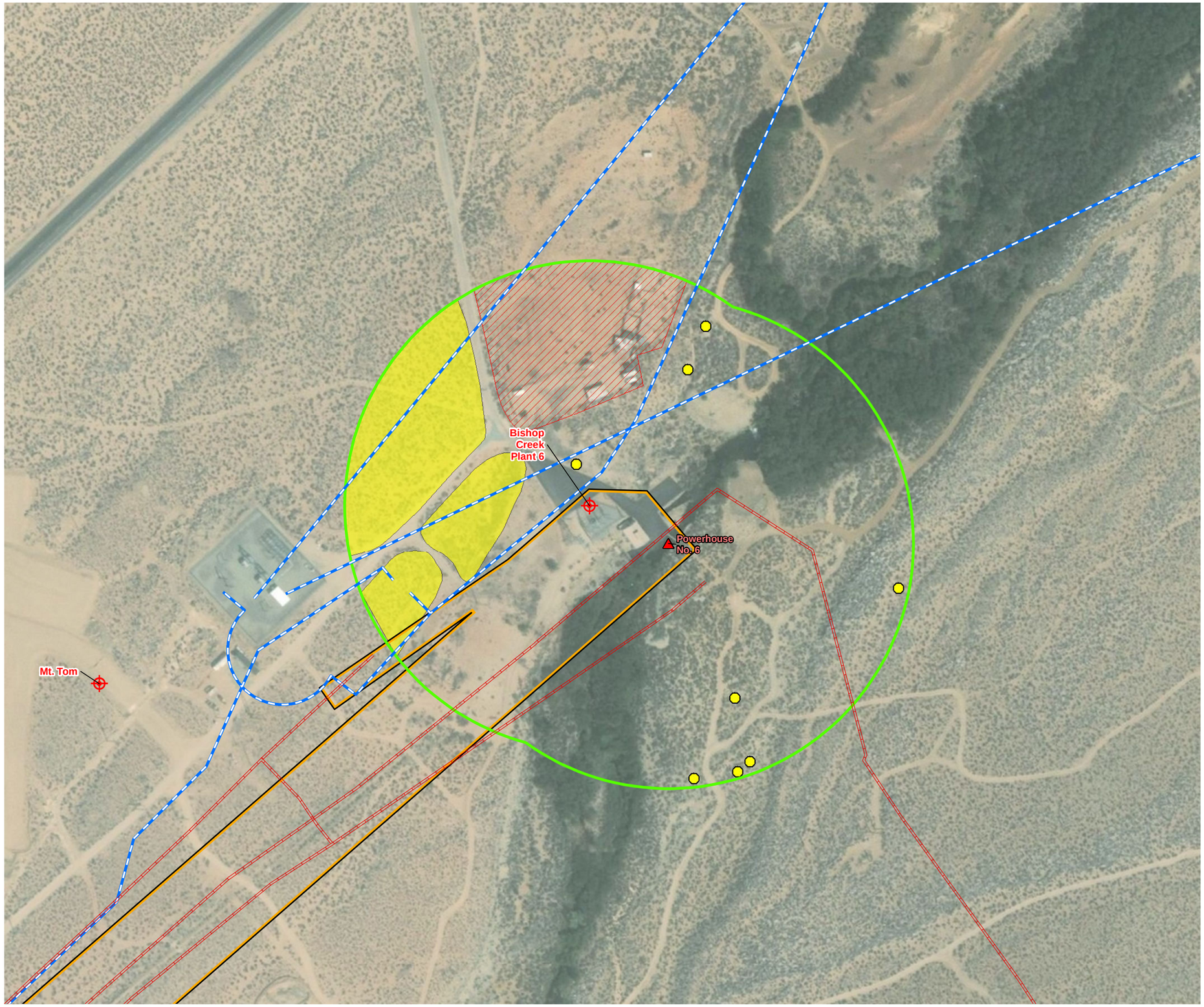

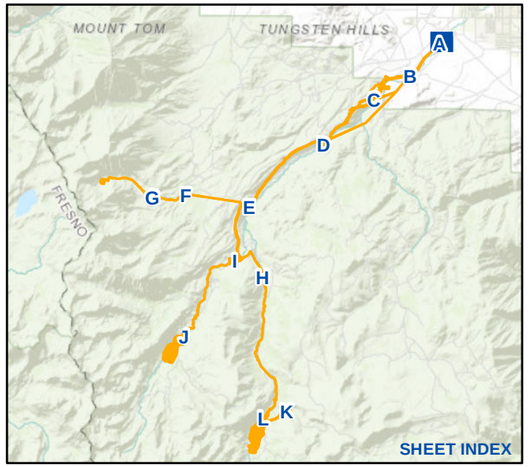

Bishop Creek Powerhouse No. 6

- Powerhouse
- Utility
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- few-flowered eriastrum
- few-flowered eriastrum
- Not Surveyed (Private Property)

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3A

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/17/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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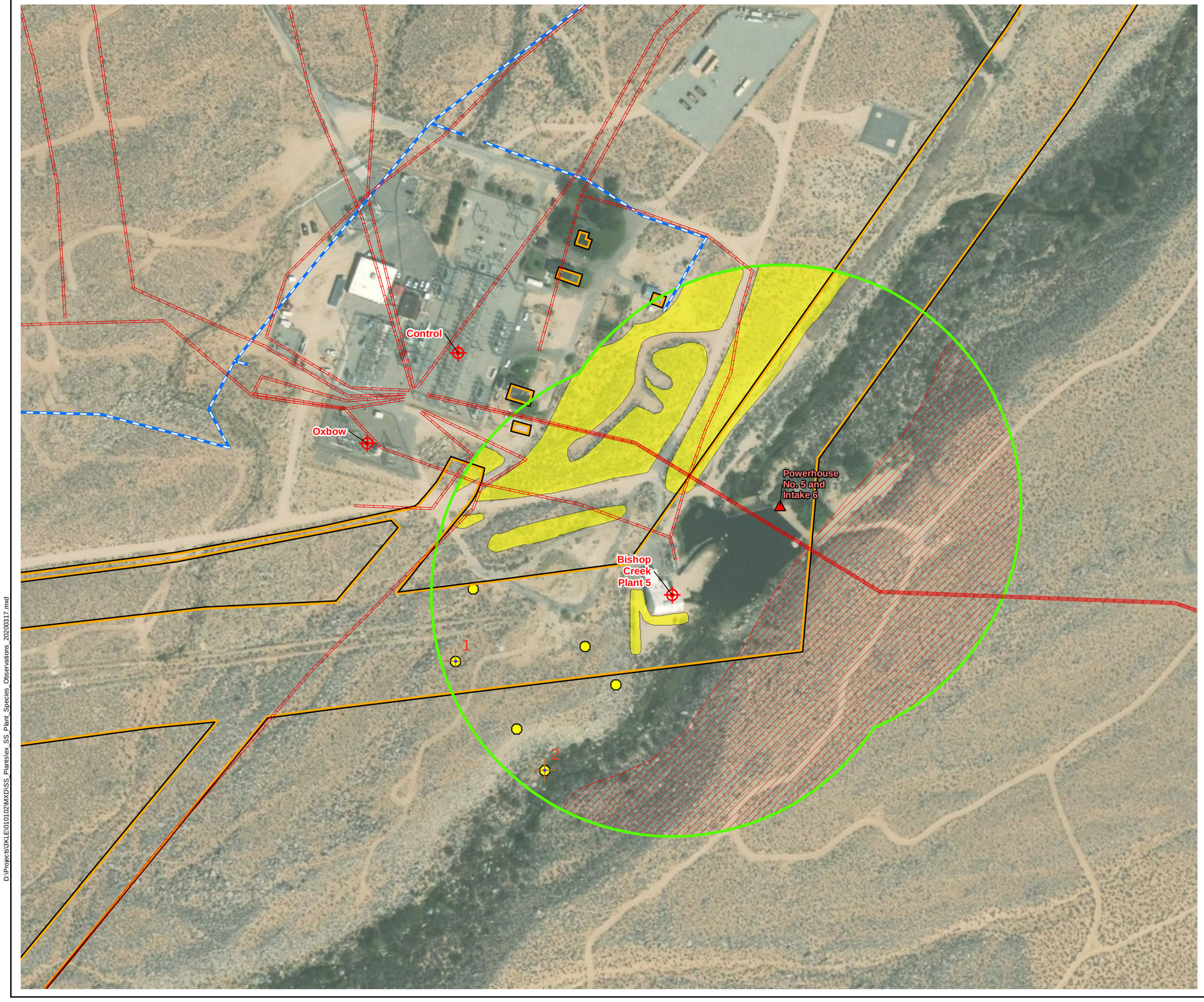

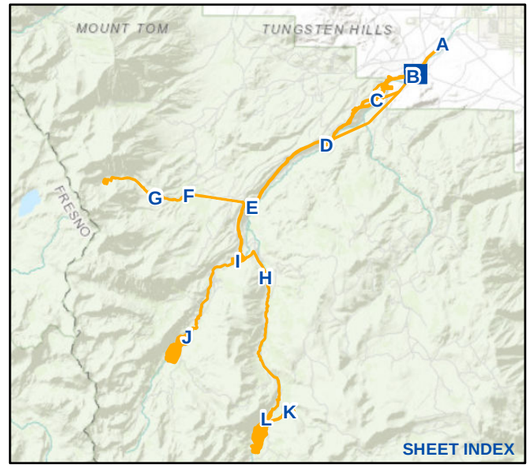

Bishop Creek Powerhouse No. 5 and Intake 6

- Powerhouse
- Utility
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey

Special Status Plant Species

- few-flowered eriastrum
- few-flowered eriastrum
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3B

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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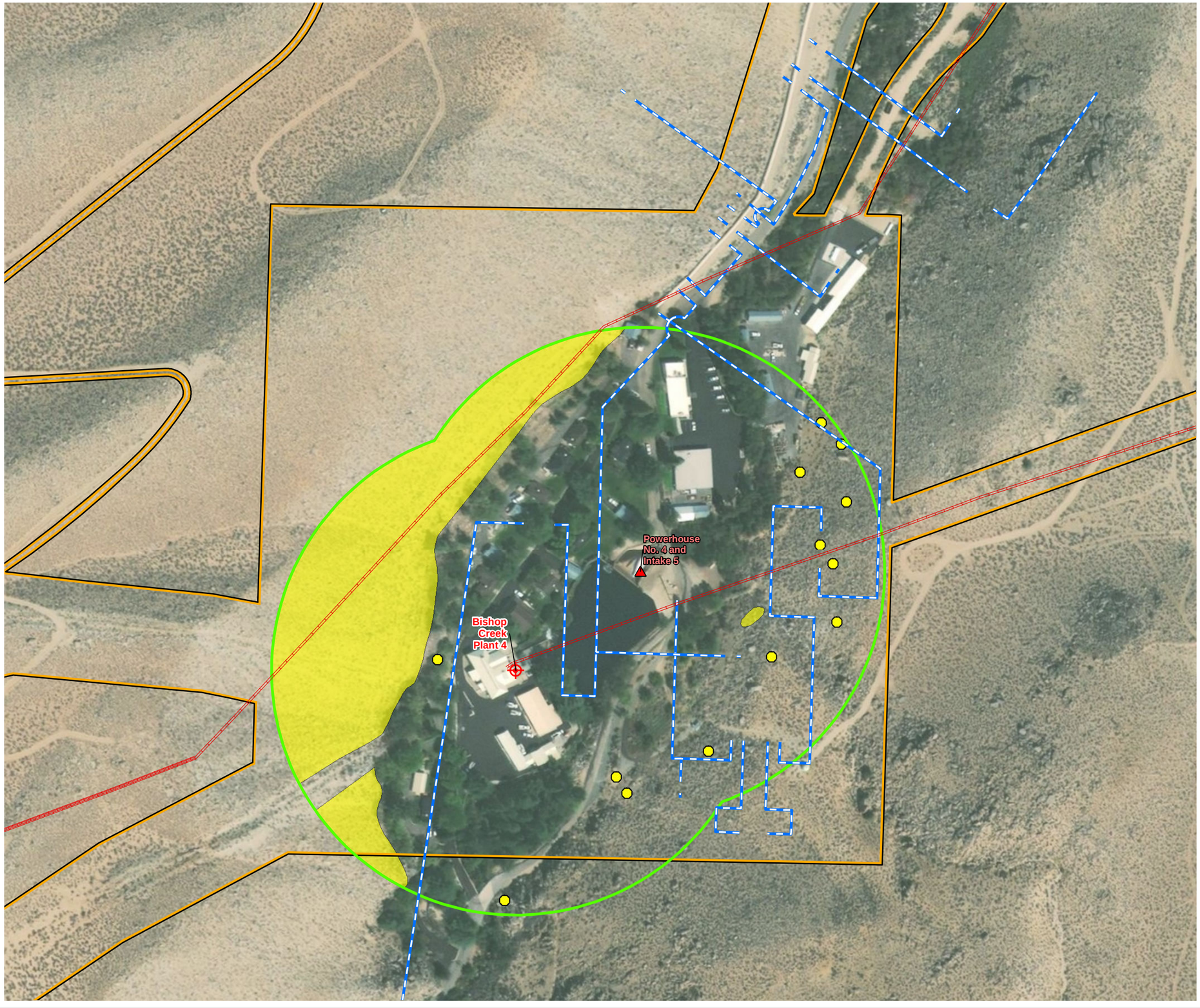

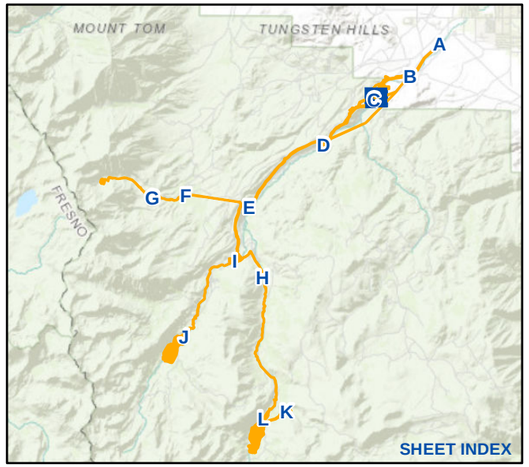

Bishop Creek Powerhouse No. 4 and Intake 5

- Powerhouse
- Utility
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey

Special Status Plant Species

- few-flowered eriastrum
- few-flowered eriastrum

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3C

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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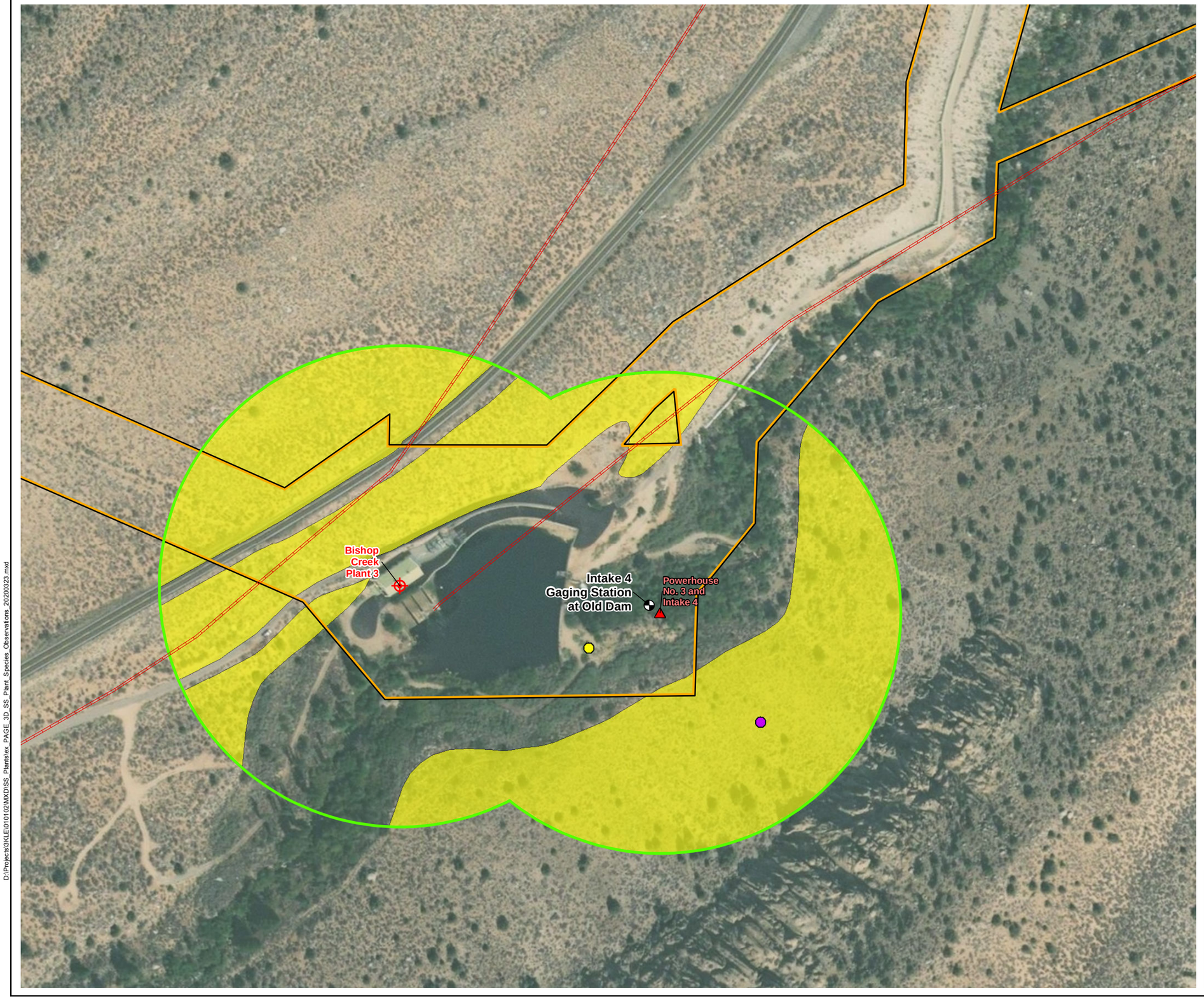

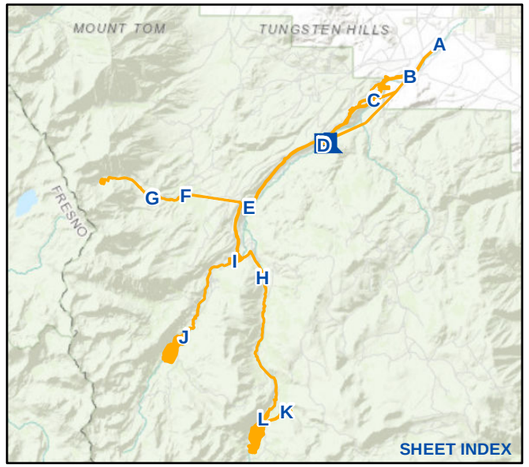

Bishop Creek Powerhouse No. 3 and Intake 4

- Powerhouse
- Utility
- Gage
- Transmission Line
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- few-flowered eriastrum
- stiff lomatium
- few-flowered eriastrum
- frog's-bit buttercup (not mapped)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations Exhibit 3D

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/23/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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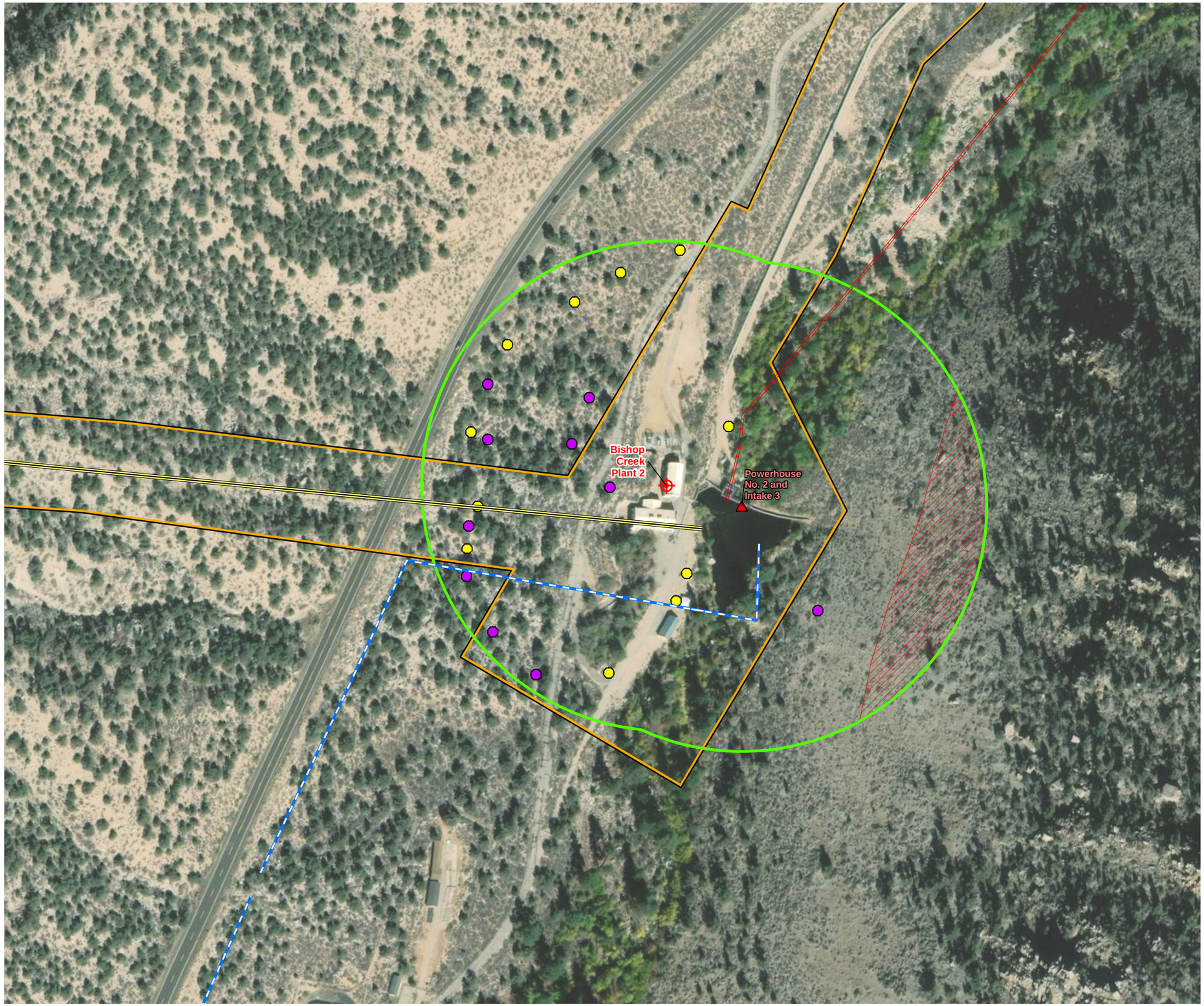

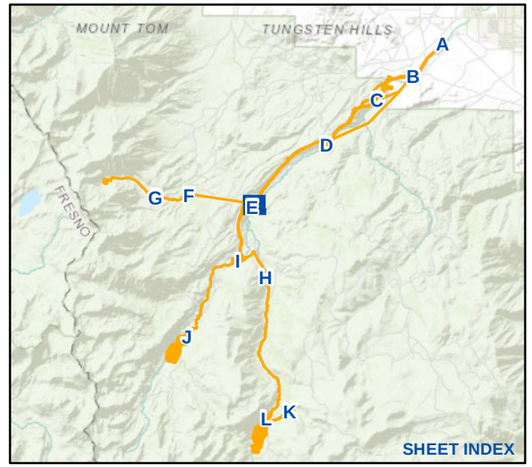

Bishop Creek Powerhouse No. 2 and Intake 3

- Powerhouse
- Utility
- Penstock
- Transmission Line
- Powerline
- FERC Boundary
- Special Status Plant Survey

Special Status Plant Species

- few-flowered eriastrum
- stiff lomatium
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200 Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3E

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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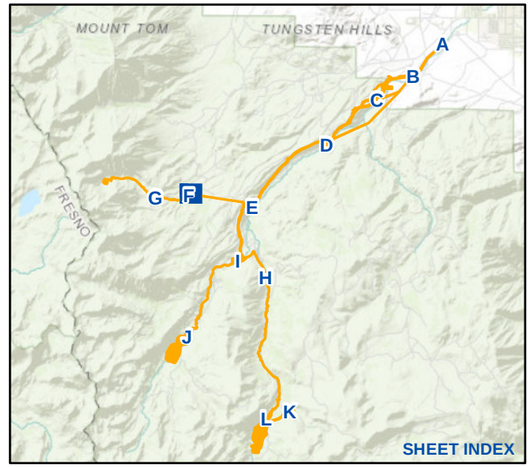

Birch Creek Diversion

- Diversion
- Penstock
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- marsh arrow-grass
- small-flowered grass-of-parnassus

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3F

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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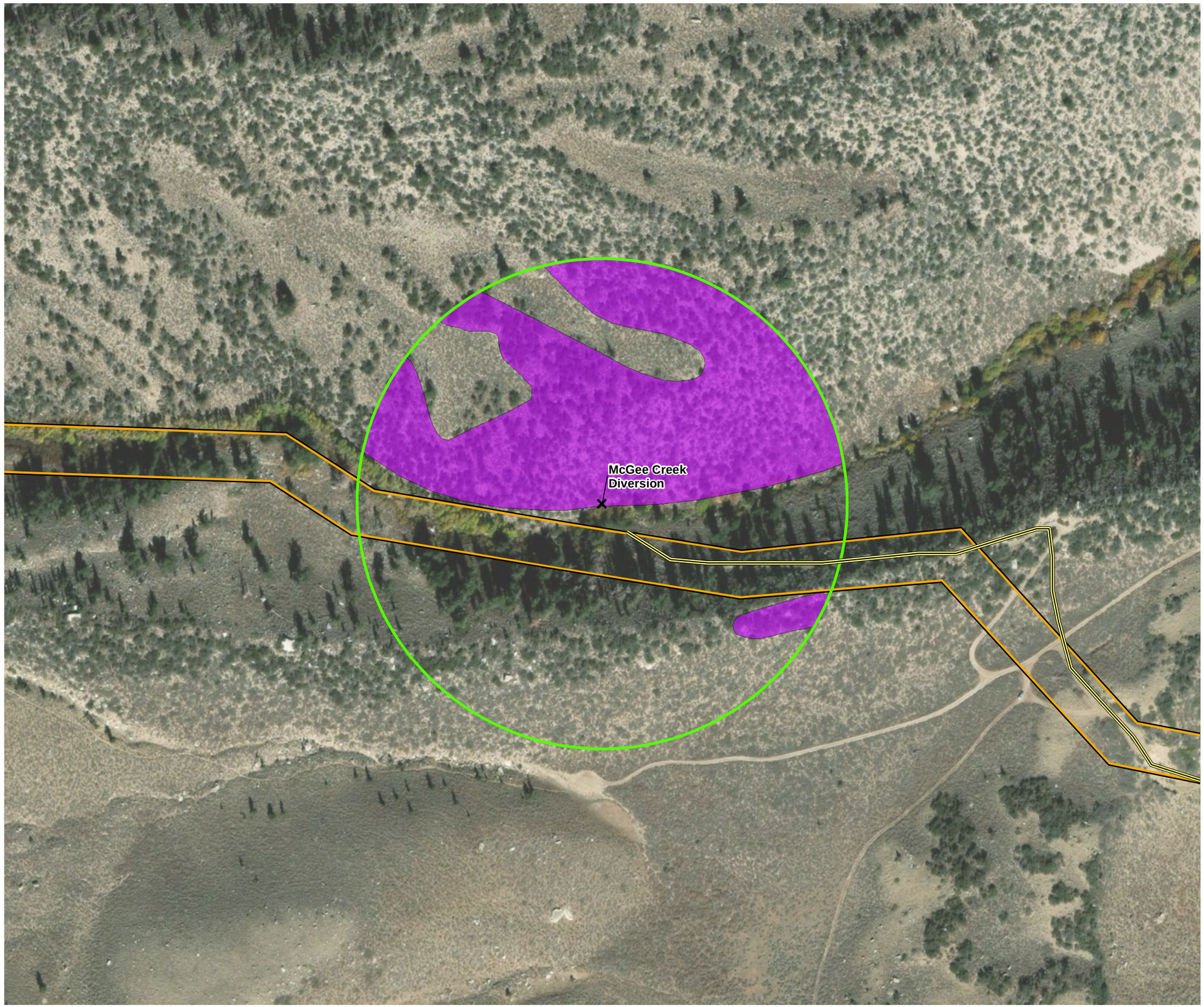

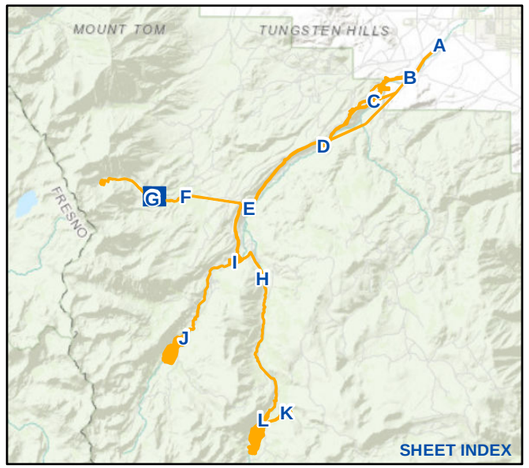

McGee Creek Diversion

- Diversion
- Penstock
- FERC Boundary
- Special Status Plant Survey

Special Status Plant Species

- stiff lomatium

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations Exhibit 3G

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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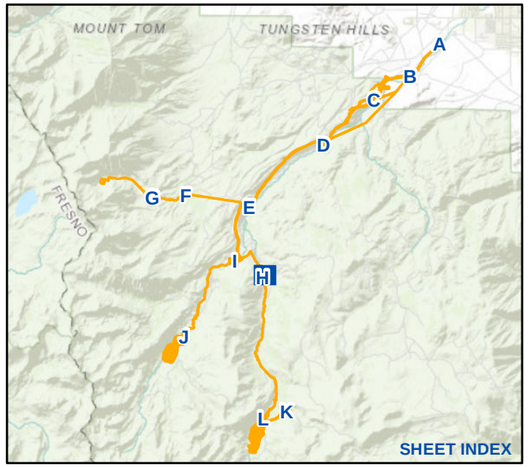

Bishop Creek South Fork Diversion Dam

- Diversion
- Gage
- Penstock
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- few-flowered eriastrum
- stiff lomatium
- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations Exhibit 3H

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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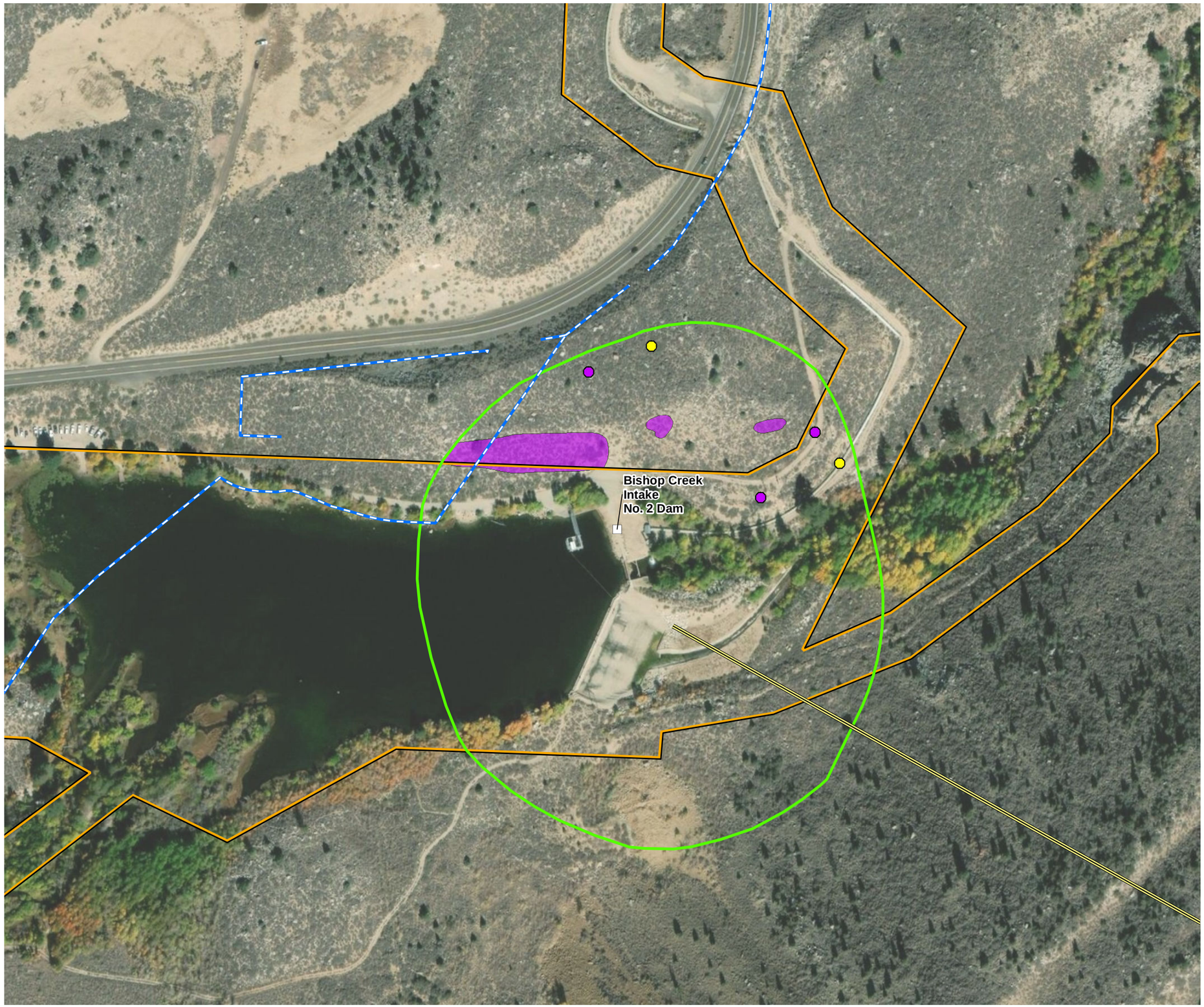

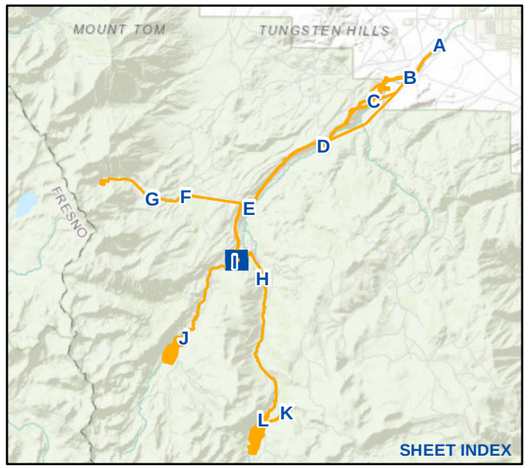

Bishop Creek Intake No. 2 Dam

- Dam
- Penstock
- Powerline
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- few-flowered eriastrum
- stiff lomatium
- stiff lomatium

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3I

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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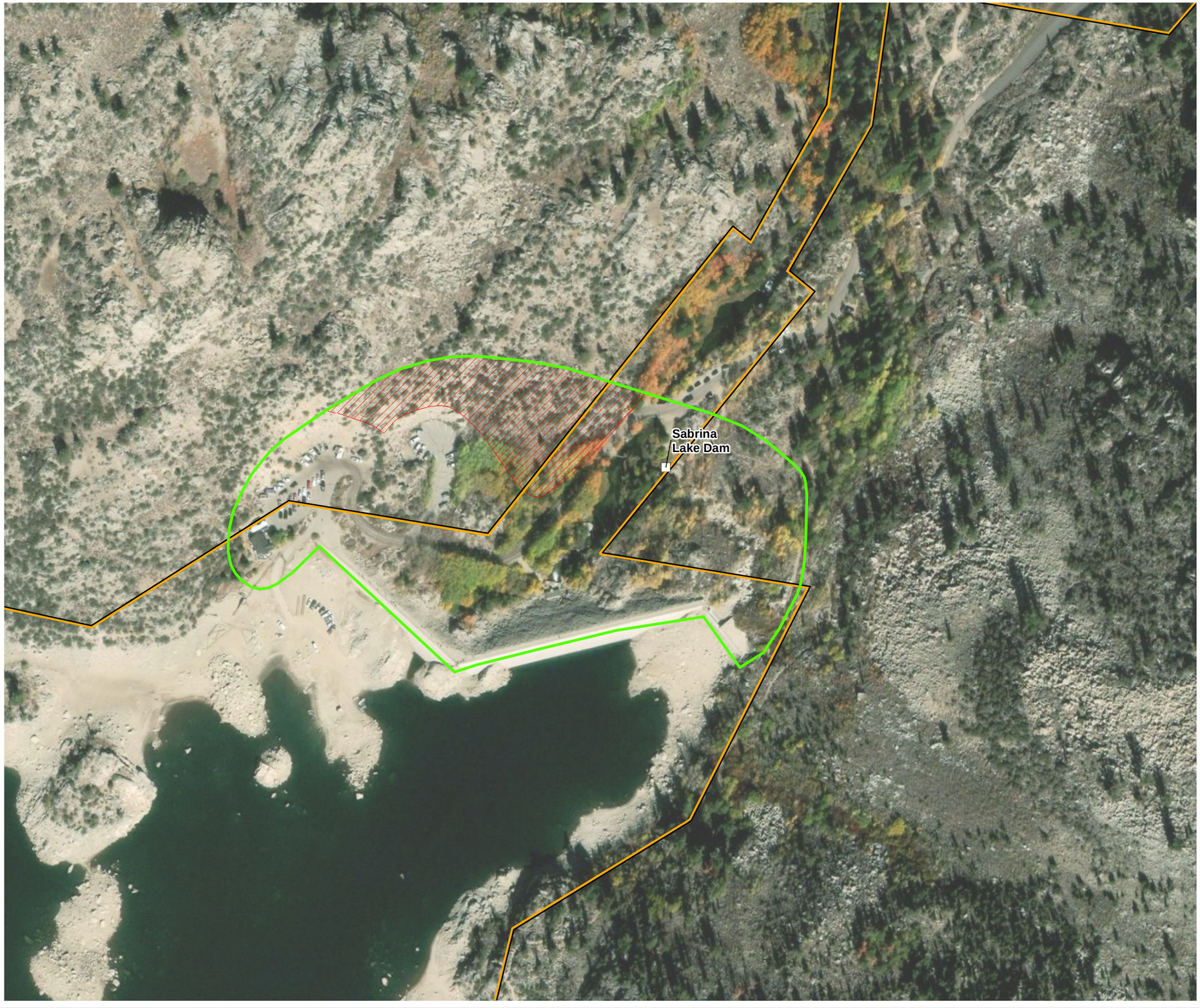

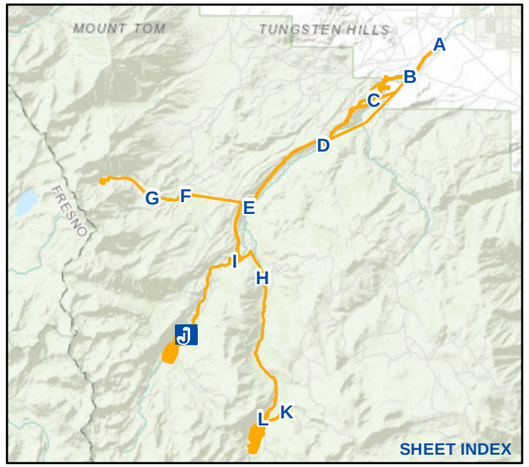

Sabrina Lake Dam

- Dam
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3J

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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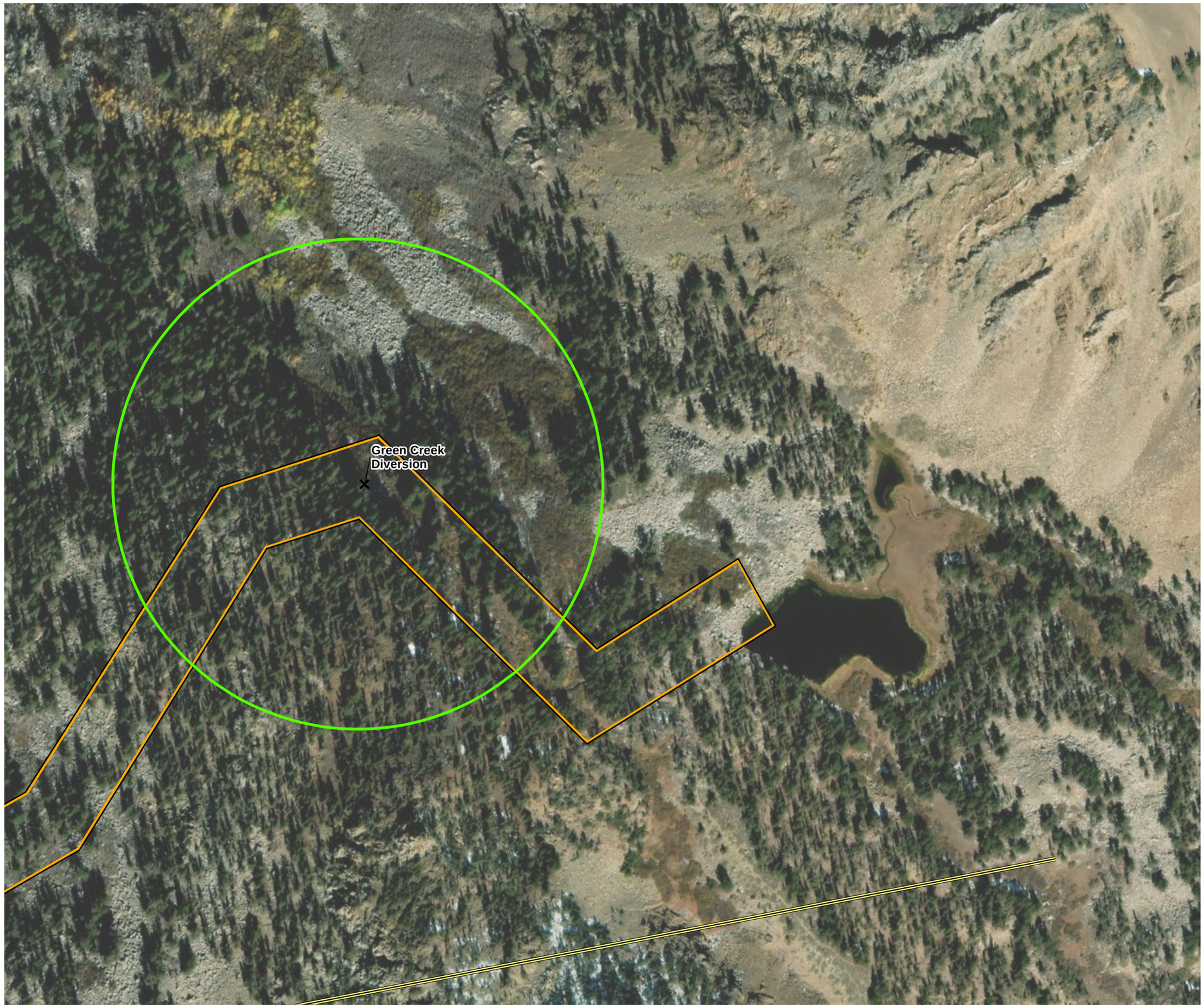

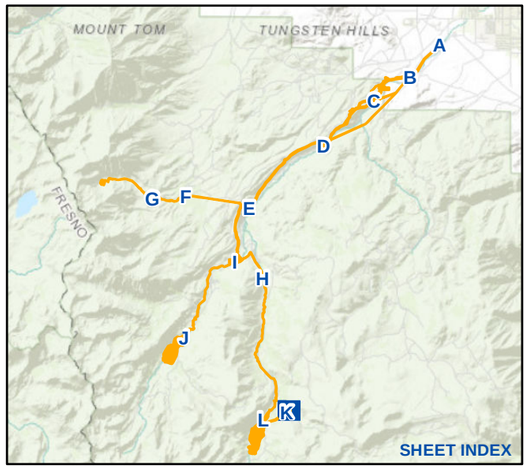

Green Creek Diversion

- Diversion
- Penstock
- FERC Boundary
- Special Status Plant Survey Area

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3K

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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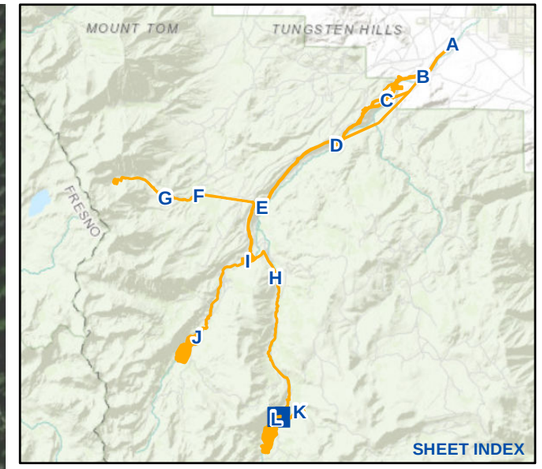
South Fork
Diversion Dam

South Lake
(Hillside
Dam)



South Lake (Hillside) Dam

- Dam
- Penstock
- FERC Boundary
- Special Status Plant Survey Area

Special Status Plant Species

- Not Surveyed (Inaccessible)

N
W E
S

200 100 0 200
Feet

Aerial Source: Esri, DigitalGlobe 2015

Special Status Plant Species Observations

Exhibit 3L

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(Rev: 03/18/2020 RMB) R:\Projects\KLE\3KLE010102\Graphics\SS_Plants\ex_SS_Plant_Observations.pdf

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ATTACHMENT A

PLANT COMMUNITY DESCRIPTIONS

PLANT COMMUNITIES

Upland Botanical Resources

This section is based on keys and descriptions from the USFS using the Calveg[1] classification system. This is the preferred key in use by the Inyo National Forest and is used here to be consistent with the Inyo National Forest Plan (USFS 2018a). In this system, differences between community types (also referred to as alliances) are based on canopy cover as determined from aerial photography and satellite imagery.

Tree Dominated

Canyon Live Oak

With a canopy cover of at least 50 percent, the canyon live oak (*Quercus chrysolepis*) community generally occurs on relatively dry, shallow colluvial soils in steep canyons between approximately 1600 feet and 8400 feet. Understory shrubs can include deerbrush (*Ceanothus integerrimus*) and whiteleaf Manzanita (*Arctostaphylos viscida*), as well as annual grasses and forbs.

Eastside Pine

This community is defined by presence of Jeffrey pine (*Pinus jeffreyi*), either alone or in combination with ponderosa pine (*P. ponderosa*), with a canopy cover of at least 75 percent. The community generally occurs at moderate to upper montane elevations, especially in an elevation range of approximately 5400 feet to 10,000 feet.

Limber Pine

With a canopy cover of at least 75 percent, the limber pine (*Pinus flexilis*) community is associated with dry, steep, high elevation sites generally in the range of 8000 feet to 10,600 feet. These slopes are often east facing, eroded, rocky, coarse-textured, and with low soil nutrient levels.

Lodgepole Pine

The lodgepole pine (*Pinus contorta* ssp. *murrayana*) alliance, with at least 75 percent canopy cover of this species, generally occurs at elevations from approximately 5800 feet to 11,200 feet. Lodgepole pine is an important invader species following fire or disturbance.

Singleleaf Pinyon Pine

With a canopy cover of at least 75 percent, the singleleaf pinyon pine (*Pinus monophylla*) community typically occupies dry slopes within a wide elevation range. Understory shrub species commonly include big sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), cacti (*Opuntia* spp.) and rabbitbrush (*Chrysothamnus* spp.).

[1] The CALVEG ("Classification and Assessment with Landsat of Visible Ecological Groupings") system was initiated in January 1978 by the Region 5 Ecology Group of the U.S. The Calveg team's mission was to classify California existing vegetation communities for use in statewide resource planning considerations. It is a hierarchical classification originally based on "formation" categories: forest, woodland, chaparral, shrubs and herbaceous in addition to non-vegetated units. They were originally identified by distinctions calculated among canopy reflectance values used in the LANDSAT satellite. Since then, the classification has been expanded from an initial 129 types occurring throughout the eight regions of the state to the current 213 occurring in nine regions, and image resolution has been enhanced. https://www.fs.fed.us/r5/rsl/Projects/classification/system.shtml accessed January 16, 2019.

Subalpine Conifers

A combination of two or more conifer species, with a canopy cover of at least 50 percent, comprises this community. Depending on location, the mixture may include three or more of the following species: mountain hemlock (*Tsuga mertensiana*), lodgepole pine (*Pinus contorta* ssp. *murrayana*), limber pine (*P. flexilis*) and/or whitebark pine (*P. albicaulis*). The elevation range of this community is approximately 7600 feet to 11,800 feet.

Whitebark Pine

With a canopy cover of whitebark pine (*Pinus albicaulis*) of at least 75 percent, this community occurs on high windswept ridges within an elevation range of 8600 feet to 12,000 feet. In these areas, a krummholzed form is common, but an upright form also grows in areas of glacial scouring where soil development is poor.

Shrub Dominated

Alpine Mixed Scrub

Alpine Mixed Scrub communities consist of a mixture of tall and dwarf shrubs and some low graminoid and forb species, often including cushion or rosette-leaved plants that survive harsh climatic conditions above timberline. In the Sierra Nevada, the Alpine Mixed Scrub Alliance has been mapped chiefly in the range of approximately 8000 feet to 12,600 feet. Common shrubs include creambush oceanspray (*Holodiscus discolor*), Greene's goldenweed (*Ericameria greenei*) and mountain white heather (*Cassiope mertensiana*). Shrubby willows (*Salix* spp.) are also common in this type. Non-shrub species include those represented in the Alpine Grasses and Forbs Alliance.

Bitterbrush

Bitterbrush (*Purshia tridentata*) is dominant in this alliance and can include the varieties antelope bitterbrush (*P. t.* var. *tridentata*) and desert bitterbrush (*P. t.* var. *glandulosa*). The alliance has been mapped at elevations from approximately 4800 feet to 8000 feet. Bitterbrush is a high value forage species that is associated with species such as big sagebrush (*Artemisia tridentata*), singleleaf pinyon pine (*Pinus monophylla*) and Jeffrey pine (*P. jeffreyi*).

Blackbush

This community is defined by occurrence of blackbush (*Coleogyne ramosissima*) with a canopy cover of at least 50 percent. Other upland shrubs, especially Mormon tea (*Ephedra* spp.), white bursage (*Ambrosia dumosa*) and saltbush (*Atriplex* spp.) may be present.

Curlleaf Mountain Mahogany

This community occurs on gently to steeply sloping mountain uplands and ridge tops, usually in association with rocky outcrops. Curlleaf mountain mahogany (*Cercocarpus ledifolius*) has been mapped more frequently in its shrub form than as a tree in the southern Sierras. It is abundant mainly at elevations above approximately 5400 feet.

Great Basin Mixed Scrub/Big (Basin) Sagebrush

A mixture of common Great Basin shrubs, with big basin sagebrush (*Artemisia tridentata* ssp. *tridentata*) cover of at least 50 percent, defines this type. It commonly occurs in the range of approximately 5000 feet to 10,600 feet in the southern Sierras. Other species can include mountain sagebrush (*A. t.* ssp. *vaseyana*),

bitterbrush (*Purshia tridentata*), curlleaf mountain mahogany (*Cercocarpus ledifolius*), currant (*Ribes* spp.), snowberry (*Symphoricarpos* spp.) and/or interior rose (*Rosa woodsii*).

High Desert Mixed Scrub

This mixture of shrub species, found up to approximately 7400 feet, is defined by the presence of abundant (but not dominant) ephedra species, especially green ephedra (*Ephedra viridis*), spiny menodora (*Menodora spinescens*) and horsebrush (*Tetradymia* spp.).

Rabbitbrush

This community occurs on dry slopes and flats that are dominated by various species of rabbitbrush (*Chrysothamnus* spp.). In the Sierra Nevada it occurs chiefly within an elevation range of approximately 2600 feet to 9000 feet, often in proximity to the annual grasses and Forbs Alliance.

Saltbush

This alliance is a combination of shadscale (*Atriplex confertifolia*), fourwing saltbush (*A. canescens*), and/or other *Atriplex* species. It generally occurs at elevations of approximately 3000 feet to 5000 feet. Other alkaline desert shrub species such as rabbitbrush (*Chrysothamnus* spp.) can be closely associated with this type.

Herbaceous Dominated

Alpine Grasses and Forbs

Prostrate or low-growing herbaceous species predominate in this botanically diverse community rather than shrubs or trees. The community occurs most often within an elevation range of approximately 8200 feet to more than 13,000 feet. Due to high evaporative potential, the short growing season and abrasion or desiccation by wind, morphological adaptions by particular species are often similar to those in the desert. For example, several cushion-forming plants occur within these rocky sites, as well as species with basal rosette-type leaves. Nevertheless, there are a rich variety of herbaceous species that may be found in this Alliance, partially due to diverse habitats and moisture. On dry, open fell-fields, phlox (*Phlox condensata*) often dominate a site and on granite and metamorphics, oval-leaved buckwheat (*Eriogonum ovalifolium*) is a prominent species in many areas. Other species that may be identified in this community include prostrate sibbaldia (*Sibbaldia procumbens*), knotweed (*Polygonum davisiae*), buttercup (*Ranunculus eschscholtzii*), rockcress (*Arabis lemmonii*), mountain sorrel (*Oxyria digyna*), pussypaws (*Calyptridium umbellatum*), Indian paintbrush (*Castilleja lemmonii*), and (on moist sites) columbine (*Aquilegia pubescens*).

Annual Grasses and Forbs

This community is dominated by annual grasses such as bromes (*Bromus* spp.), needlegrass (*Achnatherum* spp.) and wild oats (*Avena* spp.), as well as forbs such as owl's clover (*Orthocarpus* spp.), fiddleneck (*Amsinckia intermedia*) and stork's bill (*Erodium* spp.). This community is often associated with burn areas, xeric or disturbed conditions.

Perennial Grasses and Forbs

This community consists of at least 50 percent cover of perennial grasses and forbs, retaining some moisture in mid-summer and growing in an elevation generally within approximately 6400 feet to 12,000 feet. Upper elevations are often associated with subalpine conifers such as whitebark pine (*Pinus albicaulis*) and lodgepole pine (*P. contorta* ssp. *murrayana*).

ATTACHMENT B

PLANT COMPENDIUM

PLANT SPECIES OBSERVED IN THE SURVEY AREA

Species	Common Name	Project Facilities												Number of Sites Present
		South Lake (Hillside) Dam	Sabrina Lake Dam	McGee Creek Diversion	Birch Creek Diversion	Green Creek Diversion	Bishop Creek South Fork Diversion Dam	Bishop Creek Intake 2 Dam	Bishop Creek Powerhouse No. 2 and Intake 3	Bishop Creek Powerhouse No. 3 and Intake 4	Bishop Creek Powerhouse No. 4 and Intake 5	Bishop Creek Powerhouse No. 5 and Intake 6	Bishop Creek Powerhouse No. 6	
Abronia turbinata	turbinate sand-verbena	0	0	0	0	0	0	0	0	0	0	1	0	1
Achillea millefolium	thousand-leaved yarrow	1	1	1	1	1	0	0	1	0	0	0	0	6
Aconitum columbianum ssp. *columbianum*	Columbian monkshood	0	1	1	1	1	1	0	0	0	0	0	0	5
Actaea rubra	red baneberry	0	0	0	0	1	0	0	0	0	0	0	0	1
Ageratina occidentalis	western snakeroot	1	0	0	0	1	0	0	0	0	0	0	0	2
Agoseris retrorsa	reflexed agoseris	0	0	1	0	0	0	0	0	0	0	0	0	1
*Agrostis gigantea**	redtop	0	0	0	0	0	0	1	0	0	0	0	0	1
Agrostis scabra	rough bent grass	1	1	0	1	0	0	1	0	0	0	0	0	4
Agrostis sp.	bentgrass	0	0	0	1	0	0	0	1	0	0	0	0	2
Aliciella monoensis	Mono Lake aliciella	0	0	0	0	0	0	0	0	0	1	0	1	2
Allium atrorubens var. *cristatum*	Inyo onion	0	0	0	0	0	0	0	0	1	0	0	0	1
Allium bisceptrum	twin-crested onion	0	0	0	1	0	0	0	0	1	0	1	1	4
Allium sp.	onion	0	0	0	0	0	0	0	1	0	0	0	0	1
Allium validum	Pacific onion	0	1	1	0	1	0	0	0	0	0	0	0	3
Ambrosia acanthicarpa	annual bur-sage	0	0	0	0	0	0	0	1	1	1	1	1	5
Ambrosia salsola var. *salsola*	common burrobrush	0	0	0	0	0	0	0	0	0	1	1	1	3
Amelanchier utahensis	Utah service-berry	0	0	0	0	0	0	0	1	0	0	0	0	1
Amsinckia tessellata var. *tessellata*	desert fiddleneck	0	0	0	0	0	0	0	0	1	1	1	1	4
Androsace septentrionalis	pygmy-flower rock-jasmine	1	0	0	0	0	0	0	0	0	0	0	0	1
Angelica capitellata	swamp white heads	0	1	0	1	1	1	0	0	0	0	0	0	4
Angelica lineariloba	linearly-lobed angelica	1	1	1	1	1	1	0	1	0	0	0	0	7
Anisocoma acaulis	scalebud	0	0	0	0	0	0	0	0	1	0	0	0	1
Antennaria rosea ssp. *confinis*	related rosy pussy-toes	0	0	1	0	0	0	0	0	0	0	0	0	1
Antennaria rosea ssp. *rosea*	rosy pussy-toes	1	0	0	0	1	0	0	0	0	0	0	0	2
Aphyllon fasciculatum	clustered broomrape	0	0	0	0	0	0	0	0	1	0	0	0	1
Apocynum androsaemifolium	bitter dogbane	0	1	0	1	0	0	0	1	0	0	0	1	4
Apocynum cannabinum	Indian hemp	0	0	0	0	0	0	0	0	0	0	1	1	2
Aquilegia formosa	handsome columbine	0	1	1	1	1	1	1	0	0	0	0	0	6
Aquilegia pubescens	hairy columbine	0	0	0	0	1	0	0	0	0	0	0	0	1
Arnica lanceolata ssp. *prima*	clasping arnica	1	0	0	1	0	0	0	0	0	0	0	0	2
Arnica latifolia	broadleaf arnica	0	0	0	0	1	0	0	0	0	0	0	0	1
Arnica sororia	twin arnica	0	0	0	1	0	0	1	0	0	0	0	0	2
Artemisia douglasiana	mugwort	1	1	1	1	1	1	0	1	1	1	1	1	11
Artemisia dracunculus	tarragon	0	1	0	0	0	0	0	0	0	0	1	0	2
Artemisia ludoviciana	silver wormwood	0	0	0	0	0	0	0	0	0	1	1	0	2
Artemisia spinescens	budsage	0	0	0	0	0	0	0	0	0	1	1	1	3
Artemisia tridentata	big sagebrush	1	1	1	1	1	1	1	1	1	1	1	1	12
Asclepias fascicularis	narrow-leaf milkweed	0	0	0	0	0	0	0	0	0	1	0	0	1
Asclepias speciosa	showy milkweed	0	0	0	0	0	0	0	0	1	0	0	0	1
Astragalus sp.	milkvetch	0	0	1	0	0	0	0	0	0	0	0	0	1
Atriplex canescens var. *canescens*	four-wing saltbush	0	0	0	0	0	0	0	0	1	1	1	1	4

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		South Lake (Hillside) Dam	Sabrina Lake Dam	McGee Creek Diversion	Birch Creek Diversion	Green Creek Diversion	Bishop Creek South Fork Diversion Dam	Bishop Creek Intake 2 Dam	Bishop Creek Powerhouse No. 2 and Intake 3	Bishop Creek Powerhouse No. 3 and Intake 4	Bishop Creek Powerhouse No. 4 and Intake 5	Bishop Creek Powerhouse No. 5 and Intake 6	Bishop Creek Powerhouse No. 6	
Betula occidentalis	water birch	0	0	1	1	0	0	1	1	1	1	1	1	8
Boechera acutina	pointed rockcress	1	0	0	0	1	0	0	0	1	0	0	0	3
Boechera calderi	Calder's rockcress	0	1	0	0	0	0	0	0	0	0	0	0	1
Boechera sparsiflora	sicklepod rockcress	0	0	0	1	0	0	0	0	0	1	0	0	2
Brickellia californica	California brickellbush	0	0	0	0	0	0	0	0	0	1	1	1	3
Brickellia oblongifolia var. *linifolia*	linear oblong-leaved brickellbush	0	0	0	0	0	0	0	1	0	0	0	0	1
Bromus carinatus	California brome	1	1	1	0	1	1	0	0	0	0	1	0	6
Bromus catharticus var. *catharticus**	rescue grass	0	0	0	0	0	0	0	0	0	0	1	0	1
*Bromus diandrus**	ripgut grass	0	0	0	0	0	0	0	0	0	1	1	1	3
Bromus madritensis ssp. *rubens**	red brome	0	0	0	0	0	0	0	0	0	0	1	1	2
Bromus sp.	brome	0	0	1	0	0	0	0	0	0	0	0	0	1
*Bromus tectorum**	cheat grass	0	1	1	1	0	1	1	1	1	1	1	1	10
Calamagrostis canadensis var. *canadensis*	bluejoint reed grass	0	1	0	0	1	1	0	1	0	0	0	0	4
Calamagrostis stricta	slipstem reed grass	1	0	1	0	0	0	0	0	0	0	0	0	2
Calochortus bruneaunis	Bruneau mariposa lily	0	0	0	0	0	0	0	0	1	0	0	0	1
Calochortus leichtlinii	Leichtlin's mariposa lily	0	0	1	0	0	0	0	0	0	0	0	0	1
Calochortus sp.	mariposa lily	0	0	0	1	0	0	0	1	0	0	0	0	2
Calyptridium monandrum	one-stamened pussypaws	1	0	0	0	0	0	0	0	0	0	1	1	3
Camissonia parvula	small sun cup	0	0	0	0	0	0	0	0	1	0	1	1	3
Carex athrostachya	long-bracted sedge	1	1	1	0	1	1	1	0	1	0	0	0	7
Carex aurea	golden sedge	0	0	0	0	1	0	0	0	0	0	0	0	1
Carex douglasii	Douglas' sedge	0	1	1	1	0	1	1	1	0	0	0	0	6
Carex heteroneura	smooth-fruited sedge	0	0	0	0	1	1	0	0	0	0	0	0	2
Carex jonesii	Jones' sedge	0	0	0	0	0	0	1	0	0	0	0	0	1
Carex nudata	torrent sedge	0	0	0	1	0	0	0	0	0	0	0	0	1
Carex pellita	woolly sedge	1	1	1	0	1	1	1	1	1	1	0	0	9
Carex praeceptorum	teacher sedge	0	0	0	0	0	0	0	0	1	0	0	0	1
Carex rossii	Ross' sedge	0	0	0	0	1	0	0	0	0	0	0	0	1
Carex sp.	sedge	1	0	0	0	0	0	0	0	0	0	0	0	1
Carex vesicaria	inflated sedge	1	1	0	0	1	1	1	1	0	0	0	0	6
Castilleja applegatei	Applegate's paintbrush	1	0	1	1	1	1	1	0	0	0	0	0	6
Castilleja linariifolia	linear-leaved paintbrush	0	1	1	1	0	0	1	0	1	0	0	0	5
Castilleja miniata ssp. *miniata*	red paintbrush	1	1	0	0	1	1	0	0	1	0	1	0	6
Castilleja sp.	paintbrush	0	0	0	0	0	0	0	0	0	0	0	1	1
*Catalpa speciosa**	showy southern catalpa	0	0	0	0	0	0	0	0	0	1	0	0	1
Caulanthus sp.	jewelflower	0	0	0	0	1	0	0	0	0	0	0	0	1
Ceanothus velutinus	velvety California-lilac	0	1	0	1	0	0	1	0	0	0	0	0	3
Centrostegia thurberi	red triangles	0	0	0	0	0	0	0	0	0	1	1	1	3
Cercocarpus ledifolius	curl-leaf mountain-mahogany	1	1	1	1	1	1	1	1	0	0	0	0	8
Chaenactis douglasii var. *douglasii*	dusty-maidens	1	1	1	0	0	0	1	1	1	1	1	1	9
Chaenactis fremontii	Fremont pincushion	0	0	0	0	0	0	0	0	0	1	0	1	2

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Chamaebatiaria millefolium	thousand-leaved chamaebatiaria	0	1	0	0	0	0	1	0	0	0	0	0	2
Chamerion angustifolium ssp. *circumvagum*	fireweed	1	1	1	1	1	1	1	0	0	0	0	0	7
*Chenopodium album**	lamb's quarters	0	0	0	0	0	0	0	1	1	1	0	1	4
Chenopodium atrovirens	dark green pigweed	0	1	0	0	0	0	1	0	0	0	0	0	2
Chenopodium desiccatum	desiccated pigweed	1	0	0	1	0	0	0	0	0	0	0	0	2
Chorizanthe brevicornu var. *brevicornu*	brittle spineflower	0	0	0	0	0	0	0	0	0	0	0	1	1
Chorizanthe brevicornu var. *spathulata*	Great Basin brittle spineflower	0	0	0	0	0	0	1	0	1	1	1	1	5
Chorizanthe watsonii	Watson's spineflower	0	0	0	0	0	0	0	0	0	0	0	1	1
Chrysothamnus viscidiflorus	yellow rabbitbrush	0	0	0	1	1	0	0	1	0	0	0	0	3
Chrysothamnus viscidiflorus ssp. *viscidiflorus*	yellow rabbitbrush	0	0	1	0	0	0	1	0	1	0	0	0	3
Chylismia claviformis ssp. *integrior*	entire club-shaped chylismia	0	0	0	0	0	0	0	0	1	0	0	0	1
Chylismia claviformis ssp. *lancifolia*	lance-leaved club-shaped chylismia	0	0	0	0	0	0	0	0	1	1	1	0	3
Cirsium arizonicum var. *arizonicum*	Arizona thistle	0	0	0	0	1	0	0	0	0	1	1	0	3
Cirsium occidentale var. *venustum*	Venus thistle	0	0	0	0	0	0	1	0	1	0	0	0	2
*Cirsium vulgare**	bull thistle	0	0	0	1	0	0	1	0	1	0	0	0	3
Claytonia parviflora ssp. *viridis*	green small-flowered claytonia	0	0	0	0	1	0	0	0	0	0	0	0	1
Clematis ligusticifolia	western virgin's bower	0	0	0	0	0	0	0	0	0	1	0	0	1
Coleogyne ramosissima	very-branched blackbush	0	0	0	0	0	0	0	0	0	1	1	1	3
Cordylanthus kingii ssp. *helleri*	Heller's bird's-beak	0	0	1	1	0	0	0	0	0	0	0	0	2
Cornus sericea ssp. *sericea*	American dogwood	1	1	0	0	0	0	0	1	0	0	0	0	3
Cotoneaster sp.*	cotoneaster	0	0	0	0	0	0	0	0	0	1	0	0	1
Crepis intermedia	intermediate hawksbeard	0	0	1	1	0	0	0	0	0	0	0	0	2
Cryptantha ambigua	Wilkes' cryptantha	0	1	0	0	0	0	0	0	0	0	0	0	1
Cryptantha confertiflora	yellow-flowered cryptantha	0	0	0	0	0	0	1	0	1	0	0	0	2
Cryptantha sp.	cryptantha	1	0	1	0	1	0	1	1	1	1	1	1	9
Cupressus sp.*	cypress	0	0	0	0	0	0	0	1	0	0	0	0	1
Cuscuta sp.	dodder	0	0	0	0	0	0	0	0	0	0	0	1	1
*Cynodon dactylon**	Bermuda grass	0	0	0	0	0	0	0	0	0	0	1	0	1
Cystopteris fragilis	fragile fern	0	0	0	0	1	0	0	0	0	0	0	0	1
*Dactylis glomerata**	orchard grass	0	0	0	0	0	1	0	0	0	0	0	0	1
Dasiphora fruticosa	shrubby cinquefoil	0	0	0	1	0	0	0	0	0	0	0	0	1
Datura wrightii	Wright's jimsonweed	0	0	0	0	0	0	0	0	0	0	1	0	1
Delphinium parishii ssp. *parishii*	Parish's larkspur	0	0	0	0	1	0	0	0	0	0	0	0	1
Delphinium sp.	larkspur	0	0	0	0	0	0	0	0	1	0	0	0	1
Deschampsia cespitosa ssp. *cespitosa*	tufted hair grass	0	1	0	1	0	0	0	0	0	0	0	0	2
Deschampsia danthonioides	danthonia-like hair grass	1	0	0	0	0	0	0	0	0	0	0	0	1
Descurainia pinnata	feathery tansy mustard	1	1	1	1	1	1	1	0	0	1	1	1	10
*Descurainia sophia**	wise tansy mustard	1	1	0	0	0	0	1	0	1	1	1	1	7
Dichelostemma capitatum	blue dicks	0	0	0	0	0	0	0	0	0	0	0	1	1
Dieteria canescens var. *canescens*	hoary-aster	0	1	1	0	0	1	1	1	1	0	0	1	7

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Diplacus bigelovii var. *bigelovii*	Bigelow's monkeyflower	0	0	0	0	0	0	0	0	1	0	0	0	1
Draba albertina	Alberta draba	0	0	0	0	1	0	0	0	0	0	0	0	1
Draba breweri	Brewer's draba	0	0	0	0	1	0	0	0	0	0	0	0	1
Drymocallis glandulosa var. *reflexa*	reflexed glandular drymocallis	1	0	0	1	1	0	0	0	0	0	0	0	3
Drymocallis lactea var. *lactea*	milky drymocallis	0	0	0	0	1	0	0	0	0	0	0	0	1
Drymocallis sp.	drymocallis	0	0	0	0	0	0	1	0	0	0	0	0	1
*Dysphania botrys**	Jerusalem oak	0	0	0	0	0	0	0	0	0	1	1	0	2
Eleocharis macrostachya	large-spiked spikerush	0	0	0	0	0	0	1	0	0	0	0	0	1
Eleocharis sp.	spikerush	0	0	0	1	0	0	0	0	0	0	0	0	1
Elymus elymoides	squirreltail	1	1	1	1	1	1	1	1	1	1	0	1	11
Elymus glaucus	western wild-rye	0	0	0	0	0	0	0	1	0	0	0	0	1
Elymus glaucus ssp. *glaucus*	western wild-rye	0	0	0	1	1	0	0	0	1	0	1	0	4
Elymus lanceolatus ssp. *lanceolatus*	thick-spike wheat grass	0	0	0	0	0	0	0	1	0	0	0	0	1
Elymus multisetus	big squirrel tail	0	0	0	0	0	0	1	0	0	0	0	0	1
*Elymus ponticus**	tall wheat grass	0	0	0	1	0	0	1	0	0	0	0	0	2
Elymus smithii	western wheat grass	0	0	0	0	0	0	0	0	1	0	0	1	2
Elymus trachycaulus ssp. *trachycaulus*	slender wheat grass	0	0	1	0	0	0	0	0	1	0	0	0	2
Elymus triticoides	beardless wild rye	0	1	0	0	0	0	1	0	0	0	0	0	2
Emmenanthe penduliflora var. *penduliflora*	whispering bells	0	0	0	0	0	0	0	0	0	1	0	0	1
Encelia virginensis	Virgin River brittlebush	0	0	0	0	0	0	0	0	1	1	1	0	3
Ephedra nevadensis	Nevada ephedra	0	0	0	0	0	0	0	0	1	1	1	1	4
Epilobium brachycarpum	short-fruited willowherb	0	0	0	0	0	0	0	0	1	0	0	0	1
Epilobium ciliatum	fringed willowherb	1	1	0	1	1	0	1	1	0	0	0	0	6
Epilobium glaberrimum ssp. *fastigiatum*	upright glaberous willowherb	1	0	0	0	0	0	0	0	0	0	0	0	1
Equisetum arvense	common horsetail	0	0	0	1	0	0	1	1	1	0	1	1	6
Equisetum laevigatum	smooth scouring rush	0	0	0	0	0	0	0	0	0	1	1	1	3
Eremalche exilis	white mallow	0	0	0	0	0	0	0	0	0	1	0	0	1
Eremogone ferrisiae	Ferris' sandwort	0	0	0	0	0	0	0	1	0	0	0	0	1
Eremogone kingii var. *glabrescens*	King's sandwort	0	0	1	0	0	0	0	0	0	0	0	0	1
Eriastrum densifolium ssp. *austromontanum*	southern mountain densely-leaved eriastrum	0	0	0	0	0	0	0	0	1	0	0	0	1
Eriastrum densifolium ssp. *elongatum*	elongated densely-leaved eriastrum	0	0	0	0	0	0	0	1	0	0	0	0	1
Eriastrum sp.	eriastrum	0	0	0	0	0	0	0	0	1	0	0	0	1
Eriastrum sparsiflorum	few-flowered eriastrum	0	0	0	0	0	1	1	1	1	1	1	1	7
Ericameria cooperi var. *cooperi*	Cooper's goldenbush	0	0	0	0	0	0	0	0	0	1	1	1	3
Ericameria cuneata var. *cuneata*	cliff goldenbush	0	0	0	0	0	0	0	0	0	1	0	0	1
Ericameria nauseosa	rubber rabbitbrush	0	0	1	1	0	0	1	1	1	1	1	1	8
Ericameria nauseosa var. *hololeuca*	white rabbitbrush	0	0	0	0	0	0	0	0	0	1	0	1	2
Ericameria suffruticosa	singlehead goldenbush	1	0	1	1	1	1	0	0	0	0	0	0	5
Ericameria teretifolia	green rabbitbrush	0	0	0	0	0	0	0	0	0	0	1	0	1
Erigeron algidus	Sierra fleabane	0	0	0	1	1	1	0	0	0	0	0	0	3

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Erigeron breweri var. *breweri*	Brewer's fleabane	0	0	1	0	0	0	1	0	0	0	0	0	2
Erigeron canadensis	horseweed	0	0	0	0	0	0	0	1	0	1	0	1	3
Erigeron clokeyi var. *pinzliae*	Pinzl's fleabane	1	0	1	0	0	1	0	0	0	0	0	0	3
Erigeron coulteri	Coulter's fleabane	0	0	0	1	0	0	0	0	0	0	0	0	1
Erigeron foliosus var. *foliosus*	leafy fleabane	0	0	0	0	0	0	0	0	1	0	0	0	1
Erigeron foliosus var. *hartwegii*	Hartweg's leafy fleabane	0	0	0	1	0	0	0	1	0	0	0	0	2
Erigeron glacialis var. *hirsutus*	hairy subalpine fleabane	0	0	0	0	1	1	0	0	0	0	0	0	2
Erigeron lonchophyllus	short-rayed fleabane	0	0	0	0	1	0	1	0	0	0	0	0	2
Erigeron sp.	fleabane daisy	0	0	0	1	0	0	1	0	0	0	0	0	2
Eriogonum fasciculatum var. *polifolium*	Mojave Desert California buckwheat	0	0	0	0	0	0	0	0	0	1	1	1	3
Eriogonum inflatum	desert trumpet	0	0	0	0	0	0	0	1	1	1	1	1	5
Eriogonum kennedyi var. *purpusii*	Purpus' wild buckwheat	0	0	0	0	0	0	0	0	1	0	0	0	1
Eriogonum microthecum var. *ambiguum*	yellow-flowered wild buckwheat	0	1	1	1	0	1	1	1	1	0	0	0	7
Eriogonum nidularium	birdnest wild buckwheat	0	0	0	0	0	0	0	0	0	0	0	1	1
Eriogonum nudum var. *deductum*	reduced wild buckwheat	0	0	0	0	0	0	1	0	0	0	0	0	1
Eriogonum nudum var. *nudum*	naked wild buckwheat	0	0	1	0	0	0	1	0	0	0	0	0	2
Eriogonum nudum var. *scapigerum*	Sierran crest wild buckwheat	1	0	0	0	1	1	0	0	0	0	0	0	3
Eriogonum nudum var. *westonii*	Weston's wild buckwheat	0	0	0	0	0	0	0	1	0	0	0	0	1
Eriogonum sp.	wild buckwheat	0	1	0	0	0	0	1	1	1	1	0	1	6
Eriogonum umbellatum	sulphur flower	0	1	1	1	0	1	1	1	1	0	0	0	7
Eriophyllum pringlei	Pringle's woolly sunflower	0	0	0	0	0	0	0	0	0	0	1	1	2
Eriophyllum wallacei	Wallace's woolly sunflower	0	0	0	0	0	0	0	0	1	1	1	1	4
*Erodium cicutarium**	redstem filaree	0	0	0	0	0	0	0	0	1	0	1	1	3
Erysimum capitatum var. *capitatum*	western wallflower	1	0	1	1	1	1	1	1	0	0	0	0	7
Erythranthe cardinalis	scarlet monkeyflower	0	0	0	0	0	0	0	0	0	0	0	1	1
Erythranthe guttata	common monkeyflower	0	1	0	0	0	0	1	0	0	1	0	0	3
Erythranthe primuloides	primrose monkeyflower	1	0	0	1	0	0	1	0	0	0	0	0	3
Erythranthe rubella	redstem monkeyflower	1	0	0	0	1	0	0	0	0	0	0	0	2
Erythranthe sp.	monkeyflower	0	0	0	0	0	0	1	0	0	0	0	0	1
Erythranthe tilingii	Tiling's monkeyflower	1	0	0	0	1	0	0	0	0	0	0	0	2
Eschscholzia minutiflora	minute-flowered eschscholzia	0	0	0	0	0	0	0	0	1	1	1	0	3
Euthamia occidentalis	western goldenrod	1	0	0	0	1	0	0	0	1	1	1	1	6
*Festuca arundinacea**	tall fescue	0	0	0	0	0	0	1	0	0	0	0	0	1
Festuca octoflora	sixweeks grass	0	0	0	0	0	0	0	0	0	0	0	1	1
*Festuca pratensis**	meadow fescue	0	0	0	0	0	0	1	0	0	0	0	0	1
Festuca rubra	red fescue	0	0	0	0	0	0	0	0	1	0	0	0	1
Festuca saximontana	mountain fescue	0	0	0	0	0	0	0	0	0	1	0	0	1
Fritillaria biflora var. *biflora*	two-flowered fritillary	0	0	0	0	0	0	0	0	1	0	0	0	1
Galium matthewsii	Matthews' bedstraw	0	0	0	0	0	0	1	1	0	0	0	0	2
Gayophytum diffusum ssp. *parviflorum*	small-flowered, loose-spreading gayophytum	1	0	1	0	1	0	1	1	0	0	0	0	5

PLANT SPECIES OBSERVED IN THE SURVEY AREA

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Geum macrophyllum var. *perincisum*	completely cut large-leaved avens	0	1	0	0	0	1	0	0	0	0	0	0	2
Gilia brecciarum ssp. *neglecta*	neglected break gilia	0	0	1	0	0	0	0	0	1	1	0	1	4
Gilia ochroleuca ssp. *ochroleuca*	volcanic gilia	0	0	0	0	0	0	0	0	0	0	1	1	2
Gilia sp.	gilia	0	0	0	0	0	0	1	0	1	0	1	0	3
Grayia spinosa	thorny hop-sage	0	0	0	0	0	0	0	0	1	1	1	1	4
Hackelia micrantha	Jessica's stickseed	0	0	1	0	0	0	0	0	0	0	0	0	1
*Hesperocyparis glabra**	smooth western cypress	0	0	0	0	0	0	0	1	0	0	0	0	1
Heuchera rubescens	reddish alumroot	1	0	0	0	1	0	0	0	0	0	0	0	2
*Holcus lanatus**	common velvet grass	0	0	0	0	0	0	0	0	0	0	0	1	1
Holodiscus discolor var. *microphyllus*	small-leaved oceanspray	1	1	1	0	1	1	0	1	0	0	0	0	6
Hordeum brachyantherum ssp. *brachyantherum*	northern barley	0	0	0	0	0	1	0	0	0	0	0	0	1
*Hordeum murinum**	wall barley	0	0	0	0	0	0	0	0	0	0	1	1	2
Hymenoxys hoopesii	Hoopes' hymenoxys	0	0	1	0	1	0	0	0	0	0	0	0	2
Ipomopsis aggregata ssp. *aggregata*	scarlet gilia	0	0	1	1	0	0	0	1	1	0	0	0	4
*Iris germanica**	German iris	0	0	0	0	0	0	0	0	0	1	0	0	1
Iris missouriensis	western blue flag	0	0	0	1	0	0	0	0	0	0	0	0	1
Juncus balticus ssp. *ater*	Baltic rush	0	0	0	0	0	0	1	1	0	0	1	0	3
Juncus bufonius var. *occidentalis*	western toad rush	1	0	0	1	0	1	1	0	0	0	0	0	4
Juncus ensifolius	dagger rush	0	1	0	0	0	0	1	1	1	0	1	0	5
Juncus mexicanus	Mexican rush	1	1	0	1	1	0	1	1	0	0	0	0	6
Juncus parryi	Parry's rush	1	0	0	0	1	0	0	0	0	0	0	0	2
Juncus sp.	rush	1	0	0	0	0	1	1	0	0	0	0	1	4
Juniperus occidentalis	western juniper	0	1	0	0	0	0	0	0	0	0	0	0	1
Koeleria macrantha	june grass	1	0	1	0	1	1	0	0	0	0	0	0	4
Krascheninnikovia lanata	winter fat	0	0	0	0	0	0	0	0	0	1	1	1	3
*Lactuca serriola**	prickly lettuce	0	0	0	0	0	0	0	0	1	1	1	1	4
*Lathyrus latifolius**	perennial sweet pea	0	0	0	0	0	0	0	0	0	1	1	0	2
Layia glandulosa	white layia	0	0	0	0	0	0	0	0	1	1	1	1	4
Lemna sp.	duckweed	0	0	0	0	0	0	1	0	0	0	0	0	1
Lepidium densiflorum	densely-flowered peppergrass	0	0	0	0	0	1	0	0	0	0	0	0	1
Lepidium fremontii	Fremont's peppergrass	0	0	0	0	0	0	0	0	0	1	0	0	1
Lepidium sp.	peppergrass	1	1	0	0	1	0	0	0	0	0	0	1	4
Lepidium virginicum ssp. *menziesii*	Menzie's Virginia peppergrass	0	0	0	0	0	0	1	1	0	1	1	0	4
Leptosiphon aureus	golden leptosiphon	0	0	0	0	0	0	0	0	0	1	1	1	3
Leptosiphon nuttallii ssp. *pubescens*	Nuttall's hairy leptosiphon	0	1	1	0	1	1	0	0	0	0	0	0	4
Lilium kelleyanum	Kelley's lily	0	0	1	1	0	1	0	0	0	0	0	0	3
Linanthus dichotomus ssp. *dichotomus*	evening snow	0	0	0	0	0	0	0	0	0	0	0	1	1
Loeseliastrum schottii	Schott's calico	0	0	0	0	0	0	0	0	0	1	1	0	2
Lomatium dissectum	dissected lomatium	0	0	1	1	0	0	0	1	0	0	0	0	3
Lomatium nevadense var. *nevadense*	Nevada lomatium	0	0	0	0	0	0	0	0	1	0	0	0	1

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Lomatium rigidum	stiff lomatium	0	0	1	0	0	1	1	1	1	0	0	0	5
Lupinus argenteus	silvery lupine	0	0	1	0	0	0	0	0	0	0	0	0	1
Lupinus argenteus var. *heteranthus*	variably anthered silvery lupine	0	0	0	0	0	0	0	1	1	0	0	0	2
Lupinus polyphyllus var. *burkei*	Burk's big leaf lupine	0	0	0	0	0	0	0	0	1	0	0	0	1
Lupinus pratensis var. *pratensis*	meadow lupine	0	1	1	1	1	1	1	0	0	0	0	0	6
Lupinus sp.	lupine	1	0	0	0	0	0	0	0	0	0	0	0	1
Luzula spicata	spiked hairy wood rush	0	0	0	0	1	0	0	0	0	0	0	0	1
Luzula subcongesta	slightly-crowded hairy wood rush	0	1	0	0	0	1	0	0	0	0	0	0	2
Lycium andersonii	Anderson's box-thorn	0	0	0	0	0	0	0	0	0	1	1	0	2
Maianthemum stellatum	star-like false lily of the valley	0	1	1	1	1	1	0	1	1	0	0	1	8
Malacothrix glabrata	desert dandelion	0	0	0	0	0	0	0	0	0	1	1	1	3
*Malus pumila**	apple	0	0	0	0	0	0	0	1	1	1	0	0	3
*Malva parviflora**	cheeseweed	0	0	0	0	0	1	0	0	0	0	0	0	1
*Matricaria discoidea**	pineapple weed	0	0	0	1	0	0	0	0	0	0	0	0	1
Medicago sp.*	alfalfa	0	0	0	0	0	0	0	0	1	0	0	0	1
Melica stricta	rock melic	0	0	1	0	0	0	1	1	0	0	0	0	3
*Melilotus albus**	white sweetclover	1	0	0	0	0	0	0	1	0	0	1	1	4
*Melilotus indicus**	sourclover	0	0	0	0	0	0	0	0	1	0	0	0	1
Mentzelia albicaulis	white-stemmed blazing star	0	1	0	0	0	0	1	1	1	1	1	1	7
Mentzelia dispersa	scattered blazing star	0	0	0	0	0	0	1	0	0	0	0	0	1
Micranthes nidifica	nest saxifrage	0	0	0	0	1	0	0	0	0	0	0	0	1
Micranthes odontoloma	tooth-margined saxifrage	1	0	0	0	0	0	0	0	0	0	0	0	1
Mimetanthe pilosa	downy monkey flower	0	0	0	0	0	0	0	0	0	0	0	1	1
Minuartia douglasii	Douglas' stitchwort	0	0	0	1	0	0	0	0	1	0	0	0	2
Mirabilis laevis	smooth four o'clock	0	0	0	0	0	0	0	0	0	1	1	1	3
Monardella linoides ssp. *sierrae*	Sierra flax-like monardella	1	1	1	1	1	1	1	1	0	0	0	0	8
Montia chamissoi	toad lily	0	0	0	0	1	0	0	0	0	0	0	0	1
Muhlenbergia richardsonis	mat muhly	1	0	0	0	0	0	0	0	0	0	0	0	1
Nama rothrockii	Rothrock's purple mat	0	1	0	0	0	0	0	0	0	0	1	1	3
Nemacladus glanduliferus	glandular nemacladus	0	0	0	0	0	0	0	0	1	0	0	0	1
Nemacladus orientalis	eastern nemacladus	0	0	0	0	0	0	0	0	0	0	1	1	2
Nicotiana attenuata	narrowed-tip tobacco	0	0	0	0	0	0	0	1	0	0	0	0	1
Oenothera californica ssp. *avita*	grandfathers' California evening primrose	0	0	0	0	0	0	1	0	0	0	0	0	1
Oenothera elata ssp. *hirsutissima*	hairy tall evening primrose	0	0	0	0	0	0	0	1	1	0	1	0	3
Opuntia basilaris var. basilaris	beavertail	0	1	1	1	0	0	1	1	1	1	1	1	9
Opuntia polyacantha var. *erinacea*	Mojave prickly-pear	0	0	0	0	0	0	1	1	1	0	0	0	3
Osmorhiza berteroi	Berter's sweet-cicely	0	0	0	1	0	0	0	0	0	0	0	0	1
Packera cana	woolly groundsel	1	1	1	0	0	0	0	0	0	0	0	0	3
Parnassia parviflora	small-flowered grass-of-parnassus	0	0	0	1	0	0	0	0	0	0	0	0	1
Pectocarya penicillata	northern pectocarya	0	0	0	0	0	0	0	0	0	0	1	0	1

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Pectocarya setosa	round-nut pectocarya	0	0	0	0	0	0	0	0	0	1	1	1	3
Pellaea breweri	Brewer's cliff-brake	0	0	0	0	1	0	0	0	0	0	0	0	1
Penstemon heterodoxus var. *heterodoxus*	non-pubescent beardtongue	1	0	0	0	1	0	0	0	0	0	0	0	2
Penstemon laetus var. *laetus*	vivid beardtongue	0	0	0	0	0	0	1	0	0	0	0	0	1
Penstemon newberryi var. *newberryi*	Newberry's beardtongue	1	1	0	0	1	1	0	0	0	0	0	0	4
Penstemon papillatus	Inyo beardtongue	0	0	1	0	0	0	0	0	0	0	0	0	1
Penstemon rostriflorus	beaked beardtongue	1	1	0	0	0	1	0	1	0	0	0	0	4
Penstemon speciosus	showy beardtongue	0	1	1	0	0	0	0	0	0	0	0	0	2
Perideridia parishii ssp. *latifolia*	Parish's broad-leaved yampah	1	1	0	0	1	0	0	0	0	0	0	0	3
Phacelia curvipes	curved phacelia	0	0	0	0	0	0	0	0	1	1	0	1	3
Phacelia hastata var. *compacta*	compact spear phacelia	1	1	1	0	1	1	1	0	0	0	0	0	6
Phacelia hastata var. *compacta*	compact spear phacelia	1	1	1	0	1	0	1	0	0	0	0	0	5
Phacelia ramosissima	branching phacelia	0	0	1	1	0	0	1	1	0	1	0	0	5
Phacelia sp.	phacelia	0	0	0	0	0	0	0	1	1	0	1	0	3
Phacelia vallis-mortae	Death Valley phacelia	0	0	0	0	0	0	0	0	1	1	1	0	3
Phleum alpinum	alpine timothy	1	0	1	1	1	0	0	0	0	0	0	0	4
Phlox diffusa	spreading phlox	0	0	0	0	0	0	1	0	0	0	0	0	1
Phlox sp.	phlox	1	0	0	1	1	1	0	0	0	0	0	0	4
Phlox stansburyi ssp. *stansburyi*	Stansbury's phlox	1	1	1	0	1	1	0	1	0	0	0	0	6
Phlox stansburyi ssp. *superba*	Stansbury's superb phlox	0	0	0	0	0	0	0	0	1	0	0	0	1
Phragmites australis subsp. *americanus*	common reed	0	1	0	0	0	0	0	0	1	0	1	1	4
Phyllodoce breweri	Brewer's mountain heather	0	0	0	0	1	0	0	0	0	0	0	0	1
Pinus contorta ssp. *murrayana*	lodgepole pine	1	1	0	0	1	1	1	0	0	0	0	0	5
Pinus coulteri	Coulter pine	0	0	0	0	0	0	0	0	1	0	0	0	1
Pinus flexilis	limber pine	1	0	1	0	1	1	0	0	0	0	0	0	4
Pinus jeffreyi	Jeffrey pine	0	1	0	1	0	0	1	1	0	0	0	0	4
Pinus monophylla	singleleaf pinyon pine	0	0	1	1	0	0	1	1	1	0	0	0	5
Pinus sabiniana	gray pine	0	0	0	0	0	0	0	0	0	1	0	0	1
*Plantago lanceolata**	English plantain	0	0	0	1	0	1	0	0	0	0	0	0	2
Platanthera dilatata var. *leucostachys*	white-flowered bog-orchid	1	1	0	0	1	1	0	0	0	0	0	0	4
Platanus racemosa	western sycamore	0	0	0	0	0	0	0	0	0	1	0	0	1
Pleiacanthus spinosus	thorny skeletonweed	0	0	1	0	0	0	0	1	1	0	0	0	3
*Poa annua**	annual blue grass	0	0	0	0	1	0	0	0	0	0	0	0	1
Poa secunda ssp. *secunda*	one-sided blue grass	0	0	0	0	1	0	0	0	0	0	0	0	1
Poa sp.	blue grass	1	0	0	1	0	1	0	1	1	1	1	1	8
Poa wheeleri	Wheeler's blue grass	0	1	0	0	1	0	0	0	0	0	0	0	2
Polygonum aviculare ssp. *depressum**	dented oval leaf knotweed	0	0	0	1	0	0	1	1	1	0	0	0	4
*Populus nigra**	black poplar	0	0	0	0	0	0	0	0	1	0	0	0	1
Populus tremuloides	quaking aspen	1	1	0	1	1	1	1	1	0	0	0	0	7
Populus trichocarpa	black cottonwood	0	0	0	0	0	0	1	1	1	1	1	0	5
*Portulaca oleracea**	purslane	0	0	0	0	0	0	0	0	0	1	0	0	1

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Potentilla biennis	biennial cinquefoil	0	0	0	0	0	0	0	0	0	0	0	1	1
Potentilla gracilis	slender cinquefoil	1	0	0	1	1	1	0	0	0	0	0	0	4
Primula clevelandii	Cleveland's primrose	0	0	0	0	0	1	0	0	0	0	0	0	1
Primula conjugens	jointed primrose	0	0	0	0	1	0	0	0	0	0	0	0	1
Primula hendersonii	mosquito bill	0	0	0	1	0	0	0	0	0	0	0	0	1
Primula jeffreyi	Sierra shooting star	0	1	0	0	0	0	0	0	0	0	0	0	1
Prunus andersonii	desert peach	0	0	1	0	0	0	1	1	1	1	1	1	7
Pseudognaphalium stramineum	straw-colored cudweed	0	0	0	0	0	0	0	0	0	0	0	1	1
Psorothamnus arborescens var. *minutifolius*	small-leaved Mojave indigo-bush	0	0	0	0	0	0	0	0	0	0	0	1	1
Psorothamnus schottii	indigo-bush	0	0	0	0	0	0	0	0	0	0	0	1	1
Pteridium aquilinum var. *pubescens*	hairy eagle-like pteridium	0	1	0	0	0	0	0	0	0	0	0	0	1
Purshia tridentata	bitterbrush	1	1	1	1	0	0	1	1	1	1	1	1	10
Pyrrocoma apargioides	alpine flames	1	0	0	0	1	1	0	0	0	0	0	0	3
Ranunculus cymbalaria	rounded-lead buttercup	0	1	1	0	0	0	1	0	0	0	0	0	3
Ranunculus hydrocharoides	frog's-bit buttercup	0	0	0	0	0	0	0	0	1	0	0	0	1
Rhodiola integrifolia ssp. *integrifolia*	western roseroot	0	0	0	0	1	0	0	0	0	0	0	0	1
Rhododendron columbianum	western labrador tea	1	0	0	0	1	0	0	0	0	0	0	0	2
Ribes cereum	wax currant	1	1	1	1	1	0	1	0	0	0	0	0	6
Ribes cereum var. *cereum*	wax currant	1	0	0	0	0	1	0	1	0	0	0	0	3
Ribes inerme var. *inerme*	white-stemmed gooseberry	0	1	0	0	0	0	0	0	0	0	0	0	1
Ribes montigenum	western prickly gooseberry	0	0	0	0	1	0	0	0	0	0	0	0	1
Ribes velutinum	velvety currant	0	0	1	0	0	0	1	1	1	0	0	0	4
*Robinia pseudoacacia**	black locust	0	0	0	0	0	0	0	0	0	1	1	1	3
Rorippa curvipes	curved-stalk yellow cress	0	1	0	0	0	0	0	0	0	0	0	0	1
Rorippa palustris ssp. *palustris*	marsh yellow cress	0	0	0	0	0	0	0	0	1	0	0	0	1
Rosa woodsii	Woods' rose	1	1	1	1	0	0	1	1	1	1	1	1	10
*Rubus armeniacus**	Himalayan blackberry	0	0	0	0	0	0	0	0	0	1	0	0	1
Rubus sp.*	blackberry	0	1	0	0	0	0	0	0	0	0	0	0	1
*Rumex crispus**	curly dock	0	0	0	0	0	0	1	1	1	1	0	1	5
Rumex paucifolius	few-leaved dock	0	0	0	0	1	0	0	0	0	0	0	0	1
Rumex salicifolius	willow dock	0	0	0	1	0	0	0	0	0	0	0	1	2
Sagina saginoides	arctic pearlwort	1	0	0	0	1	0	0	0	0	0	0	0	2
Salix exigua	weak willow	0	0	0	0	0	0	1	0	1	1	1	1	5
Salix gooddingii	Goodding's black willow	0	0	0	0	0	0	0	0	0	0	1	0	1
Salix lasiolepis	arroyo willow	0	0	0	0	0	0	0	0	1	0	0	0	1
Salix lutea	yellow willow	0	0	0	0	1	1	0	0	0	0	0	0	2
Salix sp.	willow	1	1	1	1	0	0	0	1	0	1	1	1	8
*Salsola australis**	southern salsola	0	0	0	0	0	0	0	0	0	1	1	1	3
Salsola sp.*	salsola	0	0	0	0	0	0	0	0	0	1	1	1	3
*Salsola tragus**	Russian thistle	0	0	0	0	0	0	1	1	1	0	0	0	3
Salvia columbariae	chia	0	0	0	0	0	0	0	0	0	0	1	0	1

PLANT SPECIES OBSERVED IN THE SURVEY AREA

Species	Common Name	Project Facilities												Number of Sites Present
		South Lake (Hillside) Dam	Sabrina Lake Dam	McGee Creek Diversion	Birch Creek Diversion	Green Creek Diversion	Bishop Creek South Fork Diversion Dam	Bishop Creek Intake 2 Dam	Bishop Creek Powerhouse No. 2 and Intake 3	Bishop Creek Powerhouse No. 3 and Intake 4	Bishop Creek Powerhouse No. 4 and Intake 5	Bishop Creek Powerhouse No. 5 and Intake 6	Bishop Creek Powerhouse No. 6	
Sambucus racemosa var. *racemosa*	red elderberry	0	1	0	0	0	0	1	0	0	0	0	0	2
Scirpus microcarpus	small fruit bulrush	0	0	0	0	0	0	0	1	1	1	1	1	5
Scrophularia californica	California figwort	0	1	0	0	0	0	0	0	0	0	0	0	1
Scrophularia desertorum	desert figwort	1	0	0	0	0	0	0	0	0	0	0	0	1
Selaginella watsonii	Watson's spike-moss	1	0	1	0	1	1	0	0	0	0	0	0	4
Senecio sp.	ragwort	0	0	0	1	0	0	0	0	0	0	0	0	1
Senecio spartioides	broom-like ragwort	0	0	0	0	0	0	0	1	0	0	0	0	1
Senecio triangularis	arrowleaf ragwort	1	0	1	1	1	1	0	0	0	0	0	0	5
Shepherdia argentea	buffalo-berry	0	0	0	0	0	0	0	1	1	0	0	1	3
Silene bernardina	Palmer's catchfly	0	0	1	0	0	0	1	0	0	0	0	0	2
Silene menziesii	Menzies' catchfly	0	0	0	0	0	0	0	0	1	0	0	0	1
*Sisymbrium altissimum**	tumble mustard	0	0	0	0	0	0	1	1	1	0	1	1	5
Solidago sp.	goldenrod	0	0	0	0	0	1	0	0	0	0	0	0	1
Solidago velutina ssp. *californica*	California goldenrod	0	1	0	0	0	0	0	0	1	0	0	0	2
Sonchus sp.*	sow thistle	0	0	0	0	0	0	0	0	0	0	0	1	1
Sphaeralcea ambigua var. *ambigua*	apricot mallow	0	0	1	0	0	0	1	1	1	1	1	0	6
Spiraea splendens	splendid spiraea	1	0	0	0	0	0	0	0	0	0	0	0	1
Sporobolus airoides	alkali sacaton	0	0	0	0	0	0	0	0	0	0	1	0	1
Stellaria calycantha	northern starwort	0	0	0	0	1	0	0	0	0	0	0	0	1
Stephanomeria exigua ssp. *coronaria*	garland little stephanomeria	0	0	0	0	0	0	1	0	1	1	1	1	5
Stephanomeria parryi	Parry's stephanomeria	0	0	0	0	0	0	0	0	0	1	0	1	2
Stephanomeria pauciflora	wire-lettuce	0	0	0	0	0	0	0	1	0	0	0	0	1
Stephanomeria tenuifolia	narrow-leaved wire-lettuce	0	0	1	0	0	0	1	1	0	1	0	0	4
Stipa comata var. *comata*	needle-and-thread	0	0	0	1	0	0	1	1	1	0	0	0	4
Stipa hymenoides	sand rice grass	1	1	1	0	0	0	1	1	1	1	1	1	9
Stipa kingii	King's rice grass	0	0	1	0	0	0	0	0	0	0	0	0	1
Stipa nelsonii var. *dorei*	mountain needle grass	0	0	1	1	1	0	1	0	0	0	0	0	4
Stipa occidentalis	western needle grass	1	0	0	0	1	1	1	0	0	0	0	0	4
Stipa occidentalis var. *pubescens*	common western needle grass	0	0	0	0	0	0	0	1	0	0	0	0	1
Stipa speciosa	desert needle grass	0	0	0	0	0	0	1	0	0	1	1	1	4
Symphoricarpos rotundifolius var. *rotundifolius*	roundleaf snowberry	1	1	1	1	1	1	1	1	0	0	0	0	8
Symphyotrichum foliaceum var. *parryi*	Parry's leafy American-aster	0	0	0	0	0	0	0	0	1	0	0	0	1
Symphyotrichum spathulatum var. *spathulatum*	spatula-shaped American-aster	0	0	0	0	0	0	1	1	0	0	0	0	2
*Taraxacum officinale**	common dandelion	0	0	1	1	1	0	1	0	0	0	0	0	4
Tetradymia canescens	hairy cottonthorn	0	0	0	0	0	0	1	1	0	0	0	0	2
Tetradymia spinosa	thorny cottonthorn	0	0	0	0	0	0	0	0	1	0	1	1	3
Thalictrum fendleri var. *fendleri*	Fendler's meadow-rue	0	1	1	1	1	0	0	0	0	0	0	0	4
Thysanocarpus curvipes	curvy fringepod	0	0	0	0	0	0	0	0	0	0	1	0	1
Tiquilia nuttallii	annual tiquilia	0	0	0	0	0	0	0	0	1	0	0	1	2
*Tribulus terrestris**	puncture vine	0	0	0	0	0	0	0	0	0	1	0	0	1

PLANT SPECIES OBSERVED IN THE SURVEY AREA

Species	Common Name	Project Facilities												Number of Sites Present
		South Lake (Hillside) Dam	Sabrina Lake Dam	McGee Creek Diversion	Birch Creek Diversion	Green Creek Diversion	Bishop Creek South Fork Diversion Dam	Bishop Creek Intake 2 Dam	Bishop Creek Powerhouse No. 2 and Intake 3	Bishop Creek Powerhouse No. 3 and Intake 4	Bishop Creek Powerhouse No. 4 and Intake 5	Bishop Creek Powerhouse No. 5 and Intake 6	Bishop Creek Powerhouse No. 6	
Tricardia watsonii	three hearts	0	0	0	0	0	0	0	0	1	0	0	0	1
*Trifolium dubium**	little hop clover	0	0	0	0	0	0	0	0	0	1	0	0	1
Trifolium monanthum ssp. *monanthum*	carpet clover	1	1	0	0	1	1	0	0	0	0	0	0	4
*Trifolium repens**	white clover	0	0	0	1	0	0	0	0	0	0	0	0	1
Trifolium sp.	clover	0	0	0	1	0	0	0	0	0	0	0	0	1
Trifolium willdenovii	tomcat clover	0	0	0	1	0	0	0	0	0	0	0	0	1
Triglochin palustris	marsh arrow-grass	0	0	0	1	0	0	0	0	0	0	0	0	1
Trisetum spicatum	spike false oat	0	1	0	1	1	0	0	0	0	0	0	0	3
*Triticum aestivum**	wheat	0	0	0	0	0	0	0	0	0	1	0	0	1
Typha sp.	cattail	0	0	0	0	0	0	1	0	0	0	0	0	1
*Ulmus pumila**	Siberian elm	0	0	0	0	0	0	0	1	1	1	1	1	5
Uropappus lindleyi	Lindley's silverpuffs	0	0	0	0	0	0	0	0	0	1	0	1	2
Urtica dioica ssp. holosericea	hoary nettle	0	1	0	0	0	0	1	1	0	0	0	1	4
Veratrum californicum var. *californicum*	California corn lily	0	0	0	1	0	0	0	0	0	0	0	0	1
*Verbascum thapsus**	woolly mullein	1	1	0	0	0	1	1	0	1	1	1	1	8
Veronica americana	American brooklime	0	0	0	0	0	0	1	0	0	0	0	0	1
*Veronica anagallis-aquatica**	water speedwell	0	0	0	1	0	0	0	0	1	0	0	0	2
Veronica sp.	speedwell	0	0	0	0	0	0	1	0	0	0	0	0	1
Vicia americana ssp. *americana*	American vetch	0	0	0	1	0	0	1	1	1	1	1	0	6
*Vinca major**	greater periwinkle	0	0	0	0	0	0	0	0	0	1	0	0	1
Vitis sp.*	grape	0	0	0	0	0	0	0	0	0	1	0	0	1
Woodsia scopulina	rocky mountain cliff fern	1	0	0	0	1	0	0	0	0	0	0	0	2
Wyethia mollis	woolly mule's ears	0	0	0	1	0	0	0	0	0	0	0	0	1
	Totals	**88**	**88**	**87**	**95**	**103**	**69**	**113**	**99**	**118**	**103**	**101**	**106**	

* non-native species

ATTACHMENT C

CALIFORNIA NATIVE SPECIES FIELD SURVEY FORMS

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDB@wildlife.ca.gov

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Date of Field Work (mm/dd/yyyy): 08/06/2019

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: Parnassia parviflora

Common Name: small-flowered grass-of-Parnassus

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 10 Subsequent Visit? ( ) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # ☒ No ☐ Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Katie Gallagher & Allison Rudalevige
Address: 225 S. Lake Ave #1000
Pasadena, CA 91101
E-mail Address: Katie.gallagher@psomas.com
Phone: 626-351-2000

Plant Information

Phenology:
0 % vegetative | 100 % flowering | 0 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ wintering ☐ breeding ☐ nesting ☐ rookery ☐ burrow site ☐ lek ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Inyo Landowner / Mgr: USDA forest service
Quad Name: Tungsten Hills Elevation: 8,300 ft
T___ R___ Sec___, ___¼ of ___¼, Meridian: H○ M○ S○ Source of Coordinates (GPS, topo. map & type): _____
T___ R___ Sec___, ___¼ of ___¼, Meridian: H○ M○ S○ GPS Make & Model: Garmin eTrex unit
DATUM: NAD27 ○ NAD83 ○ WGS84 ○ Horizontal Accuracy: _____ meters/feet
Coordinate System: UTM Zone 10 ○ UTM Zone 11 ○ *OR* Geographic (Latitude & Longitude) ⊗
Coordinates:
Decimal degrees: 37.277893, -118.611506

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*
Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*
Wet meadow in Populus tremuloides corridor.
vegetative and fruiting individuals not observable.

Please fill out separate form for other rare taxa seen at this site.

Site Information Overall site/occurrence quality/viability (site + population): ○ Excellent ○ Good ○ Fair ○ Poor
Immediate AND surrounding land use: undeveloped open space & nearby SCE diversion structure (w/100'd.s.)
Visible disturbances: heavy cattle trampling and grazing
Threats: cattle grazing
Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☒
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? ⊗ yes ○ no

Mail to:
California Natural Diversity Database
California Dept. of Fish & Wildlife
P.O. Box 944209
Sacramento, CA 94244-2090
CNDDB@wildlife.ca.gov

For Office Use Only
Source Code: _____ Quad Code: _____
Elm Code: _____ Occ No.: _____
EO Index: _____ Map Index: _____

Date of Field Work (mm/dd/yyyy): 08/06/2019

Clear Form

California Native Species Field Survey Form

Print Form

Scientific Name: Triglochin palustris

Common Name: marsh arrow-grass

Species Found? (●) Yes ( ) No _____ If not found, why?

Total No. Individuals: 5 Subsequent Visit? ( ) Yes ( ) No

Is this an existing NDDB occurrence? _____ Yes, Occ. # [X] No [ ] Unk.

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Katie Gallagher + Albion Phoebe Lewis

Address: 225 S. Lake Ave #1000
Pasadena, CA 91101

E-mail Address: katie.gallagher@psomas.com

Phone: 626-351-2000

Plant Information

Phenology:

% vegetative	% flowering	% fruiting
0	0	100

Animal Information

# adults	# juveniles	# larvae	# egg masses	# unknown

[ ] wintering [ ] breeding [ ] nesting [ ] rookery [ ] burrow site [ ] lek [ ] other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Inyo Landowner / Mgr: US FS Forest Service

Quad Name: Tungsten Hills Elevation: 8,300 ft

T___ R___ Sec___, ___¼ of ___¼, Meridian: H( ) M( ) S( ) Source of Coordinates (GPS, topo. map & type): _____

T___ R___ Sec___, ___¼ of ___¼, Meridian: H( ) M( ) S( ) GPS Make & Model: Google Earth aerial

DATUM: NAD27 ( ) NAD83 ( ) WGS84 ( ) Horizontal Accuracy: _____ meters/feet

Coordinate System: UTM Zone 10 ( ) UTM Zone 11 ( ) ***OR*** Geographic (Latitude & Longitude) (⊗)

Coordinates: Decimal degrees: 37.277893, -118.611506

Habitat Description (plants & animals) *plant communities, dominants, associates, substrates/soils, aspects/slope:*

Animal Behavior *(Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):*

wet meadow in Populus tremuloides community

Please fill out separate form for other rare taxa seen at this site.

Site Information

Overall site/occurrence quality/viability (site + population): ( ) Excellent ( ) Good ( ) Fair ( ) Poor

Immediate AND surrounding land use: undeveloped open space, nearby SCE diversion structure

Visible disturbances: heavy cattle trampling + grazing (w/100' d/s)

Threats: cattle grazing

Comments:

Determination: *(check one or more, and fill in blanks)*

[ ] Keyed (cite reference): _____
[ ] Compared with specimen housed at: _____
[ ] Compared with photo / drawing in: _____
[ ] By another person (name): _____
[ ] Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	[ ]	[ ]	[X]
Habitat	[ ]	[ ]	[ ]
Diagnostic feature	[ ]	[ ]	[ ]

May we obtain duplicates at our expense? (⊗) yes ( ) no

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project (FERC Project No. 1394)

FINAL TECHNICAL REPORT
WILDLIFE INITIAL STUDY REPORT
(TERR 4)

SOUTHERN CALIFORNIA EDISON®

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JUNE 2022

SOUTHERN CALIFORNIA EDISON

Bishop Creek Hydroelectric Project
(FERC Project No. 1394)

FINAL TECHNICAL REPORT
WILDLIFE INITIAL STUDY REPORT
(TERR 4)

Southern California Edison
1515 Walnut Grove Ave
Rosemead, CA 91770

June 2022

Support from:

Kleinschmidt

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1.0 INTRODUCTION

During the Technical Working Group (TWG) meetings, SCE, and stakeholders identified the need to conduct a General Wildlife Study (TERR 4) to determine if wildlife species are utilizing Project facilities for nesting, roosting, foraging, or sheltering, and if so, how Project operations may affect these species.

Data and preliminary results for this survey were previously reviewed with the Bishop Creek TWG in May 2020, following distribution of Progress Report #2 to the TWG and FERC on April 14, 2020.

Further data was provided in the Initial Study Report filed with FERC on October 30, 2020, and in the Updated Study Report (USR) filed November 4, 2021. This report builds on those previous documents, but does not draw conclusions about potential Project effects. These analyses will be completed in conjunction with the completion of the License Application as part of the overall Natational Environmental Policy Act (NEPA) process and in consultation with the TWGs.

Wildlife occurrences within the vicinity of the Project's powerhouses and facilities have been documented by past studies (Psomas 2004a; 2004b; 2005; 2006a; 2006b; 2007a; 2007b; 2008a; 2008b; 2010; 2014) and the Project Environmental Assessment (EA) (FERC 1991). Since those studies were undertaken, new species have been added to the federal and state endangered species lists, and others have been deemed sensitive by various government agencies. Relicensing is an appropriate time to examine wildlife presence in and around the Project and the Project vicinity to determine the effects of Project operations to wildlife in the context of the most recent U.S. Forest Service (USFS) Land Management Plan, the federal and state Endangered Species Act (ESA), NEPA, and the California Environmental Quality Act (CEQA). This wildlife technical report (report) transmits the results of studies designed to answer the concerns of the Wildlife TWG, and provide data needed to inform the relicensing of the Bishop Creek Hydroelectric Project.

2.0 REVIEW OF EXISTING INFORMATION

A review of the existing literature was conducted to determine the potential for special status wildlife species to occur in the Project vicinity. This review included previous biological reports prepared for individual projects within the Wildlife Study Plan Survey Area (Psomas 2004a; 2004b; 2005; 2006a; 2006b; 2007a; 2007b; 2008a; 2008b; 2010; 2014) and the EA for the Project (FERC 1991). To obtain information on known special status wildlife species reported to occur in the Project vicinity, the CDFW's California Natural Diversity Database (CNDDB) (CDFW 2019; 2018) was queried for special status wildlife species for the following USGS 7.5 minute topographic quadrangles: Coyote Flat, North Palisade, Tungsten Hills, Mount Darwin, Mount Tom, Bishop and Mount Goddard. Additional literature reviewed includes the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation System (IPaC) website (USFWS 2018); USFWS' Seven-Year Work Plan September 2016 Version (USFWS 2016b); the Five Year Work Plan May 2019 Version (USFWS 2019); USFWS Unscheduled Listing Actions September 2016 version (USFWS 2016b); List of USFS Management Indictor Species (MIS) (USDA 2019); and a list of potentially occurring threatened and endangered and other sensitive species potentially occurring in the Wildlife Study Plan Survey Area (USDA 2019). The INF recently adopted a new Forest Plan requiring assessments of USFS At-Risk Species (USFS 2020).

Other sources reviewed included: eBird database for observations within the Project area including South Lake, Lake Sabrina, North Lake, Intake No. 2, Bishop Powerhouse No. 4 and Aspendell; Sierra Nevada yellow-legged frog (SNYLF) and mountain yellow-legged frog (MYLF) (northern distinct population segment [DPS]) Field Season 2017 (CDFW, 2018b); 2014 Owens Basin southwestern willow flycatcher (Empidonax traillii) survey results (CDFW 2014; USFWS 2015), yellow-billed cuckoo (Coccyzus americanus), and Bell's vireo surveys in Inyo and Mono counties (Greene 2015); Sierra Nevada Yellow-legged Frog Critical Habitat Final Rule (USFWS 2016c); Sierra Nevada Bighorn Sheep Critical Habitat Final Rule (USFWS 2008); March-June 2018 Sierra Nevada Bighorn Sheep Location Maps (personal communication between USFS and Psomas October 10, 2018); the Butterfly Reference Document for the Inyo, Sequoia, and Sierra National Forests USFS Region 5 (USFS 2015); Verner (1980) for coniferous bird communities; and Morrison (2018), Anderson et al. (2018), Pierson and Rainey (1998), Weller et al. (2018) for Townsend's big-eared bat (Corynorhinus townsendii), and Long and Weller (2018) for other bat species in the Project area.

As a result of the above literature review, it was determined that three wildlife species designated as threatened or endangered by the USFWS or CDFW were reported as occurring within the Wildlife Study Plan Survey Area and three wildlife species designated as threatened or endangered by the USFWS or CDFW were determined to may potentially occur within the Wildlife Study Plan Survey Area (Table 3.1-1). Five wildlife species designated as threatened or endangered by the USFWS or CDFW were determined unlikely to occur within the Wildlife Study Plan Area. As a result of the above literature review, it was determined that one sensitive species was reported as occurring within the Wildlife Study Plan Survey Area, and another five wildlife species designated as sensitive were determined to may potentially occur within the Wildlife Study Plan Survey Area (Table 3.1-2).

Table 3.1-1 Endangered, Threatened or Fully Protected Species Potential to Occur

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood for Occurrence/ Occurrence Notes
Known to Occur in the Project Vicinity				
Haliaeetus leucocephalus bald eagle	USFS_S	Endangered CDFW__FP	Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches and nesting sites to support them. Perching sites need to be composed of large trees or snags with heavy limbs or broken tops. Roosts communally in winter in dense, sheltered, remote conifer stands. Breeding habitat in California is primarily in mountain and foothill forests and woodlands near reservoirs, lakes, and rivers.	2019 Survey – Observed. Expected to occur for foraging and wintering; mainly expected to occur as a vagrant but not expected to occur for nesting. eBird* reports a recent sighting (2018) at Lake Sabrina. No occurrences of bald eagle were documented in the CNDDB search for the Project vicinity.
Aquila chrysaetos golden eagle	--	CDFW__FP,	Occurs locally in open country such as open coniferous forest, sage-juniper flats, desert, and barren areas, especially in rolling foothills and mountainous regions. Within southern California, the species favors grasslands, brushlands, deserts, oak savannas, open coniferous forests, and montane valleys. Nesting is primarily restricted to rugged, mountainous country. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	2019 Survey – Observed. Expected to occur for foraging and wintering; mainly expected to occur as a vagrant but not expected to occur for nesting. eBird reports recent sightings (2018) at Aspendell, Intake No 2 and South Lake, North Lake, and Lake Sabrina. No occurrences of golden eagle were documented in the CNDDB search for the Project vicinity.
Empidonax traillii willow flycatcher	USFS_S	Endangered	In general, prefers moist, shrubby areas, often with standing or running water; e.g., in California, restricted to thickets of willows, whether along streams in broad valleys, in canyon	2019 Survey – Not Observed. Expected to occur for foraging; mainly expected to occur as a migrant but not expected to occur for nesting.

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood for Occurrence/ Occurrence Notes
			bottoms, around mountain-side seepages, or at the margins of ponds and lakes. In the west, generally occurs in beaver meadows, along borders of clearings, in brushy lowlands, in mountain parks, or along watercourses to 7,500 ft.	eBird reported observation at Aspendell, Lake Sabrina, South Lake, and North Lake; suitable habitat. Please note that eBird does not distinguish between northern subspecies of willow flycatcher and southwestern willow flycatcher. No occurrences of willow flycatcher were documented in the CNDDB search for the Project vicinity.
Empidonax traillii extimus southwestern willow flycatcher	Endangered	Endangered	Occurs in riparian woodlands in southern California. Willow-dominated riparian habitats that are similar to least Bell's vireo nesting habitats; shows a stronger preference for sites with surface water in the vicinity, such as along streams, on the margins of a pond or lake, and at wet mountain meadows.	2019 Survey – Not Observed. Expected to occur for foraging; mainly expected to occur as a migrant but not expected to occur for nesting. eBird reported observation at Aspendell, Lake Sabrina, South Lake, and North Lake; suitable habitat. Please note that eBird does not distinguish between northern subspecies of willow flycatcher and southwestern willow flycatcher. No occurrences of southwestern willow flycatcher were documented in the CNDDB search for the Project vicinity.
May Potentially Occur in the Project Vicinity				
Siphateles bicolor snyderi Owens-tui chub	Endangered	Endangered	Needs clear, clean water, adequate cover, and aquatic vegetation within a variety of habitats, including Great Basin flowing water and Great Basin standing water within the Owens River basin; at elevations above 4,000 ft.	2019 Survey – Not Observed. May potentially occur. Reported 4.4 miles northeast of Powerhouse No. 6, located along North Fork Bishop Creek near Hwy 6 north of Bishop, northeast of the Project watershed northeastern most boundary.

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood for Occurrence/ Occurrence Notes
Vulpes vulpes necator Sierra Nevada red fox	Candidate as Threatened, USFS_S	Threatened	Uses dense vegetation and rocky areas for cover and den sites. Found in a variety of habitats, including alpine, alpine dwarf scrub, broadleaved upland forest, meadow and seep, riparian scrub, subalpine coniferous forest, upper montane coniferous forest, and wetland; at elevations above 2,500 ft.	2019 Survey – Not Observed. May potentially occur; reported 3.8 miles northeast of Powerhouse No. 6, located in Bishop, northeast of the Project watershed northeastern most boundary; last seen in 1922.
Ovis canadensis sierrae Sierra Nevada bighorn sheep	Endangered	Endangered, CDFW__FP	Available water and steep, open terrain free of competition from other grazing ungulates within alpine, alpine dwarf scrub, chaparral, chenopod scrub, Great Basin scrub, Mojavean desert scrub, montane dwarf scrub, pinon and juniper woodlands, riparian woodland, and Sonoran Desert scrub habitats, from 5,000 to 9,000 ft during the winter and 10,000 to 14,000 ft during summer.	2019 Survey – Not Observed. May potentially occur. Reported 12.9 miles northwest of Powerhouse No. 6, located at Wheeler Crest (aka Wheeler Ridge), 10 miles northwest of Bishop, 12.9 miles northwest of the Project watershed northern boundary.
Unlikely to Occur in the Project Vicinity				
Oncorhynchus clarkii seleniris Paiute cutthroat trout	Threatened	–	Cannot tolerate presence of other salmonids. Requires clean gravel for spawning and cool, well-oxygenated waters in Great Basin flowing water habitat, at elevations up to 10,000 ft.	2019 Survey – Not Observed. Unlikely to occur. Reported 6.2 miles northwest of Longley Lake Dam/McGee Lake, located in Birchim Lake in the headwaters of Pine Creek 5.4 miles northwest of the Project watershed northwestern boundary. Determined to be not true Paiute cutthroat trout by CDFW (CDFW, 2018a).
Rana muscosa southern mountain	Endangered	Endangered	Highly aquatic and rarely found more than 3.3 ft. from water. Can be found sitting on rocks along the shoreline where there may be little or no vegetation.	2019 Survey – Not Observed. Unlikely to occur. No recorded occurrences in Inyo County.

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood for Occurrence/ Occurrence Notes
yellow-legged frog			These species historically inhabited lakes, ponds, marshes, meadows, and streams at elevations typically ranging from approximately 4,500 to 12,000 ft.	
Rana sierrae Sierra Nevada yellow-legged frog	Endangered, USFS_S	Threatened,	Always encountered within a few feet of water. Tadpoles may require 2 to 4 years to complete their aquatic development. Found in streams, lakes, and ponds in montane riparian and a variety of other habitats from 4,495 to 11,975 ft.	2019 Survey – Not Observed. Unlikely to occur. Reported from South Fork Bishop Creek, 2.1 miles south of Bishop Creek South Fork Diversion Dam; Wonder Lake, 2.3 mi northwest of Sabrina Lake; Treasure Lakes 3,4,5,6, and 7; 1.6 miles west of north end of South Lake. Populations along Bishop Creek are considered extirpated by CDFW.
Anaxyrus canorus Yosemite toad	Threatened USFS_S	CDFW _SSC	Primarily montane wet meadows; also, in seasonal ponds associated with lodgepole pine and subalpine conifer forest within meadow and seep, subalpine coniferous forest, and wetland habitat, from 6,400 to 11,300 ft.	2019 Survey – Not Observed. Unlikely to occur. Reported 5.5 miles southwest of Sabrina Lake Dam, located 1.2 miles southwest of Project watershed western boundary.
Gulo California wolverine	USFS_S	Threatened, CDFW__FP	Needs water source. Uses caves, logs, burrows for cover and den area. Hunts in more open areas. Can travel long distances. Found in the north coast mountains and the Sierra Nevada. Found in a wide variety of high elevation habitats, including alpine, meadow and seep, north coast coniferous forest, riparian forest, subalpine coniferous forest, upper montane coniferous forest, and wetland from 1,640 to 4,921 ft.	2019 Survey – Not Observed. Unlikely to occur. Reported 0.38 mile south of South Lake Dam, located along the east side of South Lake; however, it is considered extirpated from Project area by CDFW (personal communication).

* eBird 2019

USFS: BLM: CDFW: CDF: California Department of Forestry and Fire Protection
LEGEND:
USFWS:
S: Sensitive
USFS
FFS Sensitive
BLM
S Sensitive
CDFW
FP Fully Protected
SSC Species of Special Concern

Table 3.1-2 Sensitive Species with Potential to Occur

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood For Occurrence/Occurrence Notes
Known to Occur in the Project Vicinity				
Accipiter gentilis northern goshawk	USFS_S, BLM_S	CDFW_SSC	Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees within north coast coniferous forest, subalpine coniferous forest, and upper montane coniferous forest habitats from 915 to 9,900 ft.	2019 Survey – Observed. Known to occur. This species has been recorded 0.18 mile north of Birch Creek Diversion, near Birch Creek; and 0.75 mile south of South Lake Dam on the east side of South Lake.
May Potentially Occur in the Project Vicinity				
Corynorhinus townsendii Townsend's big-eared bat	USFS_S, BLM_S	CDFW_SSC	Roosts in the open, hanging from walls and ceilings throughout California in a wide variety of habitats, including chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, upper and lower montane coniferous forest, meadow and seep, riparian forest/woodland, and valley and foothill grassland. Most common in mesic sites. Roosting sites limiting. Extremely sensitive to human disturbance. Found from 4,000 to 10,800 ft.	2019 and 2020 Survey – Not Observed. May potentially occur. This species has been recorded at Yaney Mine, approximately 1.1. miles east of the Project watershed's eastern boundary, 1.6 miles northeast of Powerhouse No. 5 and Intake 6.
Euderma maculatum spotted bat	BLM_S	CDFW_SSC	Feeds over water and along washes. Feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting within wide variety of habitats from arid deserts and grasslands through mixed conifer forests from mostly 900 to 2,700 feet but up to 9,700 ft.	2019 and 2020 Survey – Not Observed. May potentially occur. This species has been recorded 1.5 miles northeast of Powerhouse No. 6, located in a residential area between Highway 395 and Highway 168, northeast of the Project watershed northeastern most boundary.
Lepus townsendii western white-tailed jackrabbit	–	CDFW_SSC	Open areas with scattered shrubs and exposed flat-topped hills with open stands of trees, brush and herbaceous understory within sagebrush, subalpine	2019 Survey – Not Observed. May potentially occur. This species has been recorded north of Bishop, northeast of the Project watershed's northeastern most

Scientific/ Common Name	Federal Status	State Status	Habitat	Likelihood For Occurrence/Occurrence Notes
			conifer, juniper, alpine dwarf shrub, and perennial grassland habitats, from 120 to 12,000 ft.	boundary, 4.5 miles northeast of Powerhouse No. 6 along North Fork Bishop Creek near Highway 6.
Lithobates pipiens northern leopard frog	–	CDFW_SSC	Highly aquatic species. Shoreline cover submerged, and emergent aquatic vegetation are important habitat characteristics within freshwater marsh, Great Basin flowing waters, Great Basin standing waters, marsh and swamp, wetland habitats, from sea level to 7,000 ft.	2019 Survey – Not Observed. May potentially occur. This species has been recorded northwest of the Project watershed's northernmost boundary, 1.7 miles northwest of Powerhouse No. 6, 0.4 mile east of Birch Creek, 4 miles west of Bishop. Species analyzed in Amphibian Surveys Sections (4.2.4 and 6.2).
Martes caurina sierrae Sierra marten	USFS_S	–	Needs variety of different-aged stands, particularly old-growth conifers and snags which provide cavities for dens/nests, within mixed evergreen forests with more than 40% crown closure along Sierra Nevada and Cascade Mountains, from 8,000 to 10,300 ft.	2019 Survey – Not Observed. May potentially occur. This species has been recorded 2.7 miles southwest of Sabrina Lake Dam, along Middle Fork Bishop Creek just south of Dingleberry Lake.

USFS: BLM: CDFW: CDF: California Department of Forestry and Fire Protection
LEGEND:
USFWS:
S: Sensitive
USFS
S Sensitive
BLM
S Sensitive
CDFW
SSC Species of Special Concern

In addition, the USFS provided a list of Inyo National Forest At-Risk Species (Table 2-3).

TABLE 3.1-3 INYO NATIONAL FOREST AT-RISK SPECIES

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Ovis canadensis sierra Sierra Nevada bighorn sheep	Endangered	Alpine and subalpine zones, with open slopes where the land is rocky, sparsely vegetated and characterized by steep slopes and canyons (USDA Forest Service 2001). 4,000 to 12,000 feet (Sierra Mtn)	2	NE	This species or its critical habitat range does not overlap with the Project area.
Rana sierra Sierra Nevada yellow-legged frog	Endangered	Ranges throughout the northern Sierra Nevada mountains in high elevation, deep lakes (Sierra Mtn between north end of Mt Whitney RD (Mattlock Lakes) to north end of Mono Lake RD.	1	NE	This species or its critical habitat range does not overlap with the Project area.
Rana muscosa Mountain yellow-legged frog, northern DPS	Endangered	High elevation lakes and wet meadow systems. On the Inyo NF this species only occurs on the Mt. Whitney RD (Mulkey and Bullfrog Meadows).	1	NE	This species or its critical habitat range does not overlap with the Project area.
Anaxyrus canorus Yosemite toad	Threatened	Sierra Nevada endemic species occurring in wet montane meadows in elevations ranging from 6,435 to 11,385 feet from the Blue Lakes region north of Ebbetts Pass in Alpine County south to Kaiser Pass in the Evolution Lake/Darwin Canyon region of Fresno County (USDA Forest Service 2001).	1	NE	This species or its critical habitat range does not overlap with the Project area.
Cyprinodon radiosus Owens pupfish	Endangered not likely to occur on the INF	Inyo NF has no occupied habitat (Fish Slough-BLM, Mule Springs-BLM, Well 368-BLM, Warm Springs-DWP). For more information http://ecos.fws.gov/docs/five_year_review/doc2395.pdf INF (2017FPR_BA) and the USFWS agreed that the following species were not likely to occur on the INF nor be impacted by Forest Service actions: North American wolverine, California condor, Least Bell's vireo, Yellow-billed cuckoo, western U.S.	1	NE	This species or its critical habitat range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
		Distinct Population Segment (DPS), Western snowy plover, Pacific Coast DPS, Delta smelt, Little Kern golden trout, Steelhead, northern California DPS, Owens pupfish.			
Gila bicolor snyderi Owens tui chub	Endangered	On the Inyo NF the only occurrence is within a portion of Little Hot Creek and Sotcher Lake (Mammoth RD). They are not native to Sotcher Lake, or the watershed. They were incidentally re-located to Sotcher Lake by way of trout stocking activities from the Hot Creek Hatchery, where they co-exist with the hatchery. They are scattered throughout the lake, and verified that this species can survive and reproduce in waters and habitat outside the warmer native locations. Fisheries biologist will determine suitable design criteria to ensure listed species habitat is improved or enhanced and determine the level of consultation under the ESA. Stocked lakes below: • Sotcher Lake: Threatened OWTC • INF portion of Little Hot Creek Lake: Threatened OWTC	1	NE	This species or its critical habitat range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Oncorhynchus clarkii henshawi Lahontan cutthroat trout	Threatened	Out-of-basin population on INF. Occupy clear cold water mountain meadow streams. On the Inyo NF the one out-of-basin population occurs within O'Harrel Creek. Genetically not from Walker River determined from Carson River strand which are less concern (Mono Lake RD). O'Harrel Creek Watershed- no entry until wildlife biologist is consulted. This encompasses the ridge top above the head waters/spring sources downstream to the FS boundary. This also includes area within fenced LCT protected area where O'Harrel Creek flows out of the canyon into any foothills treatment units. Fisheries biologist will determine suitable design criteria to ensure listed species habitat is improved or enhanced and determine the level of consultation under the ESA. Stocked lakes below: • June Lake: Threatened LCT • Gull Lake: Threatened LCT • Silver Lake: Threatened LCT • McCleod Lake: Threatened LCT • Birch Lake: Threatened LCT	1	NE	This species or its critical habitat range does not overlap with the Project area.
Oncorhynchus clarkii seleniris Paiute cutthroat trout	Threatened	Out-of-basin population on INF. Occupy low gradient meadow streams with an average water depth of one-half feet. On the Inyo NF the only occurrence is within Cottonwood and Cabins Creeks (White Mtn RD).	1	NE	This species or its critical habitat range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Martes pennanti pacifica Pacific fisher	Threatened (2020)	Forest or woodland landscape mosaics that include late-successional conifer-dominated stands. 6,500 to 10,000 feet. 1 of 9 core areas includes small portion of INF (mostly Sequoia NF) Kern Plateau w/lowest occupancy rate in region, Mgmt = tree growth & canopy cover (pg. 12 Feb 2016_ConservationStrategy) (Whitney RD, Kern Plateau)	1	NE	This species may occur within the Project area. SCE proposes no= changes to project operations. Suitable habitat occurs outside of SCE routine operations areas.
Sierra Nevada DPS Sierra Nevada red fox	Proposed Endangered 2020	Forested areas (red fir and lodgepole pine) and subalpine and alpine habitats in proximity to meadows, riparian areas, and brush fields above 5,000 feet elevation (USDA Forest Service 2001).Limited occurrence information on Mammoth RD. Known to occur on adjacent NF (Stanislaus & H-T). 2017 FPR indicates it does not show up on the USFWS Species Lists for the Inyo NF in iPAC. https://www.fws.gov/sacramento/outreach/2020/01-07/	1	NE	This species or its critical habitat range does not overlap with the Project area.
Danaus plexippus Monarch butterfly (Sierra Nevada DPS)	Candidate 2020	West of the Rocky Mountains, monarchs overwinter in sheltered groves along the California coast, where it is considered to be rare with a restricted range. Abundance at California winter habitats has been monitored since 1997 at over 170 locales as part of the annual Western Monarch Thanksgiving Counts (See Monarch Watch), analyses indicates that population numbers declined from a high of 1,237,487 monarchs in 1997 to only 99,063 in 2002 (Stevens and Frey 2004). Ongoing monitoring conducted by the Xerces Society and Mia Monroe has determined that the overwintering population in California was 292,674 monarchs in 2015 (Pelton et al. 2016). All monarch records on the **INF are non-breeding records**. There are **breeding records within 8 kilometers (5 miles) of the INF administrative**	2	NE	Species may occur in Project area during migration. SCE is proposing no changes in operations.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
		boundary at Fish Slough (2), Round Valley (1), Warm Springs. There are known **occurrence records on INF for Saddlebag Lake, June Lake, and White Mountains**. Observation records adjacent to the INF occur at Bishop Reservation, Fish Slough, Gerkin Springs, Lone Pine, Mono Lake, Mule Springs, Round Valley, and in Benton, Mammoth Lakes, and Warm Springs, CA. (Mono Lake, Mammoth Lakes and White Mtn RD; likely Mt. Whitney) In 2014, President Barack Obama issued a Presidential Memorandum entitled "Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators". . Based on USFWS listing priorities and workload, the Service intends to propose listing the monarch in 2024, if listing is still warranted at that time. **https://www.fws.gov/news/ShowNews.cfm?ref=u.s.-fish-and-wildlife-service-finds-endangered-species-act-listing-for-&_ID=3681** More information about the 12-month finding and how to help conserve monarch butterflies is available here: **https://www.fws.gov/savethemonarch**			
Centrocercus urophasianus Greater sage-grouse (Bi-state DPS)	SCC	Large, interconnected expanses of sagebrush, with a native grass and forb understory (USDA Forest Service 2008). Species has had recent 2019 petition decisions that found listing under the Endangered Species Act was not warranted: Bi-State population of greater sage-grouse (USDI 2015b). April 1, 2020 found not to be warranted for the 3rd time. Reverted back to SCC status on INF. Prioritize the BSSG Action Plan and INF specie specific plan components.	1	NE	This species range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Martes caurina sierra Sierra Marten	SCC	Forested habitats above 5,500 feet elevation, with large diameter trees, snags, and down logs, moderate-to-high canopy closure, and an interspersion of riparian areas and meadows (CWHR size class 4, 5, and 6; vegetation density >40%) (USDA Forest Service 2001). Eastside Marten Habitat defined from SNEP LSOG: riparian hardwood, red fir, mixed conifer, white fir, eastside white fir/mixed conifer (104, 108, 110, 111, 114). LOP May1-July31 Protect Den & Rest sites Rx >21" large green tree, snags, stumps and down woody debris.	2	NE	Species may occur in Project area. No changes in Operations or Maintenance practices.
Ovis canadensis nelsoni Nelson Desert Bighorn Sheep	SCC	White Mountain area at elevations ranging from 6,000 to 12,000 feet. Most of these animals occur in the White Mountain Wilderness, with approximately 300 animals (or roughly 10 percent of the population) occurring outside this area in Silver Canyon.	1	NE	This species or its critical habitat range does not overlap with the Project area.
Haliaeetus leucocephalus Bald eagle	SCC & Eagle Protection Act 1940	Forested stands with large, old dominant or co-dominant trees in the vicinity of lakes, reservoirs, rivers, or large streams that support an adequate food supply (USDA Forest Service, 2001).	2	NE	Species may occur in Project area during migration. SCE is proposing no changes in operations.
Empidonax traillii (includes: Empidonax traillii brewsteri and Empidonax trailli adastus) Willow flycatcher	SCC	Meadows greater than 15 acres in size with water present and a woody riparian shrub component greater than 6.5 feet in height. Rush Creek population which occurs on the Inyo National Forest and also private lands managed by LADWP. In 2001 two nesting pairs in the lower Rush Creek area. In 2004 the population increased to 16 individuals then decreased annually, to a population of six individuals in 2010 (3 males and 3 females) (McCreedy 2011).	2	NE	Species may occur in Project area during migration. SCE is proposing no changes in operations. Surveys performed did not find suitable nesting habitat structure in Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Strix nebulosa Great gray owl	SCC	Mixed coniferous forest where such forests occur in combination with large meadows or other vegetated openings. 2,400 to 9,000 feet	2	NE	Species may occur in Project area during migration. SCE is proposing no changes in operations.
Strix occidentalis California spotted owl	SCC	Found in five vegetation types in the Sierra Nevada; foothill riparian/hardwood, ponderosa pine/hardwood, mixed-conifer forest, red fire forest, and the east side pine forest. Stands have at least 40 percent canopy cover and higher than average downed woody material and snags. 7,700 to 10,000 feet	2	NE	Species may occur in Project area during migration. SCE is proposing no changes in operations.
Dendragapus fuliginosus howardi Mt. Pinos Sooty Grouse	SCC	Found in areas south of the town of Independence, in suitable habitat found in Kearsarge Pass, Onion Valley, Mt Whitney and Mt Whitney Portal, Olancha Creek and Haiwee Canyon (Bland 2013, Bland 2017).	2	NE	Species observed by wildlife cameras at wildlife guzzlers near Intake No 2. Species may occur in Project area during migration. SCE is proposing no changes in operations.
Batrachoseps campi Inyo Mountains salamander	SCC	Endemic to the Inyo Mountains but also found in the White Mtn.	1	NE	This species range does not overlap with the Project area.
Batrachoseps robustus Kern Plateau salamander	SCC	On the Kern Plateau (Whitney RD) *Batrachoseps robustus* are abundant on the Kern Plateau especially in mesic areas and are found in nearly every drainage in the eastern Sierra from Walker Creek (east of Olancha) to Nine Mile Creek (Hansen and Wake, 2005). These include Olancha critical aquatic refuge and Haiwee Canyon critical aquatic refuge.	1	NE	This species range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Anaxyrus exsul Black toad	SCC	Extremely limited range in Deep Springs Valley area. Associated with springs and adjacent riparian vegetation (White Mtn. RD)	1	NE	This species range does not overlap with the Project area.
Pyrgulopsis owensensis Owens Valley springsnail	SCC	Occurs within un-altered spring habitat with cool, clean water along the Sierra Nevada and White mountains escarpment.	1	NE	This species range does not overlap with the Project area.
Pyrgulopsis wongi Wong's springsnail	SCC	Occurs within un-altered spring habitat with cool, clean water along the Sierra Nevada and White mountains escarpment.	1	NE	This species range does not overlap with the Project area.
Euphydryas editha monoensis Mono Lake checkerspot butterfly	SCC	Found in wet meadows and pine forests on the east slope of the Sierra Nevada Mountains in Alpine and Mono Counties, may have been extirpated (Mono Lake RD). Davenport et al., (2006) report that the subspecies flies from late **April to early July**. Austin & Murphy (1998), report that the adults fly from mid-April to late June. They occur in scattered colonies on the east side of the **Sierras in Great Basin Scrub habitat, from east below Sonora Pass to Big Pine Creek Canyon** and the foodplants are ***Penstemon rydbergii*, *Collinsia parviflora* (family Scrophulariaceae known by the common names maiden blue eyed Mary and small-flowered collinsia), possibly some *Castilleja* species** (K Davenport 2013, pers. comm.).			This species range does not overlap with the Project area.
Plebulina emigdionis San Emigdio blue butterfly	SCC	This butterfly is a rare and localized species ranging from **3,000' – 5,000' in washes and alluvial fans** (P Opler 2015, pers. comm.). Only known locations occur in the southern portion of the Inyo forest in the **desert scrub habitats** that include **desert saltbush species (Atriplex)** and associated scale insects and ants.	1	NE	This species range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
		The population at Cartago is unique and is in great danger of being exterminated if and when Highway 395 is widened at that point. The larval foodplant at Cartago is Atriplex polycarpa which is unusual because vast areas of desert are covered with A. polycarpa yet emigdionis is not found in these areas. (Whitney RD)			
Speyeria nokomis apacheana Apache silverspot butterfly (previously called Apache Fritillary)	SCC	A subspecies of western *Speyeria nokomis* limited mainly to **spring-fed meadows** in Nevada and California. Found on the east slope of the Sierra Nevada Mountains in Alpine, Inyo and Mono Counties where it occurs in marshes and wet meadows near springs, seeps and riparian areas. In or near Inyo National Forest only in **Round Valley, Inyo County, and northwest shore of Mono Lake** vicinity (P Opler 2015, pers. comm). The larval food plant is ***Viola nephrophylla* (nephrophylla, is from the Greek for "kidney shaped leaves")**. The subspecies has a **flight period from late July to September**. (Mammoth Lakes and White Mountain RD)	1	NE	This species range does not overlap with the Project area.
Colias behrii Sierra sulphur butterfly	SCC	It occurs mainly in meadows over **9,000 feet in elevation**. For the Inyo National Forest, there appears to be a congregation near Mono Lake and one to the south in Inyo and Tulare counties. Occurs in high elevation wet meadows where ***Vaccinium cespitosum*** occurs. *Vaccinium cespitosum* is a low-lying plant rarely reaching half a meter (1.5 feet) in height which forms a **carpet-like stand in rocky mountainous meadow**s. The dwarf bilberry foliage is reddish-green to green and the flowers are tiny urn-shaped light pink cups less than a centimeter (>0.4 inches) wide.	1	NE	This species range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
Euphilotes battoides mazourka Square dotted blue butterfly	SCC	The species is known from **Badger Flat adjacent to Mazourka peak from 8,000 to 13,000 feet** elevation (Mt. Whitney RD). Key ecological conditions include the food plant *Eriogonum umbelatum subaridum* and the subspecies is univoltine and flies during July (Davenport et. al. 2006). Caterpillar plant host may be various wild **buckwheats** (***Eriogonum* sp.**) including **coastal buckwheat and sulphur-flower**. The larvae feed on the flowers and fruits of Eriogonum species. The larvae are tended by ants. The species overwinters in its chrysalids in sand or leaf litter.	1	NE	This species range does not overlap with the Project area.
Plebejus icarioides inyo Boisduval's blue butterfly	SCC	The **Inyo Mountains** are the only known location for this subspecies (White Mountain and Mt Whitney RD). Widespread in the Inyo Mountains, using several Lupinus species for larval foodplant. (K Davenport 2013	2	NE	This species range does not overlap with the Project area.
Tuberochernes aalbui A cave obligate pseudoscorpion	SCC	The only known location is Poleta Cave (Muchmore 1997) on White Mountain RD.	1	NE	This species range does not overlap with the Project area.
Oncorhynchus mykiss aguabonit California Golden trout	SCC	Native habitat within the South Fork Kern River on the Kern Plateau (Whitney RD).	1	NE	This species range does not overlap with the Project area.
Margaritifera falcata Western pearlshell	SCC	Within the South Fork Kern River and tributaries on the Kern Plateau and Golden Trout Wilderness (Whitney RD). A single CNDDB record for this species was located on the forest along the South Fork Kern River in Monache Meadows; however, the record dates to 1948. Shells of this species were found on the	1	NE	This species range does not overlap with the Project area.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
		Forest at two locations in the South Fork Kern River in 2006, but no current documentation of an extant population was found. Key ecological conditions include cold creeks and rivers with clean water and where sea-run salmon or native trout persist. Documented host fishes for M. falcata include: cutthroat trout, rainbow/steelhead trout, Chinook salmon, and brown trout, and a number of other fish are considered potential hosts. Potential for concern is restoration actions on Kern or Monache during restoration and water diversions. Sensitive to habitat and water quality degradation. Mitigation occur before dewatering and channel work to salvage and relocate upstream among existing populations and monitor. **https://xerces.org/conserving-the-gems-of-our-waters**			
Odocoileus hemionus Mule Deer	INF Game Mgmt Species	Found throughout the Sierra Nevada Mountains, Inyo and White Mountains, the eastern Sierra valley and where forage values occur for winter and summer in all Counties where it occurs in marshes and wet meadows near springs, seeps and riparian areas. Sustain common and uncommon species SPEC-FW-DC-2 and provide habitat, movement and connectivity for a variety of species including wide-ranging generalists such as deer. To minimize disturbance in mule deer holding areas, vegetation treatment projects should not occur from **May 1 through June 15, and in key winter range areas from November 15 through March 31**. Long-term over short-term benefits should be the deciding factor where conflicts exist. Consider fawning sites and LOP for fawns.	2	NE	Resident head and two migratory herds occur in Project area. SCE is proposing no changes in operations.

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
"Other Species" Common and Uncommon native species	Plan Component	Sustain common and uncommon species SPEC-FW-DC-2 and provide habitat, movement and connectivity for a variety of species including wide-ranging **generalists** such as bear, mountain lion, and **deer**; more localized, semi-specialists such as **ground-nesting, shrub-nesting, and cavity-nesting birds and various bats; and specialists such as old forest and sagebrush-associated species**.	2	NE	Various common and uncommon native species may occur in Project area. No changes in Operations or Maintenance practices.

ESA Note - *The new Forest Plan Biological Assessment found that we determined, and the USFWS agreed, that the following species were not likely to occur on the Inyo NF nor be impacted by Forest Service actions addressed in the forest plan: North American wolverine, California condor, Least Bell's vireo, Yellow-billed cuckoo, western U.S. Distinct Population Segment (DPS), Western snowy plover, Pacific Coast DPS, Delta smelt, Little Kern golden trout, Steelhead, northern California DPS, Owens pupfish.*

[1]Species Consideration	
1	Category 1: (not in or adjacent to the project area) Species whose habitat is not in or adjacent to the project area and would not be affected by the project.
2	Category 2: (not be either directly or indirectly affected) Species whose habitat is in or adjacent to project area, but would not be either directly or indirectly affected.
3	Category 3: (directly or indirectly affected) Species whose habitat is present and individuals or habitat would be directly or indirectly affected by the project.
[2]Determinations	
NE	No effect (ESA listed species)
MANLAA	May affect, not likely to adversely affect (ESA listed species)
MALAA	May affect, likely to adversely affect (ESA listed species)
CONF	Conferencing (ESA listed species)
N/A	Not applicable, species or habitat not within the PA
[3]Management Plan Components	
DC	Desired Condition

Species	Status	[2]Habitat, Range & Conservation Info	[1]Species Considered	[2]Determination	Note & [3]Plan Components
OBJ	Objective				
GOAL	Goal				
STD	Standard				
GDL	Guideline				
36 CFR § 219.9 (a) and (b)	Refer to the Inyo Forest Plan (USDA 2019) for individual plan components				

Background *- Under the 2012 Planning Rule (36 CFR 219.7(c)(3)), the Regional Forester determined the terrestrial wildlife, aquatic wildlife, and plant species meeting the criteria for species of conservation concern (SCC) for the Inyo National Forests' Land Management Plan. The definition of SCC is found at 36 CFR 219.9(c), and criteria for identifying them are outlined in the Forest Service Handbook FSH 1909.12 Chapter 10, Section 12.52c. A species of conservation concern is a species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 CFR 219.9). This analysis is based on best available information, NRIS, relevant ESA related plans, INF Final Forest Plan (revised 2019) plus associated references particularly SCC Persistence Analysis and SCC Rationales Analysis and EIS.*

Citations

Persistence Analysis for Species of Conservation Concern, Inyo National Forest (USDA 2019);

Persistence analysis is specific to the Inyo NF SCC and summarizes the key ecological conditions and risk factors for each species of conservation concern, and the plan components that mitigate those risk factors, provide for persistence, and contribute to maintaining a viable population of each species of conservation concern within the plan area. A supporting crosswalk, providing the full language for each plan component, threats, and species grouped by key ecological conditions was developed to create this summary.

Rationales for Animal Species Considered for Species of Conservation Concern, Inyo National Forest (USDA 2019)

Rational document contains information on species life history, distribution, ecological conditions, and threats is largely; additional information on each species of conservation concern, the associated selection process, and full references for **best available science can be found in this rational document and will not be repeated here**.

The review of USFWS IPaC website (USFWS 2018) also provided a list of Bird Species of Conservation Concern (Table 2-4).

Table 3.1-4 U.S. Fish and Wildlife Service Bird Species of Conservation Concern

Species	Breeding Season	Habitat	Potential to Occur
black rosy-finch *Leucosticte atrata*	Jun 15 to Aug 31	Above timberline throughout its range, wherever proper cliffs and rock slides provide nest sites with protection from falling rocks and hail and where adequate feeding grounds occur on tundra, fellfields, rock slides, snowfields, and glaciers within commuting distance. May occur in enclaves of alpine habitat on northeast faces of mountains whose summits are below timberline, but where cliffs, shade, and snow produce alpine climate.	2019 Survey – Not Observed. eBird* reported observation at Aspendell; suitable habitat.
Brewer's sparrow *Spizella breweri*	May 15 to Aug 10	Breeds in shrublands; most closely associated with landscapes dominated by big sagebrush (*Artemisia tridentata*). Overwinters in sagebrush shrublands and brushy desert habitat, including desert scrub dominated by various saltbush species (*Atriplex* spp.) and creosote (*Larrea tridentata*).	2019 Survey – Observed. eBird reported observation at Aspendell, Intake 2, Lake Sabrina, South Lake, and North Lake; suitable habitat.
Cassin's finch *Carpodacus cassinii*	May 15 to Jul 15	Generally open coniferous forests of interior western mountains over a broad elevational range. Often found in mature forests of lodgepole pine (*Pinus contorta*) and ponderosa pine (*P. ponderosa*)	2019 Survey – Observed. eBird reported observation at Intake 4, Aspendell, Intake 2, Lake Sabrina, South Lake, and North Lake; suitable habitat.
green-tailed towhee *Pipilo chlorurus*	May 1 to Aug 10	Habitat varies with elevation. Dry shrubby hillsides (shrub-steppe) and post-disturbance shrubby second growth are most commonly used. Vegetation may be characterized as low brush cover, often interspersed with trees; avoids typical forest.	2019 Survey – Observed. eBird reported observation at Aspendell, Intake 2, Lake Sabrina, South Lake, and North Lake; suitable habitat.
lesser yellowlegs *Tringa flavipes*	Breeds elsewhere	Common breeder in boreal forest (generally open forest) and forest/tundra transition habitats; less abundant in adjacent subarctic tundra. Nests in man-made habitats such as seismic and gas line right-of-way, road allowances, and mine clearings. Typical foraging areas are located along the shores of large, shallow, freshwater lakes and sloughs (interior breeders) or in brackish portions of salt marshes (coastal breeders).	2019 Survey – Not Observed. Not expected to occur for breeding; no potentially suitable breeding habitat; may occur as a migrant.

Species	Breeding Season	Habitat	Potential to Occur
Lewis's woodpecker *Melanerpes lewis*	Apr 20 to Sep 30	Important aspects of breeding habitat include an open canopy, a brushy understory offering ground cover, dead or downed woody material, available perches, and abundant insects. Three principal habitats are open ponderosa pine forest, open riparian woodland dominated by cottonwood, and logged or burned pine (*Pinus* spp.) forest; found in oak (*Quercus* spp.) woodland, nut and fruit orchards, piñon pine–juniper (*Pinus cembroides* – *Juniperus* spp.) woodland, a variety of pine and fir (*Abies* spp.) forests, and agricultural areas including farm- and ranchland. Often classified as a specialist in burned pine forest habitat.	2019 Survey – Not Observed. eBird reported observation at Aspendell; suitable habitat.
long-billed curlew *Numenius americanus*	Apr 1 to Jul 31	Nests primarily in short-grass or mixed-prairie habitat with flat to rolling topography. Wide range of habitats used during migration, including dry short-grass prairie, wetlands associated with alkali lakes, playa lakes, wet coastal pasture, tidal mudflats, salt marsh, alfalfa fields, barley fields, fallow agriculture fields, and harvested rice fields. Overwinters in tidal estuaries, wet pasture habitats, and sandy beaches.	2019 Survey – Not Observed. Not expected to occur for breeding; no potentially suitable breeding habitat; may occur as a migrant.
marbled godwit *Limosa fedoa*	Breeds elsewhere	In northern prairies of Canada and United States, breeds in short, sparsely to moderately vegetated landscapes that include native grassland and wetland complexes with a variety of wetland classes (ephemeral to semi-permanent). Away from breeding areas, most migrants found in flocks at coastal estuaries, mudflats, salt marshes, lagoons, and sandy beaches. Habitats used by birds in winter like those of coastal migrants: coastal mudflats adjoining savannas or meadows, estuaries, sandy beaches, and sandflats; sometimes roosting at salt ponds.	2019 Survey – Not Observed. Not expected to occur for breeding; no potentially suitable breeding habitat; may occur as a migrant.
olive-sided flycatcher *Contopus cooperi*	May 20 to Aug 31	Primarily montane and northern coniferous forests. May occur at any elevation from sea level to timberline, but usually at mid- to high-elevation forest (3,018–6,988 ft.). Within the coniferous forest biome, most often associated with forest openings, forest edges near natural openings (e.g., meadows, canyons, rivers) or human-made openings (e.g., harvest units), or open to semi-open forest stands. Frequently occurs along wooded shores of streams, lakes, rivers, beaver (*Castor canadensis*) ponds, bogs, and muskegs, where natural edge habitat	2019 Survey – Not Observed. eBird reported observation at Aspendell, Intake 2, Lake Sabrina, South Lake, and North Lake; suitable habitat.

Species	Breeding Season	Habitat	Potential to Occur
		occurs and standing dead trees often are present.	
pinyon jay *Gymnorhinus cyanocephalus*	Feb 15 to Jul 15	Piñon-juniper woodland is used most extensively but flocks also breed in sagebrush (*Artemisia* spp.), scrub oak (*Quercus spp*.) and chaparral communities. In parts of its range (central Arizona, southern California), inhabits ponderosa and Jeffrey pine (*Pinus jeffreyi*) forests.	2019 Survey – Not Observed. eBird reported observation at Intake 4, Aspendell, and Intake 2; suitable habitat.
rufous hummingbird *Selasphorus rufus*	Breeds elsewhere	Breeds in dense mature and second growth coniferous forests, deciduous woods, riparian thickets, swamps and meadows, farmland, pasture edges, orchards and city yards, parks, and gardens; in the Pacific Northwest United States and Canada. Migrants utilize montane meadows; alpine meadows in the Sierras as high as 12,598 ft. Overwinters in Mexico.	2019 Survey – Observed. eBird reported observation at Aspendell, Intake 2, Lake Sabrina, South Lake, and North Lake; suitable habitat.
sage thrasher *Oreoscoptes montanus*	Apr 15 to Aug 10	Shrub-steppe dominated by big sagebrush (*Artemisia tridentata*). Considered a sagebrush obligate but noted in black greasewood (*Sarcobatus vermiculatus)* habitat in Utah and Nevada and bitterbrush (*Purshia tridentata)* habitat in Washington. Migrants utilize sagebrush plains, arid shrub, grassland with scattered bushes, and open piñon-juniper woodland, primarily in arid or semiarid situations; rarely around towns. Overwinter in arid to semiarid, open, and semi-open country with scrub, scattered bushes, and sagebrush.	2019 Survey – Not Observed. eBird reported observation 0.85-mile northeast of Powerhouse No. 3; suitable habitat.
sagebrush sparrow *Artemisiospiza nevadensis*	Mar 15 to Jul 31	Prefers semi-open habitats with evenly spaced shrubs 3 to 6-feet-high. Vertical structure, habitat patchiness, and vegetation density may be more important in habitat selection than specific shrub species, but this sparrow is closely associated with big sagebrush throughout most of its range. observed in creosote bush, low desert scrub, and coastal sagebrush scrub during migration. In northern portions of its range, favors big sagebrush. Farther south, fairly common to uncommon during winter in desert washes, big sagebrush, creosote bush, sparse cactus scrub, arid grasslands, and arboreal yucca (*Yucca* spp.) mixed with greasewood.	2019 Survey – Not Observed. eBird reported observation at Intake 4, and Intake 2; suitable habitat.

Species	Breeding Season	Habitat	Potential to Occur
Virginia warbler *Vermivora virginiae*	May 1 to Jul 31	Over most of its range, typically found breeding in piñon-juniper and oak woodlands. May occur in high-altitude life zones dominated by large conifers but tends to select patches of shrubby vegetation for breeding; never occurs in coniferous forests where there is not a deciduous mix. Strong association for breeding in steep draws, drainages, or slopes with oak or other shrubby vegetation.	2019 Survey – Not Observed. eBird reported observation at Aspendell and South Lake; suitable habitat.
white-headed woodpecker *Picoides albolarvatus*	May 1 to Aug 15	Requires montane coniferous forests dominated by pines (*Pinus* ssp.), with tree species composition varying geographically. Within the Sierra Nevada, occupies mixed coniferous forest of ponderosa and sugar pines, white fir, red fir (*Abies magnifica*), Douglas-fir, and black oak (*Quercus kelloggii*); occurs more locally on drier east-slope forests dominated by Jeffrey pine (*P. jeffreyi*) and in high-elevation lodgepole pine and western white pine (*P. monticola*) forests, and is generally absent from digger pine (*P.* s*abiniana*)-dominated habitats at lower elevations on western flank of the Sierra Nevada.	2019 Survey – Not Observed. eBird reported observation at Aspendell, Intake 2, Lake Sabrina, and South Lake; suitable habitat.
willet *Tringa semipalmata*	Apr 20 to Aug 5	On the prairies, uses short, sparse cover in wetlands and grasslands. Breeds on semiarid plains near bodies of water (eastern Oregon), in grasslands associated with shallow wetlands (southern Alberta), in native grasslands and to a lesser extent cropland (N. Dakota), in uplands near brackish or saline wetlands, and less frequently on alkali flats (Utah) and lakes in forested mountain areas. During nonbreeding season, found in diverse California coastal types: mudflat, marsh, sandy beach, and rocky coast.	2019 Survey – Not Observed. Not expected to occur for breeding; no potentially suitable breeding habitat; may occur as a migrant.
Williamson's sapsucker *Sphyrapicus thyroideus*	May 1 to Jul 31	Throughout range, breeds in middle to high elevation conifer and mixed conifer-deciduous forests. Common in montane western larch, Douglas fir (*Pseudotsuga menziesii*), ponderosa pine, and pine-fir forests.	2019 Survey – Observed. eBird reported observation at Aspendell, Lake Sabrina, South Lake, and North Lake; suitable habitat.

Species	Breeding Season	Habitat	Potential to Occur
willow flycatcher *Empidonax traillii*	May 20 to Aug 31	In general, prefers moist, shrubby areas, often with standing or running water; e.g., in California, restricted to thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes. in the West, generally occurs in beaver meadows, along borders of clearings, in brushy lowlands, in mountain parks, or along watercourses to 7,500 ft.	2019 Survey – Not Observed. eBird reported observation at Aspendell, Lake Sabrina, South Lake, and North Lake; suitable habitat.

Source USFWS, 2018
* eBird 2019

A review of the USFWS 5-Year Work Plan (USFWS 2019) provided a list of 27 wildlife species in California that are under consideration for the potential to receive federal protection by listing as threatened or endangered pursuant to the federal ESA. Of these 27 species, two species were determined to have the potential to be present in the Project's Wildlife Study Area: Oregon vesper sparrow (*Pooecetes gramineus affinis*), and the little brown bat (*Myotis lucifugus*).

3.0 STUDY OBJECTIVES

The Wildlife Study Plan, which serves as the plan and approach for this report identified the following goals and objectives:

- Determine if the resident mule deer herd and/or other wildlife species are affected by or alter their migratory patterns in response to Project infrastructure or operation and evaluate the use at existing crossing structures to determine adequacy.

- Identify management and other special status species from existing information and site-specific surveys that possess a high potential for occurrence in or utilize the Project's powerhouses, ancillary facilities, and operations areas for nesting, roosting, foraging, and sheltering during any portion of their life cycle. For those species with a high potential to occur or that have been determined to utilize the powerhouses or other Project facilities, determine time/season of usage at those locations.

- Special status species are defined as wildlife species listed as endangered or threatened under the federal and state ESAs by USFWS and CDFW or species which have been determined to be sensitive or of special concern because of declining populations or rarity in the Project area by the USFS, Bureau of Land Management (BLM), or CDFW. For those special status species with high potential of utilization, or have been determined to be present, assess potential for Project impact. Identify the potential effects of continued Project operations on the habitats and associated wildlife within the Wildlife Study Plan Area.

- To protect avian species that use existing project transmission facilities under the current license.

- Provide Resource Management Plans and Guidelines so that future Project facilities and operations are consistent with the Desired Conditions described in the Land Management Plan for the Inyo National Forest (USDA 2019) as they relate to ecological sustainability and diversity of plant and animal communities.

3.1 STUDY AREA

The Wildlife Study Area (Figure 3.1-1) consists of Project facilities including powerhouses, dams, diversions, lakes and other impoundments, the flowline starting at Intake No. 2, valve houses, other outbuildings, and access roads. The Wildlife Study Plan Survey Area includes a 500-foot survey area buffer surrounding each of the above listed Project components. Note: only those areas of lakes and other impoundments within 500 feet of a Project facility were surveyed.

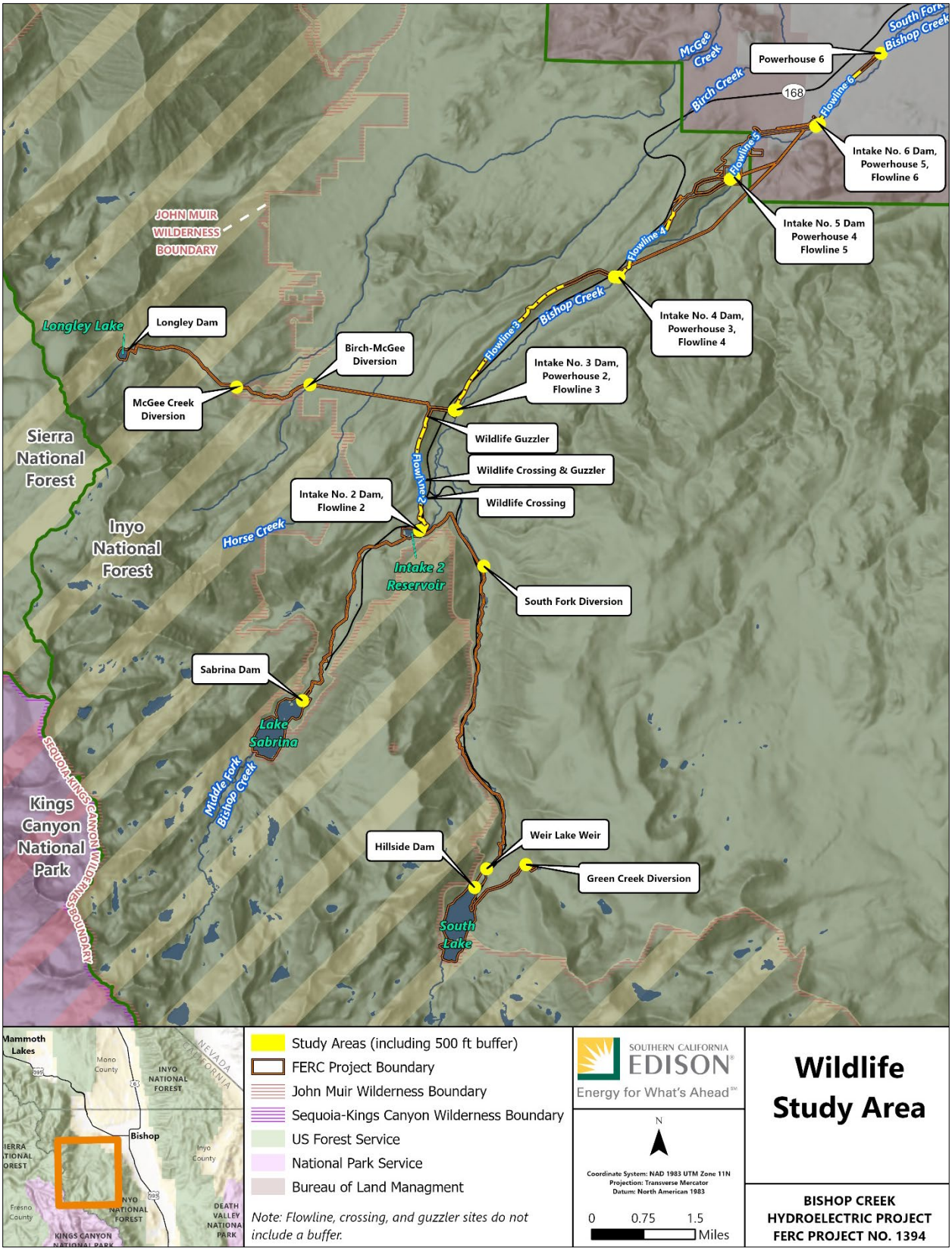

Figure 3.1-1 Wildlife Study Areas

4.0 METHODS

4.1 GENERAL WILDLIFE FIELD SURVEYS

General wildlife field surveys were conducted within the Wildlife Study Area from August 5 to 9, 2019. The field surveys included pedestrian surveys at each of the Project's facilities including a 500-foot buffer around each facility to identify and map existing conditions, document existing wildlife, and identify potentially suitable habitat (i.e. preferred plant associations and habitat structure) for special status species determined to have the potential to occur at each facility based on the literature review and agency consultation. Binoculars were used to directly observe wildlife. Active searches for reptiles and amphibians included lifting, overturning, and carefully replacing objects such as rocks, boards, and debris. Mammals were identified by visual recognition or evidence of diagnostic sign, including scat, footprints, scratch-outs, dust bowls, burrows, and trails. All wildlife species observed were recorded in field notes to species (if possible) and location. Nesting behavior of birds and raptors were noted by species and the locations of active or potential nests recorded with a hand-held global positioning system (GPS) unit. All species observed were recorded in field notes.

Nomenclature for wildlife generally follows Crother (2017) for amphibians and reptiles, American Ornithologists' Union (AOU) (2020) for birds, and Bradley et al. (2014) for mammals.

4.1.1 SOUTHWESTERN WILLOW FLYCATCHER NESTING HABITAT ASSESSMENT

Biologists surveyed for suitable nesting habitat for southwestern willow-flycatcher, as defined by the USFS concurrent with general wildlife surveys. Suitable habitat for southwestern willow flycatcher consists of relatively dense riparian tree and shrub communities alongside rivers, streams, or other wetlands, including lakes and reservoirs (riparian habitat). It establishes nesting territories, builds nests, and forages where mosaics of relatively dense and expansive growths of trees and shrubs are established, near or adjacent to surface water or underlain by saturated soil. In most instances, the dense vegetation occurs within the first 10 to 13-feet above ground. Habitat patches must be at least 0.25 acre in size and at least 30-feet-wide. Historically the southwestern willow flycatcher nested in native vegetation including willows (*Salix* spp.), seep willow (*Baccharis salicifolia*), boxelder (*Acer Negundo*), buttonbush (*Cephalanthus occidentalis*), and cottonwood (*Populus* sp.). Following modern changes to riparian communities, this subspecies still nests in native vegetation, but also uses thickets dominated by non-native tamarisk (*Tamarix* sp.) and Russian olive (*Elaeagnus angustifolia*), or mixed native/non-native stands. The southwestern willow flycatcher builds a small open cup nest, most often 6.5 to 23-feet above ground in a fork or on a horizontal branch of a medium-sized bush or small tree where the plant growth is most dense, where trees and shrubs have vegetation near ground level, and where there is a low-density canopy (Sogge et al. 2010).

4.2 MANAGEMENT INDICATOR SPECIES

Surveys for MIS were conducted concurrently with general wildlife surveys described above. Each MIS observed was counted and recorded at every location observed using a hand-held GPS. Since the wildlife study plan survey methods were approved, the USFS adopted a new Land Use Management Plan (USFS 2019). This plan no longer includes MIS species. However, the methods used for the general wildlife surveys are appropriate to apply to and analyze the USFS At-Risk Wildlife Species.

4.2.1 MULE DEER

Pedestrian surveys were performed along the length of the above ground flowline. Biologists recorded signs of mule deer use (i.e., scat and tracks, or direct observations) along the flowline road at each of the two deer crossings constructed over the flowline. Mule deer and their sign were also documented during the other surveys for wildlife. Other wildlife identified by observation or tracks using the mule deer crossings were identified to the lowest taxonomic rank possible in the field, and tracks and signs documented with photographs. Trail cameras were installed along the flowline at the existing deer crossings to document mule deer and wildlife use. Data from the trail cameras were downloaded by Psomas on the following dates; September 17 and 25, and November 9, 2019, and June 15 and 24, 2020. Photographs were reviewed, and species identified to lowest taxonomic level allowed by photography.

4.2.2 BAT SURVEYS

4.2.2.1 LITERATURE REVIEW

A review of the existing literature was conducted to determine the potential for bat species to occur in the vicinity of the Project. Biologists with the Relicensing Team coordinated with Kary Schlick, USFS biologist, and local bat experts for the latest unpublished data on local special status bats species.

4.2.2.2 SUMMER ROOST HABITAT ASSESSMENT

On June 10, 2019, a bat habitat assessment was conducted at Project facilities along Bishop Creek. The facilities on Birch Creek and McGee Creek (Longley Dam, McGee Creek Diversion, and Birch Creek Diversion) were not accessible during the habitat assessment due to poor road conditions resulting from higher-than-normal snow levels and were excluded from the survey effort. The habitat assessment was conducted to determine potential for significant bat roosts at Project facilities, i.e., Project buildings and associated structures. Significant roosts consist of potential maternity roosts or winter hibernacula. Project structures with the potential to support roosting bats for signs of past and present bat use (e.g., urine staining, guano deposits, vocalizations) were inspected. All evidence of roosting was recorded in field notes and marked on maps. Active roost sites were photographed.

4.2.2.3 WINTER ROOST ASSESSMENT

A survey for wintering bats was performed at potential winter roosting sites at Project facilities on January 27, 2020. The purpose of the winter bat survey was to determine if Project facilities, especially powerhouses and associated outbuildings are used by bats as winter hibernacula. Project structures were inspected for signs of past and present bat usage. All evidence of roosting was recorded in field notes. Photographs were taken of any evidence of bat use. A hard hat with an attached light, a hand-held spotlight, and binoculars were used to conduct the surveys.

4.2.3 BAT ACOUSTIC SURVEY

Based on the results of the 2019 summer roost assessment, ultrasonic acoustic surveys were conducted at selected Project facilities. Evidence of day roosting bats were observed in Powerhouse Nos. 2, 3, 5, and 6 in 2019. The purpose of collecting acoustic samples is to determine which species are utilizing the facilities. Prior to installing the ultrasonic acoustic recording devices, bat biologists assessed each site to identify the best location for microphone placement. Preferences for microphone placement were at locations that sufficiently sample the appropriate bat foraging or commuting corridors.

The ultrasonic acoustic surveys were scheduled to avoid full moon events and postponed avoiding uncharacteristic weather events, including high winds, low air temperatures, and heavy precipitation. The survey occurred during months not associated with winter hibernation activity.

A focused acoustic survey was performed between June 15 and June 24, 2020. Four Pettersson D500x ultrasonic recording devices were deployed across Project facilities. Prior to installing the ultrasonic recording devices, the biologists assessed each site to identify the best location for microphone placement. Preferences for microphone placement were at locations that sufficiently sample the appropriate bat foraging areas or commuting corridors. Some locations required multiple ultrasonic recording devices be deployed simultaneously to more sufficiently cover areas suitable for foraging or commuting. Photographs of the recording locations were taken, and representative photographs are included in Attachment A.

The focused acoustic surveys were conducted during weather and lunar conditions conducive to bat foraging activity. Specifically, surveys were scheduled to avoid full moon events and postponed avoiding uncharacteristic weather events, including low air temperatures and heavy precipitation. Furthermore, the surveys occurred during months not associated with extended torpor activity (i.e., winter hibernation). The dates, locations, lunar phase, and weather conditions (as recorded at the nearest weather station) are shown in the Table 4.2-1.

Table 4.2-1 Acoustic Survey Dates And Environmental Conditions

Survey Dates	Project Facility	No. of Recorders Deployed	Moon Visibility %[1]	Temperature[2]	
				Daytime High	Nighttime Low
June 15, 2020	Powerhouse 5	2	34%	93	52
	Powerhouse 2	2			
June 16, 2020	Powerhouse 5	2	30%	93	53
	Powerhouse 2	2			
June 17, 2020	Powerhouse 5	2	23%	86	56
	Powerhouse 2	2			
June 18, 2020	Powerhouse 5	2	16%	89	48
	Powerhouse 2	2			
June 19, 2020	Powerhouse 5	2	10%	94	54
	Powerhouse 2	2			
June 20, 2020	Powerhouse 6	1	3%	99	56
	Powerhouse 3	2			
June 21, 2020	Powerhouse 6	1	3%	102	58
	Powerhouse 3	2			
June 22, 2020	Powerhouse 6	1	10%	104	60
	Powerhouse 3	2			
June 23, 2020	Powerhouse 6	1	16%	105	60
	Powerhouse 3	2			

[1] Percentage of disk visible (Noreast.com 2020).
[2] Degrees Fahrenheit. The weather data shown was collected from the nearest available weather station located at the airport in the City of Bishop (Weather.com 2020). The approximate elevation of the weather station is 4,150 feet above mean sea level.

To the extent feasible, the microphones and associated equipment (e.g., poles) were placed in locations that best mask the equipment to minimize effects on flight patterns. Acoustic recording began 15 minutes before sunset and extended throughout the night, ending 15 minutes before sunrise. Each facility was monitored for a minimum of four consecutive nights to sufficiently sample the species diversity at the respective locations. Acoustic data was recorded in full spectrum format in short intervals when triggered by programmed acoustic thresholds. The thresholds were set to minimize the collection of environmental noise upon deployment of the ultrasonic recording devices.

The data collected was analyzed using Sonobat software, Version 4.2.2, using the US West classifier. All reported results were processed and vetted by Mr. Norton and confirmed by Dr. Morrison. Digital copies of the acoustic data were archived both before and after analysis. Metadata was affixed to the processed data using the GUANO format (GUANO is a universal, extensible, open metadata format for bat acoustic recordings (Myotisoft 2017).

4.2.4 AMPHIBIAN SURVEYS

4.2.4.1 LITERATURE REVIEW

A review of the existing literature, including aerial photographs, was conducted to determine the potential for special status amphibian species to occur in the Project vicinity.

4.2.4.2 FIELD SURVEYS

The survey areas for special status amphibians were selected based on Project electrofishing sites, including an appropriate buffer depending on the surrounding habitat. Prior to the start of the surveys, aerial photographs of each survey area (1-inch to 200-foot scale) were prepared for field use to map existing features and note wildlife occurrences and areas of potentially suitable habitat. Visual encounters surveys were conducted to determine if Yosemite toad, northern leopard frog, and Sierra Nevada yellow-legged frog were present in the designated electrofishing areas and secondarily to determine if suitable aquatic and adjacent upland habitat for the target species was present in the survey areas. The biologists conducted both diurnal and nocturnal surveys on September 23 and 24, 2019.

Those areas were selected so that the special status amphibian surveys could be performed in advance of the electrofishing to the extent possible. The survey areas included Site 1, Powerhouse No. 5 and Intake 6, Site 2, Powerhouse No. 4 and Intake 5, Site 3, Site 4, Powerhouse No. 3 and Intake 4, South Branch 1, Middle Branch, South Branch 2, and South Branch 3. The areas surveyed for the special status amphibian species included all suitable habitat within the previously mentioned areas.

Surveys primarily followed recommended protocols for special status amphibians as described in Rombough (2012) and Peek et al. (2017), including decontamination procedures. The surveys included diurnal and nocturnal searches to determine the presence of eggs, tadpoles, and adults. Surveys focused on detecting toads/frogs by visual identification, listening for the advertising call of adult males, and checking potentially suitable breeding habitat for tadpoles and/or eggs. Biologists scanned pools for eggs, larvae, metamorphs, juveniles, and breeding and/or calling adults in potentially suitable breeding locations along Bishop Creek and for foraging individuals in the adjacent upland areas. Headlamps, flashlights, and binoculars were used to visually identify toads, frogs, and their larvae detected at night. Nocturnal surveys were conducted during appropriate environmental conditions conducive to the activity patterns of the northern leopard frog. Only one day and evening visit at each site was deemed appropriate because of the late season survey, and because the survey was intended to document presence of special status amphibian species so that potential impacts from electrofishing could be avoided, and to document the presence of potentially suitable habitat.

5.0 MODIFICATIONS TO METHODS

General wildlife surveys were reduced to one field survey in 2019 and are now complete. In June 2020, two new cameras were placed at wildlife crossing areas to replace those stolen in 2019.

No northern goshawk surveys were conducted in 2020 because the species presence was confirmed during the 2019 general wildlife surveys. In 2019, access to proposed northern goshawk survey areas was blocked by heavy snow. Thus the protocol survey time window was missed. Per the protocol (Woodbridge and Hargis 2006) dawn acoustic surveys should be conducted in the area between March 15 and April 28. However the area was not accessible until June 2019. Alternatively, It was determined that biologists would survey the proposed northern goshawk areas concurrently with the summer surveys from August 5 to August 8, 2019. Specifically, Green Creek and Birch Creek were targeted because those area support the most suitable habitat for northern goshawk in the Project study area. Northern Goshawk were observed during these surveys in Birch Creek but not observed at South Lake or Green Creek. However, it can be determed, based on the CNDDB historic records identified below and the 2019 detections, that northern goashawk are likely still active and nesting in the area.

- Vicinity of Birch Creek, 2 miles west of Hwy 168, Inyo National Forest - 1 adult and 4 juveniles observed at nest site in 1993;
- Approximately 6 miles north of Intake 2 - Eyrie Number IN002. Active nest with one young in 1982; and
- 1.4 miles NW of Sabrina Lake - Eyrie Number IN003. Active nest with two young in 1982)

The approved study plan stated that northern goshawk surveys would be performed in 2020. However with the onset of COVID-19 and its concomitant restrictions, field work was postponed until it became clear that field work would be allowed during the lock-down in California. Again, by that time the window for protocol surveys had passed. And given that the goal of the surveys, to determine the presence of goshawk, was fulfilled, it was determined that protocol surveys were no longer necessary. Therefore, northern goshawk surveys were not performed in 2020. The above changes to the goshawk survey were discussed with the U.S. Forest Service Wildlife Biologist (Ms. Kary Schlick) during a phone conversation on May 7, 2020. This modification to implementing surveys to protocol was agreed upon. The result of nesting activity at Buttermilk provided the assurance that this was sufficient for Inyo National Forest.

No other changes or modifications to the surveys occured.

6.0 RESULTS

6.1 GENERAL WILDLIFE SURVEYS

The following describes the natural environment surrounding the Project facilities and is based on the literature review and the results of the 2019 general wildlife surveys.

Numerous upland plant communities are present within the Project vicinity supporting a variety of wildlife species. These plant communities mix and blend one into another providing a complex of habitats with an overstory of one community supporting an understory of a second community. This complexity is reflected in the wildlife species that occur in multiple communities.

The intermixing of the vegetation communities in the Project Area provides for a complex habitat allowing wildlife to utilize many different plant communities throughout a great range of elevations. For this analysis the plant communities have been combined into lower, midrange, and higher elevation associations:

- Lower elevation plant communities (4000 feet to 6000 feet above msl) are an interdigitated mix of canyon live oak, single leaf pinyon pine, eastside pine, lodgepole pine, high desert mixed scrub, pine, rabbit brush, salt bush, Great Basin mixed scrub/big (basin) sagebrush, and annual grasses and forbs. Project facilities at this elevation range include Powerhouse No. 6, Powerhouse No. 5 and Intake 6, and Powerhouse No. 4 and Intake 5.

- Mid-elevation communities (5000 feet to 7000 feet above msl) consist of a mix of canyon live oak, single leaf pinyon pine, eastside pine, lodgepole pine, limber pine, rabbit brush, Great Basin Sagebrush, curlleaf mountain mahogany, and annual grasses and forbs. Project facilities at this elevation range include Powerhouse No. 4 and Intake 5, Powerhouse No. 3 and Intake 4.

- Higher elevation communities (above 7000 feet msl) consist of a mix of canyon live oak, eastside pine, limber pine, lodgepole pine, subalpine confers and whitebark pine, bitterbrush, and Great Basin Sagebrush, alpine mixed scrub, curlleaf mountain mahogany, alpine grasses and forbs, and perennial grasses and forbs. Project facilities at this elevation range include Powerhouse No. 2 and Intake 3, Intake No. 2 Dam, South Fork Diversion Dam, Green Creek Diversion, Birch Creek Diversion, McGee Creek Diversion, Lake Sabrina Dam, and South Lake (Hillside Dam).

Some representative wildlife species found near the Project facilities are listed below. The list is based on the literature review and 2019 general wildlife surveys. Wildlife observed in 2019 are in bold.

Representative wildlife life associated with the lower elevation habitats include Mourning Cloak (*Nymphalis antiopa*), Great Basin spadefoot toad (*Scaphiopus intermontanus*),

western toad (*Anaxyrus boreas*), desert horned lizard (*Phrynosoma platyrhinos*), **granite spiny lizard** (*Sceloporus orcutti*), northern alligator lizard (*Elgaria coerulea*), gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), **lesser goldfinch** (*Spinus psaltria*), California quail (*Callipepla californica*), western bluebird (*Sialia mexicana*), **common raven** (*Corvus corax*), American crow (*Corvus brachyrhynchos*), **red-tailed hawk** (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), **house finch** (*Haemorhous mexicanus*), **Say's Phoebe** (*Sayornis saya*), Cassin's king bird (*Tyrannus vociferans*), California scrub jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), pallid bat (*Antrozous pallidus*), **black-tailed jackrabbit** (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), deer mouse (*Peromyscus maniculatus*), pinyon mouse (*Peromyscus truei*), **California ground squirrel** (*Otospermophilus beecheyi*), **least chipmunk** (*Neotamias minimus*), California vole (*Microtus californicus*), southern grasshopper mouse (*Onychomys torridus*), **coyote** (*Canis latrans*), and **mule deer** (*Odocoileus hemionus*).

Representative wildlife life associated with the mid-elevation habitats include, Sierra sulfur (*Colias behrii*), Mourning Cloak (*Nymphalis antiopa*), Sierra treefrog (Pseudacris sierra), Mt. Lyell salamander (*Hydromantes platycephalus*) sage brush lizard (*Sceloporus graciosus*), pinyon jay (*Gymnorhinus cyanocephalus*) is very common in the pinyon-sagebrush zone: other common bird species include the **western wood pewee** (*Contopus sordidulus*), **northern flicker** (*Colaptes auratus*), **Steller's jay** (*Cyanocitta stelleri*), **lesser goldfinch** (*Spinus psaltria*), **common raven** (*Corvus corax*), **red-tailed hawk** (*Buteo jamaicensis*), **dark-eyed junco** (*Junco hyemalis*), **Mountain chickadee** (*Poecile gambeli*), brown creeper (*Certhia americana*), **white-crowned sparrow** (*Zonotrichia leucophrys*), **Brewer's sparrow** (*Spizella breweri*), **purple finch** (*Haemorhous purpureus*), American pika (*Ochotona princeps*), **California ground squirrel** (*Otospermophilus beecheyi*), **golden-mantled ground squirrel** (*Callospermophilus lateralis*), **Douglas' squirrel** (*Tamiasciurus douglasii*), long-tailed vole (*Microtus longicaudus*), deer mouse (*Peromyscus maniculatus*), pinyon mouse (*Peromyscus truei*), bushy-tailed woodrat (*Neotoma cinerea*), **coyote**, and **mule deer**.

Representative wildlife life associated with the higher elevation habitats include Sierra skipper (*Hesperia miriamae*), Sierra treefrog (*Pseudacris sierra*), sage brush lizard (*Sceloporus graciosus*), **common raven** (*Corvus corax*), **Williamson's sapsucker** (*Sphyrapicus thyroideus*), **Steller's jay** (*Cyanocitta stelleri*), **Clark's nutcracker** (*Nucifraga columbiana*), **mountain bluebird** (*Sialia currucoides*), hermit thrush (*Catharus guttatus*), **Cassin's finch** (*Carpodacus cassinii*), **Northern goshawk** (*Accipiter gentilis*), **American pika** (*Ochotona princeps*), alpine chipmunk (*Neotamias alpinus*), yellow-pine chipmunk (*Neotamias amoenus*), **Douglas' squirrel** (*Tamiasciurus douglasii*), **Belding's ground squirrel** *(Urocitellus beldingi*), and **yellow-bellied marmot** (*Marmota flaviventris*).

6.1.1 Special Status Species

As a result of the field surveys, eight special status species were observed and are described below.

Northern goshawks, a CDFW Species of Special Concern and USFS Sensitive Species, were observed near the Birch Creek Diversion within quaking aspen (*Populus tremuloides*) and eastside pine habitat. Active nesting success was confirmed at the one known northern goshawk PAC within the project area. In 2019, the Buttermilk PAC was confirmed active. On August 7 at 7:45 am, biologists observed one (1) juvenile flying overhead and begging calls were herd from at least one juvenile, which were answered by an adult. During their stand exam to find the active nest, biologists discovered three non-active northern goshawk nests, however; the active nest was not found but is expected to be within the PAC.

A bald eagle, a state listed endangered species and a CDFW fully protected species, was observed at the Bishop Creek Powerhouse No. 2 and Intake 3 survey area flying over bitterbush habitat. The bald eagle was a flyover occurrence; it was not observed nesting in any of the survey areas.

Four golden eagles, a CDFW fully protected species, were observed during the wildlife surveys: one adult and one juvenile were observed flying over eastside pine habitat at the McGee Creek Diversion; and two adults were observed flying over Singleleaf Pine, Great Basin Mixed Scrub, bitterbush habitats above the flowline west of Bishop Creek Intake 2 Dam. The golden eagles were flyover occurrences at both survey areas; they were not observed nesting in any of the survey areas. Therefore, no CNDDB form was prepared for this species.

A Brewer's sparrow, a USFWS Bird Species of Conservation Concern, was observed at the Bishop Creek South Fork Diversion Dam and Bishop Creek Intake 2 Dam survey areas flying through quaking aspen habitat in both areas.

A rufous hummingbird, a USFWS Bird Species of Conservation Concern, was observed at the South Lake and Green Creek Diversion survey areas, flying through Lodgepole Pine and Subalpine Conifer habitat respectively.

A green-tailed towhee, a USFWS Bird Species of Conservation Concern, was observed at the Sabrina Lake Dam, McGee Creek Diversion, Birch Creek Diversion, Green Creek Diversion, Bishop Creek South Fork Diversion Dam, and Bishop Creek Intake 2 Dam survey areas. Green-tailed towhees were observed in the following habitats: quaking aspen, Curleaf Mountain Mahogany, and Subalpine Conifer.

A Cassin's finch, a USFWS Bird Species of Conservation Concern, was observed at the South Lake and Lake Sabrina survey areas, flying through Lodgepole Pine and quaking aspen habitat respectively.

A Williamson's sapsucker, a USFWS Bird Species of Conservation Concern, was observed at the Lake Sabrina and Birch Creek Diversion survey areas, flying through quaking aspen and eastside pine habitat respectively.

6.1.2 SOUTHWESTERN WILLOW FLYCATCHER HABITAT ASSESSMENT

Willow habitat was present in the survey area in two very small, isolated fragments along Bishop Creek north of Powerhouses No. 6 and No. 5. Willow habitat is dominated by tree-sized willows of any species in riparian floodplains, seeps, springs, swamps, or dry washes. Willow dominate these areas to the exclusion of other riparian species but other species such as cottonwoods, and alders (*Alnus* sp.) may occur in small amounts. The USFS specifies that suitable breeding habitat at low and mid-elevations can be composed of single species of willow, but the height must range from 9 to 55 feet. The willow habitat in the survey area did not meet this standard. Additionally, a distinct overstory of cottonwood, willow, or other broadleaf trees, with recognizable subcanopy layers and a dense understory of mixed species are often present. No such overstory or understory structure was present in the survey area.

High elevation habitats range from nearly monotypic dense stands of willow to mixed stands of native broadleaf trees and shrubs, 6 to 21-feet in height with no distinct overstory layer; often associated with sedges, rushes, nettles, and other herbaceous wetland plants; usually very dense structure in lower 6 feet; live foliage density is high from the ground to the canopy. Vegetation surrounding the patch can range from open meadow, to agricultural lands, to pines or upland shrub. This habitat structure was not found during the surveys. At several sites, including areas near Powerhouse No. 4 and Intake 5 and Powerhouse No. 2 and Intake 3, riparian mixed hardwood habitat was identified. Riparian mixed hardwood describes the mixture of tree willows, cottonwoods, alders, and other tree species where none are dominant. In most cases, at least three genera are present in the mixture. These species occur in moist areas and adjacent to stream courses often found adjacent to upland lower montane conifers. The foliage in this habitat was not dense enough from the ground to canopy to be considered suitable habitat.

Other broadleaf habitat described in the survey area include quaking aspen, with an understory dominated by wild rose (*Rosa woodsii*). This habitat was described at multiple sites including, the Birch Creek Diversion, McGee Creek Diversion, Powerhouse No. 2 and Intake 3, the confluence of South Fork Bishop Creek and Mid Fork Bishop Creek, Intake No. 2 Dam and Reservoir, Lake Sabrina, South Fork Diversion Dam, Green Creek Diversion, and South Lake. As with the riparian mixed hardwood habitat, the aspen habitat was not dense enough in vegetation to be considered suitable habitat. The wild rose understory was dense, but the mid-story was sparse in foliage, and the overstory was not suitably dense enough either.

The habitat at Powerhouse No. 3 Intake 4 is dominated by eastside pine, Great Basin Mixed Scrub, and bitterbush. The general composition of the tree/shrub vegetation at the site is generally not considered to be suitable habitat for willow flycatcher.

6.1.3 MANAGEMENT INDICATOR SPECIES AND AT-RISK SPECIES

The MIS report prepared for the Project by the USFS-INF evaluated 11 habitats for evaluation on National Forest Lands. The MIS Report concluded that representative

habitat for the following 10 MIS is present in the Project area: aquatic macroinvertebrates (riverine and lacustrine); fox sparrow (Shrubland (west-slope chaparral types); mule deer (Oak-associated Hardwood and Hardwood/Conifer); yellow warbler (Riparian); Pacific tree frog (Wet Meadow); mountain quail (*Oreortyx pictus*) (Early Seral Coniferous Forest and Mid Seral Coniferous Forest); California spotted owl , Sierra marten (Martes caurina [formerly *Martes americana*), and Humboldt's flying squirrel (*Glaucomys* oregonensis [formerly *Glaucomys sabrinus*]) (Late Seral Closed Canopy Coniferous Forest); hairy woodpecker (Snags in Green Forest); and black-backed woodpecker (Snags in Burned Forest). These MIS species are included in the Forest's Category 2: MIS whose habitat is in or adjacent to Project area but would not be either directly or indirectly affected by the Project. Mule deer was the only MIS species observed during the general survey.

Three USFS At-Risk species were observed during the wildlife surveys: Bald eagle, Mt. Pinos Sooty grouse, and mule deer.

6.1.4 MULE DEER

The goal of studying mule deer during this relicensing was to determine if the wildlife crossings installed by SCE in the mid-1990's over the flowline were being utilized by mule deer. A secondary goal was to determine if other wildlife were also using the crossings. The above ground flowline runs along Flowline Road, which starts at an intersection with State Route (SR) 168 directly across from Intake No 2, and runs approximately 1.6 miles where it turns underground before the standpipe for the Powerhouse No. 2 penstock. Two wildlife crossings occur along the above ground flowline.

It is worth noting that prior to the replacement of the wooden stave flowline with the metal pipe flowline that there were no wildlife crossings over the flowline. To assess the use of the wildlife crossings, wildlife cameras were installed at the crossings and adjacent guzzlers, field surveys were performed, and GIS data provided by CDFW was analyzed.

6.1.4.1 HERDS IN THE BISHOP CREEK AREA

Mule deer are among the most abundant and conspicuous large mammals in North America. Mule deer are highly prized game animals, are important indicators of ecosystem health (Bleich et al. 2006), and have tremendous economic and aesthetic value (Loft 1998). The mule deer present in the Bishop Creek area are comprised of members of two adjacent herds. The Round Valley herd to the north and the Goodale herd to the south. Members of each herd move into and out of the Bishop Creek area, but there are resident mule deer.

The Goodale herd inhabits an area within Fresno, Inyo and Tulare Counties. This area is bounded by Bishop Creek on the north and Lone Pine Creek on the south and SR 395 is considered the eastern boundary. The western boundary is not well defined, but is generally between the 7,000 and 8,000 foot level on the west slope of the Sierra Nevada Mountains. For management purposes, the Goodale herd area has been divided into northern and southern sub-herds. The northern sub-herd extends from Bishop Creek to

Taboose Creek, a distance of about 22 miles. The southern portion, from Taboose Creek to Lone Pine Creek, covers about 28 miles (Blankenship 1984).

The Round Valley herd's summer range occur on both sides of the Sierra crest at elevations from 6,600 to 10,200 feet (Kucera 1988). Round Valley is bounded to the west by the Sierra Nevada, to the south by large boulders and granite ridges of the Tungsten Hills and Buttermilk Country, and to the east by SR 395. The Round Valley herd's Winter range is bounded to the west by the Sierra Nevada, particularly Mount Tom (4,161 m) and Wheeler Ridge (3,640 m), to the south to the Tungsten Hills and Buttermilk's, and to the east by SR 395 (Bleich et al. 2006).

GIS data of collared individuals from each herd was provided by CDFW. Psomas reviewed the data and mapped randomly chosen individuals of each herd to follow its movement in the Project Area. In the Project Area, the Round Valley Herd occupies the area along McGee Creek up to Humphry Basin and north. The Goodale Herd occupies areas along the Middle and South Fork of Bishop Creek. Little mixing seems to occur, although one individual from the Goodale Heard (GDL 149) in 2018 was recorded to have traveled as far north as the head waters of the South Fork of the San Joaquin River in Round Valley Herd territory. This individual crossed through the Project area at the installed deer crossings.

The GPS data corroborate the camera findings (see below) by showing that the mule deer in the area are using the wildlife crossings. The use of the wildlife crossing indicates that the crossing are successful and being used as intended, and so the flowline is not a hinderance to mule deer movement through the Project Area.

6.1.4.2 TRAIL CAMERA RESULTS

Photographs taken from the camera stations document wildlife use from September 26, 2019 to November 9, 2019. The cameras showed that the wildlife crossings are well used by mule deer as well as other species. This coincides with the timing of the fall migration of mule deer in the eastern Sierra Nevada. Mule deer spend the summer months at high elevation summer ranges, where there is a higher diversity and higher quality of foraging plants. Most mule deer migrate to lower elevations before the onset of severe winter weather to avoid getting trapped at the summer range (Monteith et al. 2011). The wildlife cameras may have documented a portion of the annual fall migration of mule deer using the wildlife crossings at the flowline to travel from high elevation summer ranges to lower elevation winter ranges as well as the travels of the resident mule deer popuation.

Other species observed at the camera stations include: Mountain lion (*Puma concolor*); Grey fox, long-tailed weasel (*Mustela frenata*); American badger (Taxidea taxus), coyote (*Canis latrans*); black bear (*Urus americanus*); black-tailed jackrabbit (*Lepus californicus*); California ground squirrel (*Otospermophilus beecheyi*); white-tailed antelope squirrel (*Ammospermophilus leucurus*); chipmunk sp. (*Neotamias* sp.); green tailed towhee (*Pipilo chlorurus*); California quail (*Callipepla californica*), sooty grouse (*Dendragapus fuliginosus*); and Raven (*Corvus corax*).

Based on the camera observations it appears that the flowline is not a barrier to wildlife and that the crossings erected by SCE are being used on a regular basis.

Representiative Photographs are provided as Attachment E (Wildlife Photographs).

6.1.4.3 FIELD OBSERVATIONS

Indications of mule deer presence in the survey area observed included an adult female mule deer and her fawn at Bishop Creek Intake 2 Dam along the south end of the lake. Vertebrae were observed within the Green Creek Diversion survey area. Scat was observed at Bishop Creek South Fork Diversion Dam and Bishop Creek Powerhouse No. 2 and Intake 3. Observations of tracks and other sign along flowline road was not possible because of the continued use of the road by SCE vehicles, joggers, dog walkers, bicyclers and off road motorcyclists.

6.1.4.4 ADDITIONAL INFORMATION

Because mule deer are known to travel throughout the Project area including crossing roads and the highway, the California Department of Transportation (Caltrans) was contacted concerning records of mule deer versus automobile collusions along SR 168. During the 10-year period from January 1, 2007 to December 31, 2017 Caltran recorded 17 vehicle-versus mule deer collisions on SR 168 from the beginning of the route (Postmile [PM] 0) near North Lake Road to North Fork Bishop Creek Bridge (PM 15.407) (Talbot 2018).

Bleich et al. (2006) studied the survival of young mule deer in the Round Valley Herd. Mule deer survivability is related to numerous factors including food availability, competition with other herbivores, accidents, predation, disease, and climate. They found that the causes of mortality included predation (by mountain lions, coyotes, and bobcats), drowning, and death during birth. Human-caused deaths were attributed to legal harvest, poaching, and collisions with vehicles. Predation accounted for 55% of mortality in their study and vehicle collisons accounted for another 27%, much higherthan seems to be the case of the Project Area. Based on the Caltrans data, an average of less than two deer fatalities per year due to automobile collisions is low and not a significant contribution to mule deer mortality in the Project Area.

6.1.5 BAT SURVEYS

6.1.5.1 SUMMER ROOST HABITAT ASSESSMENT

The summer roost habitat assessment determined that the powerhouses were the most suitable for bat day roosting. Appurtenant structures, such as sheds and warehouses, were also inspected; however, no evidence of day-roosting was observed, and the other structures did not provide environmental conditions equivalent to the powerhouses, such as accessibility, thermal insulation, and heat sources. Table 6.1-1 shows the Project buildings inspected and the presence of any roosting sign.

Table 6.1-1 Roosting Signs Observed

Project Building	Sign Present	Potential Maternity Roost
Powerhouse No. 6	None	No
Powerhouse No. 5	Current	Yes
Powerhouse No. 4	None	No
Powerhouse No. 3	Previous	No
Powerhouse No. 2*	Current	Yes

* Powerhouse No. 2 showed evidence of previous, non-maternity day-roosting. The active maternity roost is located in the transformer shed located at this facility (immediately adjacent to the powerhouse).

No sign of roosting was observed in Powerhouse No. 6 or No. 4 and no bat day roosting is anticipated at either facility. Powerhouse No. 3 contained limited bat guano likely resulting from bat night-roosting activity within the powerhouse; no significant bat roosts occurred in Powerhouse No. 3. Powerhouse No. 6 and No. 5 supported active bat day roosting during the survey. The species present could not be determined, but more than five bats were observed roosting in crevices at both powerhouses. Both roosts have potential to support maternity roosting.

Tailraces are channels that convey water away from Project turbines. The tailraces associated with the Project vary in size and diameter at the different powerhouses, but all are concrete and all experience high levels of water flow at intermittent times. The flushing events that occur intermittently in the tailraces are likely to deter any roosting. Regardless, the tailraces at Powerhouses No. 6, No. 5, and No. 2 are substantially taller and wider than the others and have some limited potential to support bat roosting. The underground extent of those tailraces is not accessible for a daytime visual survey.

6.1.5.2 WINTER ROOST ASSESSMENT

The powerhouses were determined to be the most suitable for bat roosting. Appurtenant structures, such as sheds and warehouses, were also inspected; however, no evidence of roosting was observed, and the other structures did not provide environmental conditions equivalent to the powerhouses, such as accessibility, thermal insulation, and heat sources. Table 6.1-2 provides the Project buildings inspected and the presence of any roosting sign.

Table 6.1-2 Winter Bat Roosting Signs

Project Building	Sign Present	Potential Winter Roost
Powerhouse No. 6	None	No
Powerhouse No. 5	Possible*	Unlikely*
Powerhouse No. 4	None	No
Powerhouse No. 3	None	Unlikely
Powerhouse No. 2	Possible	Unlikely

*See text for explanation

No sign of winter roosting was observed in any powerhouse or associated structure. Powerhouse No. 2 had very light, wide scattering of guano on the floor in the transformer building but no sign of bat use in the powerhouse. The guano in the transformer building was not fresh and could have fallen from summer or more likely late fall use. Another possibility is occasional use during periods when bats are active during winter (i.e. warm temperatures when bats might become active for short periods). Powerhouse No. 5 had a small amount of guano directly below the ceiling rafters where maternity use was identified during the June 10, 2019 survey. It is likely that the guano at this location fell from the remaining accumulation of guano on the rafters. Because no other guano was found in this powerhouse, current winter activity is unlikely.

Powerhouses No. 4 and No. 6 were not considered to have potential winter activity, at least as hibernacula, because of the lack of any secluded and cold roosting locations. Powerhouse No. 3, while containing no current evidence of bat use, did have a few locations that might serve as at least temporary roosts for torpid bats (i.e. upper ceiling/rafter corners).

6.1.5.3 ACOUSTIC SURVEY

Ten bat species were acoustically recorded as foraging at the Project facilities: California myotis (*Myotis californicus*), western small-footed myotis (*Myotis ciliolabrum*), little brown myotis (*Myotis lucifugus*), long-legged myotis (*Myotis volans*), Yuma myotis (*Myotis yumanensis*), hoary bat (*Lasiurus cinereus*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), canyon bat (*Parastrellus hesperus*), and Mexican free-tail (*Tadarida brasiliensis*). Table 6.1-3 details which species were recorded at each Project facility.

Table 6.1-3 Results of the Acoustic Bat Survey

Project Facility	Species Recorded*									
	California myotis	western small-footed myotis	little brown myotis	long-legged myotis	Yuma myotis	hoary bat	big brown bat	silver-haired bat	canyon bat	Mexican free-tail
Powerhouse 6	O	X	–	–	X	X	X	X	X	X
Powerhouse 5	–	–	–	–	X	–	O	–	–	X
Powerhouse 3	X	X	–	X	X	–	X	X	X	–
Powerhouse 2	–	X	X	X	X	X	X	X	X	X

* Bat species confidently identified as being recorded during the surveys are marked by "X". Species that could not be confidently identified but may have been recorded (i.e., poor-quality recordings or no

diagnostic features recorded) are marked by "O". Species that were not recorded at a survey location are marked by "–".

All the recordings determined to contain suitable bat echolocation calls were manually vetted by on-site biologists and the subsequent reference recordings were vetted by Dr. Morrison. A sonogram image representative of each species' recording is included in Attachment B. Not all recordings could be confidently identified as being emitted by a specific bat species. Either the recordings were of poor quality (i.e. recordings were distorted by echoes, the call was emitted too far from the microphone, etc.) or the recordings collected did not contain sufficient diagnostic features to differentiate between multiple, acoustically similar species. This occurred at two locations: Powerhouse 6 and Powerhouse 5. At Powerhouse 6, recordings for both Yuma myotis and California myotis were identified by the auto-identification software: both species are acoustically very similar. The number of Yuma myotis calls identified far outnumbered the California myotis calls identified; however, a California myotis determination could not be confidently rejected. At Powerhouse 5, a bat in the 30-kilohertz acoustic range was recorded that was likely emitted from a Mexican free-tail; however, a big brown bat determination could not be rejected.

Although previously recorded in the greater vicinity (Pierson and Rainey 1998; Anderson 2018), calls associated with spotted bat or Townsend's big-eared bat were not recorded during this survey. Spotted bat calls are distinctive because of their lower frequency and no calls resembling them were recorded. Townsend's big-eared bat is much more difficult to detect acoustically given the low intensity of the calls they are known to emit. Regardless, no calls likely emitted from a Townsend's big-eared bat were recorded.

No special status bat species were recorded during the acoustic surveys. This survey adds nine bat species known from Bishop Canyon to the 2018 Inyo National Forest NaBat Stationary Detector Sites Report (Long and Weller 2018), which recorded *M. lucifugus* and *M. evotis* in Bishop Canyon near Aspendell.

6.2 AMPHIBIAN SURVEYS

Yosemite toad, northern leopard frog, or Sierra Nevada yellow-legged frog were not observed during the surveys. Although overnight temperatures during the surveys were mild with the lowest temperature recorded at 37° Fahrenheit (°F), some amphibians may have already started overwintering. Given the elevation, time of year, weather, and temperatures, the field conditons were appropriate for amphibian surveys. Amphibian surveys were performed in conjunction with electrofishing in late September 2019 to reduce and avoid any possible impacts to special status amphibians.

Suitable terrestrial habitat for Yosemite toad, Sierra Nevada yellow-legged frog, and northern leopard frog was observed in the survey areas. Suitable breeding habitat was observed in the survey areas for northern leopard frog. Breeding habitat for Yosemite toad and Sierra Nevada yellow-legged frog, however, is present only at South Branch 1, Middle Branch, South Branch 2, and South Branch 3.

The primary purpose of the surveys was to ensure no special status amphibians, if present, be subjected to electrofishing. Additional survey efforts expanded beyond lotic systems to increase opportunity for detecting other incidental amphibians species across terrestrial landscapes like under substrates or at project infrastructure, and nocturnal movements.

Based on the literature review and field survey, the following four special status amphibians are unlikely to occur within the project area because none are known or suspected as occurring along Bishop Creek: Yosemite Toad, Sierra Nevada yellow-legged frog, southern mountain yellow-legged frog, and northern leopard frog. Tree frogs are the only amphibians observed in the Project Area. Although protocol-level surveys for special status amphibians were not accomplished for this project, visual encounter surveys were included to validate these assumptions.

Yosemite toad has not been reported from along Bishop Creek (CDFW 2020). There is one record from 1985 in the CNDDB for the Sierra Nevada yellow-legged frog from the Project Area "South Fork Bishop Creek, Aspen Meadows Campground area, 2.5 miles SE of Aspendell, 13 air miles SW of Bishop, Inyo NF." No further sightings reported. All other reports are from high mountain lakes at elevations well above the project area and from the other side of the divide on the western slope of the Sierra Nevada (CDFW 2020). There are no records for the southern mountain yellow-legged frog from Inyo County (CDFW 2020). There is one record for the northern leopard frog in the project area from Birch Creek in 1960, and there have been no reported occurrences since that time (CDFW 2020). A further comment on the northern leopard frog: natural populations of this species most likely occur in Modoc and Lassen Counties, others may be the result of introductions (Jennings and Hayes 1994; Smith and Keinath 2007).

Surveys by CDFW for Sierran yellow-legged frog took place in the high mountain lakes well above the Project Area (CDFW 2018). Furthermore, Bishop Creek is not considered a Sierran yellow-legged frog population creek (Attachment 2, Exhibit 2). Between the high mountain lakes and the Project Area are streams and lakes that support large populations of non-native introduced and stocked trout, which are known to predate amphibians such as the Sierran yellow-legged frog. The presence of predatory trout strongly suggests that the survival of the Sierran yellow-legged frog in Bishop Creek is very unlikely (Jennings 1996; Knapp 1996; USFWS 2013).

7.0 DISCUSSION

The studies completed along with the literature reviewed have produced data sufficient to address the objectives identified. No focused surveys for northern goshawk were determined to be necessary upon determining that the species is actively nesting within the survey area. Wildlife cameras continue to be deployed along the flowline and will be removed in fall 2021. The additional data collected for the remaining months of the wildlife camera studies are likely to support the findings made thus far.

A 2015 joint study by the USFWS, CDFW, Point Blue Conservation Sciences (PBCS), and Bishop Paiute Tribe found no southwestern willow flycatcher migrating or nesting along Bishop Creek. Of the 36 sites surveyed from Bishop Creek to Mono Lake, the Owens River was the closest site to the Project area that found southwestern willow flycatcher nesting territories. The findings from the current survey corroborate the results by the USFWS as neither suitable breeding habitat. In addition, no southwestern willow flycatchers were observed in the survey areas around Project facilities along Bishop, Birch, and McGee creeks.

Visual and acoustic surveys for bats determined that 10 species of bats are foraging in and around Project facilities. No special status bat species were identified during the surveys. It was determined that bats are not using any Project facilties as winter roosts. Some facilities are being used as summer roosts, most likely by big-brown bats.

No Yosemite toad, northern leopard frog, or Sierra Nevada yellow-legged frog was observed during the surveys. These species are not expected to occur in the Project area for the following reasons:

- Abundance of predatory fish species throughout Bishop Creek.
- Northern leopard frog was last recorded in Birch Creek area in 1960.
- Yosemite toad has never been recorded within the Bishop Creek Watershed.

Table 6.2-1 discusses the relevance of the studies completed with respect to study objectives identified for the Project.

Table 6.2-1 Relevance of Studies to Objectives

Study Objective	Relevance of Studies Completed
Determine if the resident mule deer herd and/or other wildlife species are affected by or alter their migratory patterns in response to Project infrastructure or operation and evaluate the use at existing crossing structures to determine adequacy.	The camera studies conducted have confirmed mule deer and other species are utilizing the wildlife crossings over the flowline throughout the year. Also, CDFW mule deer tracking data analysis shows that mule deer occur on both sides of the flow line. Although there is no temporal data associated with the points, the cluster of points near the deer crossing seems to confirm the camera observations. This objective has been satisfied.
Identify management and other special status species from existing information and site-specific surveys that possess a high potential for occurrence in or utilize the Project's powerhouses, ancillary facilities, and operations areas for nesting, roosting, foraging, and sheltering during any portion of their life cycle. For those species with a high potential to occur or that have been determined to utilize the powerhouses or other Project facilities, determine time/season of usage at those locations.	No special status wildlife species were observed hibernating, wintering, roosting, or nesting at any of the Project facilities during any of the surveys conducted. Wildlife camera data confirms year-round use of the wildlife crossings by mule deer and other wildlife species. This objective has been satisfied with the current studies.
Special status species are defined as wildlife species listed as endangered or threatened under the federal and state ESAs by USFWS and CDFW or species which have been determined to be sensitive or of special concern because of declining populations or rarity in the Project area by the USFS, BLM or CDFW.	The study results have no relevance for this objective.
For those special status species with high potential of utilization, or have been determined to be present, assess potential for Project impact. Identify the potential effects of continued Project operations on the habitats and associated wildlife within the Wildlife Study Plan Area.	No special status wildlife species were observed hibernating, wintering, roosting, or nesting at any of the Project facilities during any of the surveys conducted. The data collected by the current studies is adequate to address this objective.
Protect avian species that use existing project transmission facilities under the current license.	The data collected by the current studies is adequate to address this objective.
Provide Resource Management Plans and Guidelines so that future Project facilities and operations are consistent with the Desired Conditions described in the Land Management Plan for the Inyo National Forest (USDA 2019) as they relate to ecological sustainability and diversity of plant and animal communities.	The habitat and species occurrence data collected by the studies conducted will be adequate for preparing the Resource Management Plans and guidelines to be completed as part of the licensing effort.

8.0 FOREST LAND USE MANAGEMENT PLAN CONSISTENCY ANALYSIS

One of the primary objectives of this Study is to ensure that Project Operations are consistent with the Desired Conditions, Goals, and Standards described in the Land Management Plan (Management Plan) for the INF. Chapter 2 of the 2019 Management Plan (USDA 2019) describes forest-wide conditions and management direction. This direction applies across all lands of the Inyo, including desired conditions, objectives, goals, standards, guidelines, and potential management approaches. Using the results obtained from this study, SCE assessed wildlife resoruces and their habitat against the desired future conditions stated in Chapter 2, specifically those which include management of invasive species.

SCE has reviewed these Desired Conditions against data and observations from this report to determine if the relicensing of the Bishop Creek Hydroelectric Project (Project) would have an impact on the land manager's ability to achieve the desired condition as detailed below.

8.1 DESIRED CONDITIONS (SPEC-FW-DC)

1. Sustainable populations of native and desirable nonnative, plant and animal species are supported by healthy ecosystems, essential ecological processes, and land stewardship activities, and reflect the diversity, quantity, quality, and capability of natural habitats on the Inyo National Forest. These ecosystems are also resilient to uncharacteristic fire, climate change, and other stressors, and this resilience supports the long-term sustainability of plant and animal communities.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. Habitats supported by current operations procedures are expected to continue to be supported under the new license because no changes in flow releases are planned and no new ground disturbing activities are planned under the new license.

2. Habitats for at-risk species support self-sustaining populations within the inherent capabilities of the plan area. Ecological conditions provide habitat conditions that contribute to the survival, recovery, and delisting of species under the Endangered Species Act; preclude the need for listing new species; improve conditions for species of conservation concern including addressing threats (e.g. minimal impacts from disease); and sustain both common and uncommon native species.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when Project-related maintenance activities occur in habitats that have the potential to support Special Status Species, including species listed under the federal Endangered Species Act (ESA).

3. Land management activities are designed to maintain or enhance self-sustaining populations of at-risk species within the inherent capabilities of the plan area by

considering the relationship of threats (including site-specific threats) and activities to species survival and reproduction.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities which are compatible with Forest Land Management Practices. SCE will continue to meet annually with the Forest to discuss projects and activities proposed for the upcoming year. Additionally, SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE maintenance activities occur in habitats that have the potential to support Special Status Species, including species listed under the federal ESA.

1. The structure and function of the vegetation, aquatic and riparian system, and associated microclimate and smaller scale elements (like special features such as carbonate rock outcrops, fens, or pumice flats) exist in adequate quantities within the capability of the plan area to provide habitat and refugia for at-risk species with restricted distributions.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE maintenance activities occur in habitats that have the potential to support special status species, including species listed under the federal ESA. The Special Status Species Resource Management Plan will include information obtained during implementation of the guild analysis and other aspects of the Riparian Study Plan to best address this desired condition.

2. The Inyo National Forest provides high quality hunting and fishing opportunities. Habitat for nonnative fish and game species is managed in locations and ways that do not pose substantial risk to native species, while still contributing to economies of local communities.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities, including continuing to work with CDFW to support stocking efforts in Project waters.

3. Residents and visitors have ample opportunities to experience, appreciate, and learn about the Inyo National Forest's wildlife, fish, and plant resources.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. The SCE facilities in the Project area current provide opportunities for visitors and residents to experience the biotic resources in the Project area. SCE does not plan to fence or add exclusionary obstacles to the public or residents under the new license.

8.2 GOALS (SPEC-FW-GOAL)

1. Cooperate with partners and private landowners to encourage resource protection and restoration across ownership boundaries.

The Project is primarily located on U.S. Forest Service land and is consistent with this Goal. Under the new License, the Project will continue with its current existing O&M activities in coordination with adjacent landowners as needed. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support special status species, including species listed under the federal ESA.

1. During the planning phase of vegetation management projects, collaborate with the California Department of Fish and Wildlife to assess potential disturbance factors to deer and to consider habitat management opportunities.

The Project is consistent with this Goal. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species, including species listed under the federal ESA. CDFW will be given the opportunity to review and provide comments on the Plan. SCE will maintain the guzzlers currently installed to support deer and other wildlife in the Project area.

2. Work with the California Department of Fish and Wildlife (following the memoranda of understanding), Nevada Department of Wildlife, and U.S. Fish and Wildlife Service to restore and maintain essential habitat for at-risk species and implement other recovery actions according to species recovery plans.

The Project is consistent with this Goal. Under the new License, the Project will continue with its current existing O&M activities and continue coordinate with agencies as needed. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species, including species listed under the federal ESA.

3. Communicate and collaborate with other agencies, Tribes, landowners, and partners to maximize opportunities to improve conditions in the plan area for at-risk species and the habitats and ecological processes on which they depend for survival.

The Project is consistent with this Goal. Under the new License, the Project will continue with its current existing O&M activities and continue to coordinate with agencies as needed. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species, including species listed under the federal ESA.

4. Develop a regional whitebark pine conservation and restoration strategy in collaboration with other Federal agencies, research organizations, and other partners.

The Project is consistent with this Goal inasmuch as whitebark pine is not known to occur in the Project Area. Under the new License, the Project will continue with its current existing O&M activities.

5. Coordinate with State and Federal agencies and other partners to provide education materials and best management practices information to limit the potential spread of disease to caves and mines used by bats.

The Project is consistent with this Goal. Under the new License, the Project will continue with its current existing O&M activities. SCE's O&M practices do not affect mines or caves in the Project area.

8.3 STANDARDS (SPEC-FW-STD)

1. Design features, mitigation, and project timing considerations are incorporated into projects that may affect occupied habitat for at-risk species.

The Project is consistent with this Standard. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

2. Develop a regional whitebark pine conservation and restoration strategy in collaboration with agencies

Whitebark pine does not occur in Project area.

3. Avoid or mitigate impacts on known and unknown occurrences of at-risk plants and lichens that would limit their persistence or recovery in the plan area.

The Project is consistent with this Standard. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

4. Use information that is current, accurate, and precise enough to avoid or mitigate impacts on at-risk plants and lichens when designing projects. If such information cannot be obtained, assume occupancy of the project area by one or more at-risk species within suitable habitat and apply resource protection measures to avoid or mitigate impacts throughout the project area.

In order to promote beneficial effects of fire and other disturbances on some at-risk plants and lichens, this standard does not apply to the following activities:

a. The fire itself when conducting a prescribed under-burn.

b. Temporary or light disturbance created by use of hand tools, such as construction of fireline with hand tools or hand piling or scattering of residual woody material. Only scatter residual woody materials when neutral or beneficial to at-risk plants and lichens.

The Project is consistent with this Standard. Under the new License, the Project will continue with its current existing O&M activities.

8.4 GUIDELINES (SPEC-FW-GDL)

1. Known nest, roost, or den trees used by species of conservation concern or raptors, including surrounding trees that provide beneficial thermal or predatory protection, should not be purposefully removed, with the exception of the unavoidable removal of hazard trees and as required to meet other State or Federal regulatory requirements.

The Project is consistent with this Guideline. Under the new License, the Project will continue with its current existing O&M activities. SCE currently employs an Avian Protection Plan to guide O&M activities within the Project Area.

2. To minimize disturbance in mule deer holding areas, vegetation treatment projects should not occur from May 1 through June 15, and in key winter range areas from November 15 through March 31. Long-term over short-term benefits should be the deciding factor where conflicts exist.

The Bishop Creek Hydroelectric Project is consistent with this Guideline. Under the new License, the Project will continue with its current existing O&M activities. There are no mule deer holding areas within the Project Area.

3. Habitat management objectives and nonhabitat recovery actions from approved recovery plans should be incorporated, if appropriate, in the design of projects that will occur within federally listed species habitat to contribute to recovery of the species.

The Project is consistent with this Guideline. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

4. Habitat management objectives or goals from approved conservation strategies or agreements should be incorporated, if appropriate, in the design of projects that will occur within at-risk species habitat.

The Project is consistent with this Guideline. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE

projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

5. Water developments (such as a diversion or well) should be avoided near streams, seeps, and springs where there is high risk of dewatering aquatic and riparian habitats where at- risk species occur.

The Project is consistent with this Guideline. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

8.5 POTENTIAL MANAGEMENT APPROACHES

The Land Management Plan identifies potential management approaches. As SCE develops its licensing proposal, these will be reviewed with the Inyo National Forest for applicaility to any management plans developed or amended as potential Proection Mitigation and Enhancement (PME) measures, including the Special Status Species Resource Management Plan.

8.6 BI-STATE SAGE-GROUSE

8.6.1 DESIRED CONDITIONS (SPEC-SG-DC)

1. Suitable sage-grouse habitat includes breeding (nesting), brood-rearing, and wintering habitats that are distributed to allow for dispersal and genetic flow, with land cover dominated by sagebrush. Suitable habitat is predominantly sagebrush shrubland and sagebrush steppe, with associated mesic habitats. Specific vegetation conditions are closely tied to local conditions and ecological site potential.

The bi-state sage grouse does not occur in the Project Area. The nearest recorded occurrence is Lake Crowley. However, the Special Status Species Resource Management Plan will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA, including suitable sage-grouse habitat.

2. High quality sage-grouse nesting cover including shrub and perennial grasses that provide for overhead and lateral concealment, conditions that support high levels of quality pre-laying hen habitat and dietary protein intake needs, and habitat supporting chick-rearing nutritional needs occur throughout breeding habitat in each population management unit based on local conditions and ecological site potential.

The bi-state sage grouse does not occur in the Project Area. The nearest recorded occurrence is Lake Crowley. However, the Special Status Species Resource Management Plan will describe procedures for SCE to follow when SCE projects or

maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

3. The U.S. Fish and Wildlife Service considers this species to be the Bi-State distinct population segment of greater sage-grouse for purposes of the Endangered Species Act.

The bi-state sage grouse does not occur in the Project Area. The nearest recorded occurrence is Lake Crowley. However, the Special Status Species Resource Management Plan will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

8.7 BIGHORN SHEEP

8.7.1 DESIRED CONDITIONS (SPEC-SHP-DC)

1. An adequate amount of suitable habitat supports persistent populations of bighorn sheep. These habitat patches include unforested openings supporting productive plant communities with a variety of forage species in and near adequate steep rocky escape terrain throughout the elevational range of mountain ranges. These areas meet different seasonal needs for each sex for feeding, night beds, birthing sites, lamb rearing, and migration routes between suitable habitat patches.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

2. The risk of disease transmission from domestic sheep and goats, including pack goats, to bighorn sheep (based upon the best available risk assessment model) is reduced to the maximum extent practicable.

The Bishop Creek Hydroelectric Project is consistent with this desired conditon. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

8.7.2 GOAL (SPEC-SHP-GOAL)

1. Coordinate with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service to conduct a risk assessment of pack goat use on the Inyo National Forest and develop mitigations strategies to manage the risk of disease transmission, if needed.

This goal is not applicable as SCE does use pack goats in its O&M activities.

8.7.3 STANDARDS (SPEC-SHP-STD)

1. Do not allow domestic sheep or goat grazing or pack goat use where relevant bighorn sheep risk assessment models show there is a high risk of contact and spread of disease, unless risks can be adequately mitigated.

This standard is not applicable as SCE does not manage or control grazing rights or pack goat use in its O&M areas.

2. Manage recreation, or other disturbances, where research has found it to cause Sierra Nevada bighorn sheep to avoid important habitat as described in the Sierra Nevada Bighorn Sheep Recovery Plan or other guidance from the U.S. Fish and Wildlife Service.

The Project is consistent with this standard. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

8.7.4 SUITABILITY (SPEC-SHP-SUIT)

1. Domestic sheep or goats, including pack goats, are not suitable within the high risk area of disease transmission to Sierra Nevada bighorn sheep identified in the most recent bighorn sheep risk assessment, unless the risk can be mitigated.

This guidance is not applicable as SCE does not manage or control grazing rights or pack goat usage in its O&M areas.

8.7.5 POTENTIAL MANAGEMENT APPROACH

3. If reintroduced bighorn sheep establish themselves in drainages outside the reintroduction sites, take advantage of opportunities to extend bighorn sheep range, consistent with other resource activities.

The Project is consistent with this Management Approach and is not planning changes to O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

8.8 SIERRA MARTEN AND FISHER

8.8.1 DESIRED CONDITIONS (SPEC-SMPF-DC)

1. Risk of large high-severity fire is reduced from current conditions in marten habitat core areas and fisher Core Area 1 (see glossary).

The Project is consistent with this Desired Condition. SCE maintains a fire awareness program and requires all SCE employees and contractors working on the Project to carry fire suppression equipment into the forest.

2. Within marten core habitat and fisher Core Area 1, vegetation is trending toward desired conditions for terrestrial and riparian vegetation.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

Fisher Core Area 1 does not occur, nor does it overlap in the Project Area. Fisher Core Area 1 is well south of the Project Area and the nearest recorded locality is at Helms Creek near Courtright Reservoir in Fresno County on the West side of the Sierra Nevada.

3. Marten and fisher habitat are well distributed throughout the marten's range and fisher Core Area 1, providing for foraging, denning, and resting habitat and movement across large landscapes.

The Project is consistent with this desired condition. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

Fisher Core Area 1 is well south of the Project and does not overlap the Project Area. There are no nearby records for fisher to the Project. The nearest recorded locality is at Helms Creek near Courtright Reservoir in Fresno County on the West side of the Sierra Nevada.

4. Essential fisher habitat elements, including large living and dead trees (especially pines and oaks) and structures used by fishers for resting and denning (cavities, deformities), are common and well distributed throughout fisher Core Area 1.

Fisher Core Area 1 is well south of the Project and does not overlap the Project Area. There are no nearby records for fisher to the Project. The nearest recorded locality is at

Helms Creek near Courtright Reservoir in Fresno County on the west side of the Sierra Nevada.

8.8.2 GUIDELINES (SPEC-SMPF-GDL)

1. Within marten core habitat and fisher Core Area 1, retain overtopping and multi-storied canopy conditions, including some shade-tolerant understory trees such as firs, especially in drainages, swales and canyon bottoms and on north- and east-facing slopes. Retain a patchy mosaic of shrubs and understory vegetation, separated by more open areas, to reduce fuel continuity, increase habitat heterogeneity, support prey, and provide hiding cover, with a goal of 10 to 20 percent shrub cover at the home range scale.

The Project is consistent with this Guideline. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

2. Maintain or increase understory heterogeneity in marten denning habitat and fisher high value reproductive habitat (see glossary) to promote hiding cover such as shrub patches, coarse woody debris, and slash piles following vegetation treatments. Project design should include non-linear edges that decrease susceptibility to predation.

The Project is consistent with this Guideline. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

3. To minimize disturbance to breeding females and their offspring, apply a limited operating period prohibiting mechanical vegetation treatment activities during the breeding season (March 1 to June 30) and prescribed fire activities during the early breeding season (March 1 to May 1) within fisher high value reproductive habitat in fisher Core Area 1. Projects proposed in fisher high value reproductive habitat in Core Area 1 during the breeding season should be assessed by a biologist knowledgeable about fishers to determine whether potential benefits to fishers are likely to outweigh the risks, in which case the activities may be exempt from the LOP restrictions if they are carefully designed and implemented to mitigate risks.

The Project is consistent with this Guideline. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow

when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA.

8.8.3 POTENTIAL MANAGEMENT APPROACH

- Generally, management in fisher Core Area 1 to favor tree growth, increased canopy cover, and recruitment of essential fisher habitat elements is likely to benefit the fishers.

This approach is not applicable as fisher Core Area 1 is outside of the Bishop Creek Project area.

8.9 CALIFORNIA SPOTTED OWL

Plan components for California spotted owl apply either to protected activity centers, home range core areas, or the specific nest or roost site. Where plan components apply is identified in the wording of the plan components themselves.

California spotted owl protected activity centers are defined by the following characteristics:

National Forest System lands surrounding territorial owls based on a documented nest site; recent roost site if nest location is unknown; or recent central point of repeated daytime detections when neither nest or roost locations are known.

- Best available 300 acres of habitat in as compact a unit as possible, including two or more tree canopy layers;

- Trees in the dominant and co-dominant crown classes averaging 24 inches diameter or greater;

- At least 70 percent tree canopy cover, including hardwoods; and California Wildlife Habitat Relationship (CWHR) system classes 6, 5D, 5M, 4D, and 4M, and other stands with at least 50 percent canopy cover (in descending order of priority).

Aerial photography interpretation and field verification are used as needed to delineate protected activity centers.

As additional nest or roost locations and habitat data become available, California spotted owl protected activity centers will be reviewed and adjusted as necessary to better include known and suspected nest stands and encompass the best available 300 acres of habitat. Protected activity centers should avoid community buffers if possible.

Protected activity centers may be re-mapped during project planning to avoid intersections with treatment areas, provided that the re-mapped protected activity centers

contain habitat of equal or better quality and include known nest sites and important roost sites.

When activities are planned adjacent to non-national forest lands, check available databases (i.e., Ebird, CNDDB, BIOS, Spotted Owl Viewer, BISON) for the presence of nearby California spotted owl activity centers on non-national forest lands. A 300-acre circular area, centered on the activity center, is delineated. Any part of the circular 300-acre area that lies on national forest lands is designated and managed as a California spotted owl protected activity center.

The Project is consistent with this Plan. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at risk species including species listed under the federal ESA.

8.10 YOSEMITE TOAD AND YELLOW-LEGGED FROGS

8.10.1 STANDARD (SPEC-AMPH-STD)

1. Where pesticide applications are proposed within 500 feet of known occupied sites for Yosemite toad, Sierra Nevada yellow-legged frog, and Mountain yellow-legged frog, design applications to avoid adverse effects to individuals and their habitats.

The Project is consistent with this Standard. No Yosemite toad or yellow-legged frog are known to occur in the Project Area. Under the new License, the Project will continue with its current existing O&M activities. SCE will prepare a Special Status Species Resource Management Plan that will describe procedures for SCE to follow when SCE projects or maintenance activities occur in habitats that have the potential to support Special Status Species and at-risk species including species listed under the federal ESA. Additionally, information relating to vegetation maintentence such as herbicides, will be included in the Vegetation Management Plan being developed as part of this relicensing.

9.0 CONSULTATION SUMMARY

SCE distributed periodic progress reports on the following schedule:

- Progress Report 1: December 19, 2019
- Progress Report 2: April 14, 2020
- Progress Report 3: July 24, 2020
- Initial Study Report (Progress Report 4): October 30, 2020
- Initial Study Meeting: November 10, 2020
- Progress Report 1: March 2, 2021
- Progress Report 2: May 28, 2021
- Progress Report 3: August 27, 2021
- Updated Study Report Filing: November 4, 2021
- Updated Study Report Meeting: November 18, 2021

A technical memorandum summarizing the 2019 study results was submitted with Progress Report 2. Following that filing, SCE hosted a Technical Working Group (TWG) meeting on May 7, 2020 to discuss the 2019 study season, work completed to date, and the technical memoranda. An opportunity for further discussion was provided at the Initial Study Report (ISR Meeting on November 10, 2020). One comment specific to this study plan was received following the ISR meeting (Table 8.10-1).

Three progress reports were filed in 2021 after the ISR, as identified above. This Final Technical Report was submitted to agencies and stakeholders for a 60-day review period on August 26, 2021. The comment period was extended, at the request of the agencies, and comments received on this report are shown in Table 8.10-1.

SCE held a Project Effects meeting on October 28, 2021 for all stakeholders and agencies to discuss what project effects (if any) had been identified through the implementation of each of the approved study plans. Meetings were held with the USFS on December 16th and with CDFW and USFS on December 21, 2021 to discuss comments received on the report as well as SCE's draft responses to them.

The Updated Study Report (USR) was filed with FERC on November 4, 2021, and a USR Meeting was held on November 18, 2021. At this meeting, SCE only discussed those studies which were still in progress at the time of the ISR (Water Quality, Sediment and Geomorphology, Operations Model, Recreation Use and Needs, Recreation Facilities

Condition Assessment, Project Lands and Boundary, and Cultural and Tribal Studies). The Wildlife Study was not discussed at the USR, and thus received no comments.

Table 8.10-1 Updated Comment Responses for the TERR 4 Technical Report

Study	Date of Comment	Entity	Comments	SCE Response
Bishop Creek General Wildlife Technical Memo	May 21, 2020	CDFW	The technical memorandum did not assess if the resident mule deer herd/and or other wildlife species are affected by or alter their migratory patterns in response to Project infrastructure or operation. The technical memorandum only provides evidence that some deer are using the existing crossing structures.	The camera studies documented both mule deer and other wildlife species using the wildlife crossings over the flowline. The CDFW mule deer tracking data analysis further confirms mule deer are occurring on both sides of the flow line.
Bishop Creek General Wildlife Technical Memo	May 21, 2020	CDFW	The technical memorandum identifies management species and other special-status species and the parts of the Project area they utilize but the time/season of usage at the locations should be more thoroughly described for all species.	As a result of the current studies, no special status wildlife species were observed hibernating, wintering, roosting, or nesting at any of the Project facilities during any of the surveys conducted. Use of Project facilities for nesting by special status birds was determined during the 2019 wildlife surveys. Use of Project facilities for roosting, hibernating, or wintering special status bat species was determined during the 2019/2020 summer and winter bat surveys. Wildlife camera data confirms year-round use of the wildlife crossings by mule deer and other wildlife species.
Bishop Creek General Wildlife Technical Memo	May 21, 2020	CDFW	This goal/objective was not addressed in the technical memo: For those special status species with high potential of utilization, or have been determined to be present, assess potential for Project impact. Identify the potential effects of continued Project operations on the habitats and associated wildlife within the Wildlife Study Plan Area.	The technical memoranda were provided as a supplement to the progress reports and are interim work-products intended to summarize work to date and help the team prepare for additional field work. As a result of the wildlife study no special status wildlife species were determined to be present at or utilizing any Project facility. Northern goshawk was confirmed nesting along Birch creek, but it was not utilizing any Project facilities. Golden eagle and bald eagle were observed flying over the project area.

Study	Date of Comment	Entity	Comments	SCE Response
Bishop Creek Wildlife ISR	May 21, 2020	CDFW	Resource Management Plans and Guidelines should be provided in the technical memo.	The technical memoranda were provided as a supplement to the progress reports and are interim work-products intended to summarize work to date and help the team prepare for additional field work. A Wildlife Management Plan has been developed and is included in Appendix B to Exhibit E of the Final License Application.
Bishop Creek Wildlife ISR	November 10, 2020	FERC	You stated that the timing of the amphibian survey may have resulted in a lack of observations. Will you be conducting additional surveys during a more appropriate timeframe?	There are currently no plans to do any additional amphibian surveys. There are no records indicating the presence of Special Status amphibians in the Project Area. The goal of the survey was to confirm that they are not present. Some tree frogs however were observed (Appendix D).
Bishop Creek Wildlife ISR	November 10, 2020	FERC	Why was the species-specific northern goshawk survey not conducted? In determining presence based on the general wildlife study, did the general wildlife survey follow the USDA protocols that you proposed in the RSP for the northern goshawk surveys? If not, how can you determine that more intensive habitat surveys, like the ones you proposed in the RSP, are not required?	In 2019, protocol survey could not be conducted due to the timing of approvals. The biologists did observe goshawks on Birch Creek therefore, confirming that they are in the Project Area and are breeding there. Goshawk surveys must be conducted very early in the season. The biologists were not able to get the needed approvals early enough. Observing goshawks in the Project area satisfies the intent of the survey.
Bishop Creek Wildlife ISR	November 10, 2020	FERC	How can you determine that northern goshawks are nesting on the basis of limited juvenile sightings/calls and inactive nests?	There are CNDDB records and the biologists found three inactive nests along Birch Creek indicting that Goshawk are active and breeding in this area.
Bishop Creek Wildlife ISR	November 10, 2020	FERC	Provide consultation record of conversations with the USFS regarding the timing and ultimately, the elimination of the Species-specific	This was filed with FERC on December 23, 2020.

Study	Date of Comment	Entity	Comments	SCE Response
			Northern Goshawk Survey; provide as an appendix to the meeting summary.	
Bishop Creek Wildlife ISR	November 10, 2020	Water Board	Have beavers been observed, and if so, is there an estimated population size?	Beavers have not been directly observed by the Relicensing Team to date. Based on a telephone conversation between Psomas and the CDFW), there is a small but persistent population of North American beaver (*Castor canadensis*) in Bishop Creek. Currently, the beavers are located at the Tyee Trail Head. The beaver dam at that location has been destroyed by CDFW to prevent flooding of the nearby road at that location. CDFW does have an estimate of the population size of North American beaver in Bishop Creek. The current population of North American beaver in Bishop Creek are most likely the result of transplanted individuals. The North American beaver is not known to be native to eastern slopes of the Sierra Nevada in the region of Bishop Creek, although they are reported to have occurred naturally in the Truckee and Walker Rivers north of the Project area (Trappe 1942; Lanman et al. 2012). Programs to transplant have been undertaken by CDFW and the USFS in the past. Beaver are now found through many watersheds in the state (Lundquist and Dolman 2016).

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APPENDIX A

PHOTOGRAPHS OF SURVEY LOCATIONS

Location of the recording device at Powerhouse 6.

Location of the first recording device at Powerhouse 5.

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Site Photographs

Attachment B-1

Bishop Creek Hydroelectric Project

PSOMAS

Location of the second recording device at Powerhouse 5.

Location of the first recording device at Powerhouse 3.

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Site Photographs

Attachment B-2

Bishop Creek Hydroelectric Project

PSOMAS

Location of the second recording device at Powerhouse 3.

Location of the first recording device at Powerhouse 2.

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Site Photographs

Attachment B-3

Bishop Creek Hydroelectric Project

PSOMAS

Location of the second recording device at Powerhouse 2.

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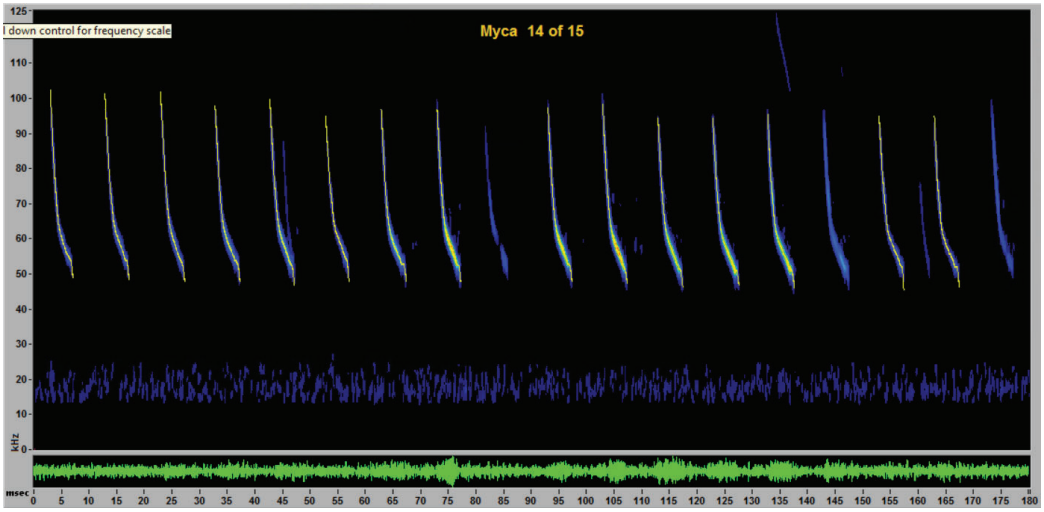
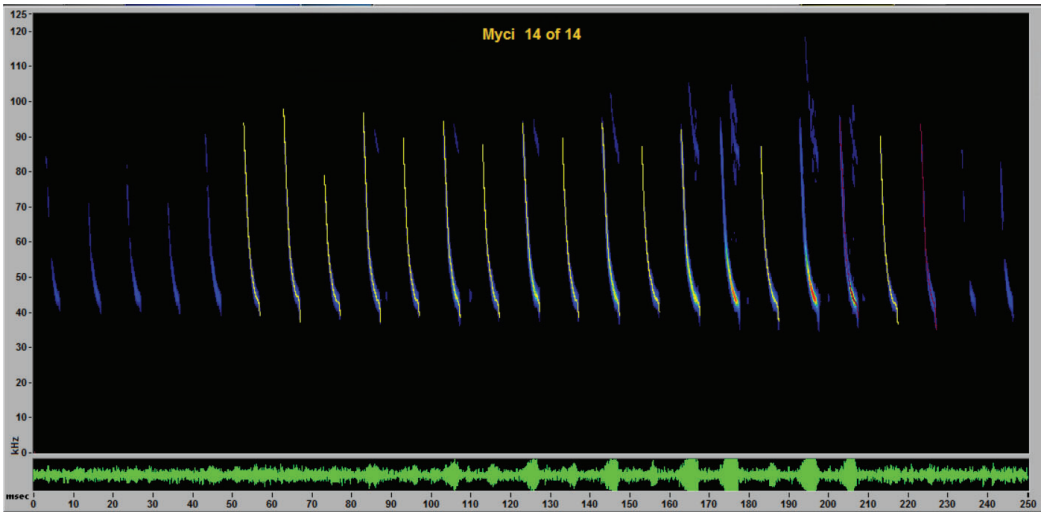
APPENDIX B

SONOGRAMS



California myotis (*Myotis californicus*)



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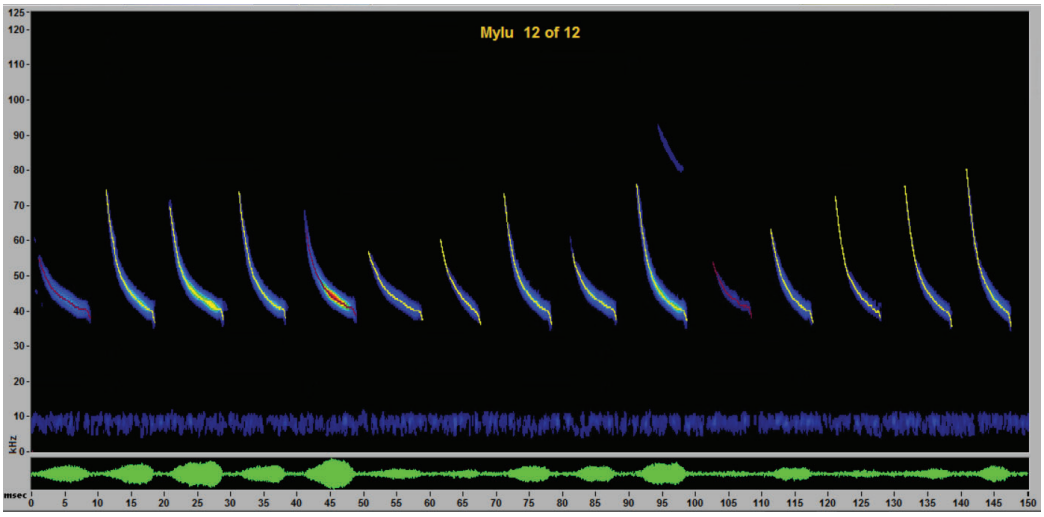

little brown myotis (*Myotis lucifugus*)

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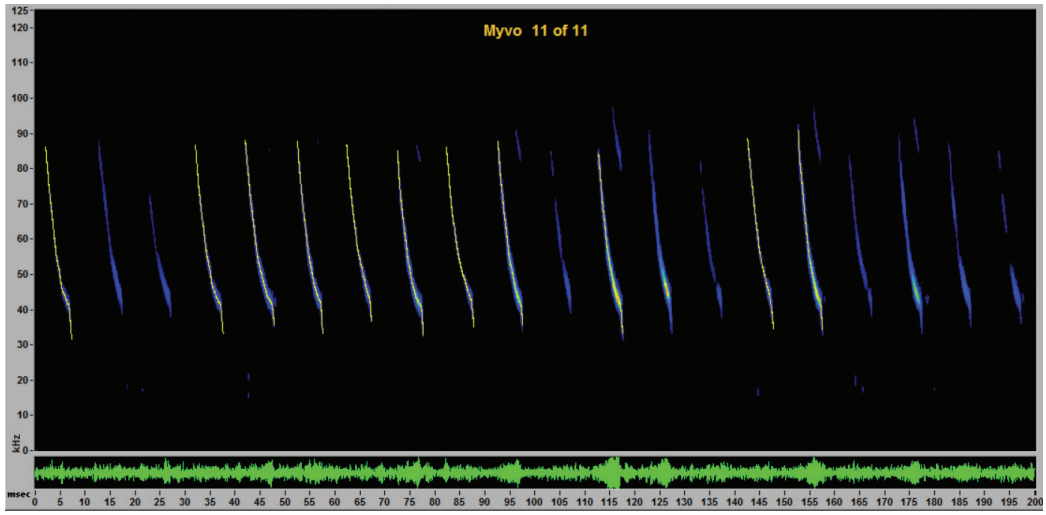
Representative Sonograms

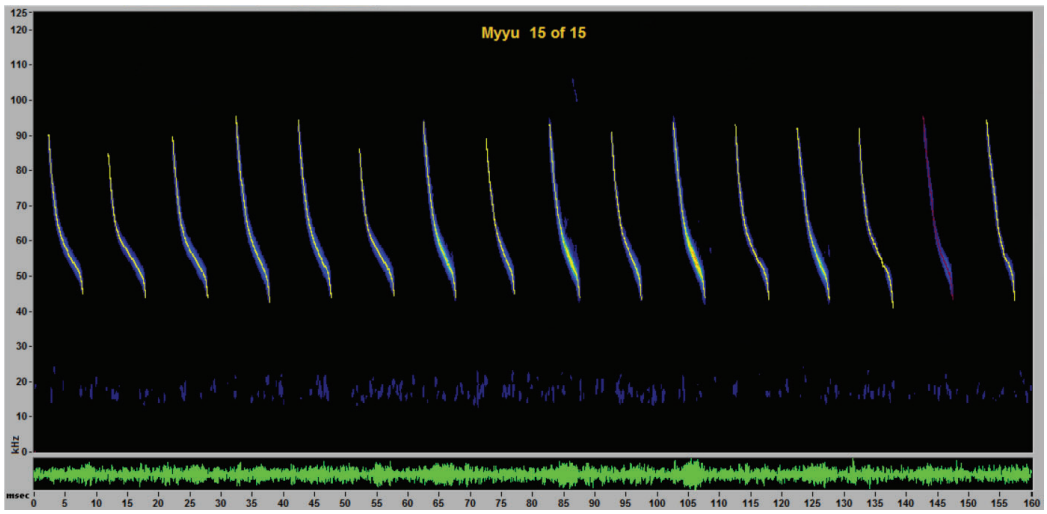
Attachment C-1

Bishop Creek Hydroelectric Project

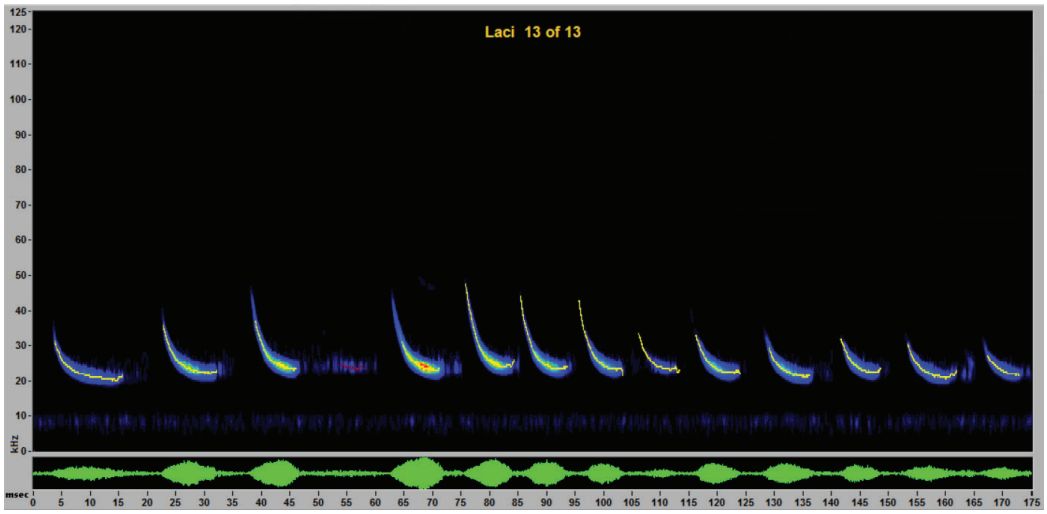
PSOMAS



long-legged myotis (*Myotis volans*)



Yuma myotis (*Myotis yumanensis*)



hoary bat (*Aorestes cinereus*)

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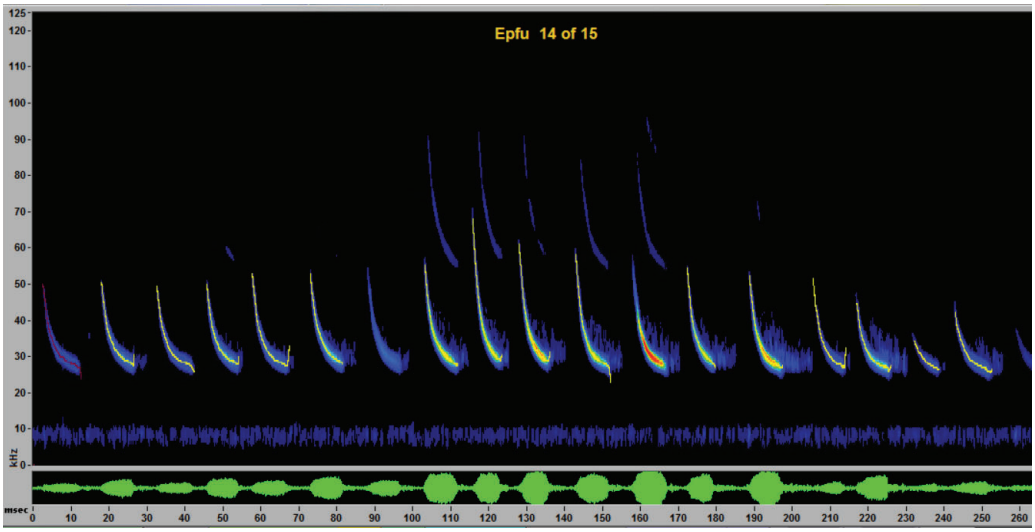
Representative Sonograms

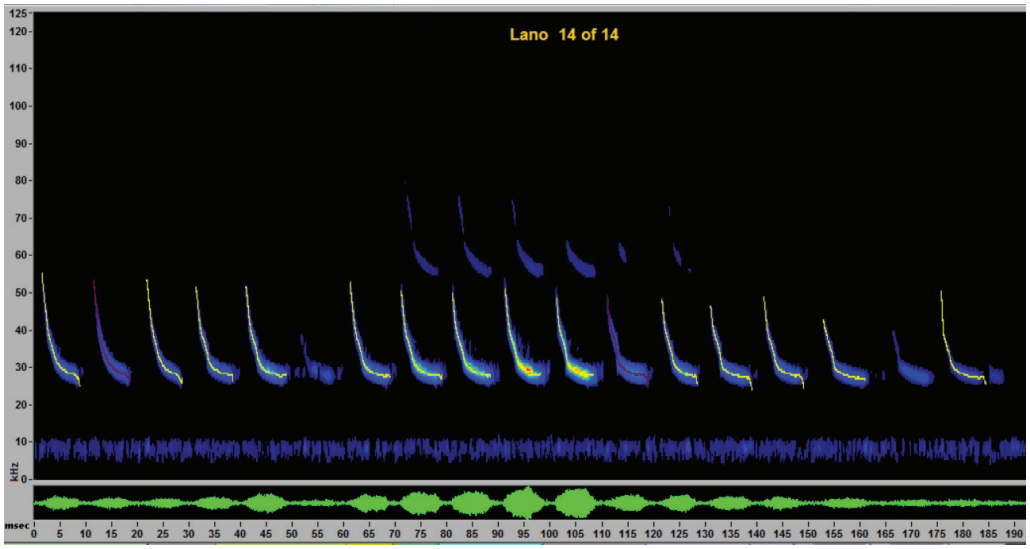
Attachment C-2

Bishop Creek Hydroelectric Project

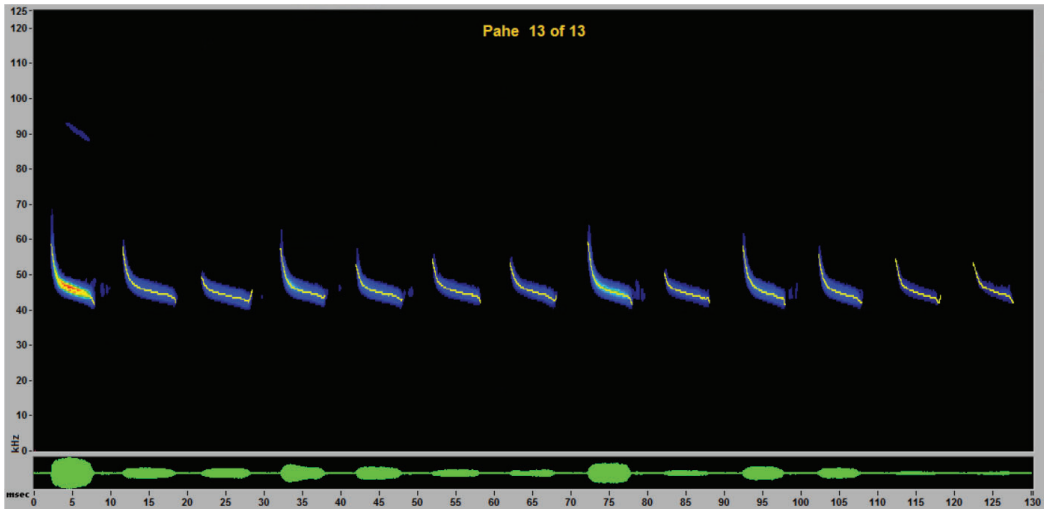
PSOMAS



big brown bat (*Eptesicus fuscus*)



silver-haired bat (*Lasionycteris noctivagans*)



canyon bat (*Parastrellus hesperus*)

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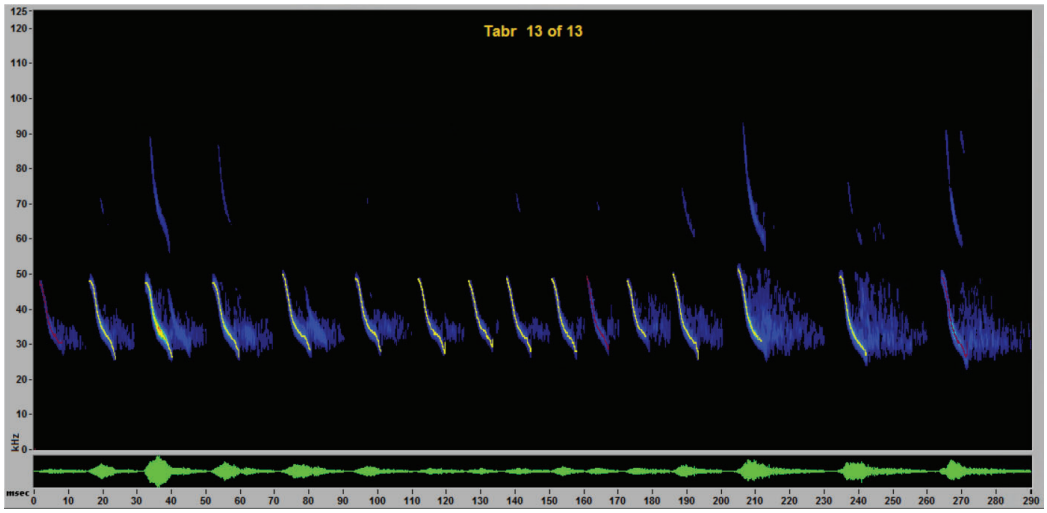
Representative Sonograms

Attachment C-3

Bishop Creek Hydroelectric Project

PSOMAS



Mexican free-tail (*Tadarida brasiliensis*)

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Representative Sonograms

Attachment C-4

Bishop Creek Hydroelectric Project

PSOMAS

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APPENDIX C

SCE AVIAN PROTECTION PLAN

SCE	EHS	ENVIRO	PL	Doc. No	1
				Version	1
Responsible Department: Environmental Services Department					
Eff. Date		*Latest Signature Date*			
Supersedes		*SCE-CEHS-EP-PL-1*		*NA*	

SOUTHERN CALIFORNIA EDISON®
An *EDISON INTERNATIONAL®* Company

Avian Protection Plan

Environmental Services Department
Corporate Plan

SCE-EHS-ENVIRO-PL-1

Approved by: *See Attachment 8.2 Signature Page for all signatures* *Date:* _____

Don Neal
Director, Corporate Environmental, Health and Safety Department

Approved by: _____ *Date:* _____

Paul Grigaux
Vice President, Transmission, Substations & Operations

Approved by: _____ *Date:* _____

Gregory Ferree
Vice President, Distribution Business Line

Approved by: _____ *Date:* _____

Kevin Cini
Vice President, Major Projects Organization

Contents

1. Introduction

1.1 Purpose

The Southern California Edison (SCE) Avian Protection Plan (APP) details SCE processes for managing avian issues. The requirements explained in the APP are applicable to all SCE facilities and shall be implemented by all SCE employees and Contractors.

1.2 Scope

The APP incorporates relevant guidelines published by the Avian Power Line Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service (USFWS) in 2005. SCE's APP incorporates the following eight key elements:

- Corporate Policy
- Training
- Permit Compliance
- Construction Standards
- Nest Management
- Reporting System
- Mortality Reduction Measures
- Quality Control

SCE's environmental corporate policy can be found on the SCE Portal here. Construction Standards are addressed in other company documents, but referenced in this document.

SCE's Environmental Services Department (ESD) will oversee the implementation of the APP in affected SCE organizations. ESD will solicit input from the affected SCE organizations and perform an annual review of the APP.

2. Definitions

2.1 Authorized SCE Employee

ESD Director, SCE Avian Protection Specialist, SCE Biologist, SCE Environmental Project/Program Manager, Patrolmen, Troublemen, Foremen, Transmission System Operators, or other employees as authorized by the T&D Director.

2.2 Contractor

An individual, who is not a SCE employee, who performs work for SCE, such as an employee of a construction or environmental supplier.

2.3 Imminent Danger (Alteration of Active Nest)

Impending circumstances likely to result in the electrocution of a bird, a fire, or an immediate threat to the stability of the bulk electric system, human health, or public and/or employee safety.

2.4 Incidental Take

See the definition of Take in Section 2.10 below. An Incidental Take is incidental to, and not the purpose of, carrying out an otherwise lawful activity per the Endangered Species Act (ESA) and the Bald and Golden Eagle Protection Act (BGEPA). 50 C.F.R. § 22.3.

2.5 Major Projects

Projects that have specific avian protection measures defined during California Public Utilities Commission (CPUC) proceedings and/or associated project-specific resource agency permitting actions.

2.6 Migratory Bird

Most bird species in the U.S. are considered to be migratory birds and are protected under the Migratory Bird Treaty Act (MBTA), except for introduced species, such as the house sparrow, European starling, rock pigeon, monk parakeet, and some game species, such as the ring-necked pheasant. 50 C.F.R. § 10.12 provides a complete list of the species protected by the MBTA. The MBTA is discussed further in Section 3.1.2.

2.7 Nest

The definitions of Nest, Active Nest, and Inactive Nest vary across species and between Federal and California laws and agency interpretation.

2.7.1 USFWS Definition (USFWS Federal Fish & Wildlife Permit; 50 C.F.R. § 22.3):

Active Nest: Nest with eggs, young, or incubating adults present.

Inactive Nest (non-eagle): Nest without eggs, young, or incubating adults present.

Inactive Nest (eagle): Bald eagle or golden eagle nest that is not currently being used by eagles as determined by the continuing absence of any adult, egg, or dependent young at the nest for at least 10 consecutive days.

2.7.2 California Department of Fish and Wildlife (CDFW) Definition

Active Nest: CDFW has not provided a written definition of an active nest.

Inactive Nest: Nest no longer in use; without viable eggs, nestlings, or juveniles. Determined by an avian biologist.

2.8 Possession

Possession means detention and control of a Protected Species. 50 C.F.R. § 10.12. This includes picking up or handling of any Migratory Bird. This may also include moving or transporting Migratory Birds or Nests.

2.9 Protected Species

Any bird listed under federal or state laws and regulations, such as the federal and state Endangered Species Acts, BGEPA, MBTA, and California Fish & Game Code.

2.10 Special Purpose Permit

A permit issued by the USFWS that must be acquired before any person may lawfully Take, salvage, acquire, transport, or possess Migratory Birds, their parts, Nests, or eggs for any purpose not covered by the standard form permits of 50 C.F.R. Section 21.

2.11 Take

2.11.1 Federal Definitions of Take

The definition of "take" is different under the three relevant federal laws: BGEPA, ESA, and MBTA.

2.11.1.1. BGEPA

Take: To pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb, or to attempt to engage in such conduct. 16 U.S.C. § 668c; 50 C.F.R. § 22.3. The BGEPA is discussed further in Section 3.1.3. "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. 50 C.F.R. § 22.3.

2.11.1.2. ESA

Take: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct in regards to a listed species. 16 U.S.C. § 1532 (19). "Harm" may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. 50 C.F.R. § 22.3. "Harass" is defined as "an intentional or negligent act or omission which

creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." 50 C.F.R. § 17.3.

2.11.1.3. MBTA

Take: To pursue, hunt, shoot, wound, kill, trap, capture, or collect (alive or dead), or to attempt to engage in such conduct. 50 C.F.R. § 10.12. See additional discussion of the MBTA in Section 3.1.2.

2.11.2 California Definition of Take (California Fish & Game Code)

Take: To hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill. Cal. Fish & Game Code § 86.

2.12 Threatened and/or Endangered (T&E)

Any species subject to the protection of the federal and California Endangered Species Acts. 16 U.S.C. §§ 1531 to 1544; Fish & Game Code §§ 2050-2115.5.

3. Regulatory Background

3.1 Federal Requirements

The three primary federal laws protecting birds are:

- ESA
- MBTA
- BGEPA

All three laws make it unlawful to Take birds without the proper permits. It is important to note the definition of Take differs among the three laws. For example, Take under the ESA includes habitat degradation and harassment. The definition of Take under each law can be found in the Definitions section. Each of these federal laws is discussed in detail below.

3.1.1 ESA

Special protection is afforded to T&E bird species under the ESA. 16 U.S.C. §§ 1531 to 1544. The ESA and its companion regulations make it unlawful to import, export, Take, transport, possess, sell, purchase, or receive in interstate or foreign commerce any species of fish or wildlife (including birds) listed as endangered or threatened. 16 U.S.C. § 1538.

The ESA has provisions for permitted Incidental Take. Incidental Take authorization can be obtained through ESA Section 7 for projects with a federal nexus (e.g., involving federal money, lands, or interconnection) or through Section 10 for projects with no federal nexus. Such authorization allows for otherwise prohibited Take of a species, so long as the Take is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

3.1.2 MBTA

The MBTA applies to the vast majority of birds in the United States with the exception of a few species, such as the house sparrow, European starling, and rock pigeon. 16 U.S.C. §§ 703-712. 50 C.F.R. § 10.13.

The purpose of the MBTA is to afford protection to migratory birds, their parts, Nests, and eggs. The MBTA states that, unless permitted by regulation, it is unlawful to “pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, or import … any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof...” 16 U.S.C. § 703.

Currently, there are no provisions to allow for Incidental Take under the MBTA. Special Purpose Permits are available for transporting bird carcasses and nest management.

3.1.3 BGEPA

Bald and golden eagles, their eggs, and their Nests receive additional protection under the BGEPA. 16 U.S.C. §§ 668 to 668d. It is a crime for a person or entity who lacks the required permit to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export, or import … any bald eagle… or any golden eagle, alive or dead, or any part, nest or egg thereof …." 16 U.S.C. § 668(a).

The BGEPA has provisions for permitted Incidental Take under 50 C.F.R. Section 22. SCE holds a permit for exhibition purposes and has a mounted golden eagle on display at Camp Edison. Permits can also be approved for the Take of eagles during otherwise lawful activities or to remove a nest that poses a safety hazard.[1]

Note: In addition to the federal and state laws protecting birds discussed below, the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require projects subject to these regulations to evaluate potential impacts of these projects on Protected Species.

If project impacts are potentially significant, further investigation will be required to determine whether and which Applicant Proposed Measures (APMs) are necessary to demonstrate that impacts can be reduced to below-significant levels. For further discussion of this issue, see 6.1: Applicant Proposed Measures.

3.2 State Requirements

The following Fish and Game Code sections protect birds:

- California Endangered Species Act (CESA) (§§ 2050-2115.5)
- All birds (§ 3503)
- Birds in the orders Falconiformes or Strigiformes (i.e., birds-of-prey) (§3503.5)
- Aigrette or egret, osprey (*Pandion haliaetus*), bird of paradise, goura, numidi, or any part of such a bird (§3505)
- Fully protected birds (§3511)
- Migratory nongame bird as designated in the MBTA, or any part of such migratory nongame bird, except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA (§3513)

The CDFW may issue permits to allow Incidental Take of state-listed species pursuant to CESA.

[1] Under California law, however, bald and golden eagles have additional protection. See Fish & Game Code Sections 2081 and 3511.

4. Responsibilities

4.1 ESD Director

- Approves and signs permits.
- Maintains strategic oversight and establishes policies and standards to ensure SCE complies with applicable requirements related to avian protection.

4.2 SCE Avian Protection Specialist

- Oversees the implementation of the APP, solicits input from SCE Operating Units on the APP, and performs an annual review of the APP.
- Applies for company-wide Incidental Take Permits under BGEPA and MBTA and reviews project permits under BGEPA and MBTA.
- Receives and processes SCE's Avian Incident Reports.
- Contacts the appropriate agency when a dead eagle or T&E species is discovered.
- Maintains a record of bird fatalities and submits the record as required to the appropriate agencies.
- Contacts the USFWS and/or CDFW (depending on the species) to request a permit when an eagle or T&E nest needs to be removed.
- Maintains an APP document library and provides access as necessary.
- Chairs the Eagle Zone Review Team.
- Provides advice on biological considerations for implementation of avian-safe construction standards and avian deterrents.
- Provides avian expertise to the SCE Biologist and Environmental Project/Program Mangers (EPM).

4.3 SCE Biologist (ESD employee handling emergency calls for biological resources)

- Evaluates activities for potential impacts to birds.
- Provides support and recommendations to T&D employees and other SCE employees and Contractors whose work involves potential impacts to birds.
- Provides guidance in Nest removal situations.
- Arranges for transportation of injured birds to licensed wildlife rehabilitators.
- Determines species of bird carcass.

4.4 Environmental Project/Program Manager (EPM)

- Serves as main point of contact for activities and/or projects. Note: EC EPM is responsible for oversight of EC programs and is supported by an EC TSP to manage implementation below;

4.5 SCE Employees

- Work with the SCE Avian Protection Specialist and/or SCE Biologist to review activities for the potential to impact birds.
- Work with the SCE Avian Protection Specialist and/or SCE Biologist to ensure efficient and effective implementation of avian impact avoidance, minimization and/or mitigation requirements during activities.
- Implement retrofits and construction to avian-safe construction standards.
- Participate in the Eagle Zone Review Team.
- Report avian incidents in the EHSync Avian Incident form.
- Provide project information to the SCE Biologist necessary for evaluating potential impacts to birds.
- Work with the SCE Biologist to ensure implementation of avian mitigation requirements.

5. Procedures

5.1 SCE Vehicles and USFWS Permit

All SCE vehicles that may be used to transport birds shall be equipped with SCE's USFWS Special Purpose Permit. The SCE Avian Protection Specialist provides the current permit to Transportation Services for placement in vehicles each time it is renewed.

5.2 Reporting

5.2.1 SCE employees are expected to report dead birds and Active Nests that pose problems near (e.g., on an overhanging tree branch) or on SCE equipment and facilities (e.g., poles, towers, substations) to the SCE Biologist within 24 hours of discovery. (As explained in Section 5.5, employees and/or Contractors who discover injured birds must contact the on-call SCE Biologist through 833-723-2362 immediately.) For reporting procedures regarding eagle Nests, see Section 5.4. This report may be made via telephone or email. An EHSync Avian Incident report must be submitted within five (5) business days of the discovery. This deadline may be extended upon approval from the SCE Avian Protection Specialist or designee.

5.2.2 Contractors are expected to report dead birds and Active Nests that pose problems near or on SCE equipment and facilities within 24 hours of discovery. (As explained in Section 5.5, Employees and/or Contractors who discover injured birds must contact the on-call SCE Biologist through 833-723-2362 immediately.) For reporting procedures regarding eagle Nests, see Section 5.4. Reports must be made to the SCE Representative (SCE employee responsible for managing the contract). The SCE Representative shall submit the EHSync Avian Incident report within five (5) business days of the discovery. This deadline may be extended upon approval from the SCE Avian Protection Specialist or designee.

Note: The reporting requirement does not apply to major projects that have reporting requirements specified in a Nesting Bird Management Plan and/or project specific- reporting requirements (see Section 6 for Major Projects). However, the EPM shall report electrocutions and line collisions in an EHSync Avian Incident report for tracking.

Note: The SCE Endangered Species Alert Program (ESAP) Manual contains information that may facilitate the identification of sensitive bird species found in SCE's service territory. It can aid in completing the EHSync Avian Incident report.

5.3 Avian Mortality

Any questions should be directed to the SCE Biologist on call, who can be reached through 833-723-2362 24 hours a day, 7 days a week for reporting and/or support.

WARNING

Diseases can be transmitted by contact with wildlife; therefore, employees shall wear safety glasses and nitrile gloves and/or use an inverted plastic bag to pick up carcasses (refer to Section 5.10). Contractors are expected to provide the same level of protection to their employees and subcontractors.

Figure 1, Avian Mortality Procedure Flowchart, shows an overview of the process described in this section.

5.3.1 Photographs. The SCE Employee will take digital photographs of the bird, the structure, and surrounding areas to provide a context for the find and to document the species, and upload the photographs to the EHSync Avian Incident Report. If no camera is available, the SCE Employee will provide a written description of the bird (basic dimensions and colors) and of the avian-safe status of the structure within the Report.

5.3.2 Tag or Band. Unless the bird is a T&E species, the SCE Employee will remove any tag or band from the bird and mail the tag or band to the SCE Avian Protection Specialist. Contact the SCE Avian Protection Specialist at BiologicalResources@sce.com for the current pony location. If the tag or band cannot be removed, the tag or band information should be recorded in the EHSync Avian Incident Report.

5.3.3 Species Determination. The SCE Employee should attempt to determine whether the bird is an eagle, T&E, or California fully protected species. See Attachment 8.1 for a list of special status bird species in SCE territory and the ESAP Manual if needed. If the species of bird cannot be determined, the SCE Employee will contact a SCE Biologist.

Note: Both bald and golden eagles occur within SCE's service territory. It is important to initially determine if the bird is an eagle or another bird of prey (i.e., raptor). Adult bald and golden eagles range anywhere from 30 to 40 inches long and have a 79- to 80-inch wingspan, while other raptors, such as red-tailed hawks, are considerably smaller, measuring about 19 inches long and with a 49-inch wingspan. When in doubt, contact the SCE Biologist for guidance.

5.3.4 Non-Eagle/Non-T&E. The SCE Employee shall bag and transport the carcass to the closest SCE facility and dispose of it in a dumpster at the SCE facility.

5.3.5 Eagles. If the bird is an eagle:

5.3.5.1. The SCE Employee will notify the on-call SCE Biologist at the earliest reasonable opportunity.

5.3.5.2. The SCE Employee shall place the bird in a plastic bag using either nitrile gloves or an inverted plastic bag.

5.3.5.3. The SCE Employee shall arrange to keep the carcass frozen until collected by a SCE Biologist. This can be accomplished

by placing the bagged bird in a cooler full of ice or by filling a plastic bag with ice and placing the bagged bird inside.

5.3.5.4. The SCE Biologist will verify the species identity at the earliest reasonable opportunity and, if confirmed that the carcass is an eagle, promptly notify the SCE Avian Protection Specialist. If the bird is an eagle, the SCE Biologist will contact a USFWS law enforcement agent for coordination. If the bird is a state-listed species, the SCE Biologist will notify the CDFW before the end of the next business day.

5.3.5.5. If the carcass is an eagle, the SCE Avian Protection Specialist shall report to the appropriate agencies and send the carcass to the National Eagle Repository. The carcass must be shipped on Monday, Tuesday, or Wednesday only, for delivery no later than Friday (unless Friday is a holiday). The eagle should be sent to:

U.S. Fish & Wildlife Service
National Eagle Repository
Rocky Mountain Arsenal, Building 128
Commerce City, CO 80022

5.3.5.6. If the SCE Biologist determines that the bird is **not** an eagle, the SCE Biologist shall instruct the SCE Employee to dispose of the bird. The SCE Employee shall bag and transport the carcass to the closest SCE facility and dispose of it in a dumpster at the SCE facility.

5.3.6 T&E Species. If the bird is a T&E species (for example, California condor):

5.3.6.1. The SCE Employee will take a digital photograph if possible (Section 5.3.1) and send to the on-call SCE Biologist at the earliest reasonable opportunity.

5.3.6.2. The SCE Employee shall leave the bird in place. The SCE Employee should attempt to cover the carcass with a box or bucket to reduce the chance of scavenging.

5.3.6.3. The SCE Biologist will verify the species identity based on the photograph or description at the earliest reasonable opportunity and, if confirmed that the carcass is a T&E species, promptly notify the SCE Avian Protection Specialist. If the bird is a federally listed T&E species, the SCE Biologist will contact a USFWS law enforcement agent for coordination (see current USFWS Special Purpose Permit for contact information. If the bird is a state-listed species, the SCE

Biologist will notify the CDFW before the end of the next business day.

5.3.6.4. If the carcass is a T&E species, the SCE Avian Protection Specialist shall follow directions from USFWS and/or CDFW regarding disposition of the carcass.

5.3.6.5. If the SCE Biologist determines that the bird is **not** a T&E species, the SCE Biologist shall instruct the SCE Employee to dispose of the bird. The SCE Employee shall bag and transport the carcass to the closest SCE facility and dispose of it in a dumpster at the SCE facility.

5.3.7 The SCE Employee will complete an EHSync Avian Incident Report within five (5) business days of the discovery date. This deadline may be extended upon approval of the SCE Avian Protection Specialist.

5.3.8 Eagle, non-eagle raptor, or T&E species:

5.3.8.1. Within five (5) business days of the discovery, the SCE Employee will create a work request (or notify the appropriate organization within SCE's T&D to create a work request) to retrofit the pole to comply with SCE's current design specifications for avian protection (refer to SCE DOH DC-535). This time frame may be extended upon approval of the SCE Avian Protection Specialist.

5.3.8.2. A Priority 2-150 notification will be initiated for reactive post-fatality retrofits (not including pole replacement) with a completion date of 90 days for the installation of covers or other protective devices pursuant to Distribution Overhead Construction Standards (DOH) DC 535 - Avian Safe Power Line Construction; and Transmission Overhead Construction Standards (TOH). 5.3.5.3. Variances may be authorized by the appropriate District or Grid Manager (T&D) and the Biological and Archaeological Resources (BAR) Manager in consultation with the Avian Protection Specialist and shall be documented in a confirmatory email from each and tracked by the SCE Avian Protection Specialist. In the event that a consensus date cannot be established, the authorized T&D Director, in consultation with the Director of ESD, shall make the final decision.

5.3.9 Eagle. Two structures in each direction from the incident pole are expected to be evaluated for similar configurations and retrofits as a part of the work request.

5.3.10 Non-eagle raptors. Only the incident pole is to be reviewed for retrofit.

5.3.11 All other bird species. Retrofits are expected to be scheduled as determined by the responsible T&D group, but normally not to exceed two (2) years from receipt of the Priority 2 notification.

Note: Variances to the process above may be authorized by a joint decision made by the authorized T&D Director and the Director of ESD. Such variances

must be documented in the Priority 2 notification and tracked by the SCE Avian Protection Specialist.

5.4 Proactive Retrofits

During non-emergency repairs, planned maintenance, and/or scheduled construction, T&D field employee shall ensure that construction at the working level and below complies with avian protection standards, if practical. If, for any reason, the avian protection standards cannot be implemented at the working level and below, a priority 2-150 notification will be initiated, triggering a return to the structure to complete avian compliance requirements. See DOH DC 535 for approved avian protection materials.

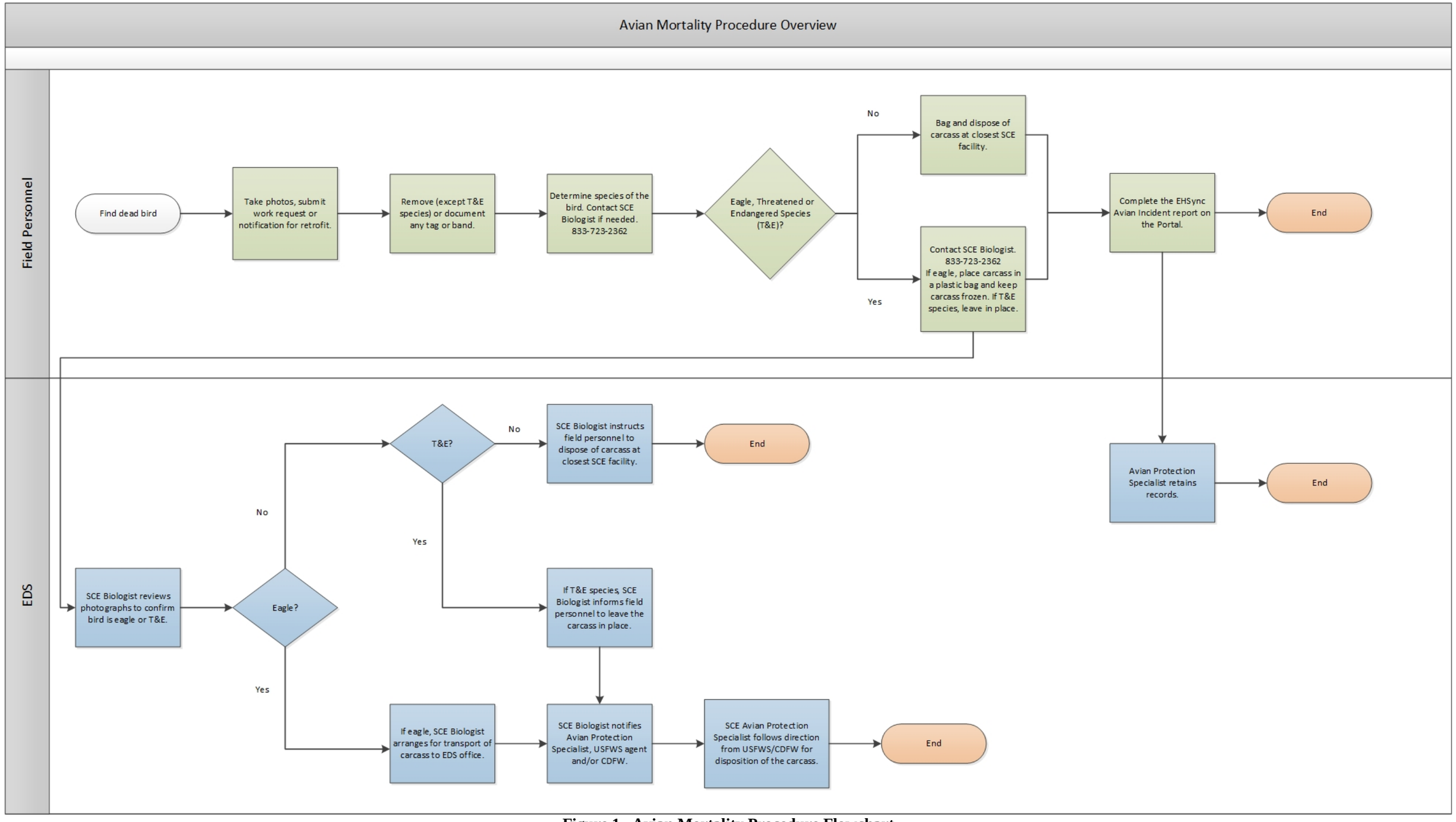

Figure 1. Avian Mortality Procedure Flowchart

5.5 Bird Nest Removal

WARNING

Diseases can be transmitted by contact with Bird Nests. Section 5.9 contains safety requirements to implement before any contact with Nests.

This section applies to nests that occur on SCE facilities and projects. Contact the SCE Avian Protection Specialist or the project EPM for guidance on the definition of an Active Nest under CDFW (See also 2.6, Nest).

Figure 2, Nest Issues Procedure Flowchart, shows an overview of the process described in this section.

Bird Nests (active and inactive) may be disturbed or removed only under the following circumstances:

- For all Active Nests, and Inactive Nests of Eagles or T&E species: only if the Nest poses an Imminent Danger that threatens system reliability (e.g. risk of causing outages or fires, or downed equipment) or safety (of the public or SCE Employees or Contractors);
- For Inactive Nests that are not Eagle or T&E species, but only if the Nest:
  - Threatens system reliability;
  - Is on vegetation or structures to be trimmed or removed during course of normal system maintenance; or
  - Is within an SCE work area and may be impacted by work activities.

Note: Only an Authorized SCE Employee shall determine if there is an Imminent Danger.

5.5.1 Imminent Danger Circumstances

5.5.1.1. Active Nest (not Eagle or T&E)

- The SCE Employee or Contractor shall immediately notify the on-call SCE Biologist. Imminent Danger circumstances are required for Take of a Nest.
- If the Nest requires removal or relocation, the SCE Biologist shall provide support to aid in the relocation or retrieval of nest contents for transport to a wildlife rehabilitation facility or disposal (as appropriate). Nest relocation is the preferred option with removal only considered when relocation is not feasible. Consult with the SCE Avian Protection Specialist or T&D construction manuals for nest platform options to relocate the removed nest. The SCE Employee or Contractor shall submit the EHSync Avian Incident report within five (5) business days of the discovery.
- If the nest does not need to be removed, the SCE Biologist shall provide instruction to the SCE Employee or

Contractor regarding working near an Active Nest and/or provide a biological monitor during work activities.
- The SCE Biologist shall provide the SCE Employee or Contractor with oral instructions on how to manage the nest to be followed up with written instructions.

5.5.1.2. Active or Inactive Nest of Eagle or T&E

- If the Nest requires removal or relocation, the SCE Biologist shall promptly contact USFWS and/or CDFW, and if the Nest lies within a Major Project footprint, contact the respective EPM. Consult with the SCE Avian Protection Specialist or T&D construction manuals for nest platform options.
- If the Nest does not need to be removed, the SCE Biologist shall provide instruction to the SCE Employee or Contractor regarding working near an Active Nest and/or provide a biological monitor during work activities.
- The SCE Biologist shall provide the SCE Employee or Contractor with oral instructions on how to manage the nest to be followed up with written instructions, as well as copies of any permits issued by USFWS or CDFW related to removing or relocating the Nest.

5.5.1.3. Inactive Nest (not Eagle or T&E)

- The Nest may be trimmed, removed, or relocated.
- No EHSync Avian Incident report is required unless the Nest is relocated. If the Nest is relocated, submit the EHSync Avian Incident report within five (5) business days of relocation. Consult with the SCE Avian Protection Specialist or T&D construction manuals for nest platform options.

5.5.2 Nest is a hazard or obstructs work, but is not an Imminent Danger to system reliability or safety

5.5.2.1. Active Nest (not Eagle or T&E)

- The SCE Employee or Contractor shall not alter the Nest and shall report to the SCE Biologist or SCE Avian Protection Specialist within 24 hours of discovery via telephone (833-723-2362) or email. The SCE Employee or Contractor shall submit the EHSync Avian Incident report within five (5) business days of the discovery.
- If the Nest requires removal or relocation, the SCE Biologist shall provide support in determining when the Nest will become Inactive and allow for work to proceed. Consult with the SCE Avian Protection Specialist or T&D construction manuals for nest platform options.
- If the Nest does not need to be removed, the SCE Biologist shall provide support in determining when the Nest will become Inactive and allow for work to proceed or,

when circumstances allow because risk of nest failure is low, shall provide instruction to the SCE Employee or Contractor regarding working near an Active Nest, and/or provide a biological monitor during work activities.

- The SCE Biologist shall provide the SCE Employee or Contractor with oral instructions to be followed up with written instructions if requested.

5.5.2.2. Active or Inactive Nest of Eagle or T&E

- If the Nest belongs to an Eagle or T&E species, the SCE Employee or Contractor shall not alter the Nest and shall report to the SCE Biologist or SCE Avian Protection Specialist within 24 hours of discovery via telephone or email. The SCE Employee or Contractor shall submit the EHSync Avian Incident Report within five (5) business days of the discovery.
- The SCE Biologist or Avian Protection Specialist shall request a permit from the USFWS to remove the Nest, and/or contact CDFW for further direction (as appropriate). The SCE Biologist or Avian Protection Specialist shall direct the SCE Employee or Contractor regarding the appropriate actions to take related to the Nest.

5.5.2.3. Inactive Nest (not Eagle or T&E)

- Nest may be trimmed, removed, or relocated.
- No EHSync Avian Incident report is required unless the Nest is relocated. If the Nest is relocated, submit the EHSync Avian Incident report within five (5) business days of relocation. Consult with the SCE Avian Protection Specialist or T&D construction manuals for nest platform options.

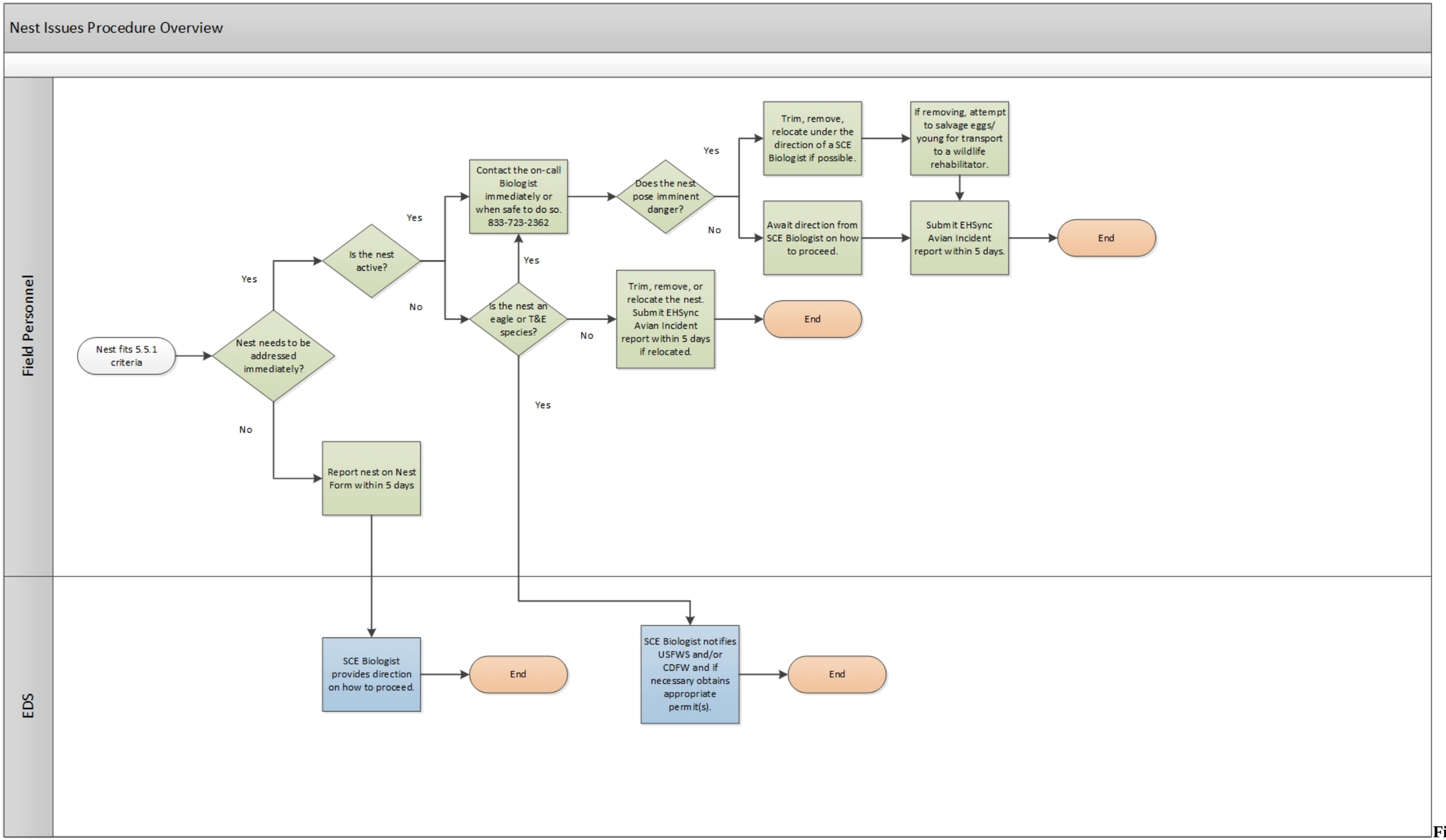

Figure 2. Figure 2. Nest Issues Procedure Flowchart

5.6 Injured Birds

5.6.1 Unless they are qualified, SCE Employees and Contractors shall not handle injured birds. Refer to Section 5.9 - Safety Procedures. Qualified personnel are biologists or are determined by the SCE Avian Protection Specialist through an interview.

5.6.2 If an SCE Employee or Contractor encounters a bird injured due to contact with a SCE facility, the SCE Employee or Contractor will immediately contact the on-call SCE Biologist, who will identify a licensed wildlife rehabilitator.

5.6.3 The on-call SCE Biologist (or an ESD-hired biological contractor with avian expertise) will recover the injured bird and transport it to the wildlife rehabilitator.

5.6.4 The on-call SCE Biologist will notify the SCE Avian Protection Specialist, who will follow up with the wildlife rehabilitator for the final disposition of the bird. The SCE Avian Protection Specialist will include the disposition information on the injured bird in the annual report to USFWS in compliance with the Special Purpose Permit.

5.6.5 The SCE Employee or Contractor shall submit the EHSync Avian Incident report within five (5) business days of the discovery

5.7 Information Management

5.7.1 All completed reports are expected to be reviewed and managed by the SCE Avian Protection Specialist.

5.7.2 Records kept for compliance with the USFWS Special Purpose Permit shall be maintained for five (5) years from the date of expiration of the permit pursuant to 50 C.F.R. Section 13.46. Per company policy, ESD shall maintain all records related to this APP for 10 years after expiration of the USFWS Special Purpose Permit.

5.8 Construction Standards

SCE will apply avian-safe design principles where feasible and with appropriate consideration to effectiveness, cost, and biological resource significance.

5.8.1 SCE avian-safe construction standards are expected to be maintained in the following standards: Distribution Overhead Construction Standards (DOH) DC 535 - Avian Safe Power Line Construction; Transmission Overhead Construction Standards (TOH); and Electrical Construction Station (ECS) Section 57 – Animal Protection (Substations).

5.8.1.1. Changes to the SCE avian-safe construction standards are expected to be sponsored by a T&D Director and initiated through the T&D Standards Request/Q&A Submittal Form.

5.8.2 At the recommendation of T&D or the SCE Avian Protection Specialist, certain poles may be fitted with covers to mitigate the potential for electrocution or certain spans of wires may be fitted with line marking devices to mitigate the potential for line collisions of protected bird species using standard SCE materials and hardware.

5.8.3 SCE has designated Eagle Zones within which additional phase-to-phase and phase-to-ground clearances are expected to be maintained on new and rebuilt facilities, unless such efforts would compromise public or worker safety. Refer to T&D Standards & Publications for process to deviate from SCE standards as well as the DOH for documentation required for submittal to the SCE Avian Protection Specialist.

5.8.3.1. Current maps and information on Eagle Zones can be found here on the SCE Portal within the T&D Standards & Publications section. Click here to access Eagle Zones on eWorld (Layers>SCE>Eagle Zones).

5.8.3.2. An Eagle Zone Review Team shall be formed in response to new information (e.g. new human developments, eagle fatalities outside Eagle Zones) that suggest Eagle Zones may need to be modified. The SCE Avian Protection Specialist chairs the Eagle Zone Review Team. The team shall be comprised of representatives of T&D and other SCE employees as specified by the SCE Avian Protection Specialist and the authorized T&D Director or designee. The team will review the Eagle Zone boundaries on an as-needed-basis. When changes are required, the team will establish criteria for expanding or contracting Eagle Zones and include these criteria in a report produced, which will be posted to the APP document library maintained by the SCE Avian Protection Specialist.

5.8.3.3. To change Eagle Zone boundaries, the Eagle Zone Review Team will submit a *T&D Standards Request Form*. Standards & Publications will update the Distribution Design Standards (DDS) manual with any approved changes to the Eagle Zones.

5.9 Avian-Specific Safety Requirements

5.9.1 Nest Safety

5.9.1.1. Prior to climbing any structure to inspect or remove a nest, SCE Employees and Contractors shall evaluate safety hazards and, if conditions warrant, take an outage on the line before climbing the structure.

5.9.1.2. When removing a Nest, the following personal protective equipment (PPE) shall be used:

- Goggles
- Face Shield
- Hardhat
- Gloves appropriate for the work performed
- Flame resistant (FR) coveralls (as required); or FR shirt with sleeves rolled down
- A N95 or P100 filtering facepiece (dust mask) should be used. **Note:** The supervisor will provide the SCE Employee with a copy of Appendix D from the respiratory standard as specified in SCE's Respiratory Protection Program.

5.9.1.3. If the removal of a Nest could release airborne dust containing dried fecal matter and/or nesting materials, protective measures such as wetting the nesting material and working upwind shall be employed to avoid inhalation of nest material. A pre-job tailboard or job hazard analysis shall be conducted to address such issues.

5.9.1.4. While removing or trimming a nest, do not eat, drink, or smoke. Clean tools, such as hot sticks, if they contact the nest. Upon completion of the job, wash hands and any other exposed areas with soap and water. If potable water is unavailable, use hand sanitizer.

5.9.2 Carcass Safety

5.9.2.1. If handling a bird carcass, wear protective clothing, including coveralls, nitrile gloves, and safety glasses. Wear nitrile gloves and/or use an inverted plastic bag to pick up carcasses. Do not eat, drink, or smoke while handling carcasses. Wash hands and any other exposed area with soap and water after disposing of a carcass. If potable water is unavailable, use hand sanitizer.

5.10 Training

SCE conducts avian protection training for SCE Employees and Contractors with APP responsibilities. ESD will develop and maintain training programs under the APP. Operational units are expected to determine which employees require training. Training is provided by or with input from the SCE Avian Protection Specialist. ESD will determine when updated training is needed for employees not receiving annual training.

5.10.1 Operational Employees

The annual training program educates those SCE Employees who maintain the SCE T&D system regarding the APP and their responsibilities. Training topics may include avian construction standards and mitigation products, reporting and carcass disposal, Nest management procedures, and injured bird procedures.

5.10.2 ESD Environmental Employees

ESD Environmental employees are expected to receive initial instruction on the SCE responsibilities under the USFWS Special Purpose Permit. Designated employees, such as Field Environmental Specialists, biologists, and archaeologists, are expected to receive initial instruction on how to implement EHSync Avian Incident reports.

5.10.3 SCE Contractors

SCE Contractors working on T&D systems are expected to receive initial training from ESD on environmental matters, including avian protection. On Major Projects, all contractors are required to receive environmental training prior to entering the project area.

5.11 Quality Control

5.11.1 Inspections

See the Distribution Inspection and Maintenance Program (DIMP) manual and the Transmission Operations and Maintenance Policies and Procedures (TOM) for additional information.

5.11.1.1. SCE inspects wood poles and equipment according to California Public Utilities Commission (CPUC) General Order 165 (GO 165). These inspections include examination of the pole for avian safety and Nests that could impact reliability or safety, or create high fire risk.

5.11.1.2. The Oversight & Quality Assurance group in T&D inspects distribution capital work orders for compliance with SCE standards including the avian protection standard DOH DC 535.

5.11.2 ESD will maintain the Avian Information Management System (AIMS), a Geographic Information System (GIS) database for tracking avian interaction data.

6. Major Projects

Major Projects are generally subject to requirements imposed by the CPUC and resource agencies that address the specific issues associated with wildlife and habitat impacts within the project area.

In addition to the requirements in the APP, there are additional requirements applicable to Major Projects.

6.1 Applicant-Proposed Measures

Several federally and state listed bird species occur in SCE's territory (see Attachment 8.1, Bird Dimensions and Listing Status in SCE Territory).

6.1.1 SCE has standardized Applicant-Proposed Measures (APMs) for reducing potentially significant impacts to protected bird species to less than significant levels. Contact the Major Environmental Projects Principal Manager for the most recent version of the APMs. If impacts to Protected Species are expected to be less than significant, avian species APMs may not be necessary. The SCE Development Contractor will initially determine whether or not there are significant biological impacts. The Development Contractor will then review applicable APMs or suggest alternatives. The SCE Biologist may be consulted by the Environmental Project Manager to verify whether biological APMs are required and will be consulted to validate contractor alternatives to include in the Proponent's Environmental Assessment (PEA).

6.1.2 SCE's Major Projects Organization (MPO) maintains processes for updating APMs and reviewing PEAs. Those processes apply to this subsection.

6.2 Nesting Bird Management Plan

6.2.1 The Nesting Bird Management Plan (NBMP) is often required by the CPUC and will describe measures to be undertaken by SCE and/or the Contractor to comply with the MBTA and California Fish and Game Code (Sections 3503 and 3503.5). In the absence of a requirement from the CPUC, ESD and MPO shall determine whether an NBMP is appropriate for a Major Project based on contractor recommendations for the project or agency requirements.

6.2.2 ESD maintains the NBMP template. Contact the SCE Avian Protection Specialist for the current version.

6.2.3 Modifications to the NBMP template must be approved by the ESD Director or designee.

6.2.4 Guidance on Preparation

The habitat assessment and initial biological surveys for the project will determine whether a NBMP should be developed. The information from these surveys should be used to guide the development of appropriate buffers based on conditions specific to the project. In addition, these surveys will determine which portions of the NBMP template are necessary for management of nests within the project area.

6.3 Projects without an NBMP

If an NBMP is not required, the project should follow the APMs and/or mitigation measures in the final environmental document. This likely means that buffers are defined in the final environmental document, and buffer reductions would be obtained by a request to the resource agencies or the CPUC, depending on the mitigation measures. In the absence of an APM or mitigation measure, a project team may decide to develop an internal NBMP to manage nest issues on a project without the plan requiring approval from the agencies.

6.4 Avian-Safe Design

ESD shall review Major Project designs to ensure compliance with any CPUC mitigation measures that require concurrence with APLIC's Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006) and/or Reducing Avian Collisions: the State of the Art in 2012 (APLIC 2012).

6.4.1 Review of Design

6.4.1.1. The Environmental Project Manager places a request with the MPO Project Manager to obtain project avian-safe design such as transmission towers, distribution poles, and substation(s) components.

6.4.1.2. The designs should refer to particular standards within T&D construction manuals, for example, DOH DC 535 Section 2.2, 4/12/16kV, 3-Wire or 4-Wire, Straight Line Post-Suspension Construction.

6.4.1.3. For substations, only the animal protection covers applied on equipment within the substation require ESD review, not the substation design itself.

6.4.1.4. Any designs not in compliance with the relevant CPUC mitigation measure(s) are expected to be documented and reported to the Environmental Project Manager for MPO correction. Subsequent approval of updated project designs are performed by the Environmental Project Manager, in consultation with the SCE Avian Protection Specialist.

6.4.2 Documentation for the CPUC

6.4.2.1. The SCE Avian Protection Specialist drafts the documentation confirming compliance with the avian-safe design requirement. The documentation will include separate analysis of each

project component (transmission, distribution, and substation) and each pole and/or tower design.

6.4.2.2. The Environmental Project Manager obtains approval from MPO for the documentation.

6.4.2.3. The documentation is submitted to the CPUC by SCE's Regulatory Affairs representative to the Project.

6.5 Reporting

Each project will require procedures for reporting information such as avian mortality or nesting, both internally within SCE and externally to the appropriate agencies. Reporting should be based on project requirements laid out in the environmental documents and permits. Reporting shall be executed via a project reporting system, if used on the affected Project. Contact the SCE Avian Protection Specialist for current reporting procedures flowchart templates. Birds killed by electrocution or line collision on SCE facilities shall also be reported using EHSync Avian Incident report as described in the Avian Mortality section above.

7. References

7.1 Federal

- 50 C.F.R. § 10.13
- 50 C.F.R. §§ 17.11-17.12
- 50 C.F.R. § 17.31
- 50 C.F.R. Part 21, Migratory Bird Permits
- 50 C.F.R. § 22
- Endangered Species Act, 16 U.S.C. §§ 1531-1544
- Bald and Golden Eagle Protection Act, 16 U.S.C. §§ 668-668d
- Migratory Bird Treaty Act, 16 U.S.C. §§ 703-712

7.2 State

- California Endangered Species Act, Cal. Fish & Game Code §§ 2050-2069
- Cal. Fish & Game Code §§ 2081.7, 2835, 3503, 3503.5, 3503, 3511, 3513
- CPUC General Order 165 (GO 165)

7.3 SCE

- Avian Power Line Interaction Committee (APLIC) 2006
- Distribution Overhead Construction Standards DOH DC-535 – Avian Safe Power Line Construction.
- Transmission Overhead Construction Standards (TOH)
- Electrical Construction Station (ECS) Section 57 – Animal Protection (Substations)
- Distribution Design Standards (DDS) manual
- Eagle Zone Maps
- SCE's Respiratory Protection Program, Appendix D
- Endangered Species Alert Program (ESAP) Manual
- Birds and Power Lines
- Respiratory Protection Program
- Distribution Inspection and Maintenance Program (DIMP)
- Ground-Disturbing Activities
- Avian Information Management System (AIMS)

Other

- California Natural Diversity Database (CNDDB)

- Birds of North America Online
- Catalina Island Conservancy

7.4 Hyperlinks

- SCE's Environmental Corporate Policy https://edisonintl.sharepoint.com/ssc/Pages/myenvironment.aspx
- SCE's Avian Protection Plan https://edisonintl.sharepoint.com/ssc/Pages/Document%20Library%20Pages/environmentalstandardsmanuals.aspx?RootFolder=%2Fssc%2FEnvironmental%20Standards%20%20Manuals%2FAvian%20Protection%20Plan&FolderCTID=0x01200006EC5D54ADCBB747B43E6E25BC6E3278&View=%7B05CC3848%2DD1C1%2D4FBD%2DB52A%2D80CDBBE1B0B0%7D
- USFWS Special Purpose Permit https://ecm.sce.eix.com/livelink/livelink.exe/fetch/2000/20590221/20591101/20570387/20554973/20570059/usfaw-mb72848.pdf?nodeid=40935751&vernum=3
- EHSync Avian Incident Report

  https://sapportal.edisonintl.com/irj/portal?NavigationTarget=pcd:portal_content/SCE/com.sce.Operations_Support/com.sce.My_Company/com.sce.iViews/com.sce.EnvironmentHealthandSafety/forms/com.sce.ivu.spill_notification_form&NavMode=3
- Endangered Species Alert Program (ESAP) Manual https://edisonintl.sharepoint.com/ssc/Pages/Document%20Library%20Pages/environmentalstandardsmanuals.aspx?RootFolder=%2Fssc%2FEnvironmental%20Standards%20%20Manuals%2FBiological%20Resources&FolderCTID=0x01200006EC5D54ADCBB747B43E6E25BC6E3278&View=%7B05CC3848%2DD1C1%2D4FBD%2DB52A%2D80CDBBE1B0B0%7D
- DOH https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Distribution%20Overhead%20Construction%20Standards%20(DOH).pdf
- TOH https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Transmission%20Overhead%20Construction%20Standards%20(TOH).pdf
- ECS https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Electrical%20Construction%20Station%20(ECS%203-C).pdf
- T&D Standards Request Form https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Standards%20Change%20Request%20Form.pdf#search=standards%20request

- DDS https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Distribution%20Design%20Standards%20(DDS).pdf
- DIMP https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Distribution%20Inspection%20and%20Maintenance%20Program%20(DIMP).pdf
- TOM https://edisonintl.sharepoint.com/sites/TD/org/Standards%20%20Publications/Transmission%20Operations%20and%20Maintenance%20Policies%20and%20Procedures%20(TOM).pdf

Rev.	Date	Description of Revision	Contact
0	04/30/14	Approved APP	K. Donohue
1	07/15/15	Revised APP Language changes that improve the accuracy and readability of the document, but do not change implementation are throughout the APP. Section 5.3.7 Reactive retrofit have been given timeframes of 90 days for raptors, eagles and T&E species and 2 years for all other protected bird species. Section 5.4 has been added for Proactive Retrofits when opportunities arise.	K. Donohue
2	8/8/16	Changed references from Corporate Environmental Health & Safety to Environmental Services Department (ESD). Clarified procedure for bird nest removal in 5.5. Updated hyperlinks. Modifications to Major Projects related to Operational Excellence organization changes.	K. Donohue
3	11/20/18	•Definitions and Responsibilities updated to sync with BAR standards •Rearrangement and removal of text in Regulatory Background for better flow •Procedures updated to reporting in EHSync Avian Incident and calls to new phone number •Titles added to sections in 5.3 Avian Mortality for clarity •Text in section 5.3 rearranged for better flow •Global change from “is expected to” to “will” •Eagle Zone Review Team language updated to state a team shall be formed in response to new information suggesting Eagle Zones need to be modified rather than every two years •Deleted section 5.9 Ground-Disturbing Activities as the environmental screening process is address elsewhere outside of the APP •Separated section 5.9 on Safety into Nest Safety and Carcass Safety for clarity •Updated section 6 Major Projects to reflect changes from OpX •Hyperlinks updated	K. Donohue

8. Attachments

8.1 Listing Status of Avian Species in SCE's Service Territory

Listing Status of Avian Species Susceptible to Collision or Electrocution Risks in SCE's Service Territory

Common Name	Scientific Name	Federal Status[1]	California Listing[1]	Risk[2]	SJV	SN	D	CZ	SCI	CR	IV
American White Pelican	*Pelecanus erythrorhynchos*	MBTA	SSC	C[3]	●	●	●	●		●	●
California Brown Pelican	*Pelecanus occidentalis californicus*	MBTA	CFP	C[3]				●	●		
Great Blue Heron	*Ardea herodias*	MBTA		C & E	●	●		●		●	●
Great Egret	*Ardea alba*	MBTA		C & E	●			●		●	●
Turkey Vulture	*Cathartes aura*	MBTA		E	●	●	●	●		●	●
California Condor	*Gymnogyps californianus*	FE	SE, CFP	C[3] & E	●	●		●			
Osprey	*Pandion haliaetus*	MBTA		E				●	●	●	
Bald Eagle	*Haliaeetus leucocephalus*	MBTA, BGEPA	SE, CFP	C & E	●	●	●	●	●	●	
Red-shouldered Hawk	*Buteo lineatus*	MBTA		E	●	●		●		●	
Swainson's Hawk	*Buteo swainsoni*	MBTA	ST	E	●		●	●		●	
Red-tailed Hawk	*Buteo jamaicensis*	MBTA		E	●	●	●	●	●	●	●
Ferruginous Hawk	*Buteo regalis*	MBTA		E			●			●	●
Rough-legged Hawk	*Buteo lagopus*	MBTA		E		●	●			●	
Golden Eagle	*Aquila chrysaetos*	MBTA, BGEPA	CFP	C[3] & E	●	●	●	●		●	●

Common Name	Scientific Name	Federal Status[1]	California Listing[1]	Risk[2]	SJV	SN	D	CZ	SCI	CR	IV
American Peregrine Falcon	*Falco peregrinus anatum*	MBTA	CFP	C & E	●	●	●	●		●	●
Prairie Falcon	*Falco mexicanus*	MBTA		C & E	●		●	●		●	●
Greater Sandhill Crane	*Grus canadensis tabida*	MBTA	ST, CFP	C	●		●				●
Barn Owl	*Tyto alba*	MBTA		C & E	●	●	●	●	●	●	●
Great Horned Owl	*Bubo virginianus*	MBTA		E	●	●	●	●		●	●
Yellow-billed Magpie	*Pica nuttalli*	MBTA		E	●			●		●	
American Crow	*Corvus brachyrhynchos*	MBTA		E	●	●	●	●		●	●
Common Raven	*Corvus corax*	MBTA		E	●	●	●	●	●	●	

Sources: California Natural Diversity Database (CNDDB) (2012), Birds of North America Online (2012), Catalina Island Conservancy (2009)
1Status: FE/SE=federal/state endangered; FT/ST=federal/state threatened; CFP=California fully protected species, SSC=species of special concern; MBTA=Migratory Bird Treaty Act; BGEPA=Bald and Golden Eagle Protection Act
2Typical Risk: C=Collision, E=Electrocution
SJV=San Joaquin Valley, SN=Sierra Nevada, D=Desert, CZ=Coastal Zone, SCI=San Clemente Island, CR=Coastal Ranges, IV=Imperial Valley
3Typically midspan electrocution on distribution voltage lines

8.2 Signature Page

SCE	EHS	ENVRIO	PL	Doc. No	1
				Version	1
Responsible Department: Corporate Environmental, Health and Safety					
Eff. Date		Latest Signature Date			
Supersedes		SCE-CEHS-EP-PL-1		NA	

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

Avian Protection Plan

Corporate Environmental, Health and Safety
Corporate Plan

SCE-EHS-ENVIRO-PL-1

Approved by: _____ *Date:* 7/10/15

Don Neal
Director, Corporate Environmental, Health and Safety Department

Approved by: _____ *Date:* 8/13/15

Paul Grigaux
Vice President, Transmission, Substations & Operations

Approved by: _____ *Date:* 7/27/15

Gregory Ferree
Vice President, Distribution Business Line

Approved by: _____ *Date:* 8/18/15

Kevin Cini
Vice President, Major Projects Organization

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Page 1 of 34

APPENDIX D

SIERRAN TREE FROG

Sierran tree frog - *Pseudacris sierra*

APPENDIX E

WILDLIFE CAM

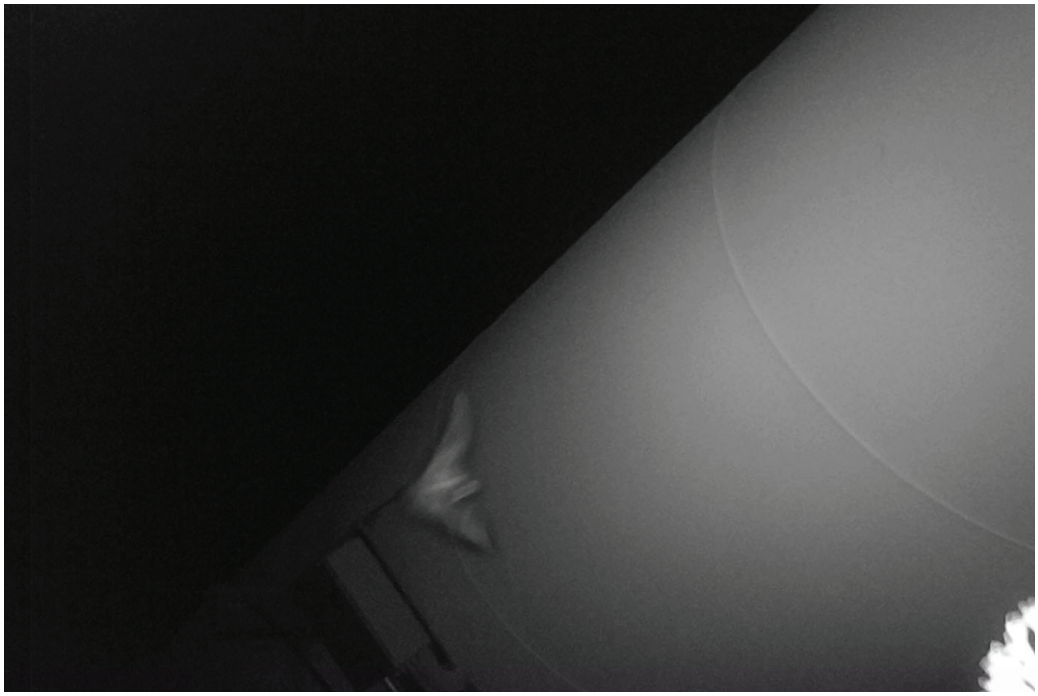

Photo 1: Bat

Photo 2: California ground squirrel

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Wildlife Photographs

Attachment B-1

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

(07/29/2021 SAK) R:\Projects\KLE\3KLE010102\Graphics\Wildlife_Report\2021\AttB1_Wildlife Cam.pdf

Photo 3: California quail

Photo 4: Collored mule deer

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Wildlife Photographs

Attachment B-2

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

Photo 5: Coyote

Photo 6: Grey fox

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Wildlife Photographs

Attachment B-3

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

Photo 7: Green-sided towhee

Photo 8: Least chipmunk

Photo 11: Long-tailed weasel

Photo 12: Moutain Lion

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Wildlife Photographs

Attachment B-5

Bishop Creek Hydroelectric Relicensing Project

PSOMAS

Photo 13: Mule deer in winter

Photo 14: Sooty grouse

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Photo 15: White-tailed antelope squirrel