IDAHO FALLS POWER

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May 13, 2024

VIA E-FILING
Debbie-Anne A. Reese, Interim Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: Gem State Hydroelectric Project (FERC Project No. 2952) and
Idaho Falls Hydroelectric Project (FERC Project No. 2842) Revised Study Plan

Dear Interim Secretary Reese:

Idaho Falls Power (IFP or Licensee), the Licensee of the 24.6-megawatt (MW) Idaho Falls Hydroelectric Project (Idaho Falls Project) (FERC No. 2842), and the 22.6 MW Gem State Hydroelectric Project (Gem State Project) (FERC No. 2952), herein collectively referred to as the "Projects," electronically files with the Federal Energy Regulatory Commission (Commission or FERC) a Revised Study Plan (RSP) for the relicensing of the Projects in accordance with the requirements of 18 Code of Federal Regulation (CFR) Part 5. Due to the proximity of the Projects to each other, the Licensee is using the Integrated Licensing Process (ILP) to conduct the relicensing processes concurrently and is submitting a single Proposed Study Plan (PSP) for both Projects. The FERC licenses for both Projects expire on July 31, 2029.

On October 2, 2023, FERC issued a Notice of Commencement of Proceeding and Scoping Document 1 (SD1) following the filing of the Notice of Intent (NOI) and Preliminary Application Document (PAD) that were filed with FERC on August 2, 2023. On October 25, 2023, IFP hosted a site visit, followed by a public scoping meeting held by FERC on October 26, 2023. Stakeholders were given 30 days following the scoping meeting and site visit to (1) provide comments on the PAD, (2) provide comments on the proposed studies, and (3) suggest additional studies that may be necessary to develop a complete environmental analysis for the relicensing of the Projects. On January 10, 2024, FERC filed Scoping Document 2 (SD2), identifying preliminary issues and alternatives to be addressed during their environmental review process, and on January 12, 2024, IFP filed a Proposed Study Plan (PSP). Stakeholders were given 60 days following the filing of the PSP to provide comments, and on February 13, 2024, IFP hosted a virtual study plan meeting pursuant to 18 CFR 5.11(e) to review comments and study requests received and answer questions. The comment window for the PSP ended on April 13, 2024, and IFP held focused discussions on study requests and comments with BLM and IDEQ, which are reflected in the consultation sections of the attached RSP.

IFP hereby electronically files a single RSP for the relicensing of both Projects, to be filed under both FERC project dockets. IFP looks forward to working with FERC and other interested

parties on the Idaho Falls and Gem State relicensings. More information about the relicensing process can be found at https://www.ifpower.org/about-us/relicensing. Please contact Richard Malloy, Regulatory Compliance Manager, by phone at 208-612-8248 or via e-mail at rmalloy@ifpower.org with any questions or concerns.

Sincerely,

JGB for Bear

Bear Prairie
General Manager
Idaho Falls Power

Cc: Bear Prairie – Idaho Falls Power
Finlay Anderson, Shannon Luoma, Olivia Smith – Kleinschmidt Associates

Attachments:

- Revised Study Plan

REVISED STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER
140 S CAPITAL AVE
IDAHO FALLS, ID 83402

PREPARED BY:

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

PROPOSED STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls and Gem State Project Boundaries are separated by approximately 1.9 miles of free-flowing river from the tailrace of Idaho Falls Lower Plant to the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands.

2.0 RELICENSING PROCESS TO DATE

IFP filed a combined Preliminary Application Document (PAD) and Notice of Intent (NOI) for the Projects on August 2, 2023, pursuant to Section 15 of the Federal Power Act (United States Code, Title 16, Section 808(b)) and the Code of Federal Regulations, Title 18, Section 5.5. Included in the PAD was a list of potential studies under consideration by IFP.

On October 2, 2023, FERC issued their Scoping Document 1 (SD1), outlining the potential scope of their National Environmental Policy Act (NEPA) analysis, to be completed following the submittal of IFP's Final License Application. A site visit and scoping meetings were held in Idaho Falls on October 25 and 26, 2023.The initial comment period on the PAD, NOI, and FERC's SD1 and opportunity for study requests ended on November 30, 2023. Scoping Document 2 (SD2) was issued by FERC on January 10, 2024. On January 12, IFP filed a draft Proposed Study Plan (PSP). IFP held a virtual study plan meeting [18 Code of Federal Regulations 5.11(e)] on February 13, 2024, to discuss comments received and answer questions about the PSP. In April 2024, IFP

received comments to the PSP from the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management (BLM), and the Idaho Governor's Office of Energy and Mineral Resources, which included comments from the Idaho Department of Fish and Game (IDFG) as well as Idaho Department of Environmental Quality (IDEQ).

3.0 REVISED STUDY PLAN

This Revised Study Plan (RSP) describes the potential resource issues, nexus to the Project, goals, schedules, and study methodology for specific resource areas and includes input from agencies on the PSP. Currently, IFP is not proposing any changes to the Projects' operations or facilities; therefore, the proposed studies are primarily intended to characterize the existing resources relative to comprehensive management plan objectives and statutory requirements rather than assessing the impacts of the Projects against pre-Project conditions. Potential resource issues associated with the Projects that are listed in subsections herein were identified from the following:

- Review and evaluation of relevant readily available information.
- Discussions with IFP personnel familiar with the Projects' Operation and Maintenance and resources in the Projects' vicinities.
- Stakeholder comments filed in November 2023 on the PAD, NOI, and FERC's SD1 and in April 2024 on the PSP.

IFP has identified the 11 study plans listed below, each including goals and objectives, methodology, implementation schedule, and consultation history.

- Water Quality (WQ-1)
- Fish Assemblage (AQ-1)
- Desktop Entrainment (AQ-2)
- Aquatic Habitat and Sediment Characterization (AQ-3)
- Botanical Resources (TERR-1)
- Wildlife and Rare, Threatened, and Endangered Species (TERR-2)
- Project Lands and Roads (LAND-1)
- Recreation Use and Facility Inventory (REC-1)
- Cultural Resources (CR-1)
- Tribal Resources (TR-1)

- Environmental Justice (EJ-1)

This RSP is being distributed to stakeholders for a 15-day comment period, with comments due May 28, 2024. Information and meeting materials will be posted on the IFP relicensing website: https://www.ifpower.org/about-us/relicensing/.

4.0 RESPONSES TO COMMENTS RECEIVED

IFP received comments from state and federal agencies following the submittal of the PAD, NOI, and FERC's SD1 in November 2023 and in April 2024 following the submittal of the PSP, many of which have been incorporated into the plans and are reflected in this RSP. Comments pertaining to specific studies are addressed in the consultation section of each individual study by date; where a comment relates to multiple studies, it has been duplicated into each consultation section.

General comments from scoping that were not study specific are outlined below in Table 1 and were not included in the study plans, there were no general comments received to the PSP in April 2024.

TABLE 1 GENERAL COMMENTS RECEIVED DURING SCOPING

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
1	11/20/2023	United States Fish and Wildlife Service (USFWS)	Please include a more detailed map with the location of each dam at a finer scale than currently provided (FERC 2023, p. 3).	More detailed maps are included in each of the proposed study plans.
3	11/20/2023	United States Fish and Wildlife Service (USFWS)	The Service also requests that all study plans include more in-depth descriptions of each plan to better understand what, and how, information will be gathered.	Study plans provided in the PAD were preliminary and not intended to be complete. Study plans included in this PSP include detailed methodology, schedule, and approach.
24	11/30/2023	State of Idaho	Under Section 3.1.2.2, the number "(2)" is listed twice. Please correct for document clarity. The heading of Section 4.0 is right aligned while similar section headings are centered. Please center this heading for consistency.	Comment noted. Any changes for clarity or formatting will be carried over into the DLA.
26	11/30/2023	Bureau of Land Management (BLM)	The BLM fully supports IFP's proposed studies found in the PAD and Scoping documents for all resource areas. In the proposed study and approach column of table 6-1 within the PAD. However, we recommend replacing the word "could" with "would" for each of the proposed studies to demonstrate IFP's commitment to complete them. In addition, the BLM has some additional studies to propose for your consideration.	Study plans provided in the PAD were preliminary and not intended to be complete. Study plans included in this PSP include detailed methodology, schedule, and approach.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
30	11/30/2023	Bureau of Land Management (BLM)	Section 8.0 (Comprehensive Plans) of Scoping Document 1 lists three BLM comprehensive plans that are on file with FERC. The Snake River Activity/Operations Plan project area does not extend down river to the Idaho Falls and Gem State Hydropower Project boundaries, so the reference to this planning document should be deleted from the scoping document. There is no Greater Sage-Grouse habitat within the project boundaries, so references to comprehensive plans associated with the 2015 and 2019 Greater Sage-Grouse Records of Decision should be deleted from the scoping document. The Idaho Falls Hydropower Project is located partially within the boundaries of the Medicine Lodge Resource Management Plan (RMP) and partially within the boundaries of the Big Desert Management Framework Plan (MFP). The Gem State Hydropower Project is wholly located within the boundaries of the Big Desert Management Framework Plan. The BLM has uploaded the Big Desert MFP to the list of comprehensive plans (the	Comment noted. The comprehensive plan list has been updated.[1]

[1] Comment 30 was addressed by FERC in Scoping Document 2 (SD2)

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Medicine Lodge RMP was already on the list). Please include the following land use plans under the Comprehensive Plans section of the scoping document: - Bureau of Land Management. 1985. Medicine Lodge Resource Management Plan. Department of the Interior, Idaho Falls, Idaho. December 1985, as amended. - Bureau of Land Management. 1981. Big Desert Management Framework Plan. Department of the Interior, Idaho Falls, Idaho. October 1981, as amended.	

5.0 RESPONSES TO STUDY REQUESTS

Three study requests were made via comment letter during the initial comment period on the PAD, NOI, and FERC's SD1 in November 2023:

- IDEQ requested a water quality study.
- BLM requested a Class III Cultural Resource Inventory of both Project Areas.
- BLM requested a study to evaluate channel conditions and potential departure from historic conditions.

Of those study requests received, select components of each were incorporated into the proposed Water Quality Study (WQ-1) and the Cultural Resources Study (CR-1), as described in the consultation sections of each individual plan. However, IFP does not intend to adopt the study requested by BLM to evaluate channel conditions and their potential departure from "historic" conditions. FERC's NEPA approach focuses on the current conditions as the baseline for evaluating project effects and alternatives. This does not include pre-project conditions that would have existed prior to project development. FERC does not generally require the applicant to recreate or study pre-project conditions. IFP has minimum flow requirements as required in the current license in the two applicable bypass reaches, which maintain aquatic biota and habitat. The Aquatic Habitat and Sediment Characterization Study (AQ-3) will evaluate the potential effects of proposed continued operations on fishery resources with specific management objectives (e.g., stocked salmonids and stocked sturgeon), not large-scale riverine processes affected during initial dam construction. IFP believes that AQ-3, as proposed, is consistent with those issues identified by FERC in SD2.

During the PSP comment period in April 2024, IFP received a revised study request from the BLM. IFP appreciates the effort BLM went to refining its request and explaining the relevant resource management goals of the agency, however several ongoing concerns with this request have led to the omission the study request from this RSP:

1. The request references conditions in the absence of the Project and appears to seek an evaluation of the project against pre-project history. IFP wants to avoid evaluating the

project against pre-project conditions, and an effect from IFPs proposed continued operation has not been identified. FERC does not require an applicant to reconstruct pre-project conditions, because that is not the baseline from which the environmental analysis is conducted.

2. IFP understands that BLM sees benefits to downstream ecosystems from passing sediment and LWD and that these objectives broadly support BLM stated objectives for riparian areas. However, we don't see a relationship between the data that would be acquired (e.g. "Document[ation of] the sediment and woody debris that have been removed from the reservoirs since their construction" and a specific management goal. For example, the dredging data referenced is unlikely to be representative of annual sediment load. Is there a measurable, quantitative goal that the BLM has identified in its request that would help it meet its resource management objectives?

3. The BLM has identified a general approach for determining annual recruitment of LWD and sediment into the reservoirs that involves analyzing available data and "making sound assumptions and estimates" in a desktop exercise, without the need for field data collection. The general analyses and data suggested would be insufficient to determine annual bedload transport with the accuracy needed to develop an appropriate management plan. Sediment transport models vary in their predictions by 1-2 orders of magnitude depending on the situation such that estimates should not be considered sound based on a desktop exercise. Extensive field data are needed to calibrate any sediment transport model in this context, and given the challenges of implementing sediment and LWD management plans in these run of river projects, the effort to develop such models is not justified: IFP does not agree that the approach proposed by BLM allows drawing conclusions with any degree of confidence, and it is unclear in any event how the results would be used to modify operations.

4. IFP understands that the BLM's desired outcome of this request is a management plan for sediment and LWD within the project to benefit downstream areas. While IFP does not believe that quantification of annual load sediment and woody debris entering the upstream reservoir is appropriate or easily implemented, IFP anticipates describing current

procedures in the license application which may form the basis for discussion with the BLM and other interested stakeholders around best practices and future O&M procedures. IFP would not support a PME for annual movement of sediment from the top of the reservoir to be transported downstream as described but would anticipate that when non-routine O&M requires sediment removal, steps could be taken to consult with the BLM and other interested stakeholders in its disposition.

Separately, our terrestrial and botanical surveys will be assessing Yellow-billed cuckoo and its habitat. There is currently no recovery plan, biological opinion, or status report pertaining to the Yellow-billed cuckoo. There are currently 298,845 acres of critical habitat designated to the western distinct population segment of the Yellow-billed cuckoo in Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah, but the critical habitat range does not occur within the Idaho Falls Project and Gem State Project Boundaries (USFWS 2021; IPAC report dated February 5, 2024).

WATER QUALITY STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER
140 S CAPITAL AVE
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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS
(FERC PROJECT NOS. 2842 AND 2952)

WATER QUALITY STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by about 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing changes to the existing Projects' operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

The Snake River throughout the Idaho Falls and American Falls subbasins, including the Idaho Falls and Gem State Project areas, is designated for cold-water aquatic life, salmonid spawning, primary contact recreation (i.e., activities involving direct contact with water, such as swimming, water skiing), and domestic water supplies. In addition to these uses, all waters within the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics. The numerical water quality criteria associated with those beneficial uses are summarized in Table 1.

The Gem State Project area is within the 58.9-mile reach of the Snake River between RM 804.2 and American Falls Reservoir (Assessment Unit ID17040206SK022_04). The 2022 Integrated Report designates this reach as Category 5, meaning the water body does not meet applicable water quality standards for one or more beneficial uses due to one or more pollutants; in this case, an

Environmental Protection Agency (EPA)-approved total maximum daily load (TMDL) will need to be developed by the state. Elevated mercury concentrations are identified as impairing the primary contact recreation, salmonid spawning, and cold-water aquatic life beneficial uses (IDEQ 2022a). The state of Idaho monitors mercury in accordance with the Implementation Guidance for the Idaho Mercury Water Quality Criteria (IDEQ 2005). The fish tissue criterion for mercury is 0.3 mg/kg methylmercury (IDEQ 2005).

The Idaho Falls Project spans two assessment units (AUs): assessment unit ID17040206SK022_04 and the Snake River – Dry Bed Creek to River Mile 791 assessment unit (ID17040201SK001_04). As described above, Assessment Unit ID17040206SK022_04 is impaired by elevated mercury concentrations. The 2022 Integrated Report designates AU ID17040201SK001_04 as Category 3 - Not Assessed.

TABLE 1 NUMERIC CRITERIA TO SUPPORT BENEFICIAL USES IN THE IDAHO FALLS AND GEM STATE PROJECT AREAS FOR SELECT WATER QUALITY PARAMETERS

BENEFICIAL USE	PARAMETER	CRITERIA	IDAHO ADMINISTRATIVE CODE 58.01.02 REFERENCE
Aquatic Life (General)	pH	6.5-9.0	250.01a
	TDG	< 110% saturation	250.01b
Aquatic Life (Cold Water)	Dissolved Oxygen	Instantaneous > 6.0 mg/L	250.02a
		During salmonid spawning: inter-gravel Daily min : ≥ 5.0 mg/L 7-day avg: ≥ 6.0 mg/L	250.02.f.i
		During salmonid spawning: water column Daily min : ≥ 6.0 mg/L or 90% saturation 7-day avg : ≥ 6.0 mg/L	250.02.f.i
		Discharged from dams and hydroelectric facilities (June 15-October 15)	276.02

BENEFICIAL USE	PARAMETER	CRITERIA	IDAHO ADMINISTRATIVE CODE 58.01.02 REFERENCE
		Instantaneous ≥ 3.5 mg/L 7-day avg : ≥ 4.7 mg/L 30-day avg : ≥ 6.0 mg/L	
	Temperature	Instantaneous ≤ 22°C Daily Average ≤ 19°C During salmonid spawning: Instantaneous ≤ 13°C Daily average ≤ 9°C	250.02.b 250.02.f.ii
	Ammonia	Dependent on temperature and pH. The acute criterion (CMC) is the 1-hour average concentration of total ammonia nitrogen; this is not to be exceeded more than once every 3 years. The chronic criterion (criterion continuous concentration) is the 30-day average concentration of total ammonia nitrogen, which is not to be exceeded more than once every 3 years.	250.02d
Primary Contact Recreation	*E. coli*	< 126 *E. coli* counts per 100 mL (geometric mean) based on a minimum of five samples taken every 3 to 11 days over a 45-day period or < an STV of 410 *E. coli* counts per 100 mL in more than 10% of samples collected over a 45-day period.	251.02a
	Enterococci	< 35 enterococci counts per 100 mL (geometric mean) based on a minimum of five samples taken every 3 to 11 days over a 45-day period, or < an STV of 130 enterococci counts per 100 mL in more than 10% of samples collected over a 45-day period.	251.02.b
	Methyl Mercury	0.3 mg/kg fish tissue	

BENEFICIAL USE	PARAMETER	CRITERIA	IDAHO ADMINISTRATIVE CODE 58.01.02 REFERENCE
Domestic Water Supply	Turbidity	< 5 NTU above background when background turbidity is 50 NTU or less; < 10% above background when background turbidity is > 50 NTU and < 250 NTU; or < 25 NTU above background when background turbidity is 250 NTU or greater	252.02.b

Source: IDEQ 2022b

Key:

CMC	criterion continuous concentration
mg/L	milligrams per liter
mL	milliliter
NTU	nephelometric turbidity unit
pH	power of hydrogen
STV	statistical threshold value
TDG	total dissolved gas

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Ongoing Project operations have the potential to impact water quality in affected Project reaches. IFP is not proposing changes to the existing Project operations or facilities; this study will assess whether water quality standards are attained in the Idaho Falls Project and Gem State Project areas. IDEQ requested a water quality study in their November 30, 2023, letter providing comments on the Preliminary Application Document (PAD), Scoping Document 1 (SD1), and study requests.

3.0 STUDY GOALS AND OBJECTIVES

The goal of the proposed Water Quality Study (WQ-1) is to characterize water quality in the Snake River in the Idaho Falls Project area and the Gem State Project area. The objectives are to:

1. Characterize water temperature and dissolved oxygen (DO) upstream and downstream of each diversion in the Projects, specifically the Upper Plant, City Plant, Lower Plant, and Gem State dams.
2. Collect vertical profiles of water temperature and DO in each impoundment.
3. Analyze fish tissue samples from downstream of the Gem State Project for methylmercury.
4. Assess the ability of the Projects to attain water quality standards based on continued operation.

4.0 GEOGRAPHIC SCOPE

The study area includes an approximately 17-mile reach of the Snake River from just upstream of the Idaho Falls Project to downstream of the Gem State Project (Figures 1, 2, and 3).

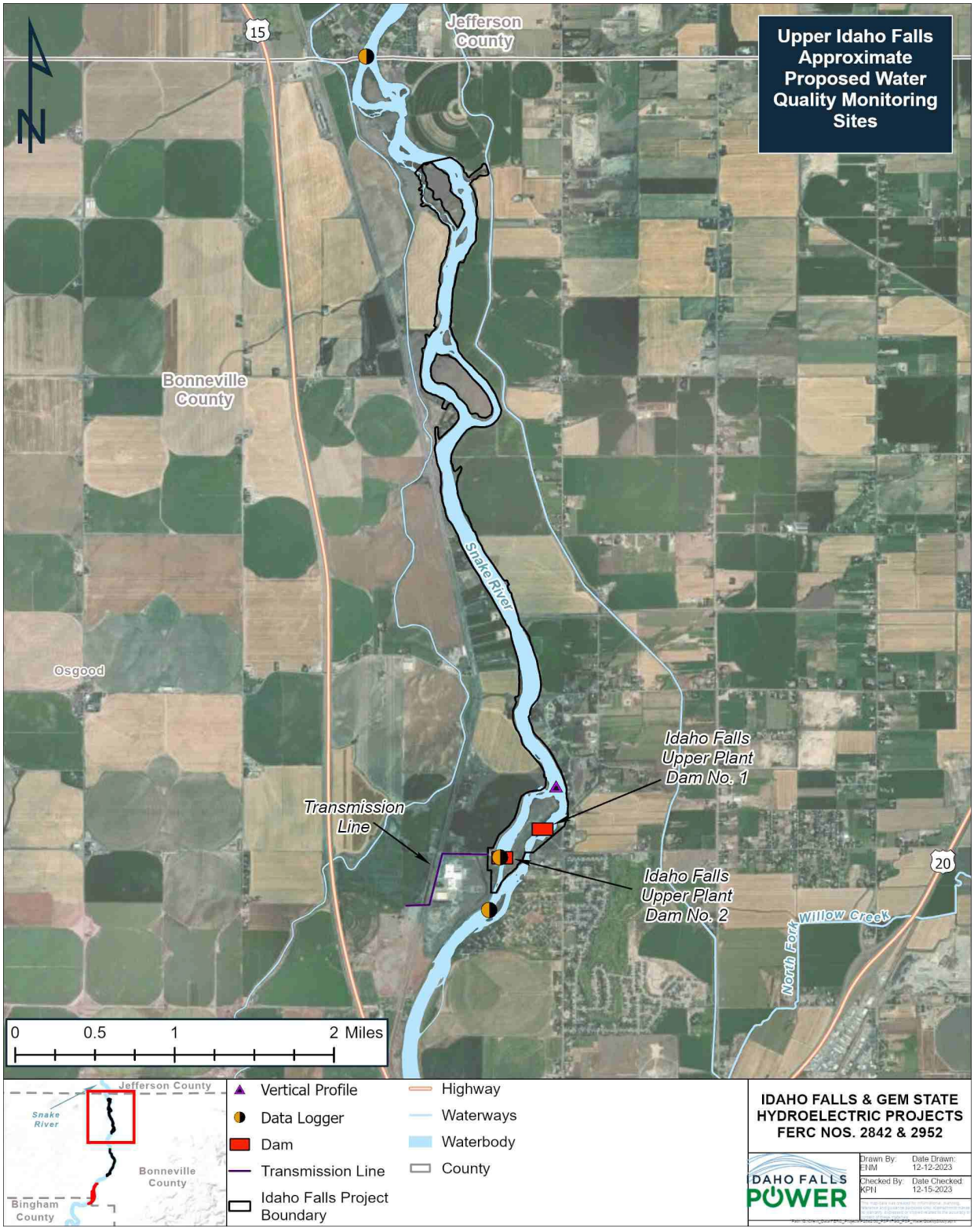

FIGURE 1 IDAHO FALLS UPPER PLANT APPROXIMATE WATER QUALITY MONITORING SITES

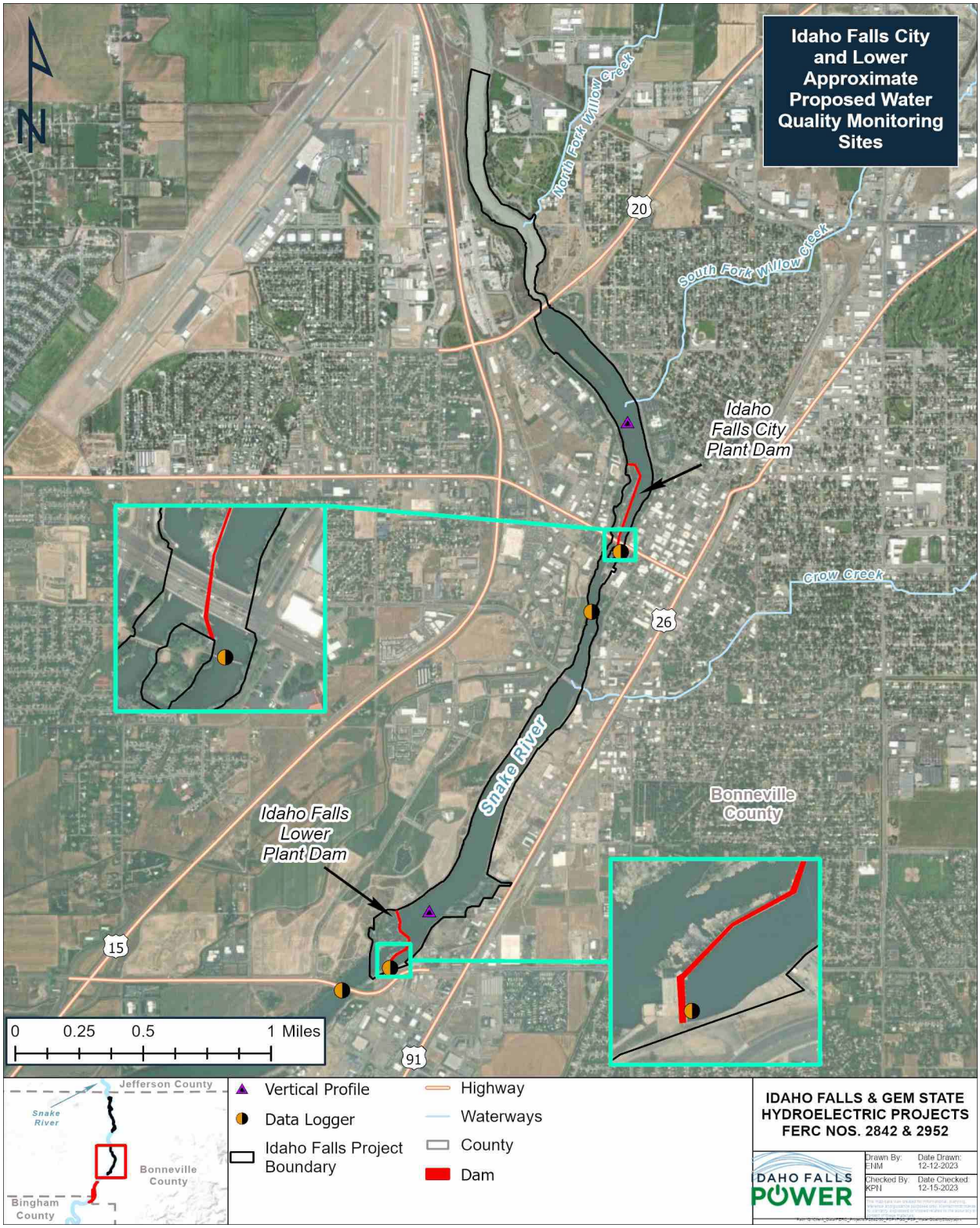

FIGURE 2 IDAHO FALLS CITY PLANT AND LOWER PLANT APPROXIMATE WATER QUALITY MONITORING SITES

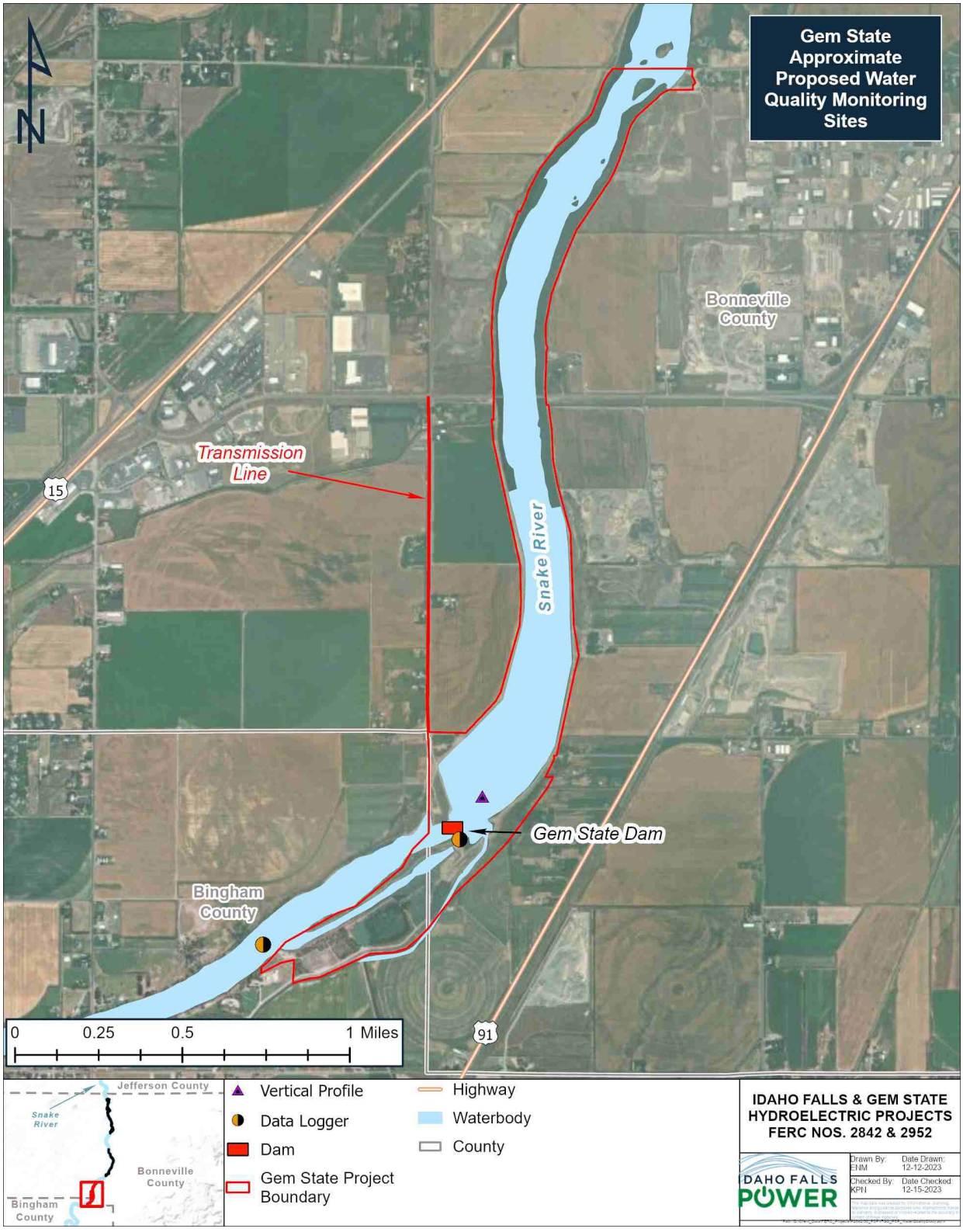

FIGURE 3 GEM STATE APPROXIMATE WATER QUALITY MONITORING SITES

5.0 STUDY METHODOLOGY

5.1 LITERATURE REVIEW

IFP will review available water quality data for the Projects. Data sources include IDEQ regional offices (e.g., DEQ 2022 Integrated Report mapper), EPA (e.g., How's My Waterway), and other available information from nearby hydroelectric projects (e.g., County Line Hydroelectric Project [FERC No. P-14513] and American Falls Project [FERC No. P-2736]).

5.2 MONITORING SITES

IFP will monitor water quality with data loggers at one site upstream of the Idaho Falls Project Boundary (Figure 1), at six locations throughout the Idaho Falls Project (Figure 1 and Figure 2), and in two locations at the Gem State Project (Figure 3). The monitoring site upstream of the Idaho Falls Project will be used to characterize water quality entering the Idaho Falls Project area. The proposed monitoring locations include the forebay areas of each Project development to characterize water quality entering each powerhouse, and a well-mixed location downstream of each dam to evaluate any potential changes after passing through the project facilities. Vertical profiles of water quality parameters will be collected at four sites, one in each impoundment (Figures 1 through 3). The exact locations of the monitoring sites will be finalized in consultation with IDEQ with consideration of safe site access. The approximate proposed locations are shown in Figures 1, 2, and 3.

5.3 WATER QUALITY MONITORING

IFP will characterize water quality in the project area using a variety of methods, including monthly synoptic measurements, continuous measurements, and fish tissue samples. Methodologies are described in more detail below.

5.3.1 CONTINUOUS WATER TEMPERATURE MONITORING

IFP will continuously monitor water temperature for one season between June and September. Submersible data loggers (e.g., Onset HOBO U22-001 data logger or similar) will be installed at

each of the proposed monitoring locations (excluding downstream of the Gem State Project). Data loggers will be deployed from an anchored buoy a vertical mounting post or cabled to a bridge, tree, or boulder along the shoreline based on specific conditions at each location. The data loggers will record data hourly throughout the monitoring period. Data loggers will be calibrated at the beginning of the monitoring period and at the end field visit. The equipment and data will be checked, cleaned (as necessary), and downloaded every 4 to 6 weeks.

Field audit measurements of water temperature will be collected using a calibrated handheld meter (e.g., YSI ProSolo or similar) at deployment, retrieval, and during each data download. Field audits will assist with verifying that the loggers are operating correctly. The field methods and data collection will be conducted in accordance with IDEQ guidelines and will be reviewed for quality assurance/quality control purposes throughout the field study and following the completion of monitoring.

5.3.2 DISSOLVED OXYGEN MONITORING

IFP will collect monthly measurements of DO (concentration and percent saturation) at each water temperature monitoring site (excluding downstream of Gem State) with a calibrated handheld meter for one season between June and September.

Water temperature and the DO concentrations will be continuously monitored with a submersible data logger (Onset HOBO U-26 or similar) for one season between June and September in a representative and well mixed location downstream of the Gem State Project. The data logger will record hourly data throughout the monitoring period and will be equipped with a bio-fouling guard. The data logger will be calibrated during installation and at periodic intervals, as needed, per the manufacturer's specifications, and will be checked, cleaned, and downloaded approximately every one to two weeks. Spot check measurements of DO and water temperature will be collected with a calibrated handheld meter at installation, retrieval and during each data download to verify that the data logger is working properly. DO percent saturation data will be calculated using atmospheric pressure data from a logger (Onset HOBO U20-001 or similar) installed near the Gem State Project or from the weather station at the Idaho Falls Regional Airport (network ID WBAN:24145).

5.3.3 IMPOUNDMENT VERTICAL PROFILES

IFP will collect vertical profiles of water temperature and DO at deep, safely accessible sites in the Upper Plant, City Plant, and Lower Plant impoundments and in the Gem State impoundment (Figures 1, 2, and 3). IFP will conduct a reconnaissance-level collection of water depth data in each impoundment to identify a deep spot. Once the location is identified, IFP will collect a GPS waypoint to mark each sample location. Vertical profiles of water temperature and DO (concentration and percent saturation) at each location will be collected in August 2024, when Snake River water temperatures are typically highest. The measurements will be recorded at 1-meter intervals with a calibrated handheld meter. These data will inform sampling recommendations for the surveys in 2025, to be included in the Initial Study Report.

5.3.4 FISH TISSUE ANALYSIS

One round of fish tissue sample collection downstream of the Gem State Project is included in WQ-1. Fish will be collected for mercury tissue analysis opportunistically as part of the Fish Assemblage Study (AQ-1); please refer to the Fish Assemblage Study Plan for details on the study schedule and methods. Up to 10 fish of edible size for up to two game fish species (e.g., smallmouth bass, trout) will be collected. The fish will be fileted, frozen, and shipped to a certified laboratory for composite analysis. Field methods will follow Essig (2010); laboratory analysis will follow EPA method 7474. IFP is proposing to analyze for total mercury content as this offers a less expensive analysis while offering a slight overestimate of methylmercury concentration, which will provide a conservative basis for evaluating compliance with water quality standards (Essig 2010).

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

The anticipated WQ-1 Plan development and implementation schedule is identified in Table 2. Vertical profiles will be collected during August 2024 and will be used to inform sampling recommendations for the 2025 study season. A progress report will be provided as part of the Initial Study Report, discussing initial findings of the study to date, and a Draft Report will be

distributed in February 2026 for a 30-day review. The Final Report will be included in the Draft License Application in September 2026.

Data from WQ-1 will be presented in tabular and graphical format with narrative descriptions where appropriate. Other relevant data (e.g., air temperature, flow, generation, impoundment elevation) will be obtained and used to aid in the interpretation of the water quality data. The collected data will be available upon request.

TABLE 2 STUDY PLAN DEVELOPMENT MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Site selection and Impoundment Vertical Profiles	August 2024
Study Implementation	2025 study season
Initial Study Report	June 2025
Field Surveys	Summer 2025
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

6.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during the relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their SD1 on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024,

and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. IFP met with IDEQ on May 7, 2024, to discuss their comments to the PSP. Table 8 lists all comments received to date relevant to the WQ-1 Study Plan, as shown in Table 3.

TABLE 3 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
10	11/30/2023	IDEQ	While DEQ does not have recent assessment unit (AU)1 monitoring data for the Project area, DEQ recommends Idaho Falls Power utilize the DEQ 2022 Integrated Report mapper and EPA's How's My Waterway tools for surface water data, existing monitoring locations, and permitting discharges to aid Project analysis. DEQ also recommends Idaho Falls Power reference related environmental analyses and recent DEQ water quality certification materials from the County Line Hydroelectric Project (P-14513-003) (County Line). This data may be helpful for Project analysis since County Line lies within the same AU as this Project.	Comment noted. These references will be part of the literature review for the WQ-1 study plan.
11	11/30/2023	IDEQ	DEQ makes the following water quality study request to recommend details that should be included in Idaho Falls Power's proposed water quality study. See PAD Section 6.0, Table 6-1, p. 6-3.;	This study request has been incorporated into the WQ-1 study plan where

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			SD1 Section 5.0, Table 1, Resource Area 1, Proposed Study #1, p.15. DEQ requests this study because it does not currently have sufficient data to determine if Project operations affect water quality in accordance with IDAPA 58.01.02. DEQ recommends that any water quality study analyze water temperature and dissolved oxygen (DO) data from representative locations above each Project area, above and below each dam facility, and within each reservoir. The Project area falls within two Snake River AUs: Snake River – Dry Bed Creek to river mile 791 (ID17040201SK001_04, Dry Bed) and Snake River(ID17040206SK022_04, Snake). According DEQ's Draft 2024 Integrated Report, the Dry Bed AU is in Category 3, and the Snake AU is in Category 5 (impaired by mercury). In addition to statewide protected uses of agricultural and industrial water supply, wildlife habitat, and aesthetics, both AUs are designated for cold water aquatic life, salmonid spawning, primary contact recreation, and drinking water supply. In accordance with 18 CFR § 5.9(b), DEQ recommends incorporating the following	appropriate. Temperature and dissolved oxygen levels will be collected at various locations throughout both Projects. Fish tissue samples will be taken and analyzed for mercury from fish collected downstream of Gem State Dam as part of the Fish Assemblage Study (AQ-1).

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			components into the water quality study presented in the PAD: 1. Describe the goals and objectives of each study proposal and the information to be obtained. The objectives of the proposed water quality are as follows: (1) Characterize the temperature and DO in the Project area of both the Idaho Falls Project and Gem State Project. a. Measure temperature and DO in the Snake River upstream of the Idaho Falls Project area. b. Evaluate water temperature and DO above and below each dam in the Idaho Falls and Gem State Project areas. c. Evaluate temperature and DO in the impounded water in the reservoirs of both the Idaho Falls Project and the Gem State Project. (2) Evaluate mercury concentration in fish tissues below the Gem State Project area. (3) Provide collected water quality data to DEQ to assess beneficial uses in the	

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Snake River and to assess if the attainment of beneficial uses changes throughout the Project area. (4) Collect high quality data by utilizing quality assurance and quality control plans. DEQ recommends the study analyze the frequency and magnitude of temperature and DO standards violations at each sampling location to understand how Project operations affect water quality. DEQ also recommends the study utilize an upstream monitoring location to determine if water quality standards are exceeded prior to entering the Project area. Temperature and DO data should closely align with appliable water quality standards and should be represented in continuous metric values where possible (degrees Celsius, and mg/L and percent saturation, respectively). To understand the current status of mercury in fish tissue, DEQ requests a single round of sampling in the Gem State Project area in the Snake River below the Gem State Project dam. DEQ recommends following the EPA protocol for fish tissue sampling and referencing applicable DEQ standards for fish tissue mercury concentrations.	

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
12	11/30/2023	IDEQ	DEQ will use collected water quality study data for the following agency goals in furtherance of applicable temperature, DO, nutrient, sediment, and fish tissue criteria in IDAPA 58.01.02: 1. Evaluate applicable numeric water quality standards and assess potential beneficial use impairment in the Snake River to inform existing Snake River AU conditions and documentation in DEQ's Integrated Report. 2. Inform the State water quality certification process.	Noted.
13	11/30/2023	IDEQ	This water quality study would fill a 10-year water quality data gap in the two applicable Snake River AUs. In Summer 2021, DEQ Pocatello Regional Office and IDFG analyzed fish tissue mercury concentrations downstream of the Gem State Project area. The sample resulted with one fish having a mercury concentration of 0.450 mg/kg, thereby exceeding the 0.3 mg/kg mercury concentration criteria and indicating the AU is still impaired. This data has not yet been published but may be shared upon request. Since 2000, the DEQ Pocatello	Noted.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Regional Office has also collected Snake River physical parameter and water samples just below the Gem State Project area. This data has not yet been published but may be shared upon request to inform future analyses.	
14	11/30/2023	IDEQ	The Project activities may directly, indirectly, and cumulatively influence Snake River temperatures and DO. Water quality study data will inform waterbody assessments, AU impairment, and the Clean Water Act Section 401 certification process by providing DEQ with current Snake River AUs water quality status and elucidating how Project area temperature and DO change over time. Similarly, fish tissue mercury concentration data in the Gem State Project area will inform water quality, the mercury listing status in the Snake AU, and any applicable components of the water quality certification process.	Noted.
15	11/30/2023	IDEQ	The proposed water quality study is very similar to requested studies for other hydropower projects in the State. The proposed methodology aligns with state agency, federal agency, and academic research best practices.	Noted.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
16	11/30/2023	IDEQ	DEQ maintains that the proposed water quality study request is the most cost-effective and straightforward process to collect needed data. Continuous temperature and DO data loggers (e.g., Onset HOBO Dissolved Oxygen Data Logger) cost approximately $1,350 each. Loggers will require calibration and regular inspection for fouling after installation at each monitoring location. Loggers will most likely also require servicing and maintenance over the Project lifetime. Multiparameter sondes are more expensive per unit ($5,000+) but may require less frequent maintenance. Nutrient and sediment lab analyses typically cost $130 per site. While fish tissue analyses are more expensive, AU impairment and lack of current holistic information in the Gem State Project area necessitate this study.	Noted.
5	04/11/2024	IDEQ	Section 1: The PSP inaccurately describes the assessment unit (AU) of the projects because the PSP only cites one AU: AU ID17040206SK022_04. While it would be accurate to say a majority of the project lies in AU	Noted, comment has been incorporated into the Water Quality Study (WQ-1).

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			ID17040206SK022_04, a portion of the Idaho Falls project is instead in the Snake River – Dry Bed Creek to river mile 791 assessment unit ("AU") (ID17040201SK001_04). This is a second AU that is in Category 3 - Not Assessed. This segment of the Snake River is designated for cold water aquatic life, salmonid spawning, primary contact recreation, and domestic water supply. In addition to these uses, all waters within the state are protected for agricultural and industrial water supply, wildlife habitat, and aesthetics (IDAPA 58.01.02.100; Surface Water Use Designations).	
6	04/11/2024	IDEQ	Table 1: The PSP described all the numeric criteria for beneficial uses in the Idaho Falls and Gem State project areas but has not listed a mercury criterion. While the State of Idaho has not adopted an aquatic life criterion for inorganic mercury, DEQ believes applying the human health criterion for methylmercury will be protective of aquatic life in most instances. To be thorough, Table 1 should list the human health methylmercury criterion of 0.3 mg/kg fish tissue under	Noted, comment has been incorporated into the Water Quality Study (WQ-1).

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			the Primary Contact Recreation beneficial use.	
7	04/11/2024	IDEQ	Section 5.3.1: Dissolved Oxygen DEQ appreciates that the PSP includes Dissolved Oxygen (DO) monitoring. However, the study plan's proposal to take monthly measurements is not sufficient to characterize the project area's DO dynamics. As a result, DEQ requests the Applicant modify its water quality study to monitor DO continuously below the Gem State Project as explained below. DEQ makes this request to modify the study consistent with 18 CFR § 5.12 and using the criteria articulated in 18 CFR § 5.9. Goals and objectives and information to be obtained: The objective of this proposed modification is to: (1) Evaluate continuous DO concentrations below the Gem State Project.	Noted, comment has been incorporated into the Water Quality Study (WQ-1).

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			a. DO should be measured continuously during the proposed monitoring season. b. The monitoring site should be located in a representative and well-mixed area downstream of the Gem State Project (IPAPA 58.01.02.276.05: Dissolved Oxygen Standards for Waters Discharged from Dams, Reservoirs, and Hydroelectric Facilities- Point of Measurement). c. DEQ will request an additional upstream monitoring site, if DO criteria violations are detected downstream of the Gem State Project. (2) Provide collected water quality data to DEQ for use in the assessment of the applicable beneficial uses in the Snake River (3) Collect high quality data by developing and utilizing quality assurance and quality control plans.	

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

Essig, D. A. 2010. Arsenic, Mercury, and Selenium in Fish Tissue and Water from Idaho's Major Rivers: A Statewide Assessment. Available online: https://www2.deq.idaho.gov/admin/LEIA/api/document/download/15208. Accessed December 7, 2023.

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FISH ASSEMBLAGE STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

FISH ASSEMBLAGE STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls and Gem State FERC Project Boundaries are separated by about 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing changes to the existing Projects' operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Project operations have the potential to affect environmental conditions within Project reservoirs and tailrace sections, including access, water quantity, and water quality. Changes in these environmental conditions can affect the abundance, distribution, and structure of the local fish communities.

3.0 EXISTING INFORMATION

The reach of the Snake River that encompasses the southeastern region of Idaho supports numerous native and non-native fish species. Native and non-native fish species found throughout all, or parts, of this reach are outlined in Table 1 (IDFG 2019).

The Snake River, between Gem State Dam and the confluence of the South Fork, is considered a coldwater fishery supporting rainbow trout (*Oncorhynchs mykiss*), brown trout *(Salmo trutta)*, Yellowstone cutthroat trout (*O. clarkia bouvieri*), and mountain whitefish (*Prosopium williamsoni)* (IDFG 2019). Additionally, a catch-and-release fishery of white sturgeon (*Acipenser transmontanus*) is supported between the outfall of the Idaho Falls Upper Plant and the Gem State Dam (IDFG 2019). The 39-mile reach of the Snake River upstream from the Upper Dam to the confluence of the Henry's Fork and South Fork supports a trophy fishery for rainbow trout, brown trout, and Yellowstone cutthroat trout. Catch rates are generally relatively low upstream of the IFP Projects, although trophy-size fish are caught. The 1976 Teton Dam failure and associated silt deposition caused a loss of spawning habitat in this reach (IDFG 2007). Some limited natural trout reproduction occurs; The reach downstream of the Gem State Project is managed for larger trout, with some stocking of adult rainbow trout occurring annually (IDFG 2019). Brown trout stocking historically occurred in this reach but was discontinued in 1999 (IDFG 2007).

Idaho Fish and Game's (IDFG) overall management objectives for the reach of the Snake River that includes the Projects include: 1) stocking of white sturgeon in the Projects' pools and evaluating success, as well as the public's desire to engage in limited sturgeon harvest; 2) offsetting limited spawning habitat by stocking trout and evaluating effectiveness, as well as maintaining put-and-take trout fishing opportunities; 3) evaluating thermal and physical trout habitat characteristics through the reach; 4) maintaining a trophy component to the fishery in some reaches, including assessment of additional regulations, and 5) improving angler access through easements or acquisitions (IDFG 2019).

Goals related to the maintenance of a trophy trout fishery largely apply to reaches of the Snake River outside the Projects' areas. In contrast, goals within the Projects' areas emphasize angler success, catch rates, and opportunity. Fisheries management goals specific to the reach of the

Snake River that encompasses the Projects' areas include: 1) maintaining a catch rate for trout of 0.5 fish per hour through stocking; 2) monitoring of smallmouth bass populations; and 3) continued stocking of white sturgeon. The IDFG regularly stocks fingerling and catchable-sized rainbow trout throughout several Project pools. Stocking during recent years occurred in the John's Hole Pool (upstream of the City Plant), the Tourist Park Pool (upstream of the Lower Plant), and Gem Lake (upstream of Gem State Dam). A majority of trout stocking in the Projects' areas occurred in Gem Lake.

TABLE 1 NATIVE AND NON-NATIVE FISH SPECIES LOCATED IN PROJECT REACHES

COMMON NAME	SCIENTIFIC NAME
NATIVE SPECIES	
Bluehead Sucker	*Catostomus discobolus*
Longnose Dace	*Rhinichthys cataractae*
Molted Sculpin	*Cottus* bairdii
Mountain Sucker	*Catostomus platyrhynchus*
Mountain Whitefish	*Prosopium williamsoni*
Paiute Sculpin	*Cottus beldingii*
Redside Shiner	*Richardsonius balteatus*
Speckled Dace	*Rhinichthys osculus*
Utah Chub	*Gila atraria*
Utah Sucker	*Catostomus ardens*
Yellowstone Cutthroat Trout	*Oncorhynchus clarkia bouvieri*
NON-NATIVE SPECIES	
Bluegill	*Lepomis macrochirus*

COMMON NAME	SCIENTIFIC NAME
Brook Trout	*Salvelinus fontinalis*
Brown Bullhead	*Ameiurus nebulosus*
Brown Trout	*Salmo trutta*
Channel Catfish	*Ictalurus punctatus*
Common Carp	*Cyprinus carpio*
Green Sunfish	*Lepomis cyanellus*
Largemouth Bass	*Micropterus salmoides*
Rainbow Trout	*Oncorhynchus mykiss*
Smallmouth Bass	*Micropterus dolomieu*
White Sturgeon	*Acipenser transmontanus*
Yellow Perch	*Perca flavescens*

Source: IDFG 2019

4.0 STUDY GOALS AND OBJECTIVES

This proposed Fish Assemblage Study Plan (AQ-1) has been prepared to assist stakeholders and the licensee in assessing potential impacts relating to operations and maintenance activities at the Projects.

The goal of AQ-1 is to assess fish populations within reaches of the Snake River for the Projects. This will be done through the following objectives:

1. Determine seasonal changes in the distribution and abundance of native and non-native fish species with a particular focus on sport fish species (white sturgeon and Yellowstone cutthroat trout) within Project reservoirs.

2. Determine seasonal changes in the distribution and relative abundance of native and non-native fish species with a particular focus on target sport fish species within Project tailrace reaches.

3. Obtain general information on habitat-use characteristics of target sport fish species to support identification and validation of high fish use areas within the Project areas.

5.0 GEOGRAPHIC SCOPE

The Projects are located on the Snake River near Idaho Falls, in Bingham and Bonneville counties, Idaho. The three-development Idaho Falls Project facilities are located between RM 808.7 and 815.2 (Figure 1 and Figure 2), and the single-development Gem State Project is located at RM 804.2 (Figure 3). The study area has been categorized into two defining macrohabitat types: reservoirs, the area upstream of a dam with a slower velocity, and tailraces, the areas directly downstream of a dam with a higher velocity. The AQ-1 study area is divided into three reaches (Figure 1 through Figure 3):

- Upper Plant Reach—Reservoir and tailrace of Upper Plant
- City Plant and Lower Plant Reach —Reservoir and tailrace of City Plant and Lower Plant
- Gem State Reach —Reservoir and tailrace of Gem State

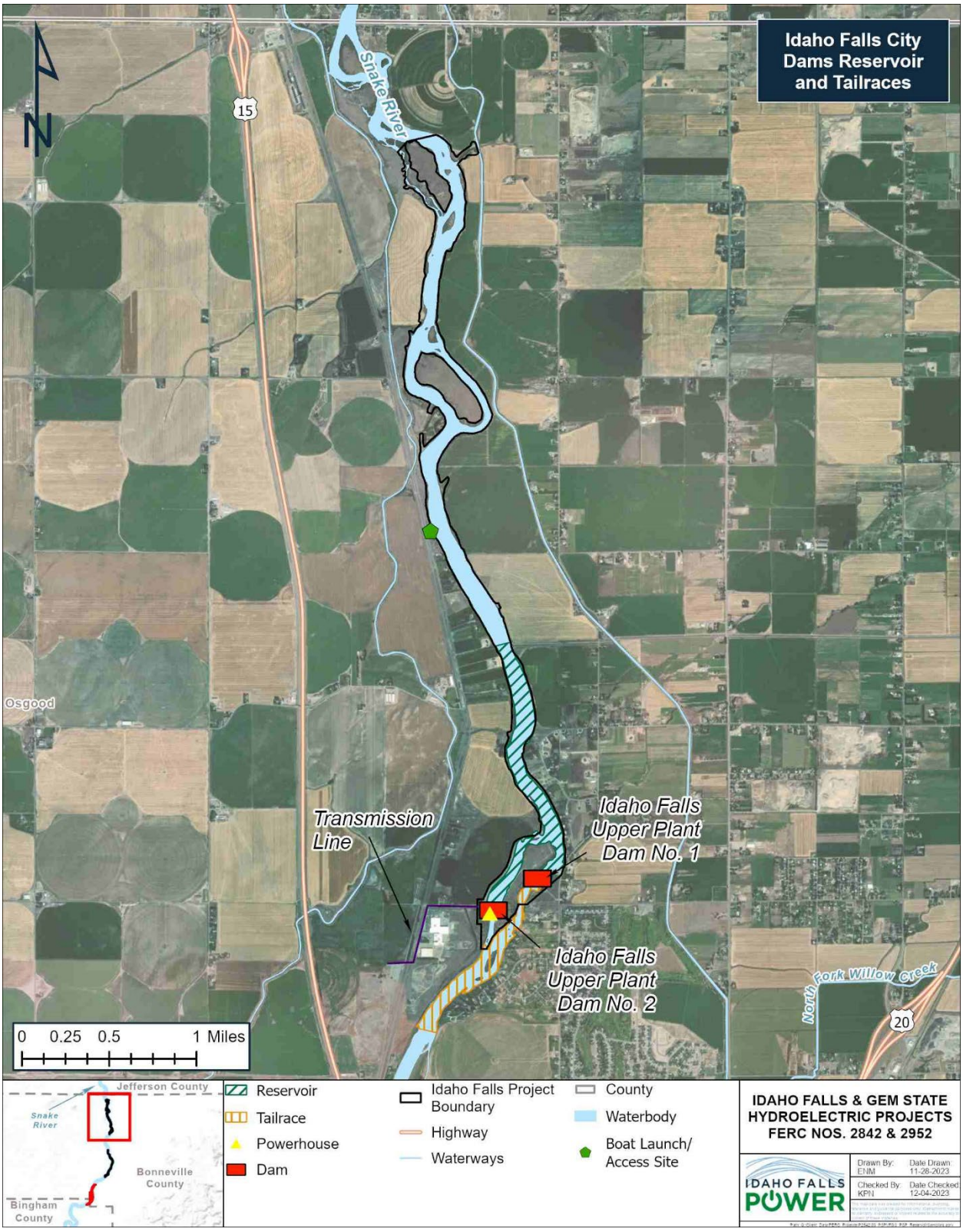

FIGURE 1 IDAHO FALLS PROJECT UPPER PLANT STUDY LOCATION

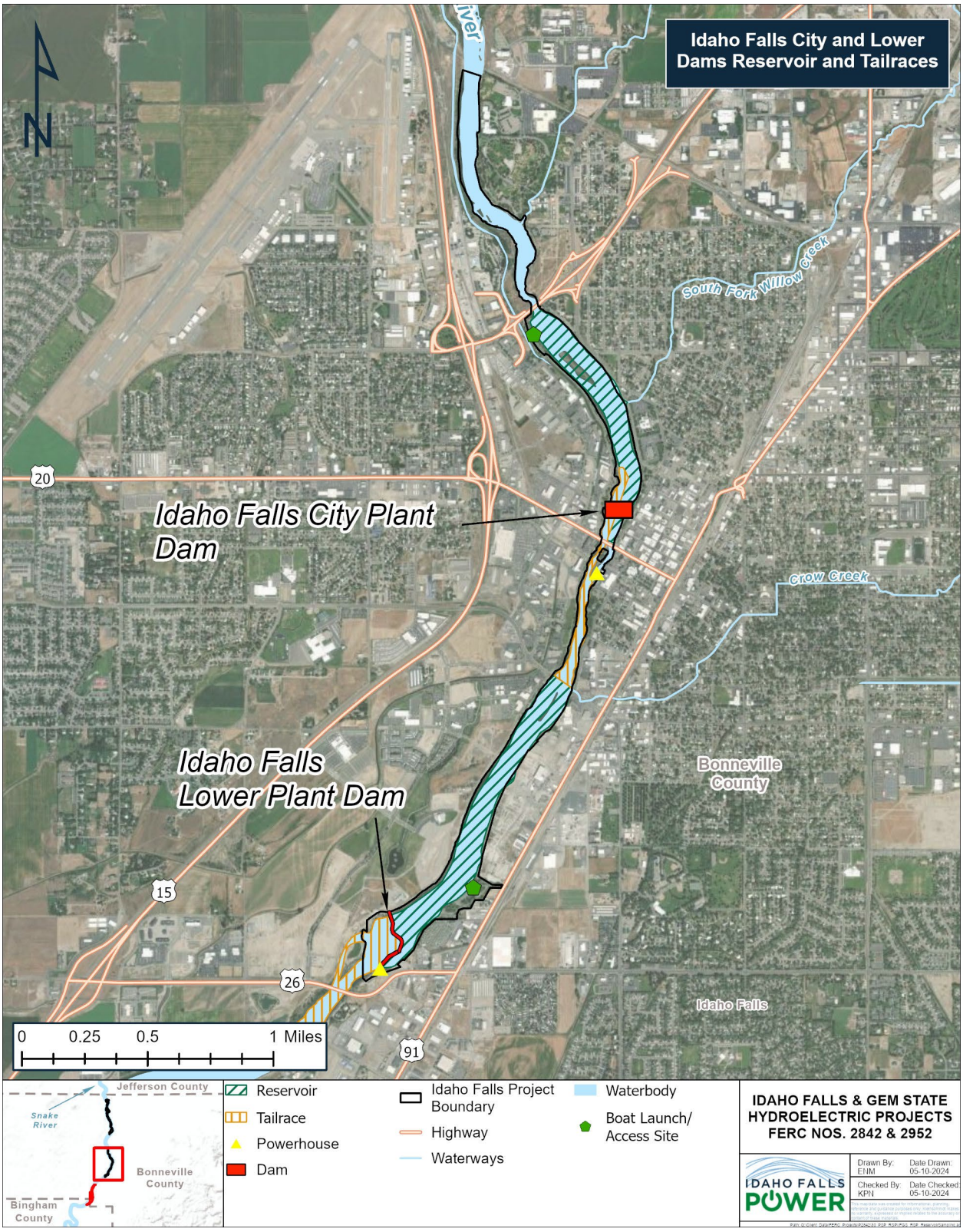

FIGURE 2 IDAHO FALLS PROJECT CITY AND LOWER PLANT STUDY LOCATIONS

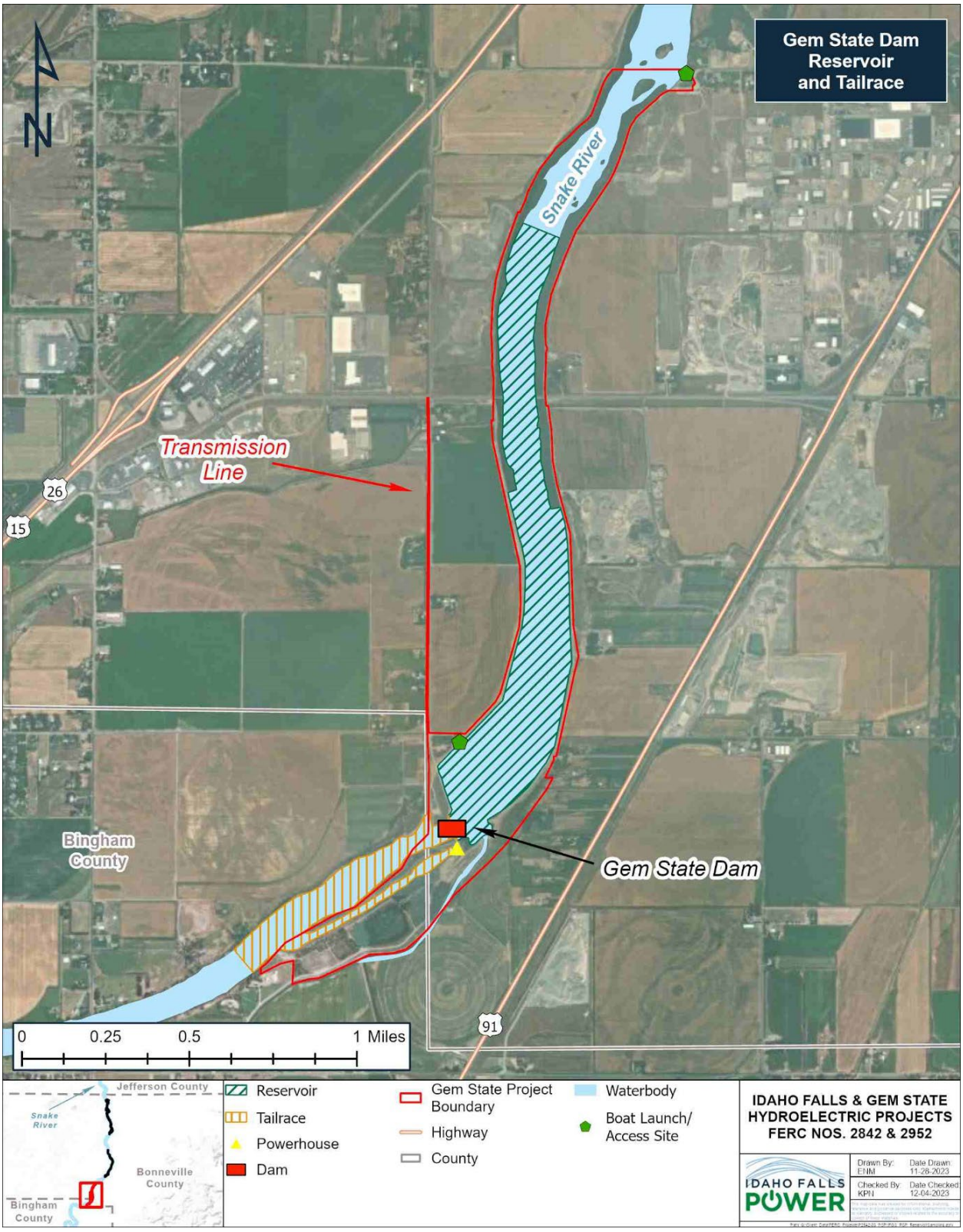

FIGURE 3 GEM STATE STUDY LOCATION

6.0 STUDY METHODOLOGY

A fish assemblage survey will be conducted within the reservoir and tailrace reaches of the Idaho Falls and Gem State Project Boundaries fish sampling will be conducted using boat and/or backpack electrofishing, fyke or hoop nets, gillnets, and setlines. Specific sampling methods will depend on access, site conditions, target fish species, relative abundance, thermal constraints, fish size, and age distribution within Project reservoirs and tailrace waters. Sample timing is proposed for all open-water periods (e.g., spring, summer, and fall). Specific sampling dates will depend on water level/flow, ice cover, and water temperature concerns, but is estimated to be one time per season for 1-2 days at each location. Specific locations will be chosen in the field and will encompass various habitat types within the sampling reach.

AQ-1 utilizes passive and active methods to capture fish and obtain key life history information about the fish that inhabit the Project areas and the habitats they use. The following assumptions were made when developing this methodology:

- Boat-mounted electrofishing will be used in shallow water areas (less than 2 meters deep) of Project reservoirs.
- Backpack electrofishing will be used in tailrace areas where boat access is restricted.
- Gillnet sampling will be used in deep water areas (greater than 2 meters deep) of Project reservoirs.
- Depending on safety considerations, nighttime sampling may be used to increase efficiency of fish capture.
- Fyke and gillnet sampling will be used at night when fish are actively moving along shoreline areas with shallow depth (less than 3 meters) and low velocity (less than 1 meter per second).
- Setlines will be used to sample a diverse size range of white sturgeon.
- All fish sampling and handling techniques described within the AQ-1 study area will be conducted under state and federal biological collection permits, and state and federal regulatory agencies will grant permission, as needed, to conduct the sampling efforts.

Fish sampling techniques provide imperfect estimates of fish use and abundance. Comparison of multiple sampling methods provides the opportunity to identify potential biases, highlight strengths and weaknesses of each method, and ultimately improve estimates of fish distribution and abundance. Some details of the sampling scheme have been provided for planning purposes; however, modifications may be appropriate as the results of the 2024 sampling are reviewed.

6.1 RESERVOIR GILLNET SAMPLING

Project reservoirs will be sampled using variable-mesh gillnets at two to four locations per reservoir. Variable-mesh gillnets consist of multiple panels of variable mesh sizes, so a gradient of sizes is represented across the net. Gillnets will be deployed during the open water/non-freezing periods of 2025 (see Table 2). Gillnets will be deployed in a stratified sampling scheme designed to cover a range of habitat types. Similar habitat types will be sampled in each Project reservoir where possible. One variable-mesh "adult" gillnet (1- to 4-inch mesh, 80 to 125 feet long) and one variable-mesh "juvenile" gillnet (less than 1-inch mesh, 30 feet long) will be deployed within each of the sampling locations, occupying nearshore habitats of each Project reservoir. The nets will be placed sloping along the gradient of the reach bottom. The sampling locations will be distributed along the length of the reservoir with the goal of sampling both deepwater (2-5 meters) and littoral zone habitats.

The time of deployment, location, minimum and maximum water depths, and net type will be recorded at each gillnet station. Water chemistry data will be collected (where feasible) at the approximate net placement depth.

TABLE 2 PROPOSED SAMPLING METHODS AND INTENSITY FOR DETERMINING DISTRIBUTION, TIMING, AND ABUNDANCE OF FISH IN THE PROJECT AREAS

METHOD	SAMPLE PERIOD (2025)[a]	SAMPLE AREA	SAMPLE TIME (DAY/NIGHT)
Gillnet	April, July, Oct	Reservoir	Night
Electrofishing	April, July, Oct	Reservoir & Tailrace	Day and/or Night
Fyke Net	April, July, Oct	Tailrace	Night
Setline	April, July, Oct	Reservoir & Tailrace	Night

[a] No sampling will occur during ice cover periods. Springtime (April-May) sampling period will be dependent on flow conditions.

For planning purposes, it is assumed there will be two sample sites (approximately lower and upper) in each Project reservoir. Gillnet soak times are assumed to consist of three 1-hour sets per site; however, soak time may be adjusted based on water temperatures and potential mortality of native salmonids. Tangle nets may be used in place of gillnets, and soak times adjusted accordingly, should fish mortality become an issue.

6.2 RESERVOIR ELECTROFISHING

Boat-mounted electrofishing surveys will be conducted along standardized transects within the nearshore/shallow water habitat of each Project reservoir (Table 2). The electrofisher will be operated and configured with settings consistent with guidelines established by the Idaho Department of Fish and Game (IDFG 2012). For planning purposes, it is assumed there will be four to eight sites per reservoir. Depending on site conditions, electrofishing transects will range from 100-300 meters in length, targeting a diversity of nearshore habitats. Each sample site will be separated by a minimum of 100 meters to reduce fish recapture and stress and sampling distribution. Depending on transect length and site conditions, electrofishing will be conducted as a single-pass with a power-on effort of 600-800 seconds. The beginning and end of each transect and a sampling track will be geo-referenced with a handheld global positioning system (GPS) unit.

Electrofisher "time on" and settings will be recorded for each sampling site, and a consistent pace and effort will be employed at all sites.

To the extent possible, electrofishing transects will be standardized and repeated during each sampling period to evaluate temporal changes in fish distribution. Habitat measurements will be collected at each site, and changes will be noted between sample periods. The length of each sample transect will be recorded, and a map of each transect will be developed, showing general characterization of water velocity and depth along the transect, substrate composition, and available cover types. Mean water column velocity will be measured at the downstream and upstream end of each sample transect using a handheld velocity meter, depth will be measured using a boat-mounted depth sounder, and dominant substrate size will be visually characterized using a modified Wentworth scale (Wentworth 1922). Although it is widely recognized that nighttime electrofishing surveys are the most productive for reservoir fish capture, safety issues will be considered when selecting day or night sampling efforts.

6.3 RESERVOIR SETLINES

Setline sampling is proposed to capture juvenile and adult white sturgeon in reservoir sections of the Project areas. Sampling is anticipated to occur during three periods: April, July, and October, representing spring, summer, and fall conditions (Table 2). A minimum of two randomly chosen sample sites will be located within each of the reservoir reaches. Each site will be sampled with two to four setlines fished at night for a period of 12-18 hours. Setlines will consist of 10-30 meters of 145-kg test mainline. Each mainline set will be equipped with five to fifteen 60-kg test droplines approximately 50 centimeters long, spaced 2-3 meters apart. Each dropline will contain a single circle hook ranging in size (e.g., 2/0, 3/0, 4/0, 6/0, or 8/0). A variety of bait types (e.g., nightcrawler, pickled herring, shrimp, liver) will be used to attract the target species. One end of each setline will be anchored to the shore using a rebar/fencepost pounded into the bank or secured to large stem vegetation and the mainline stretched perpendicular to the current. A weight will then be used to secure the end of each mainline to the river bottom. Net deployment and retrieval time, maximum depth, substrate composition, and location coordinates will be recorded for each setline.

6.4 TAILRACE FYKE NET SAMPLING

Fyke (or hoop) net sampling will be conducted overnight during each sampling period in shallow (less than or equal to 2 meters deep), slow-velocity (less than 0.3 meters per second) areas of each Project tailrace (Table 2). For planning purposes, it is assumed that two fyke nets will be deployed within each tailrace. Each fyke net will be configured with one or two wings to guide fish to the net mouth. A live car will be located at the cod end of the fyke net to hold captured fish until they can be processed. The live car will be checked regularly to ensure captured fish are not stranded during receding water levels. The location of the fyke net sets will be mapped using a handheld GPS unit. The time of deployment and retrieval will be noted during each sampling.

6.5 TAILRACE ELECTROFISHING

Depending on flow and site conditions, electrofishing surveys of Project tailrace areas will be conducted using either boat-mounted or backpack systems (Table 2). Similar to the proposed reservoir electrofishing sampling, two to four standardized transects of 50-100 meters will be established within a diversity of habitats in each Project tailrace. Electrofisher units will be operated and configured with settings consistent with guidelines established by IDFG (IDFG 2012). Boat-mounted electrofishing settings and procedures will be consistent with those used in Project reservoir sampling. For tailrace areas that are too shallow to support boat access, a backpack-mounted electrofisher will be used to stun and capture fish. A two to three-person team will be used for surveys, with one person controlling the electrofisher electrodes (ring anode, rat-tail cathode) and one or two staff netting stunned fish. Backpack electrofishing procedures will follow guidelines provided by the manufacturer (Smith-Root, Inc.) and IDFG (IDFG 2012). Depending on transect length and site conditions, electrofishing will be conducted as a single pass with a power-on effort of 400-600 seconds. The location of each sampling transect will be documented using a handheld GPS unit. The total shock time for the electrofisher unit at each location will be recorded. Due to the increased hazards associated with working in Project tailrace areas (shallow water with high velocity and limited access), only daytime electrofishing surveys are proposed.

6.6 TAILRACE SETLINES

Setline sampling is proposed for the capture of juvenile and adult white sturgeon in tailrace sections of the Project areas. Sampling timing, effort, and setup will be similar to that utilized during the reservoir sampling effort, with minimal alteration to adapt to shallower water conditions and shorter sampling reaches found in tailrace areas. Each tailrace will be sampled with two to four setlines fished during overnight hours. Tailrace setlines will consist of 5-15 meters of heavy test mainline and a range of baited hook sizes (e.g., 2/0, 3/0, 4/0, 6/0, or 8/0). The set time and pull time, maximum depth, substrate composition, and location coordinates will be recorded for each setline.

6.7 COLLECTION

Fish captured during electrofishing sampling will be netted by a two-person team and placed in an aerated live well for the duration of each sampling run. All fish will be released following processing unless specific individuals are retained as voucher specimens. A select number of fish will be retained at the Gem State Project location for tissue sampling in coordination with the Water Quality Study Plan (WQ-1).

All fish will be identified to species, enumerated, and batch weighed. Up to 20 individuals per sample of game species (white sturgeon, Yellowstone cutthroat trout, smallmouth bass, rainbow trout, brown trout, and mountain whitefish) will be individually recorded, including total length measurement, life stage (adult, juvenile, or young-of-the-year), and weight (nearest gram) so that length frequency and growth indices can be calculated. Any visual abnormalities in fish condition will be noted during the survey.

General information recorded will include impoundment name, gear type, GPS coordinates, stream habitat characteristics such as cover, substrate, and habitat composition (i.e., riffle, pool, run), crew member names, time of day, environmental (weather) conditions and in situ water chemistry (i.e., water temperature, dissolved oxygen, and conductivity). Representative photographs will be taken to document the specific location of the start point of electrofishing sampling as well as gillnet locations.

7.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

The Relicensing Team will acquire necessary permits to complete the AQ-1 fieldwork in spring of 2024 and will visit the Project Area in fall of 2024 to select sites and prepare for the 2025 surveys, shown in Table 3. Specific sampling dates will depend on water level/flow, ice cover, and water temperature concerns, but is estimated to be one time per season for 1-2 days at each location. A progress report will be provided as part of the Initial Study Report, discussing initial findings of the study to date, and a draft report will be distributed in March 2026 for a 30-day review. The final report will be included in the Draft License Application in September 2026.

TABLE 3 SCHEDULE FOR AQ-1 STUDY IMPLEMENTATION

Activity	2024			2025				2026		
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Obtain Scientific Collection Permit	▲									
Site Selection & Pilot Study			▲							
Reservoir Gillnet Sampling					▲	▲	▲			
Reservoir Electrofishing					▲	▲	▲			
Reservoir Setline Sampling					▲	▲	▲			
Tailrace Electrofishing					▲	▲	▲			
Tailrace Fyke Net Sampling					▲	▲	▲			
Tailrace Setline Sampling					▲	▲	▲			
Initial Study Report					●					
Draft Report								●		
Updated Study Report									●	
Draft License Application										●

▲ = Anticipated timing of AQ-1 data collection

● = Anticipated AQ-1 reports

7.1 CONSULTATION RECORD

With the filing of the Preliminary Application Document (PAD) and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during the relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. Table 4 lists all relevant comments received for AQ-1.

TABLE 4 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
9	11/30/2023	Idaho Department of Environmental Quality (IDEQ)	Idaho Falls Power will conduct a fish assemblage study to characterize composition and relative abundance of white sturgeon and salmonid species. PAD Section 6.0, p. 6-2; SD1 Section 5.0, Table 1, Resource Area 1, Proposed Study #2, p.15. While these are species of interest, DEQ recommends reporting on all species found or collected during sampling and updating documentation language to reflect these changes. DEQ utilizes species-specific data to gain the	Comment noted. The Final Technical Report for AQ-1 will list and identify all fish species collected during the study.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			fullest understanding of water quality.	
8	4/11/2024	Idaho Department of Fish and Game (IDFG)	The Applicant has indicated it would like to utilize velocity measurements to characterize fish habitat using a handheld velocity meter. IDFG recommends collecting a velocity profile from surface to bottom at one-meter intervals. Multiple velocity profiles may be needed to accurately measure the dynamic flow changes in a riverine system depending on field conditions. IDFG recommends this to better characterize velocity dynamics throughout the sample reach instead of just relying on one velocity measurement for the entire sample reach.	The current methodology for AQ-1 includes electrofishing sampling at sites with varying depths, all of which are less than 3 meters deep. Expanding the methods to include IDFG's approach would not add significant value, as described in Section 6.2. Measurement of mean water column velocity at the downstream and upstream extend of each electrofishing reach will be used to characterize the electrofishing sampling areas as containing generally slow (<0.15 mps), moderate (0.15-0.60 mps), or fast (>0.60 mps) water habitat.

8.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

9.0 REFERENCES

Idaho Department of Fish and Game (IDFG). 2007. Management Plan for Conservation of Yellowstone Cutthroat Trout in Idaho. April 2007.

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DESKTOP FISH ENTRAINMENT STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

DESKTOP FISH ENTRAINMENT STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by about 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing any changes to the existing Projects' operations or facilities. This Desktop Fish Entrainment Study (AQ-2) Plan is intended to assess existing aquatic resources with respect to management objectives and legal requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Fish species actively managed in the Projects' waters include coldwater salmonids (e.g., rainbow trout [*Oncorhynchus mykiss]* and Yellowstone cutthroat trout [*O. clarkii bouvieri]*), and white sturgeon (*Acipenser transmontanus*). The city of Idaho Falls and Idaho Fish and Game (IDFG) regularly stock game species in the Projects' waters to enhance angling opportunities.

Operation of the Projects has the potential to affect fish that inhabit the system. Desktop entrainment studies are a commonly used and accepted method to assess the risk of entrainment and evaluate turbine passage survival of entrained fish (Franke et al. 1997).

3.0 STUDY GOALS AND OBJECTIVES

The goals of AQ-2 are to assess how the operation of the Projects may affect the ability to achieve management objectives of resource agencies, with regard to fish species actively managed in the Projects' reservoirs (i.e., stocked salmonids and stocked adult white sturgeon). The objectives of AQ-2 are as follows:

1. Identify and describe the features and characteristics of each turbine at each of the Idaho Falls and Gem State developments that may influence entrainment and turbine passage survival of stocked adult white sturgeon, rainbow trout, brown trout (*Salmo trutta)*, Yellowstone cutthroat trout, mountain whitefish (*Prosopium williamsoni*), and smallmouth bass (*Micropterus dolomieu*).
2. Review and describe aquatic habitat near intake areas at the Projects to assess the potential for fish inhabiting those areas of the reservoirs.
3. Review and describe the biological and behavioral characteristics of rainbow trout, brown trout, Yellowstone cutthroat trout, mountain whitefish, smallmouth bass, and adult white sturgeon.
4. Characterize the potential risk of entrainment for rainbow trout, brown trout, Yellowstone cutthroat trout, mountain whitefish, and smallmouth bass.

4.0 GEOGRAPHIC SCOPE

AQ-2 will evaluate entrainment risk at the three developments associated with the Idaho Falls Project (Upper Plant, City Plant, and Lower Plant) and at the Gem State Project development.

5.0 STUDY METHODOLOGY

IFP proposes to assess the risk of entrainment of rainbow trout, brown trout, Yellowstone cutthroat trout, mountain whitefish, smallmouth bass, and stocked adult white sturgeon. These species were selected because they represent game species of management interest in the study area or were requested by IDFG in their comments to the Proposed Study Plan (PSP).

5.1 EXISTING INFORMATION

The Snake River from the Gem State Dam to the confluence of the South Fork of the Snake River is a coldwater fishery supporting stocked rainbow trout, brown trout, Yellowstone cutthroat trout, and mountain whitefish (IDFG 2019). IDFG and the City of Idaho Falls stock the Snake River between the Upper Plant of the Idaho Falls Project and the Gem State Project with fingerling and catchable-sized rainbow trout. Fish stocked in Gem Lake are mostly rainbow trout greater than 6 inches long, but rainbow trout less than 6 inches have also been stocked (IDFG 2022). The 39-mile-long reach of the Snake River upstream of the Upper Plant Dam to the confluence of the Henry's Fork and South Fork supports a trophy fishery for rainbow trout, brown trout, and cutthroat trout. Catch rates are generally relatively low upstream of the Projects, although trophy-size fish are caught. The 1976 Teton Dam failure and associated silt deposition caused a loss of spawning habitat in this reach (IDFG 2007). Some limited natural trout reproduction occurs upstream of the Projects. The reach downstream of the Gem State Project is managed for larger trout, with some stocking of adult rainbow trout occurring annually (IDFG 2019). Brown trout stocking occurred historically in this reach but was discontinued in 1999 (IDFG 2007). A catch-and-release fishery for white sturgeon is supported between the Idaho Falls Upper Plant and Gem State dams (IDFG 2019). Catchable-sized adult sturgeon (e.g., approximately 4 to 7 feet) have been stocked in recent years, as have sturgeon classified as "greater than 6 inches," which are often approximately 16 inches long (Idaho News 2019).

IDFG's overall management objectives for the Snake River in the Projects' areas include: 1) stocking of white sturgeon in the Projects' pools and evaluating success and the public's desire to engage in a limited sturgeon harvest; 2) offsetting limited spawning habitat by stocking trout and evaluating effectiveness, as well as maintaining put-and-take trout fishing opportunities; 3) evaluating thermal and physical trout habitat characteristics in the reach; 4) maintaining a trophy component to the fishery in some reaches, including assessment of additional regulations, and 5) improving angler access through easements or acquisitions (IDFG 2019).

Fisheries management goals specific to the reach of the Snake River encompassing the Projects include: 1) maintaining a catch rate for trout of 0.5 fish per hour through stocking, 2) monitoring of smallmouth bass populations, and 3) continued stocking of white sturgeon (IDFG 2019). Goals

related to the maintenance of a trophy trout fishery largely apply to reaches of the Snake River outside the Projects' areas. In contrast, goals within the Projects' areas emphasize angler success, catch rates, and opportunity.

5.2 METHODS

The planned study methods include analyzing the physical aspects of each development, investigating the biological characteristics and habitat of the target fish species, and using advanced modeling software to assess the risk of fish entrainment and estimate turbine passage survival. Where appropriate, data and information will be collected and analyzed in tandem with other study plans, such as AQ-1 (Fish Assemblage Study Plan) and AQ-3 (Aquatic Habitat Characterization Study).

1) **Review of Physical Characteristics of the Turbine and Intake Areas** – IFP will review and describe features of each hydropower development that apply to fish entrainment, including:

    - trash rack configuration (e.g., rack system layout, dimensions and clear spacing of trash rack bars) and gate/spill mechanisms;
    - approach velocity (feet per second [ft/s]) in front of the trash racks (calculated as: *turbine flow (cubic feet per second) / trash rack area (square feet)* at three flow operational thresholds (low, medium, high); and
    - turbine characteristics (e.g., power output, flow, turbine type and orientation, revolutions per minute, runner diameter, turbine efficiency, and head).

2) **Review of Biological Characteristics and Aquatic Habitat** – IFP will review relevant biological and behavioral characteristics of rainbow trout, brown trout, Yellowstone cutthroat trout, mountain whitefish, smallmouth bass, and adult white sturgeon that influence their susceptibility to entrainment, including total length, body width, burst swim speeds, and proclivity to migrate (i.e., requirements for obligatory downstream migration). In addition, IFP will assess and describe aquatic habitat near the intake areas of the Projects' developments and describe the habitat preferences of rainbow trout, brown trout,

Yellowstone cutthroat trout, mountain whitefish, smallmouth bass, and adult white sturgeon. This information will be used to assess the likelihood that target species for the study would interact with each of the Projects' turbines based on their habitat preferences and likely spatial distribution in impounded waters.

3) **Analysis of Entrainment Risk and Turbine Passage Survival** – Entrainment risk of each target species will be ranked as high, moderate, or low based on burst swim speeds (i.e., ability to avoid or resist intake velocities that could result in involuntary entrainment), body size and trash rack spacing (likelihood that a fish of given size would pass through trash racks), habitat preference or availability of habitat near the intake area, and the tendency to migrate.

   - **High Risk** – Approach velocity is greater than burst swim speed, body width is narrower than trash rack bar spacing, and the species is migratory or likely to use habitat near the intake areas.
   - **Moderate Risk** – Approach velocity is equal to or close to burst swim speed, fish may not be physically excluded by trash rack bars, and the species is migratory or likely to use habitat near the intake areas.
   - **Low Risk** – Fish burst swim speed is greater than the calculated approach velocity (fish can swim away from intake area), or trash rack bar spacing prevents fish entrainment, non-migratory and limited aquatic habitat near intake.

Burst swim speed information will be identified from a literature review of available information. In instances where information on swim speeds is not readily available, burst swim speed estimates will be derived using the following equation developed by the United States Fish and Wildlife Service (USFWS 2019):

Burst Swimming Speed (ft/s) = (Fish length (ft) x 3 body lengths per second (ft/s) *(2)1

Turbine passage survival estimates will be made for species at moderate or high risk at any of the hydropower developments (i.e., could physically fit through the trash racks and with swim speeds equal to or less than calculated approach velocities). Turbine passage survival estimates will be derived using information from previous studies described in the Electric Power Research

Institute's database for field entrainment studies completed at hydropower projects using sites similar to IFP's hydroelectric facilities (EPRI 1997). In addition, researchers will use STRYKE, a non-proprietary open-source software created by Kleinschmidt, which incorporates a turbine blade strike model based on Franke et al. (1997) and validated with the U.S. Fish and Wildlife Service's (USFWS) Turbine Blade Strike Analysis model (Towler and Pica 2020). The USFWS model provides a user-friendly format to enter turbine information (e.g., revolutions per minute, runner diameter) and fishery data (run size, route of passage, and fish length) to predict turbine passage survival. Although user-friendly, the USFWS model is somewhat limited because it must be manually run for each scenario of interest and provides a single estimate of turbine passage survival. Like the USFWS model, the STRYKE model is based on the Franke et al. (1997) turbine blade strike equations; however, it is automated so it can be run multiple times to increase sample size and statistical power (e.g., calculations of variance, confidence intervals) for the estimates. The STRYKE model will be run at three hydraulic conditions: low flow (turbines not operated at full output), normal flow (turbines at full load with no spill), and high flow (turbines at full load, significant spill over the dam).

IFP will then develop a report describing the findings of the desktop entrainment risk assessment that provides information on turbine and site characteristics; biological and behavioral characteristics of rainbow trout, brown trout, Yellowstone cutthroat trout, mountain whitefish, smallmouth bass, and stocked white sturgeon; a review of field studies completed at similar projects, if available (from EPRI 1997); an entrainment risk assessment; and results from the STRYKE model in instances where entrainment is classified as moderate or high.

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

This study is a desktop analysis, which will be conducted late 2025 as shown in Table 1. No data will be available for the Initial Study Report, but a Draft Report will be distributed in spring 2026 for a 30-day review. The Final Report will be included in the Draft License Application in September 2026.

TABLE 1 STUDY PLAN DEVELOPMENT MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Desktop analysis	Fall 2025
Initial Study Report	June 2025
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

6.1 CONSULTATION RECORD

With the filing of the Preliminary Application Document (PAD) and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during the relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a PSP on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. Table 2 lists all comments relevant to AQ-2 that have been received.

TABLE 2 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON THE AQ-2 STUDY PLAN

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
9	04/11/2024	Idaho Department of Fish and Game (IDFG)	In the Applicant's proposed desktop entrainment study plan, IDFG requests the study be modified to additionally include mountain whitefish, brown trout, and smallmouth bass in its analysis. IDFG makes this request to modify this study consistent with 18 CFR § 5.12 and using the criteria articulated in 18 CFR § 5.9:	Noted, Mountain Whitefish, Brown Trout, and Smallmouth Bass have been added to this plan. As noted during the PSP call on February 14, 2024, the models that will be used for the study rely on fish length, no matter which species is being evaluated.

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

Electric Power Research Institute (EPRI). 1997. Turbine Entrainment and Survival Database-Field Tests. Prepared by Alden Research Laboratory, Inc. EPRI Report No. 108630.

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AQUATIC HABITAT CHARACTERIZATION STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

AQUATIC HABITAT CHARACTERIZATION STUDY PLAN

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Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls and Gem State Project Boundaries are separated by about 1.6 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the impoundment of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing changes to the existing Idaho Falls Project and Gem State Project operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

The Snake River in the Idaho Falls and Gem State Project vicinities is designated for coldwater aquatic life, salmonid spawning, recreation, and agricultural and domestic water supplies (IDEQ 2004). The aquatic habitats in these Project areas are primarily low gradient, meandering, and impounded waters, with small free-flowing reaches scattered throughout (FERC 1983). IFP operates the Idaho Falls and Gem State Projects as run-of-river facilities, which limits fluctuation of the impoundments and results in stable river levels during normal operations. Run-of-river operations minimize the effects of hydropower operations on aquatic habitats because of the stable flow regime compared to peaking hydropower operations. As described in the Preliminary Application Document (PAD), water withdrawals for irrigation result in diversions that affect river flows in the Project area (IFP 2023). An irrigation diversion structure for the Porter Canal (Site ID 13057250) is located between City Plant and Upper Plant; up to 364 cubic feet per second (cfs)

may be diverted to farmlands southwest of the city of Idaho Falls (IDWR 2022). The Woodville Canal Company and the Snake River Irrigation District have water rights that authorize diverting 1,604 cfs from the Snake River via canals off the Gem State Project reach. Diversions for irrigation are primarily restricted to the April through October growing season.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Ongoing operations from the Projects have the potential to prevent the attainment of resource management objectives relative to aquatic habitat. IFP plans to complete the Aquatic Habitat Characterization Study (AQ-3) to characterize existing free-flowing aquatic and riverine habitats in the Project areas and identify any existing coldwater salmonid spawning habitats.

3.0 STUDY GOALS AND OBJECTIVES

The goal of AQ-3 is to inventory free-flowing aquatic habitats within the Idaho Falls Project and Gem State Project Boundaries and determine how operations at each Project interact with existing aquatic habitats. The objectives of AQ-3 are to:

- characterize and map aquatic habitat within the free-flowing sections of the Snake River located within the Project areas, and
- identify potential spawning habitat for salmonids and characterize substrate and definitive features (e.g., water velocity, substrates) within those areas.

4.0 GEOGRAPHIC SCOPE

The AQ-3 study area will focus on the reaches downstream of the Projects' dams (Figure 1

Idaho Falls Upper Plant Aquatic Habitat Survey AreaFigure 1, Figure 2, and Figure 3). Specifically, the study area includes:

- the 0.5-mile-long reach downstream of Upper Plant Dam No. 1,
- the 0.3-mile-long reach downstream of City Plant Dam,
- the 0.2-mile-long reach downstream of Lower Plant Dam, and
- the 0.5-mile-long reach downstream of Gem State Dam.

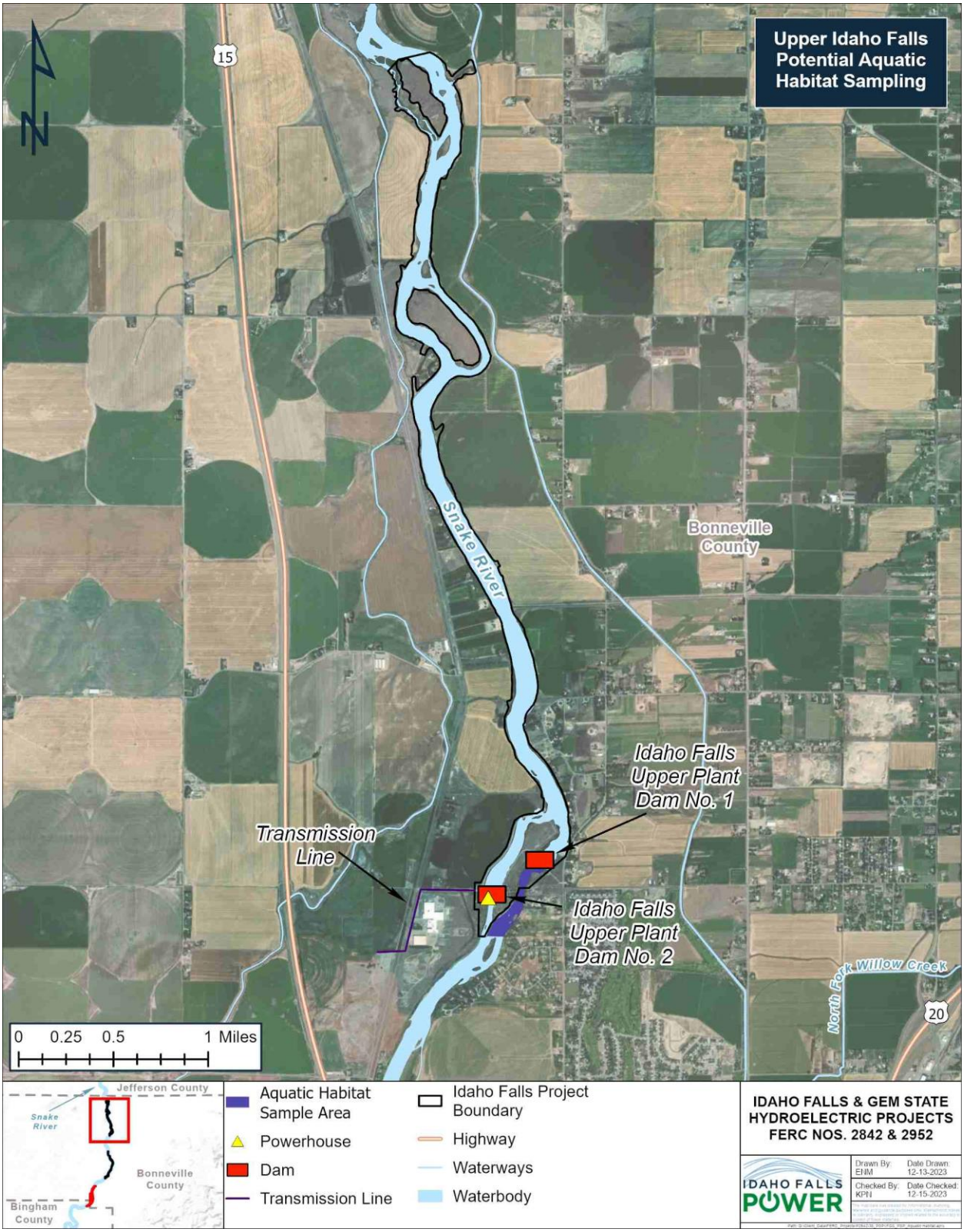

FIGURE 1 IDAHO FALLS UPPER PLANT AQUATIC HABITAT SURVEY AREA

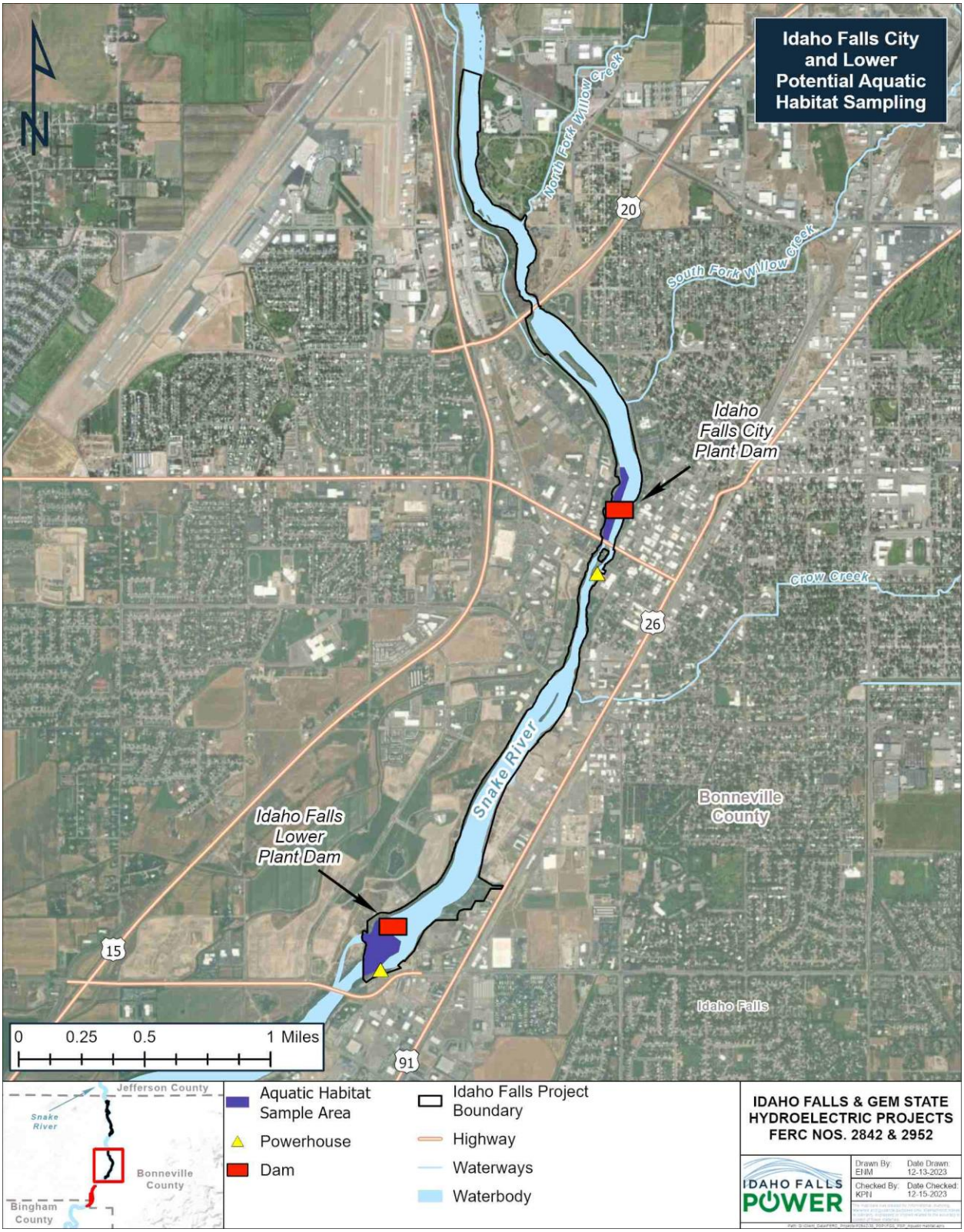

FIGURE 2 IDAHO FALLS CITY PLANT AND LOWER PLANT SURVEY AREA

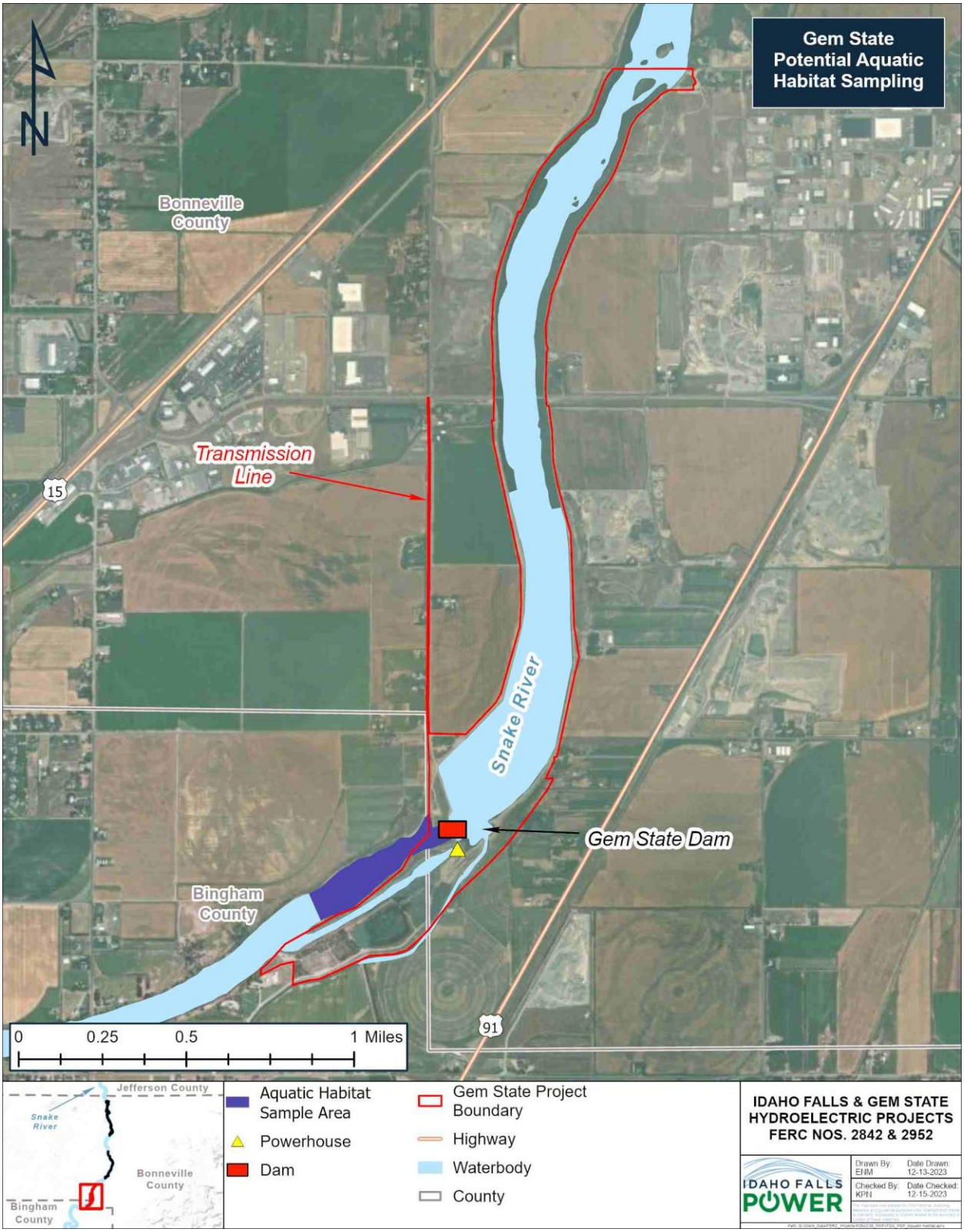

FIGURE 3 GEM STATE AQUATIC HABITAT SURVEY AREA

5.0 STUDY METHODOLOGY

5.1 EXISTING INFORMATION

The Idaho Falls Project is in the Upper Snake River Subbasin, a 2,438-square-mile watershed in Idaho, Montana, Wyoming, Utah, and Nevada (IDEQ 2023). The Gem State Project is just to the south of the Idaho Falls Project within the American Falls Subbasin, which drains 2,869 square miles (IDEQ et al. 2012). Outside the developed urban area of Idaho Falls, the Snake River near the Idaho Falls and Gem State Projects is wide, slow, and meanders through flat, irrigated cropland (FERC 1983). The short river reaches downstream of each dam are dominated by excavated basalt bedrock. The Upper Plant has a 100 cfs minimum flow requirement from Dam No. 1, and the Gem State Project has a required bypass flow of 20 cfs. Two free-flowing sections of river are outside of the FERC Project Boundaries: an approximately 1-mile-long reach between the Upper Plant tailrace and the upstream end of City Plant's impoundment, and a 1.6-mile-long reach between the Lower Plant tailrace and the Gem State Project's impoundment. There are two United States Geological Survey (USGS) gages near the Idaho Falls and Gem State Projects; water surface elevations between the two USGS gages drop approximately 131 feet over 17.1 miles, resulting in a gently sloping channel with a gradient that averages less than 1 percent.

Generally, the Snake River near the Idaho Falls and Gem State Projects can be described as slightly basic, hard water, rich in dissolved material and nutrients with high concentrations of total residue and associated turbidity levels (FERC 1983). Upstream of the Idaho Falls Project, the Snake River has multiple channels and is characterized by several riffle and pool sections. The river then forms a single channel, straightens, and becomes more tranquil as it enters the Upper Plant impoundment (IFP 2023).

The Upper Plant's impoundment has a surface area of 100 acres at a normal pool elevation of 4,734.7 feet National Geodetic Vertical Datum of 1929 (NGVD 29). It extends approximately 2 miles upstream from the dam. The deepest part of the river in the Project areas is upstream of Upper Dam No. 1, where the reservoir is nearly 80 feet deep (Zufelt et al. 1990). The City Plant's impoundment has a surface area of 50 acres at a normal pool elevation of 4,700 feet NGVD 29 and extends approximately 1 mile upstream from the dam. The Lower Plant's impoundment has a

surface area of 100 acres at a normal pool elevation of 4,674 feet NGVD 29 and extends approximately 2 miles upstream.

The Snake River in the Gem State Project area is of moderate gradient, falling approximately 1.8 feet per 1,000 feet of stream length (FERC 1983). The substrate in this reach includes gravel, boulders, and basaltic bedrock. The stream width is approximately 500 feet at the dam site, but rapidly narrows downstream of the dam to a width of approximately 150 feet. The Snake River downstream of the Idaho Falls and Gem State Projects is generally a wide, slow, meandering river passing through flat, irrigated cropland (FERC 1983). Shorelines within the Gem State Project Boundary are primarily deposits of silts, sands, and gravels approximately 10 feet to 20 feet thick overlying local basalts on both sides of the Snake River. The southern half of the Gem State Project shoreline consists of engineered water-retaining dike structures, while the northern half is engineered dikes with impervious cores.

The primary fishery resources in the Projects' areas include stocked salmonids (e.g., rainbow trout, brown trout) and a stocked, catch-and-release fishery for white sturgeon between the Upper Plant and the Gem State Dam (IDFG 2019). In addition, native species, including Yellowstone cutthroat trout, mountain whitefish, Utah chub, redside shiner, Utah sucker, mountain sucker, and mountain sculpin, may inhabit the river in the Project area. Non-native species include white sturgeon, rainbow trout, brown trout, brook trout, green sunfish, bluegill, smallmouth bass, largemouth bass, and yellow perch (IDFG 2019).

Water resources of the Upper Snake River Basin were developed extensively for irrigation, power generation, aquaculture, and municipal and industrial supply (IWRB 1998). Diversions above the USGS gaging station on the Snake River above Eagle Rock near Idaho Falls (USGS Gage No. 13057155) provide irrigation for approximately 700,000 acres (USGS 2022). The Idaho Falls and Gem State Projects are located within Idaho Water District No. 1 (District), which manages approximately 345 surface water diversions (IDWR 2020). These diversions account for approximately 1,142 surface water rights, authorizing a combined diversion rate of over 122,000 cfs (IDWR 2022). Flows at the Idaho Falls and Gem State Projects are equal most of the year (IDWR 2022).

5.2 METHODS

IFP proposes to map existing aquatic habitat in the riverine reaches downstream of each dam within the FERC Project Boundaries. IFP will document the types and distribution of aquatic mesohabitat types (e.g., riffles, runs, pools) by performing a pedestrian, wading, or boating survey in each study reach. As possible, habitat mapping surveys will occur in the late summer or early fall during low flow, non-spill conditions. Biologists will wade, walk or boat upstream towards each dam in safely accessible areas to characterize and map each mesohabitat unit.

Within each mesohabitat unit, IFP will:

- identify and document areas classified as being favorable for Yellowstone cutthroat trout, rainbow trout, brown trout and mountain whitefish spawning (based on substrate type, substrate size, depth and water velocity),
- measure wetted length and wetted width,
- measure water depth and water velocity and characterize substrates in wadable areas at multiple points at approximately 1-meter intervals at 2 to 3 transects across the stream bed to characterize different microhabitat conditions (i.e., areas of varying depth, substrate, and water velocity),
- identify dominant substrate types using a modified Wentworth Scale (Table 1),
- assess available instream cover (e.g., undercut banks, depth, woody debris, boulders),
- measure water temperature and dissolved oxygen content with a YSI 550 handheld meter (or similar model),
- take photographs,
- note observations of fish or other aquatic fauna, and
- record global positioning system (GPS) coordinates.

For safety reasons, habitat surveys will not be completed downstream of the dams during high flow and spill conditions; however, if spawning habitat is identified in the reaches during initial habitat mapping, IFP will take photographs of the study reaches during higher flow conditions in April, May, November, and December (i.e., times of the year when rainbow trout, Yellowstone cutthroat trout, and mountain whitefish spawning could occur) to document changes in river flow

conditions. The upstream and downstream boundaries of each mesohabitat type will be recorded with GPS technology and transferred to a geographic information system (GIS). IFP will develop a habitat mapping report that summarizes the results of the surveys and provides GIS maps of existing aquatic habitats. The habitat maps and report will include potential spawning habitat for Yellowstone cutthroat trout, rainbow trout, brown trout, and mountain whitefish and the features used to classify those areas (e.g., depth, water velocity, substrates). Field data will be provided in tabular and graphic format.

TABLE 1 MODIFIED WENTWORTH SCALE FOR CLASSIFYING SEDIMENTS*

CATEGORY	TYPE	GRAIN DIAMETER (MM)
Boulder	Boulder	250–1000
Gravel or Cobble	Cobble	65–250
	Large Gravel	4–65
	Small Gravel	2–4
Sand		0.0625 - 2
Mud/Fines		Less than 0.0625

* Adapted from the Wentworth scale (Wentworth 1922)

6.0 SCHEDULE, REPORTING, AND CONSULTATION

Agencies will be invited to attend a site selection and field reconnaissance trip during the summer of 2025 prior to implementation of the AQ-3 Study. Following the site selection, field surveys will begin in late summer or early fall during low flow, non-spill conditions in 2025, as shown in Table 2. Dependent on timing, preliminary information may be provided in the Initial Study Report, discussing initial findings to date, and a draft report will be distributed in April 2026 for a 30-day review. The final report will be included in the Draft License Application in September 2026.

TABLE 2 STUDY PLAN MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Site Selection	Spring/Summer 2025
Study Implementation	Late Summer- Early Fall 2024
Initial Study Report	June 2025
Draft Report	April 2026
Updated Study Report	July 2026
Draft License Application	September 2026

6.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during the relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 (SD2) on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. IFP met with BLM on March 14, 2024, to discuss their comments prior to the April 13, 2024, comment deadline. Table 3 lists those comments received relevant to the AQ-3 Plan.

TABLE 3 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
27	11/30/2023	Bureau of Land	The BLM respectfully requests a study to evaluate the above-mentioned channel conditions, and their potential	FERC's NEPA approach focuses on the current conditions as the

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
		Management (BLM)	departure from historic conditions. The downstream effect of the dams associated with this relicensing effort will vary spatially and should be considered in the study design. For this reason, and in conjunction with this study request, the BLM offers subject matter experts to assist with selection of appropriate study personnel, development of study design and scope, review of the study results, identification of treatment and mitigation projects, and other assistance to benefit public lands. The BLM suggests that the study or studies be conducted by personnel with experience in evaluating the above-mentioned channel conditions and that results should be quantitative and shared with willing partners so they may assist with mitigation of these vital resources.	baseline for evaluating project effects and alternatives. This does not include pre-project conditions that would have existed prior to project development. FERC does not generally require the applicant to recreate or study pre-project conditions. IFP has minimum flow requirements as required in the current license in the two applicable bypass reaches, which maintain aquatic biota and habitat. AQ-3 will evaluate the potential effects of proposed continued operations on fishery resources with specific management objectives (e.g., stocked salmonids and stocked sturgeon), not large-scale riverine processes that were affected during

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
				initial dam construction. IFP believes that AQ-3 as proposed is consistent with those issues identified by FERC in SD2.
28	11/30/2023	BLM	If study results indicate that channel degradation and substrate coarsening has occurred downstream of a reservoir and that there is excess fill material at the upstream entrance to the reservoir, a mutually beneficial project to dredge the fill material and place it below the reservoir for mitigation may be considered. Facility operators could take dredged material from the reservoir and place it below the impoundment.	See above comment.
10	04/11/2024	Idaho Department of Fish and Game (IDFG)	The Applicant has detailed that diversions are primarily restricted to the April-October growing season on page 2. The Applicant may wish to also acknowledge any managed aquifer recharge that can occur outside the irrigation season. Managed recharge diversion data can be obtained from Water District 01 or the Idaho Department of Water Resources.	Noted, the data will be reviewed prior to implementation of the study efforts and will be taken into consideration when carrying out efforts.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
11	04/11/2024	Idaho Department of Fish and Game (IDFG)	On page 8, the Applicant has indicated it will measure water depth and water velocity in wadable areas at five (5) to seven (7) points across the streambed to characterize different microhabitat conditions. IDFG needs further justification as to the selection of only five (5) to seven (7) points across the stream bed within 0.2 to 0.5 mile reaches. This is a low number of data collection points and IDFG needs further description and justification of how this proposed study could work. IDFG requests the Applicant modify the study to collect additional data points along with substrate composition and velocity. Typically, the reach would be broken into cells (e.g. one meter by one meter) and a depth, substrate, and velocity measurement are collected for each cell. The Applicant should also recognize that depth and velocity conditions may be drastically different when different fish are spawning due to seasonal changes in river flows.	Measurements of depth and velocity will be taken at approximately 1-meter intervals across the streambed at 2 to 3 transects within each study area. Substrates will also be classified at 1-meter intervals. Study Aq-3 has been updated to reflect these changes. IFP acknowledges that depth and velocity conditions in the study reaches may change depending on the time of year; however, the projects are all operated as run-of-river, so conditions are expected to be approximately equal during non-spill conditions. For safety reasons, habitat surveys will not be completed downstream of the dams during high flow and spill conditions.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
12	04/11/2024	Idaho Department of Fish and Game (IDFG)	The Applicant does not specifically identify which fish species the habitat maps will be created for (only identified "salmonids") nor does it describe for what season or when the maps will be created. Given that lack of detail, IDFG recommends the study produce habitat maps using depth and velocity with the appropriate flow rate for when Yellowstone Cutthroat Trout, Rainbow Trout, Brown Trout, and Mountain Whitefish are spawning. Because these hydropower projects operate in run-of-river mode, different flow regimes will be encountered during different seasons (e.g. flows will be much higher during spring run-off VS winter low flow periods). Different flow rates can cause drastic shifts in both depth and velocity, while substrate will generally remain the same. The habitat features used to classify spawning habitat for salmonids are substrate, river depth, and river velocity. IDFG is most interested in development of spawning habitat maps for Rainbow Trout (spawn during April and May), Yellowstone Cutthroat Trout (Spawn May-Early June),	Species of concern (Yellowstone cutthroat trout, rainbow trout, brown trout and mountain whitefish) have been included in the RSP (AQ-3) and will be the focus of this study. A map depicting the mesohabitats (e.g., riffles, runs, pools) in the study area will be developed and include areas, if any, of potential spawning for the identified species above. For safety reasons, habitat surveys will not be completed downstream of the dams during high flow and spill conditions; however, if spawning habitat is identified in the reaches during habitat mapping, IFP will take photographs of the study reaches during higher flow conditions in April, May, November, and December (i.e.,

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Brown Trout (Spawn during October and November, and Mountain Whitefish (Spawn during November and December). This information will be helpful to understand spawning habitat created by the hydroelectric projects and help inform ways to improve sport fishing opportunities in the Snake River.	rainbow trout, Yellowstone cutthroat trout, and Mountain whitefish spawning periods) to document changes in river flow conditions.

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected as representing an appropriate balance between cost effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

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BOTANICAL RESOURCES STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS FERC PROJECT NOS. 2842 AND 2952

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS (FERC PROJECT NOS. 2842 AND 2952)

BOTANICAL RESOURCES STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842 and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by approximately 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing changes to the existing Idaho Falls Project and Gem State Project operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Continued project operations and maintenance activities have the potential to affect botanical resources, including federal Endangered Species Act (ESA)-listed plant species, special status species, and riparian and wetland habitat. This Botanical Resources Study (TERR-1) Plan details IFP's proposed study objectives, study area, methods, and schedule to address these three corresponding resource areas.

3.0 EXISTING INFORMATION AND NEED FOR ADDITIONAL INFORMATION

3.1 SPECIAL STATUS AND ESA-LISTED PLANT SPECIES

For the purposes of TERR-1, a special status plant species is defined as a plant that meets one or more of the following criteria: (1) listed by the United States Department of the Interior Bureau of Land Management (BLM) as sensitive and occurs on federal lands administered by BLM; (2) listed by NatureServe Global (NatureServe Explorer 2023) including species that are rated as G1 through G5; or (3) state-listed rare or a state candidate for listing under State Conservation Status Ranks S1 through S3 (IDFG 2023).

In 1973, the ESA was implemented to protect plants, animals, and associated habitats at risk of extinction. The United States Department of Interior Fish and Wildlife Service (USFWS), along with the National Oceanic and Atmospheric Marine Fisheries Service, administer the ESA and list species as either federally Endangered (FE) or federally Threatened (FT); additionally, species may be identified as candidates or proposed for listing under the ESA. Endangered species are "…in danger of extinction throughout all or a significant portion of its range." Threatened species are defined as being "…likely to become an endangered species within the foreseeable future" (USFWS 2017a). Candidate species are those that USFWS has sufficient information to propose for listing under the ESA but have not yet been listed due to other higher priority listing activities (USFWS 2017b).

Existing, relevant, and reasonable available information concerning special status plant species and ESA-listed plant species known or with the potential to occur within the Idaho Falls Project and Gem State Project Boundaries is summarized in Section 5.4.4 of the Preliminary Application Document (PAD; IFP 2023). As described in the PAD, eight special status plant species have the potential to occur within the study area (Table 1), however, *Spiranthes diluvialis* (Ute ladies'-tresses) is the only ESA-listed species with the potential to occur (IFP 2023). The Ute ladies'-tresses orchid utilizes moist soils along riparian edges, gravel bars, old oxbows, and moist-wet meadows along perennial streams where vegetation is present, but not dense (USFWS 1995). This orchid prefers a range of soils from fine silt/sand to gravels and cobbles. Ute ladies'-tresses are not

known to exist within the Idaho Falls Project Boundary, although there have been observations in Bonneville County (IDFG 2022).

TABLE 1 PROTECTED SPECIES WITH POTENTIAL TO OCCUR IN THE IDAHO FALLS PROJECT AND GEM STATE PROJECT BOUNDARIES

COMMON NAME	SCIENTIFIC NAME	STATE RANK	GLOBAL RANK	OTHER CONSERVATION STATUS	FEDERAL LISTING
Alaska bluegrass	*Poa paucispicula*	S1	G5T5		
Hooker's buckwheat	*Eriogonum hookeri*	S1	G5	BLM-S	
Narrowleaf milkweed	*Asclepias fascicularis*	SNR	G5		
Payson's bladderpod	*Physaria carinata* ssp. *paysonii*	S2	G3	BLM-S	
Showy milkweed	*Asclepias speciosa*	SNR	G5		
Swamp milkweed	*Asclepias incarnata*	S2?	G5		
Ute ladies'-tresses	*Spiranthes diluvialis*	S1	G2G3	BLM-S	Threatened
Whitebark pine	*Pinus albicaulis*	S3	G3G4	BLM-S	Candidate

Source: IDFG 2023, IFP 2023

G = Global rank indicator; denotes rank based on range-wide status.

T = Trinomial rank indicator; denotes the global status of infraspecific taxa.

S = State rank indicator; denotes rank based on status within Idaho.

SNR - Not ranked.

1 = Critically imperiled because of extreme rarity or because a factor of its biology makes it especially vulnerable to extinction (typically five or fewer occurrences).

2 = Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (typically 6 to 20 occurrences).

3 = Rare or uncommon but not imperiled (typically 21 to 100 occurrences).

4 = Not rare and secure, but with cause for long-term concern (usually more than 100 occurrences).

5 = Demonstrably widespread, abundant, and secure.

? - Uncertainty exists about the stated rank

BLM-S – BLM Sensitive species

3.2 RIPARIAN AND WETLAND HABITAT

Federal policy defines wetlands as "…areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and which, under normal circumstances do

support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (Prichard et al. 1993). These can include marshes, lakeshores, bogs, muskegs, shallow swamps, wet meadows, estuaries, and riparian areas (Prichard et al. 1993). Riparian areas are "…a form of wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Land along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are sites like ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil" (Prichard et al. 1993).

The two natural biotic plant communities within the Idaho Falls Project and Gem State Project areas are grass-shrub and mixed riparian communities. Riparian communities occur in bands of vegetation approximately 6 to 90 feet wide on either side of the Snake River and include herbaceous and woody riparian types. Section 5.5.1 of the PAD discusses wetland, riparian, and littoral habitats known or with the potential to occur within the Projects' Boundaries in detail.

3.3 INVASIVE PLANT SPECIES

For TERR-1, an invasive species is defined under the Idaho Invasive Species Act of 2008 as a, "…species not native to Idaho, including their seeds, eggs, spores, larvae or other biological material capable of propagation, which cause economic or environmental harm and are capable of spreading in the state. 'Invasive species' does not include crops, improved forage grasses, domestic livestock, or other beneficial nonnative organisms" (Idaho State Legislature 2023a). Furthermore, noxious weeds are defined as, "…any plant having the potential to cause injury to public health, crops, livestock, land or other property; and which is designated as noxious by the director" (Idaho State Legislature 2023b).

Section 5.4.4.2 of the PAD describes the terrestrial invasive species and noxious weeds known to occur in Idaho. Additionally, refer to Section 5.5.2.2 of the PAD for information on aquatic invasive species. Invasive plant species known to occur in Idaho are listed in Table 2.

TABLE 2 IDAHO TERRESTRIAL INVASIVE PLANT LIST

COMMON NAME	SCIENTIFIC NAME
Statewide EDRR List[1]	
Cogon grass	*Imperata cylindrica*
Giant hogweed, showy milkweed	*Heracleum mantegazzianum, Asclepias speciosa*
Goatsrue	*Galega officinalis*
Iberian starthistle	*Centaurea iberica*
Policeman's helmet	*Himalayan balsam*
Purple starthistle	*Centaurea calcitrapa*
Squarrose knapweed	*Sentaurea virgata*
Syrian beancaper	*Zigophyllum fabagl*
Tall hawkweed	*Hieracium piloselloides*
Turkish thistle	*Carduus cinereus*
Yellow devil hawkweed	*Pilosella caespitosa*
Statewide Control List[2]	
Black henbane, pygmy poppy	*Hyoscyamus niger*
Bohemian knotweed	*Fillopia x bohemica*
Buffalobur	*Salvia aethiopis*
Dryer's woad	*Hyoscyamus niger, Eschscholzia minutiflora* ssp. *covillei*
Giant knotweed	*Reynoutria japonica*
Japanese knotweed	*Pilosella aurantiaca*
Johnsongrass	*Sonchus arvensis*
Matgrass	*Hordeum vulgare*
Mediterranean sage	*Rhaponticum repens*
Musk thistle	*Carduus nutans*

COMMON NAME	SCIENTIFIC NAME
Meadow knapweed	*Centarea debeauxii*
Mommon crupina	*Crupina vulgaris*
Orange hawkweed	*Isatis tinctoria*
Perennial sowthistle	*Solanum rostratum*
Russian knapweed	*Reynoutria sachalinensis*
Scotch broom	*Cytisus scoparius*
Small bugloss	*Anchusa arvensis*
Viper's bugloss	*Echium vulgare*
Yellow hawkweed	*Hieracium caespitosum*
Statewide Containment List[3]	
Canada thistle, Payson's bladderpod	*Cirsium arvense*, *Physaria carinata* ssp. *paysonii*
Dalmatian toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaria diffusa*
Field bindweed	*Convolvulus arvensis*
Houndstongue	*Cynoglossum officinale*
Hoary alyssum	*Berteroa incana*
Jointed goatgrass	*Aegilops cylindrica*
Leafy spurge	*Euphorbia esula*
Milium	*Milium* spp.
Oxeye daisy	*Leucanthemum vulgare*
Perennial pepperweed	*Lepidium latifolium*
Plumeless thistle	*Carduus acanthoides*
Poison hemlock	*Conium maculatum*
Puncturevine	*Lythrum salicaria*
Purple loosestrife	*Lythrum salicaria*

COMMON NAME	SCIENTIFIC NAME
Rush skeletonweed	*Chondrilla juncea*
Saltcedar, Tamarisk	*Tamarix* spp.
Scotch thistle	*Onopordum acanthium*
Spotted knapweed	*Centaurea stoebe*
Tansy ragwort	*Jacobaea vulgaris*
White bryony	*Bryonia alba*
Whitetop	*Lepidium draba*
Yellow starthistle	*Centaurea solstitialis*
Yellow toadflax	*Linaria vulgaris*
Statewide Prohibited Genera[4]	
Chameacytisus	
Cytisus	
Genista	
Spartium	

Source: ISDA 2022

1 Early Detection Rapid Response– (EDRR) Weeds shall be eradicated during the same growing season as identified.

2 Control– Concentration of weeds where control and/or eradication may be possible.

3 Containment– Reduce or eliminate new or expanding weed populations.

4 Statewide Prohibited Genera– All plants, plant parts, and subtaxa of listed genera are prohibited in Idaho.

4.0 STUDY GOALS AND OBJECTIVES

The goals of TERR-1 are to: (1) identify if there is suitable habitat for special status, ESA-listed, and invasive plant species in the Idaho Falls Project and Gem State Project Boundaries; (2) assess the extent of cottonwood and willow wetland habitat within the Projects' Boundaries; and (3) if suitable habitat for special status, ESA-listed, and invasive plant species is found within the study area, TERR-1 will also evaluate the extent of species distribution and associated habitat.

The objective of TERR-1 is to gather sufficient data necessary to fill gaps in existing information.

5.0 GEOGRAPHIC SCOPE

The TERR-1 study area consists of the land and the Project features within the Idaho Falls Project and Gem State Project Boundaries and excludes the 1.9 miles of free-flowing river between the Project Boundaries. Privately owned land is not included in the study area. The study area will include a 100-foot buffer from all Project features where disturbance is expected to occur (excluding private land). This buffer is shown in Figures 1 through 5. As described further in Section 6.0, *Study Methodology*, portions of the study area may be eliminated from the initial habitat assessment field survey if data from the desktop analysis indicates suitable habitat is unlikely to be found. Should follow up surveys be required, the study would be limited to areas of potential habitat identified during the initial habitat assessment.

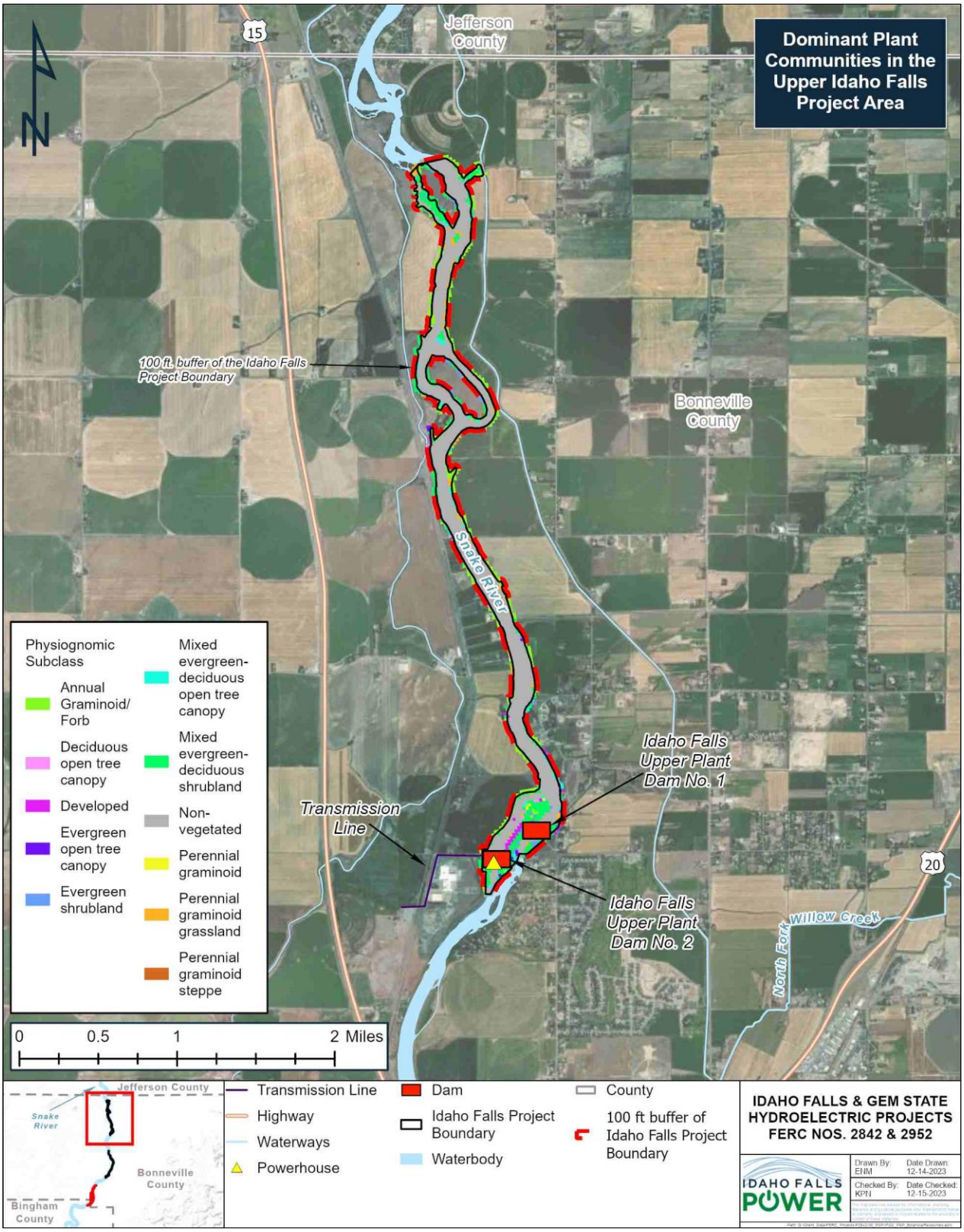

FIGURE 1 IDAHO FALLS UPPER PLANT DOMINANT PLANT COMMUNITIES

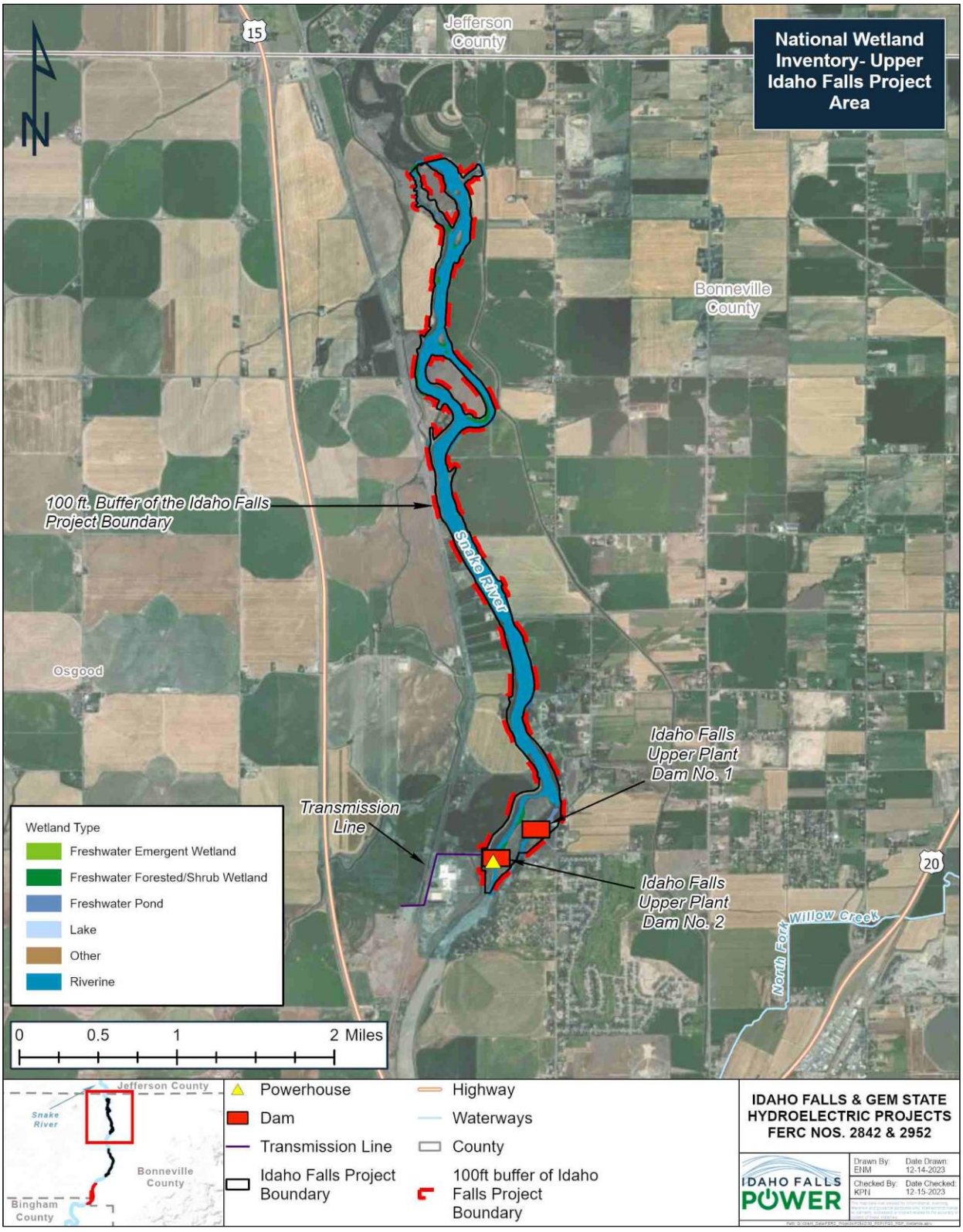

FIGURE 2 IDAHO FALLS UPPER PLANT WETLAND TYPES

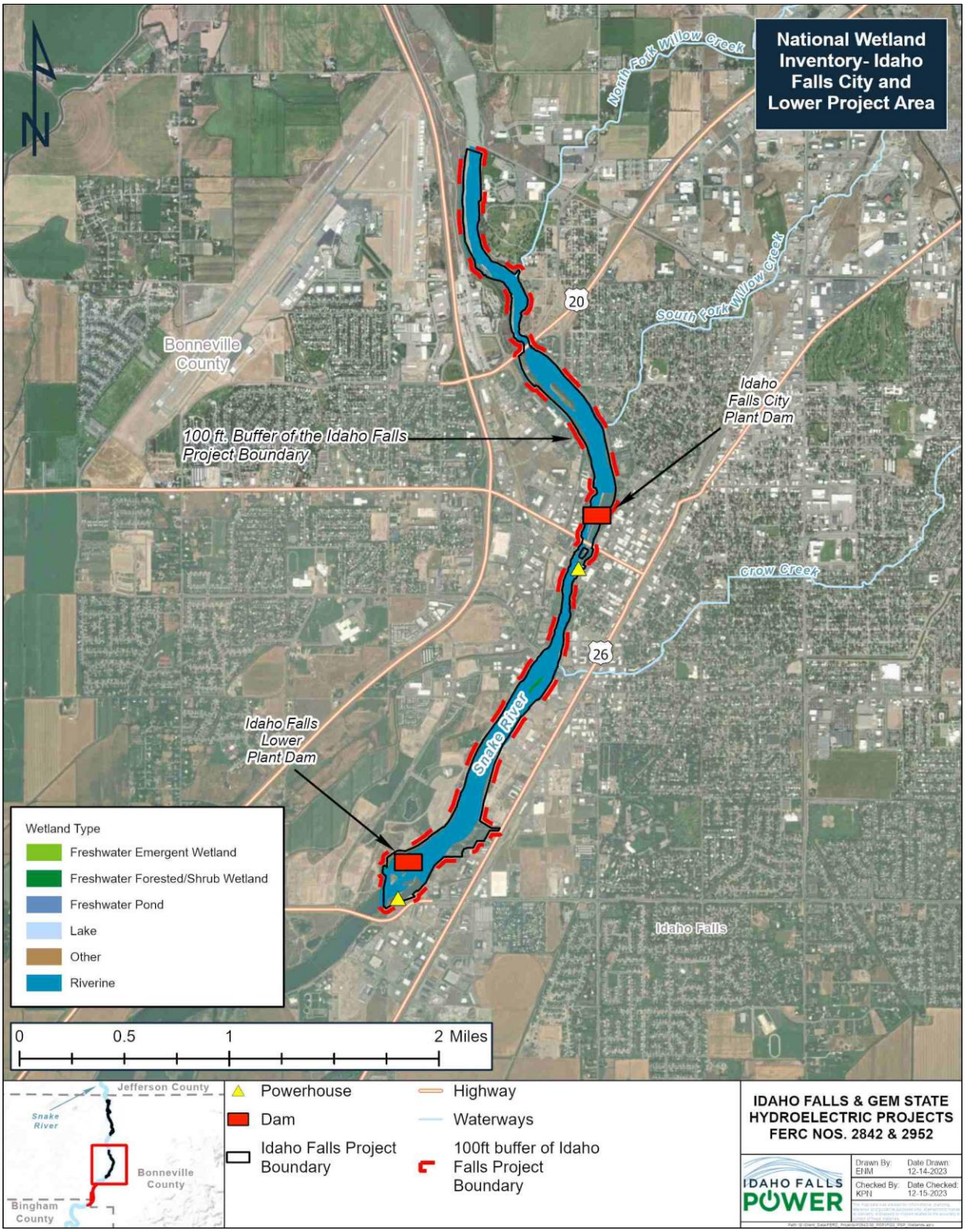

FIGURE 3 IDAHO FALLS CITY PLANT AND LOWER PLANT WETLAND TYPES

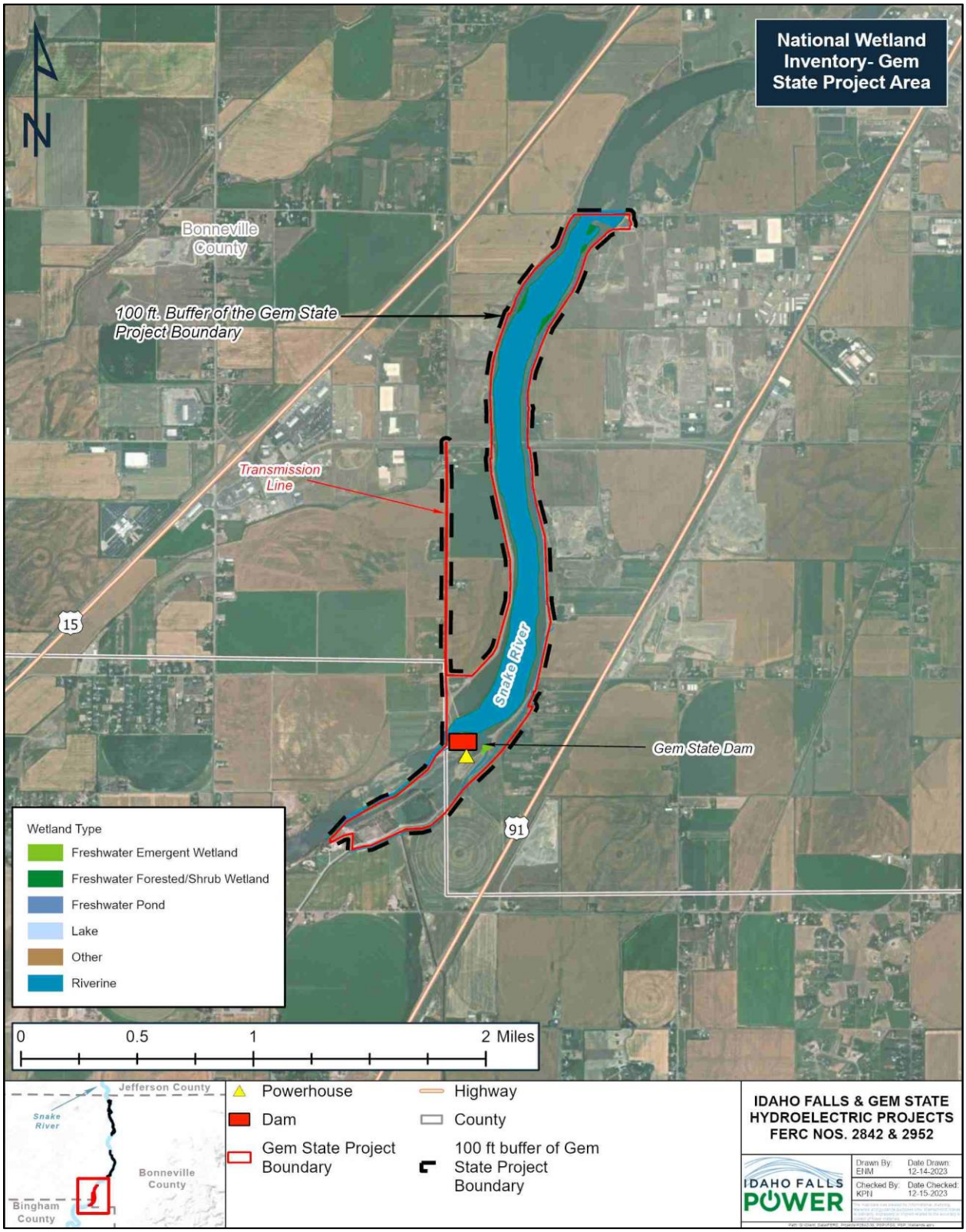

FIGURE 4 GEM STATE WETLAND TYPES

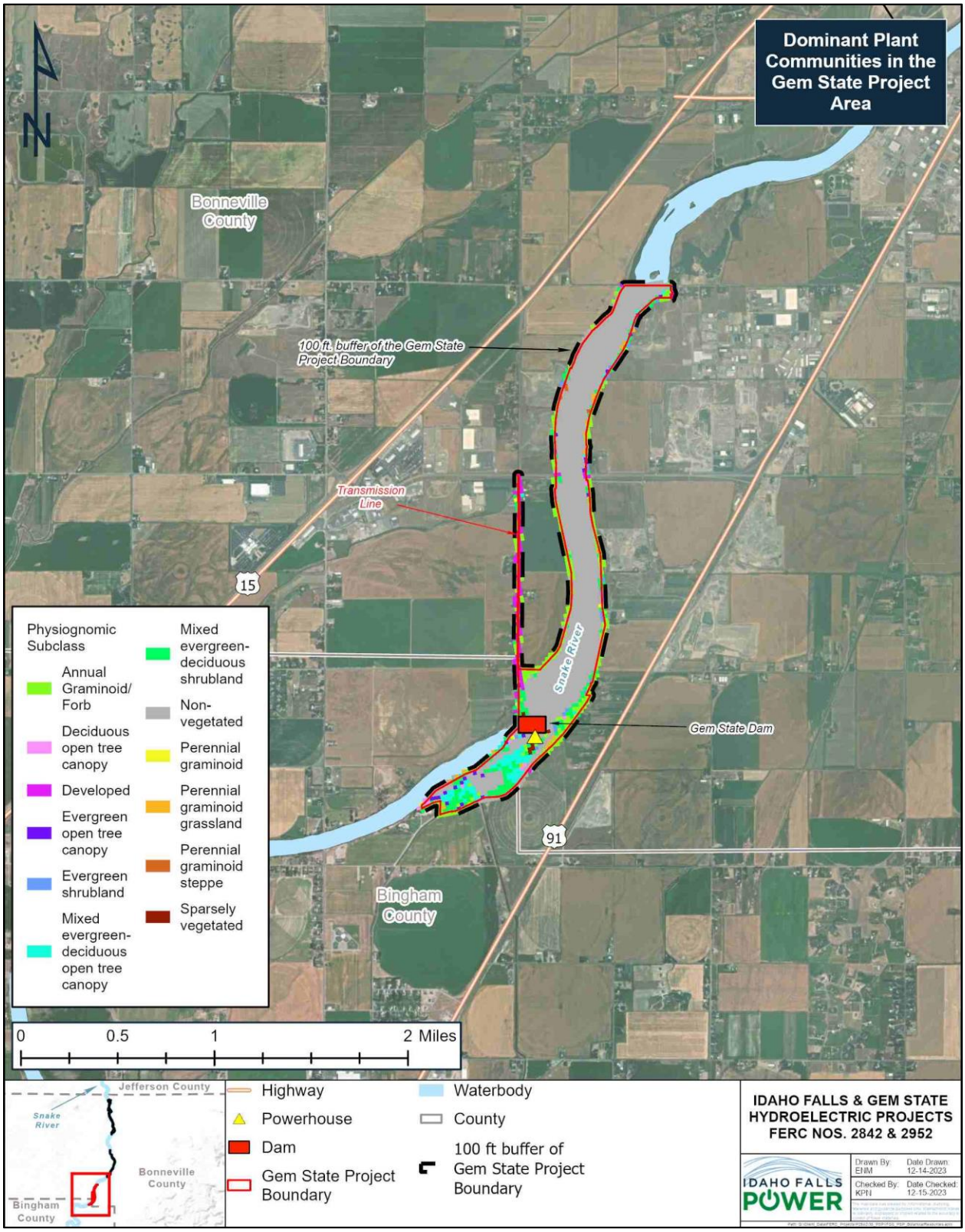

FIGURE 5 GEM STATE DOMINANT PLANT COMMUNITIES

6.0 STUDY METHODOLOGY

To accomplish the goals and objectives of TERR-1, a desktop analysis and an initial habitat assessment field survey will be completed to identify any potential suitable habitat for ESA-listed, special status, and invasive plant species present in the study area, including Ute ladies'-tresses, and cottonwood and willow habitat that may support the Yellow-billed cuckoo. In accordance with Idaho BLM survey protocols, wetlands that support cottonwood or willow species will be mapped in the study area. Mapping the extent of this habitat type will provide information regarding suitable habitat availability for the Yellow-billed cuckoo, an ESA-listed bird. Surveys to locate or identify the Yellow-billed cuckoo in the Projects' areas are described in TERR-2, Wildlife and RTE Species Study Plan.

Should habitat for Ute ladies'-tresses be identified, surveys would take place over two consecutive years during a four-to-six-week period from July to August to correspond with the species' flowering period. Ute ladies'-tresses Field Survey Guidelines (USFWS 2013) would be utilized and nearby reference sites for special status plants most likely to occur in the study area would be checked prior to surveys. Observation of reference sites (nearby and accessible known occurrences of target plants) help to determine whether target species will be identifiable at the time of the survey. Additionally, reference sites provide field botanists with a visual representation of target flowering species, their associated habitat, and the associated natural community for recognition during surveys. The protocols of the USFWS *Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants* (USFWS 2011) and the Bureau of Land Management Idaho state office *Special Status Plant Project Survey and Clearance Protocol* (BLM 2017) will be employed in follow-up surveys (outlined in Section 6.2, *Survey Protocol*).

Current conditions and site characteristic data will be collected during field investigations. All aquatic invasive species identified during surveys will be incidentally noted. Notes will also include any incidental observations of other sensitive or special status species found during the habitat assessment.

6.1 GENERAL CONCEPTS AND PROCEDURES

- All necessary agency permits and approvals will be acquired prior to conducting field surveys.
- The proposed field surveys will be conducted by qualified specialists familiar with Idaho ESA-listed and special status plant species.
- While in the field, field crews may make variances to the TERR-1 to accommodate actual field conditions and unforeseen issues (i.e., safety concerns or access-related items). Any variances to TERR-1 will be noted in the data summary.

6.2 SURVEY PROTOCOL

A desktop review of target species and existing data will be conducted before performing field surveys; this review will include the Idaho Fish & Wildlife Information System (IFWIS) Plant Conservation Database, pertinent Rare Plant Observation Reports, district botany survey and clearance data, and state noxious weed data. Field maps will be prepared with suitable imagery for field navigation and data collection.

Using the information gained from the desktop analysis, field crews will conduct an initial habitat assessment of the study area to verify the presence or absence of suitable habitat for ESA-listed and special status plant species. A cottonwood and willow habitat assessment will also be conducted, and presence of invasive plant species information will be gathered at this time. To assist BLM with their efforts to remove and prevent the spread of *Tamarix* spp. (saltcedar), any field observations will be captured in the invasive species inventory and location data will be shared with BLM. Initial field surveys will consist of field staff surveying the study area on foot to identify suitable habitat during a 4- to 6-week period from July to August. Survey protocols for linear and polygon-shaped projects will be implemented, following regional BLM guidance. Field crews will walk transects along the banks of the river within the study area; for larger polygon-

shaped sections of the study area, crews will perform an "intuitive-controlled"[1] walking survey. This method will allow the greatest area to be surveyed while prioritizing high-potential habitat.

Field crews will document the Project name, date of survey, and location via GPS for subsequent quality assurance and quality control purposes. Additional data to be collected includes:

- description and photographs of any ESA-listed or special status plant suitable habitat as well as the most common or dominant communities in the area,
- general description of soil types (i.e., parent material and soil texture),
- incidental observations of any noxious weed infestations in the study area, and
- incidental observations of wildlife species.

Should suitable habitat be identified during the initial habitat assessment, a follow-up survey would be conducted to determine the extent of species distribution within the study area. This follow-up survey would be conducted the following field season, during the blooming period for the Ute ladies'-tresses and other botanical species of interest. Staff will research and visit reference sites, if available, to help ensure recognition of target species during their specific bloom periods. The study area for follow-up surveys would only include locations where suitable habitat was previously identified. Field crews would note the type, number, and location of individual special status species, as well as incidental observations of noxious weed infestations or wildlife species. Vegetation community information gathered during the initial habitat assessment will be shared with the TERR-2 Study to inform an evaluation of associated wildlife habitat.

7.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

A desktop analysis will be conducted in spring 2024 to inform year 1 field studies in summer 2024. Based on the outcome of year 1 studies, IFP may conduct a second year of botanical field studies

[1] Intuitive-controlled walking surveys allow the general area to be examined while focusing the majority of field time on any high-potential habitat. The surveyor traverses through the area enough to see a representative cross-section of all major habitats and topographic features, looking for the target species while en-route between different areas. When the surveyor arrives at an area of high potential habitat, a complete survey is made. Complete surveys are defined as a 100 percent visual exam of the project area (BLM 1998).

in spring and summer of 2025, shown in Table 3. A progress report will be provided as part of the Initial Study Report, discussing initial findings of the study to date, including the year 1 study information, and a draft report will be distributed in February 2026 for a 30-day review. The final report will be included in the Draft License Application in September 2026.

TABLE 3 PROPOSED BOTANICAL STUDY MILESTONE SCHEDULE

STUDY PLAN MILESTONES	DATE
Desktop Analysis	Spring 2024
Year 1 Botanical Field Studies	Summer 2024 (July - September)
Initial Study Report	June 2025
Year 2 Studies as needed	*Spring/Summer 2025*
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

7.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a brief list of potential studies to be considered during relicensing of the Idaho Falls Project and Gem State Project. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. Table 4 lists all comments received relevant to the TERR-1 Study Plan.

TABLE 4 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON THE TERR-1 STUDY PLAN

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
4	11/30/2023	United States Fish and Wildlife	Ute ladies'-tresses critical habitat occurs an estimated 11 miles upstream and an estimated 30 miles	Comment noted. Study plans provided in the Pre-

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
		Service (USFWS)	downstream from the project area. Potential habitat to support Ute ladies'-tresses could occur within the project, but to date, no surveys for Ute ladies'-tresses have confirmed the presence or absence of the species. Within the scoping document, surveys are proposed to determine the presence of special-status plants, suitable habitat, and invasive species within the project boundaries; however, there aren't any specifications included in the document on how the surveys will be completed. For example, there are no timelines or frequencies of surveys provided in the scoping document.	application Document were preliminary and not intended to be complete. Final Study Plans include detailed methodology and approach, including timing and frequency of surveys.
5	11/30/2023	United States Fish and Wildlife Service (USFWS)	The Service recommends surveys in high potential habitat (as described above) for Ute ladies'-tresses for at least two consecutive years during the flowering time of the plant, typically mid-July through mid-September, (FWS 2007, p. 1) as above-ground stalks may not be present every year (Fertig 2005, p. 61). Nearby known occupied sites of Ute ladies'-tresses should be used to determine the start of flowering time. The Service recommends using the protocol provided in the Ute ladies'-tresses Field Survey Guidelines for these surveys (FWS 2007, entire).	Noted. If habitat for Ute ladies'-tresses is identified, surveys for Ute ladies'-tresses will take place over a 4- to 6-week period, covering July through August, to survey during the flowering period. Nearby reference sites will be checked prior to surveys to ensure botanists have a visual representation of flowering species for recognition during surveys. Ute ladies'-tresses field survey guidelines will be utilized.
7	11/30/2023	United States Fish and Wildlife	The Service also recommends mapping all cottonwood stands and willow-dominated wetlands that are expected to be impacted by low-	There is no dewatering as part of project operations and

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
		Service (USFWS)	flow dewatering within the project area.	maintenance activities, however, cottonwood and willows will be documented as part of this study plan.
8	4/11/2024	United States Bureau of Land Management	BLM requests that as botanical inventories are conducted, GPS data will be collected to document the location of tamarisk and that the information be shared with the BLM to aid us in taking proactive measures to remove them and prevent them from proliferating.	Noted. Saltcedar will be added to the invasive species inventory and location data shared with BLM.

8.0 LEVEL OF EFFORT AND COST

The proposed study methodology is consistent with widely accepted practices for surveying special status plant species and was developed by the BLM, Idaho state office, which provides the minimum standards for botanical surveys. The methods and approach described in this study plan were selected as representing an appropriate balance between cost effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

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WILDLIFE AND RARE, THREATENED, & ENDANGERED SPECIES STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

140 S CAPITAL AVE

IDAHO FALLS, ID 83402

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

WILDLIFE AND RARE, THREATENED, & ENDANGERED SPECIES STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by approximately 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing any changes to the existing Projects' operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

The United States Fish and Wildlife Service (USFWS) and Idaho Department of Fish and Game (IDFG) identified the need to conduct a Wildlife and Rare, Threatened, or Endangered (RTE; also referred to as "special-status") Species Study (TERR-2) to determine if wildlife and RTE species occur within the study area; and if so, how the Idaho Falls Project and Gem State Project operations may affect these species. This study plan details IFP's proposed study objectives, study area, methods, and schedule for the TERR-2 effort.

For wildlife and RTE species found within the TERR-2 study area, data will be examined to determine the effects of the Projects' operations and maintenance activities in the context of the

most recent USFWS, IDFG, Bureau of Land Management (BLM), and United States Army Corps of Engineers (USACE) management plans, the federal and state Endangered Species Acts (ESAs), and the National Environmental Policy Act (NEPA).

3.0 STUDY GOALS AND OBJECTIVES

The goal of TERR-2 is to document existing wildlife and RTE species and identify the potential effects of each of the Projects on these resources. Study goals will be accomplished by completing the following five objectives:

1. Assess the abundance and general distribution of wildlife species in the study area.
2. Determine the potential presence of special-status[1] wildlife during the breeding season, including the Yellow-billed Cuckoo.
3. Assess the potential impact of the Projects on special-status species that have been determined to be present or have a high utilization potential.
4. Identify the potential effects of the Projects' continued operations on the habitats and associated wildlife within the study area.
5. Evaluate bird mortality from Project-specific power line strikes in the study area, with emphasis on migratory and overwintering bird species (i.e., Trumpeter Swan).

4.0 EXISTING INFORMATION

Information sources that will be reviewed include but are not limited to the following:

- Aerial photos
- Digital elevation models
- Stream and wetland mapping
- Previous vegetation and habitat mapping

[1] Special-status species are defined as wildlife species listed as endangered or threatened under the federal and state ESAs by USFWS or species which have been determined to be sensitive or of special concern because of declining populations or rarity in the Projects' area by the USFS, BLM, or IDFG.

- USFWS Information for Planning and Consultation (IPaC) tool
- BLM special-status species lists
- United States Department of Agriculture Forest Service species of conservation concern lists
- IDFG species lists
- Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005)
- Idaho State Wildlife Action Plan (IDFG 2017)
- Critical habitat designation for the Yellow-billed Cuckoo (USFWS 2021)
- Avian Power Line Interaction Committee (APLIC) protocols (APLIC 2012)
- Yellow-billed Cuckoo Surveys and Research in Idaho (Coates 2021)
- Idaho Falls and Gem State Hydroelectric Projects Preliminary Application Document (PAD) (IFP 2023)

Wildlife and RTE Species resources are described in more detail in the IFP PAD Sections 5.4 and 5.6 (IFP 2023).

4.1 GENERAL WILDLIFE

Large mammal species common to the Snake River Plain include elk (*Cervus canadensis*), American black bear (*Ursus americanus*), and mule deer (*Odocoileus hemionus*). Small mammal species such as the American beaver (*Castor canadensis*) and common muskrat (*Ondatra zibethicus*) utilize the banks of the Snake River for foraging and shelter (Francisco and Griffith 2011). Species such as the raccoon (*Procyon lotor*) are common, especially along the riparian corridors associated with the Project Boundaries. Other mammals near the Idaho Falls and Gem State Projects include furbearers, small game species, and rodents. Smaller mammals, such as various species of mice, shrews, and voles, are expected to be abundant in the surrounding grassland and agricultural lands of the Idaho Falls Project and Gem State Project Boundaries. The IDFG reports there are 10 species of bat that have the potential to occur within the Idaho Falls Project and Gem State Project vicinities (IDFG 2022).

Avian species within the Idaho Falls Project and Gem State Project Boundaries utilize the Snake River for foraging, hunting, and as habitat. The Snake River also serves as a migration corridor for avian species. The riparian corridor along the Snake River offers some nesting habitat for small to

medium-sized songbirds, but the limited canopy habitat within the Idaho Falls Project and Gem State Project Boundaries is not expected to support an abundance of these birds. Birds of prey occurrences may be more common within the Idaho Falls Project and Gem State Project Boundaries due to aquatic hunting grounds within the Projects' reservoirs, but these species are temporary inhabitants and are not expected to nest within the Idaho Falls Project and Gem State Project Boundaries. Similarly, nocturnal birds of prey, which include various species of owl, may temporarily occur within the Idaho Falls Project and Gem State Project vicinities where small prey such as mice, shrews, and voles are present. Waterfowl such as teal and duck will utilize the Projects' reservoirs for habitat, breeding, and as a migration route.

Several native species of amphibians, reptiles, and countless invertebrates are also expected to occur in the study area.

Invasive[2] wildlife species have the potential to occur within the Idaho Falls Project and Gem State Project Boundaries due to urban disturbance adjacent to the Projects, which can facilitate the spread of these species. These invasive species include a range of taxa, including mammals, insects, fish, and birds (e.g., 2 amphibians, 1 bird, 14 fish, 54 insects, 11 aquatic invertebrates, 1 mammal, and 6 reptile species). Aquatic invertebrates pose a particular threat to the Snake River habitat. Quagga (*Dreissena rostiformis*) and zebra mussels (*Dreissena polymorpha*) are known to inhabit the Snake River, which outcompete native mussel populations and can clog water intake structures such as pipes and screens, increasing maintenance costs for water treatment and power plants (University of California at Riverside 2023).

[2] Invasive species are non-native to the ecosystem in which they occur and are likely to cause environmental harm, impacting the economy and human health.

4.2 RTE SPECIES

The Yellow-billed Cuckoo (*Coccyzus americanus*) is listed as threatened under the ESA and a state Species of Greatest Conservation Need[3] (SGCN) (IDFG 2016; USFWS 2024a). As a migratory species, the Yellow-billed Cuckoo winters in Central and South America and breeds in North America, having distinct populations in the east and west that are separated by the Rocky Mountains (USGS 2022). Yellow-billed Cuckoos utilize dense, wooded habitats near water for migration and breeding, often utilizing river corridors as travel routes. In the Midwest, this species can be found in shrublands, often containing willow (*Salix* spp.) and dogwood (*Cornus* spp.) (USFWS 2024b). The use of this habitat is variable due to changing conditions in food resources, vegetation growth, and stream dynamics, so the Yellow-billed Cuckoo may move between areas in its breeding grounds based on habitat conditions and food availability. The conversion of riparian habitat to farmland and urban housing is the leading cause of population decline in the western population. There is currently no recovery plan, biological opinion, or status report pertaining to the Yellow-billed Cuckoo. There are currently 298,845 acres of critical habitat designated to the western distinct population segment of the Yellow-billed Cuckoo in Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah, but the critical habitat range does not occur within the Idaho Falls Project and Gem State Project Boundaries (USFWS 2021).

The monarch butterfly (*Danaus plexippus*) is a federally listed candidate[4] species and a state SGCN (IDFG 2016, USFWS 2024a). Monarch butterflies are present in Idaho from May through September (Cracroft et al. 2016) and may be found in the Idaho Falls Project and Gem State Project vicinities if appropriate habitats exist. Monarch butterflies rely on milkweed (*Asclepias* spp.) for

[3] The Idaho State Wildlife Action Plan provides a framework for conserving Species of Greatest Conservation Need and the habitats upon which they depend. It is the state's guiding document for managing and conserving at-risk species.

[4] Candidate species receive no statutory protection under the ESA. The USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the ESA.

successful reproduction and appropriate nectar-rich forbs, shrubs, and trees to feed adult butterflies.

The gray wolf (*Canis lupus*) was listed as endangered with experimental/non-essential populations within the vicinities of Idaho Falls and Gem State Projects. However, on May 5, 2011, the gray wolf was removed from the ESA list in Idaho due to the recovery of the species (IDFG 2021). Wolves in Idaho are currently managed under the 2002 Idaho Wolf Conservation and Management Plan and are classified as a big game animal with harvest authorized for hunting and trapping (Hayden 2017).

In addition to the listed federal species discussed above, the IDFG Information System Species Diversity Database provides sensitive species observation records by county (IDFG 2016). The Idaho Falls Project Boundary is in Bonneville County, and the Gem State Project Boundary is in Bonneville and Bingham Counties. A list of federally listed, delisted, and candidate species observed in Bonneville and Bingham Counties is included in Table . Additional conservation statuses, such as the State Wildlife Action Plan SGCN and BLM-sensitive (BLM-S) species for the Upper Snake Field Office, are also noted.

TABLE 1 FEDERAL AND STATE LISTED, CANDIDATE, DELISTED, AND SPECIES WITH OTHER CONSERVATION STATUS THAT MAY OCCUR IN BINGHAM AND BONNEVILLE COUNTIES, IDAHO

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[1][2][3]
Amphibian			
Northern leopard frog	*Lithobates pipiens*	-	SGCN, BLM-S
Western toad	*Anaxyrus boreas*	-	SGCN, BLM-S
Fish*			
Bluehead sucker	*Catostomus discobolus*		BLM-S
Yellowstone cutthroat trout	*Oncorhynchus clarkii bouvieri*	-	BLM-S

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Mammals			
Big brown bat	*Eptesicus fuscus*	-	BLM-S
Bighorn sheep	*Ovis canadensis*	-	SGCN, BLM-S
Canada lynx	*Lynx canadensis*	Threatened	Threatened
Fisher	*Pekania pennanti*	-	BLM-S
Gray wolf	*Canis lupus*	Delisted	BLM-S
Grizzly bear or brown bear	*Lynx canadensis*	Threatened	SGCN
Hoary bat	*Lasiurus cinereus*	-	SGCN, BLM-S
Little brown myotis	*Myotis lucifugus*	-	SGCN, BLM-S
Long-eared myotis	*Myotis evotis*	-	BLM-S
Long-legged myotis	*Myotis volans*	-	BLM-S
Mountain goat	*Oreamnos americanus*	-	SGCN
Silver-haired bat	*Lasionycteris noctivagans*	-	SGCN, BLM-S
Spotted bat	*Euderma maculatum*	-	BLM-S
Townsend's big-eared bat	*Corynorhinus townsendii*	-	SGCN, BLM-S
Pallid bat	*Antrozous pallidus*	-	BLM-S
Pygmy rabbit	*Brachylagus idahoensis*	-	SGCN, BLM-S
Western small-footed myotis	*Myotis ciliolabrum*	-	SGCN, BLM-S
Wolverine	*Gulo gulo*	-	SGCN, BLM-S

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Yuma myotis	*Myotis yumanensis*	-	BLM-S
Birds			
American Bittern	*Botaurus lentiginosus*	-	SGCN
American White Pelican	*Pelecanus erythrorhynchos*	-	SGCN
Bald Eagle	*Haliaeetus leucocephalus*	Delisted	Protected Nongame, BLM-S
Black Tern	*Chlidonias niger*	-	SGCN
Black-throated Sparrow	*Amphispiza bilineata*	-	BLM-S
Bobolink	*Dolichonyx oryzivorus*	-	SGCN
Burrowing Owl	*Athene cunicularia*	-	SGCN, BLM-S
California Gull	*Larus californicus*	-	SGCN
Caspian Tern	*Hydroprogne caspia*	-	SGCN
Clark's Grebe	*Aechmophorus clarkii*	-	SGCN
Clark's Nutcracker	*Nucifraga columbiana*	-	SGCN
Columbian Sharp-tailed Grouse	*Tympanuchus phasianellus columbianus*	-	BLM-S
Common Loon	*Gavia immer*	-	SGCN
Common Nighthawk	*Chordeiles minor*	-	SGCN
Ferruginous Hawk	*Buteo regalis*	-	SGCN, BLM-S
Flammulated Owl	*Psiloscops flammeolus*	-	BLM-S
Franklin's Gull	*Leucophaeus pipixcan*	-	SGCN

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Golden Eagle	*Aquila chrysaetos*	-	SGCN, BLM-S
Grasshopper Sparrow	*Ammodramus savannarum*	-	SGCN, BLM-S
Greater Sage-Grouse	*Centrocercus urophasianus*	-	SGCN, BLM-S
Great Gray Owl	*Strix nebulosa*	-	SGCN
Green-tailed Towhee	*Pipilo chlorurus*	-	BLM-S
Harlequin Duck	*Histrionicus histrionicus*	-	SGCN
Lewis's Woodpecker	*Melanerpes lewis*	-	SGCN, BLM-S
Loggerhead Shrike	*Lanius ludovicianus*	-	BLM-S
Long-billed Curlew	*Numenius americanus*	-	SGCN, BLM-S
Northern Goshawk	*Accipiter gentilis*	-	BLM-S
Olive-sided Flycatcher	*Contopus cooperi*	-	SGCN, BLM-S
Peregrine Falcon	*Falco peregrinus*	Delisted	Protected Nongame
Pinyon Jay	*Gymnorhinus cyanocephalus*	-	SGCN, BLM-S
Ring-billed Gull	*Larus delawarensis*	-	SGCN
Sagebrush Sparrow	*Artemisiospiza nevadensis*	-	SGCN, BLM-S
Sage Thrasher	*Oreoscoptes montanus*	-	SGCN, BLM-S
Sandhill Crane	*Grus canadensis*	-	SGCN
Short-eared Owl	*Asio flammeus*	-	SGCN, BLM-S
Trumpeter Swan	*Cygnus buccinator*	-	SGCN, BLM-S

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Virginia's Warbler	*Leiothylpis virginiae*	-	BLM-S
White-faced Ibis	*Plegadis chihi*	-	SGCN
White-headed Woodpecker	*Picoides albolarvatus*	-	SGCN
Willow Flycatcher	*Empidonax trailii*	-	BLM-S
Western Grebe	*Aechmophorus occidentalis*	-	SGCN
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	SGCN
Arachnids			
Cave obligate harvestman	*Speleomaster lexi*	-	SGCN
Cave obligate harvestman	*Speleomaster pecki*	-	SGCN
Cave obligate mite	*Flabellorhagidia pecki*	-	SGCN
Gastropod*			
Ashy pebblesnail	*Fluminicola fuscus*	-	BLM-S
Deseret mountainsnail	*Oreohelix peripherica*	-	SGCN
Rocky Mountain duskysnail	*Colligyrus greggi*	-	SGCN
Rotund physa	*Physella columbiana*		SGCN
Aquatic Invertebrates*			
California floater	*Anodonta californiensis*	-	SGCN, BLM-S
Snake River pilose crayfish	*Pacifastacus connectens*	-	SGCN

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Millipedes			
Idaho lava tube millipede	*Idahona westcotti*	-	SGCN
Insects			
Ant-like flower beetle	*Amblyderus owyhee*	-	SGCN
Blind cave leiodid beetle	*Glacicavicola bathysciodies*	-	SGCN, BLM-S
Caddisfly	*Glossosoma idaho*	-	SGCN
Hunt's bumble bee	*Bombus huntii*	-	SGCN
Idaho dunes tiger beetle	*Cicindela arenicola*	-	SGCN, BLM-S
Idaho point-headed grasshopper	*Acrolophitus pulchellus*	-	SGCN, BLM-S
Leafcutting bee	*Ashmeadiella sculleni*	-	SGCN
Long-horned beetle	*Judolia gaurotoides*	-	SGCN
Mason bee	*Hoplitis producta subgracilis*	-	SGCN
Mayfly	*Parameletus columbiae*	-	SGCN
Metallic wood-boring beetle	*Agrilus pubifrons*	-	SGCN
Metallic wood-boring beetle	*Chrysobothris horningi*	-	SGCN
Metallic wood-boring beetle	*Chrysobothris idahoensis*	-	SGCN
Miner bee	*Calliopsis barri*	-	SGCN

COMMON NAME	SCIENTIFIC NAME	FEDERALLY LISTED	STATE LISTED AND CONSERVATION STATUS[123]
Monarch butterfly	*Danaus plexippus*	Candidate	SGCN, BLM-S
Morrison's bumble bee	*Bombus morrisoni*	-	SGCN
Spur-throated grasshopper	*Melanoplus*	-	SGCN
Suckley's cuckoo bumble bee	*Bombus suckleyi*	-	BLM-S
Western bumble bee	*Bombus occidentalis*	-	SGCN, BLM-S
Wiest's primrose sphinx	*Euproserpinus wiesti*	-	SGCN
Yellow bumble bee	*Bombus fervidus*		SGCN
Yellow-masked bee	*Hylaeus lunicraterius*	-	SGCN

Sources: BLM 2022, IDAPA 13.01.06, IDFG 2016, USFWS 2024a

*Aquatic species will be documented in the Fish Assemblage Study

[1]SGCN – Species of Greatest Conservation Need (Idaho State Wildlife Action Plan)

[2]BLM-S – BLM-sensitive Species

[3]Protected Nongame and Threatened or Endangered Species: No person may take or possess those species of wildlife classified as Protected Nongame or Threatened or Endangered at any time or in any manner, except as provided in Idaho Code (including Sections 36-106€ and 36-1107), and FERC rules. Protected Nongame status is not intended to prevent unintentional take of these species, protection of personal health or safety, limit property and building management, or prevent management of animals to address public health concerns or agricultural damage.

There are 15 Birds of Conservation Concern (BCC) protected under the Migratory Bird Treaty Act (MBTA) (USFWS 2024a),that are included in the USFWS IPaC report and may occur in the Idaho Falls Project and Gem State Project vicinities. The Bald Eagle (*Haliaeetus leucocephalus*) was removed from the ESA list on June 28, 2007 (NWF 2022). However, Bald Eagles remain federally protected under the Bald and Golden Eagle Protection Act (BGEPA) of 1940 and the MBTA. A list of those birds and their breeding windows is included in Table .

TABLE 2 BCC, MBTA, AND/OR BGEPA BIRD SPECIES THAT MAY OCCUR IN THE IDAHO FALLS PROJECT AND GEM STATE PROJECT VICINITIES

COMMON NAME	SCIENTIFIC NAME	BREEDING SEASON
Bald Eagle	*Haliaeetus leucocephalus*	December 1 to August 31
Black Tern	*Chlidonias niger*	May 15 to August 20
Bobolink	*Dolichonyx oryzivorus*	May 20 to July 31
Cassin's Finch	*Carpodacus cassinii*	May 15 to July 15
Clark's Grebe	*Aechmophorus clarkii*	June 1 to August 31
Evening Grosbeak	*Coccothraustes vespertinus*	May 15 to August 10
Franklin's Gull	*Leucophaeus pipixcan*	May 1 to July 31
Lesser Yellowlegs	*Tringa flavipes*	Breeds Elsewhere
Lewis's Woodpecker	*Melanerpes lewis*	April 20 to September 30
Marbled Godwit	*Limosa fedoa*	Breeds Elsewhere
Olive-sided Flycatcher	*Contopus cooperi*	May 20 to August 31
Pinyon Jay	*Gymnorhinus cyanocephalus*	February 15 to July 15
Rufous Hummingbird	*Selasphorus rufus*	April 15 to July 15
Sage Thrasher	*Oreoscoptes montanus*	April 15 to August 10
Willet	*Tringa semipalmata*	April 20 to August 5

Source: USFWS 2024a

5.0 GEOGRAPHIC SCOPE

The proposed TERR-2 study area (Figures 1, 2, 3, and 4) consists of the existing FERC Project Boundaries (including powerhouses, dams, diversions, impoundments, flowline, valve houses, other outbuildings, and access roads) and a 500-foot buffer around the FERC Project Boundaries.

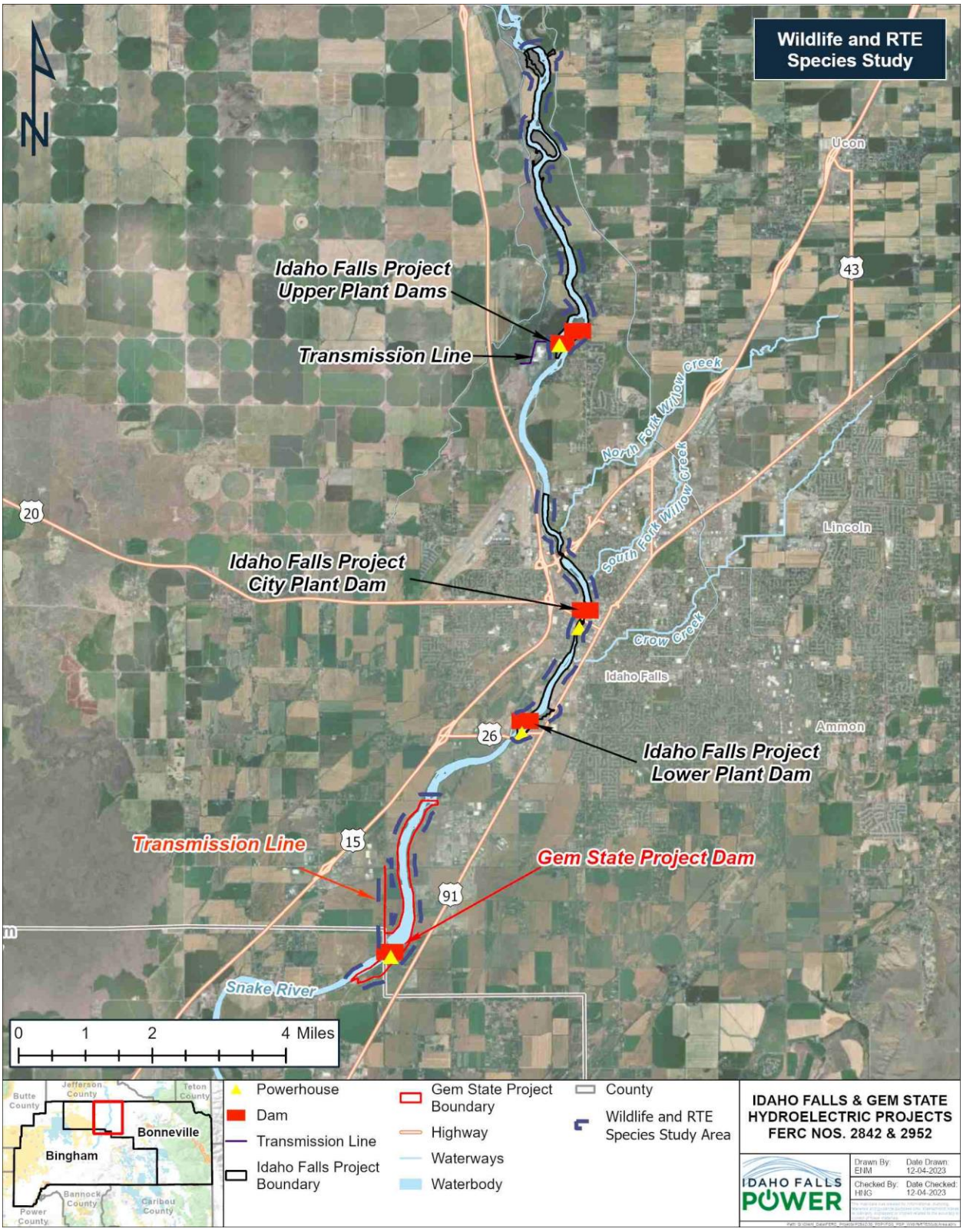

FIGURE 1 PROPOSED WILDLIFE AND RTE SPECIES OVERALL STUDY AREA

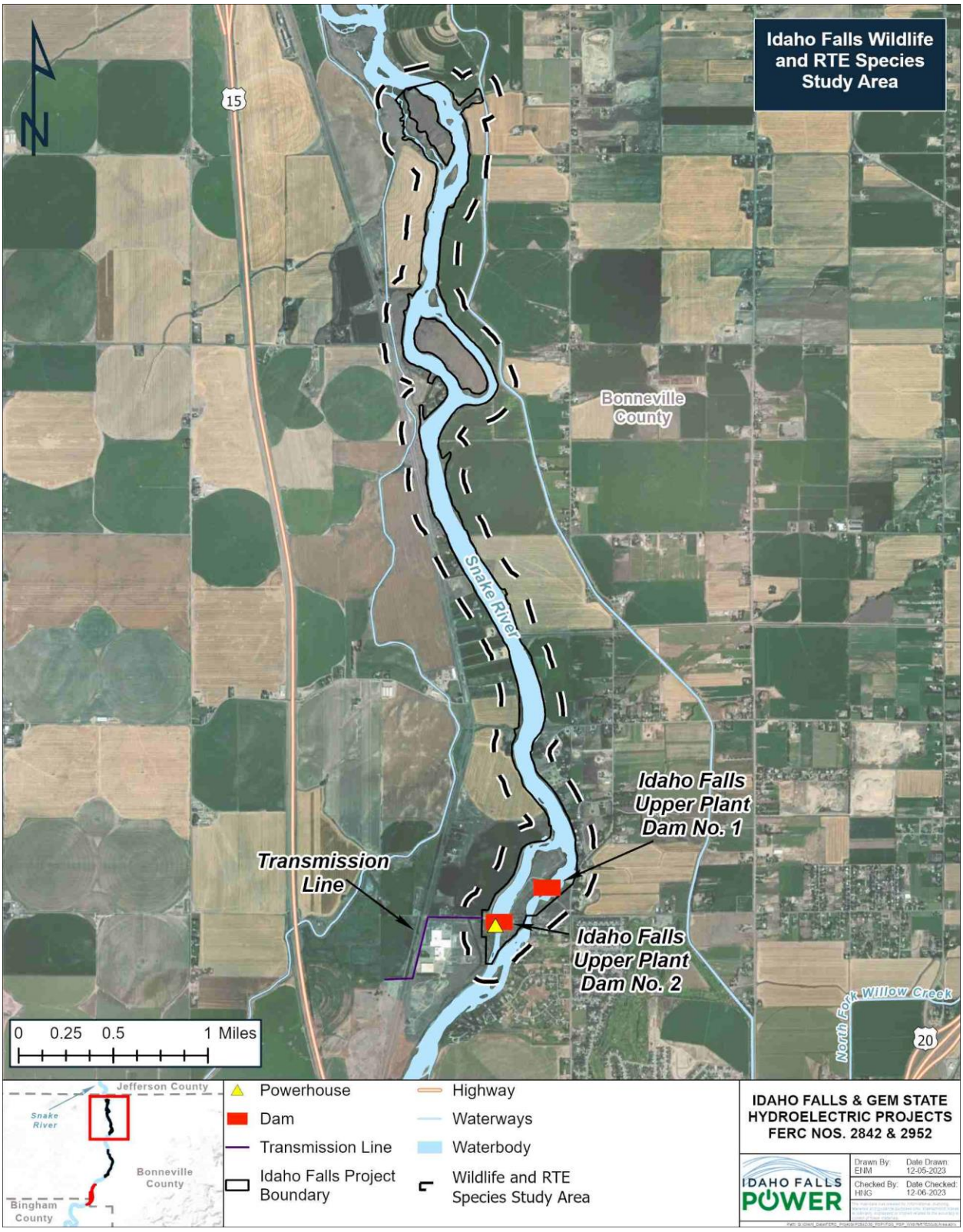

FIGURE 2 PROPOSED WILDLIFE AND RTE SPECIES STUDY AREA – IDAHO FALLS UPPER PLANT AREA

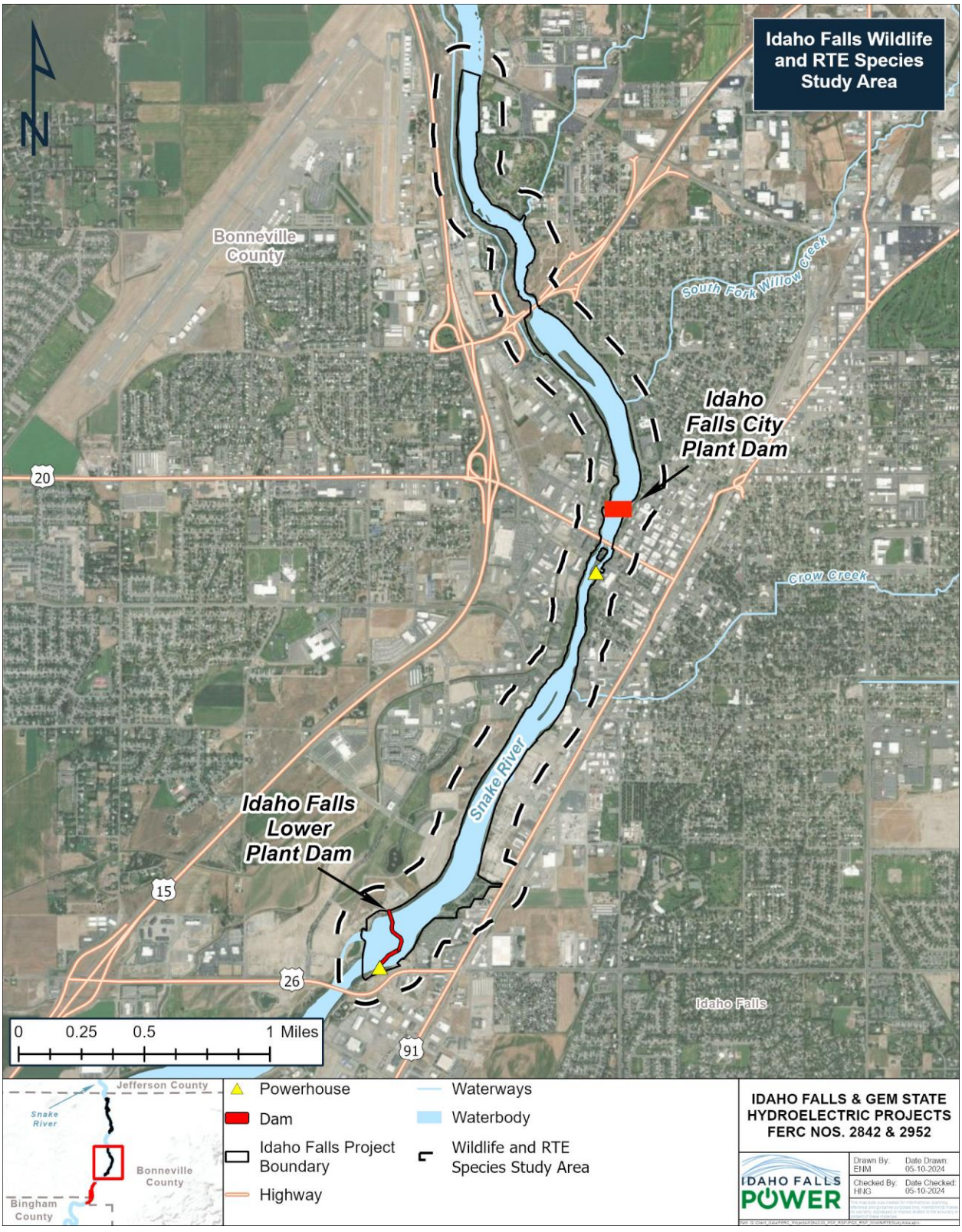

FIGURE 3 PROPOSED WILDLIFE AND RTE SPECIES STUDY AREA – IDAHO FALLS CITY PLANT AREA

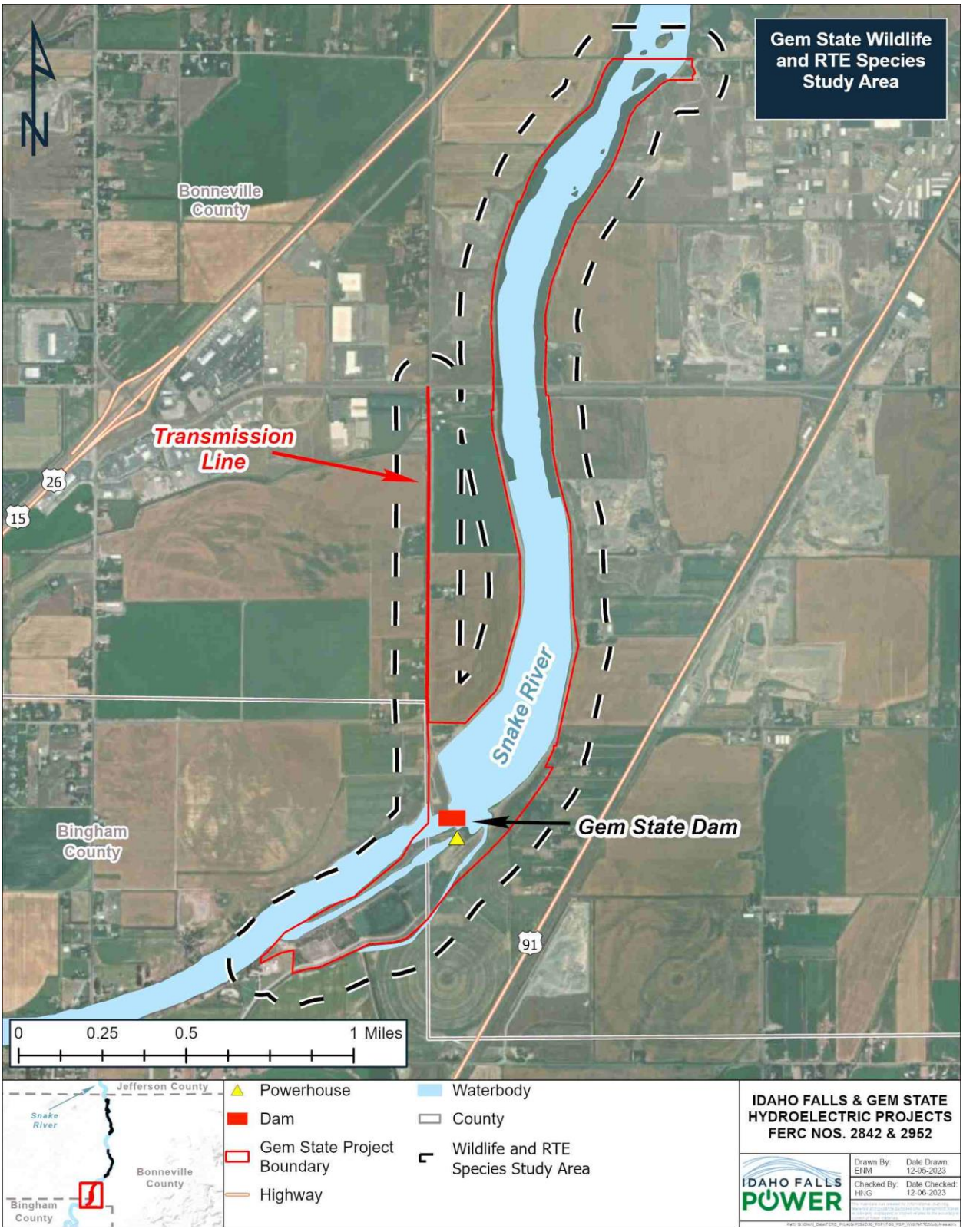

FIGURE 4 PROPOSED WILDLIFE AND RTE SPECIES STUDY AREA – GEM STATE AREA

6.0 STUDY METHODOLOGY

The proposed methodology for TERR-2 includes a literature review and field surveys for wildlife and RTE species.

6.1 LITERATURE REVIEW

Prior to the initiation of field surveys, a literature review will be conducted to 1) develop a target list of wildlife and special-status species as having the potential to occur within the study area, 2) to determine if any additional special-status wildlife species have been identified as having the potential to occur within the study area or in the immediate vicinity, 3) determine if the conservation status of any of the previously identified special-status species has changed, and 4) identify any new literature on the ecology and life history of special-status wildlife species. The literature review will be used to determine habitat preferences for those species listed in Table and Table . Sources to be reviewed are included in Section 4.0 *Existing Information*. Databases, such as the Idaho Fish and Wildlife Information System, will be queried prior to field surveys for new occurrence records of existing species, identification of new species not previously recorded, and changes in legal status of species.

6.2 FIELD SURVEYS

Biologists will perform a pedestrian survey within the study area during the nesting season (i.e., May/June 2025) to maximize the opportunity to observe general and special-status wildlife species. The study area will include a 500-foot buffer around the FERC Project Boundaries to include a diversity of habitats (including uplands, riparian, and wetlands), 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 based on the literature review and agency consultation. Prior to the start of the surveys, aerial photographs of each facility at a 1-inch to 200-foot scale will be prepared for field use to map existing features and note wildlife occurrences and areas of potentially suitable habitat.

6.3 GENERAL WILDLIFE

Biologists will perform a pedestrian survey by walking the study area for 100 percent visual coverage, using binoculars to directly observe far-away wildlife. Wildlife species observed will be recorded in field notes of species (if possible), and their location will be noted on field maps. Mammals will be identified by visual and auditory recognition or evidence of diagnostic signs, including scat, footprints, scratch-outs, dust bowls, burrows, remains, and trails. Active searches for reptiles and amphibians will include lifting, overturning, and carefully replacing objects such as rocks, boards, and debris. Invertebrate species will be noted as practicable as incidental observations. Nesting behavior of birds and raptors, if observed, will be noted by species, and the locations of active or potential nests will be recorded using a hand-held global positioning system (GPS) unit. Observed breeding behavior and birds in breeding plumage will be noted, including the location of the observation. If possible, nests will be located and mapped on an aerial photograph, and the nest location will be documented using a hand-held GPS. Observations of active or abandoned raptor nests will also be recorded using a hand-held GPS unit. Aquatic species observed will be documented as incidental observations, as the Fish Assemblage Study (AQ-1) will focus on these species.

6.4 RTE SPECIES

The special-status species survey will occur concurrently with the general wildlife survey, if possible. Qualified biologists will walk meandering transects throughout the study area, intensively examine areas likely to support special-status wildlife species and describe and photograph species and habitats. Special attention will be given to survey habitats that may support Yellow-billed Cuckoo (e.g., willows along streams and cottonwood trees) and the monarch butterfly (e.g., milkweed plants), as these two federally listed species have a high potential to occur within the study area.

Observations of special-status wildlife species identified in the study area will be documented using a hand-held GPS unit. Photographs will be collected when possible. Target species include those listed in Table and Table and any other species of concern identified during the literature

review. Data collection will include, when possible, numbers of individuals, area of occupied habitat, habitat description, sex, relative age, activity, condition, and any potential evidence of the Projects' operations and maintenance effects on the species.

6.5 AVIAN CARCASSES

Avian carcass surveys will be conducted at appropriate times of the year to maximize observation opportunities (e.g., late March or early April for spring migration, October for fall migration, and January for overwintering). Qualified biologists will walk a 500-foot-wide corridor below Project transmission lines[5] during migration periods looking for bird carcasses.

Observations of carcasses identified in the study area will be documented using a hand-held GPS unit. Photographs will be collected when possible. Data collection will include, when possible, species, sex, relative age, date or approximate time of death, physical injuries, and conditions (e.g., broken bones, lacerations, abrasions, blood, discolorations, gunshot wounds, decomposition, feather spots, feeding by scavengers), and probable cause of death (APLIC 2012).

The avian carcass surveys will be supplemented with data collected by Project field personnel conducting routine maintenance and inspections of the powerline areas; if field personnel discover a bird carcass or injured bird, they are required to complete a "Bird Incident Tracking Form" to document the findings, per the Project's Avian Protection Plan.

7.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

A literature review will be conducted prior to beginning the pedestrian survey in late spring 2025 during the breeding and nesting season for the majority of the BCC, shown in Table 3. Avian

[5] Upper Plant Dam No 2 has a 0.5-mile-long transmission line; Gem State Project has a 1.4-mile-long transmission line.

carcass surveys will occur during spring and fall migration and the overwintering period for Trumpeter Swans (i.e., late March or early April, October, and January). A progress report will be provided as part of the Initial Study Report, discussing initial findings of the study to date, and a draft report will be distributed in February 2026 for a 30-day review. The final report will be included in the Draft License Application in September 2026.

TABLE 3 STUDY PLAN MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Literature Review	Spring 2025
Field Surveys	May/June 2025
Carcass Surveys	Spring and Fall 2025
Initial Study Report	June 2025
Draft Report	February 2026
Updated Study Report	July 2026
Include Final Report in Draft License Application	September 2026

7.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. **Error! Reference source not found.**Table 4 lists those comments relevant to TERR-2. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders.

The comment period for PSPs ended on April 13, 2024; no comments relevant to TERR-2 were received.

TABLE 4 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
2	11/30/2023	United States Fish and Wildlife Service (USFWS)	The Service recommends including detailed information on the areas of the riverbed that will be dewatered during low flows. Include the amount of potential habitat for Ute ladies'-tresses and yellow-billed cuckoo (YBCU) that is expected to be impacted during low flows. If no potential habitat is expected to be impacted, please clearly state, explain why the habitat is not going to be impacted, and if possible, include photos that depict the lack of habitat.	Comment noted. The Idaho Falls and Gem State Projects are run-of-river projects, with no dewatering activities. Habitat for Ute ladies'-tresses and Yellow-billed Cuckoo will be mapped as discussed in TERR-2 and the Botanical Resources Study (TERR-1), as appropriate.
6	11/30/2023	United States Fish and Wildlife Service (USFWS)	Habitat in the west for Yellow-billed cuckoo (YBCU) is primarily made of willows along streams and rivers for nesting sites and cottonwoods for forage. Cottonwoods also present the opportunity to serve as stopover habitat during migrations. The scoping document proposes to determine the potential presence of YBCU during the breeding season. Critical habitat for YBCU occurs an estimated 11 miles upstream from the project and an estimated 22 miles downstream. The nearest recorded YBCU observation is	Comment noted.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			estimated to be 4 miles to the east of the Gem State dam. Due to the proximity of critical habitat and a nearby observation of YBCU, the Service supports this study plan.	
7	11/30/2023	United States Fish and Wildlife Service (USFWS)	The Service also recommends mapping all cottonwood stands and willow-dominated wetlands that are expected to be impacted by low-flow dewatering within the project area.	See above comment pertaining to dewatering in the Project Areas. Cottonwood and willows will be documented as part of TERR-1.
8	11/30/2023	Idaho Fish and Game (IDFG)	Section 5.7.2.2 of the PAD states the Gem State Fishing Pond is closed March 1 through June 15 for waterfowl nesting in the area. The PAD does not state who initiated the closure. This closure does not align with fishing seasons on other public fishing ponds in the area and reduces angling opportunity during a popular fishing season. IDFG does not have authority to enforce this seasonal restriction because the pond is not listed as special rule water and therefore is open to year-round angling. IDFG contends that providing fishing access during the seasonal closure will benefit the local public interest greater than protecting nesting waterfowl. IDFG	Comment noted. These types of changes, if needed, will be discussed with agencies during consultation and presented in the Draft License Application.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			recommends removing the seasonal closure on Gem State Fishing Pond to reduce recreational confusion and enforcement conflicts. Permitting year-round fishing would provide greater community benefits because angler use of local fishing ponds is high in the April-May timeframe. If the applicant and FERC agree that protecting nesting waterfowl is appropriate based on biological data and actual waterfowl production, IDFG can reconsider this recommendation.	
17	11/30/2023	Idaho Fish and Game (IDFG)	Idaho Falls Power proposes studying the potential presence of special-status animals during the breeding season. See PAD Section 6.0, Table 6-1, p. 6-3.; SD1 Section 5.0, Table 1, Resource Area 2, Study #2, p. 16. That study specifically mentions that it will determine the potential presence of the yellow-billed cuckoo. Trumpeter swans are a species of greatest conservation need identified in Idaho's State Wildlife Action Plan (IDFG 2022).4 While Trumpeter Swans do not nest in the project area, they do utilize the project area for migration and over-winter habitat and may be impacted by overhead power lines and other project infrastructure. IDFG recommends evaluating bird mortality from power line strikes in the project area and emphasizing	The Wildlife and RTE Species Study includes an avian carcass survey component to assess bird strikes with the Projects' transmission lines.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			the Trumpeter Swan alongside other species like the mentioned, Yellow-billed Cuckoo. This evaluation may provide opportunities to reduce line strike mortality on migrating and over-wintering birds and could guide future mitigation options, such as burying overhead power lines.	
18	11/30/2023	Idaho Fish and Game (IDFG)	The goals of the Wildlife and RTE Species study should include the following: (1) Evaluating bird mortality from power line strikes in the Project areas and emphasizing the Trumpeter Swan alongside other species like the mentioned, Yellow-billed Cuckoo. (2) Providing collected data to IDFG to inform effects that Project operations have on migratory and over-wintering bird species. (3) Use collected data to inform bird strike mitigation measures.	The Wildlife and RTE Species Study includes an avian carcass survey component to assess bird strikes with the Projects' transmission lines.
19	11/30/2023	Idaho Fish and Game (IDFG)	The IDFG is a duly established executive department of the State of Idaho. Idaho Code §§ 36-101 and 67-2402(1). The statutory policy of the State of Idaho is to preserve, protect, perpetuate, and manage all fish and wildlife. Idaho Code § 36-103(a). The IDFG, acting under the supervision of the Idaho Fish and	Comment noted.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Game Commission, has the responsibility to carry out that policy. Idaho Code §§ 36-102(a) and 103(b). Pursuant to its authority under Idaho Code § 36- 103(a), and sections 4 and 10 of the Federal Power Act, IDFG assists the hydroelectric industry and the Commission by providing technical information addressing potential effects on fish, wildlife, and plant resources and how any adverse effects might be avoided, minimized, or mitigated. IDFG will use collected Wildlife and RTE Species study data to inform bird line strike mortality and how Project designs can reduce such strikes in furtherance of the State Wildlife Action Plan (IDFG 2022).	
20	11/30/2023	Idaho Fish and Game (IDFG)	IDFG does not have current power line bird strike mortality data in the Project area. This study request would provide information to best inform Project operations.	Comment noted.
21	11/30/2023	Idaho Fish and Game (IDFG)	The Project infrastructure may directly affect RTE bird species through power line strikes. Study results could inform bird migration patterns which in turn could inform Project mitigation measures in accordance with Avian Power Line Interaction Committee (APLIC) protocols (see IDFG 2022, pg. 148).	The Wildlife and RTE Species Study includes an avian carcass survey component to assess bird strikes with the Projects' transmission lines.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
22	11/30/2023	Idaho Fish and Game (IDFG)	IDFG recommends adding carcass surveys to the proposed pedestrian surveys in the PAD at appropriate times of the year to maximize observation opportunities (e.g., migration and overwintering seasons). Study methodology should follow guidelines found in Appendix B of the report entitled: Reducing Avian Collisions with Power Lines: State of the Art in 2012.	The Wildlife and RTE Species Study includes an avian carcass survey component to assess bird strikes with the Projects' transmission lines.
23	11/30/2023	Idaho Fish and Game (IDFG)	IDFG does not anticipate large cost differences between this study request and the proposed Wildlife and RTE Species study outlined in the PAD. Adding a Trumpeter Swan carcass study to this proposed study would augment desired information and provide updated data on RTE species in the Project area.	The Wildlife and RTE Species Study includes an avian carcass survey component to assess bird strikes with the Projects' transmission lines.

8.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

9.0 REFERENCES

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PROJECT LANDS AND ROADS STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

140 S CAPITAL AVE

IDAHO FALLS, ID 83402

PREPARED BY:

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

PROJECT LANDS AND ROADS STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by about 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands (Idaho Falls 1978). IFP is not proposing changes to the existing Idaho Falls Project and Gem State Project operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Most of the land within the Idaho Falls Project and Gem State Project Boundaries is developed to medium intensity or is used for cultivated crops. Per FERC requirements (18 Code of Federal Regulations [CFR] §4.41), the project boundary must encompass all lands necessary for project purposes, including the operations and maintenance activities of the project over the term of the license. FERC further requires (18 CFR §11.2) that a licensee recompense the United States for the use, occupancy, and enjoyment of its lands or its property (LII 2023). The annual charge for such use of government lands is calculated, in part, based on the amount of federal acreage within the project boundary, and therefore a distinction must be made between federal and non-federal lands when filing a project boundary and associated data (FERC 1979). Therefore, this Project

Lands and Roads Study (LAND-1) will ensure an accurate representation of the FERC Project Boundaries and land classifications are presented in a Final License Application.

3.0 STUDY GOALS AND OBJECTIVES

The goal of LAND-1 is to gather current information on existing lands and roads within the current Project Boundaries and assess their current usage and functionality. This information will inform any potential modifications to the Idaho Falls Project and Gem State Project Boundaries to account for future operations and maintenance of the Projects. Study goals will be accomplished by completing the following objectives:

- Assess the current Idaho Falls Project and Gem State Project Boundaries for accuracy, incorporating changes as warranted by new mapping techniques and technology.
- Confirm base ownership of Project lands in terms of title, easements, and other jurisdictional overlays.
- Assess parcel(s) of United States Bureau of Land Management (BLM) land that may be encumbered by the Projects and for which a withdrawal for power purposes was never completed to determine the appropriate next steps to account for Project use.
- Assess the Idaho Falls Project and Gem State Project areas for roads used predominantly for project purposes.
- Assess the Idaho Falls Project and Gem State Project areas for ancillary and unintended uses arising from authorized Project activities.
- Determine if certain Project facilities (including roads) will be removed or abandoned under the term of the next license and how they will be treated.
- Identify areas outside the current Idaho Falls Project and Gem State Project Boundaries that may need to be included as Project lands in the new license terms.
- Coordinate with other studies which may be impacted by the findings of this study. These may include, but are not limited to:
    - The REC-1 Study to update recreation areas and Exhibit R, if necessary.
    - The CR-1 or TR-1 studies as they may pertain to TCPs, ITAs, or treaty rights.

4.0 GEOGRAPHIC SCOPE

The proposed LAND-1 study area will include all lands within the existing FERC Project Boundaries of both Projects, and those identified throughout the relicensing process as having the potential to be added to or removed from each of the Idaho Falls Project and Gem State Project Boundaries (Figure 1 through Figure 3).

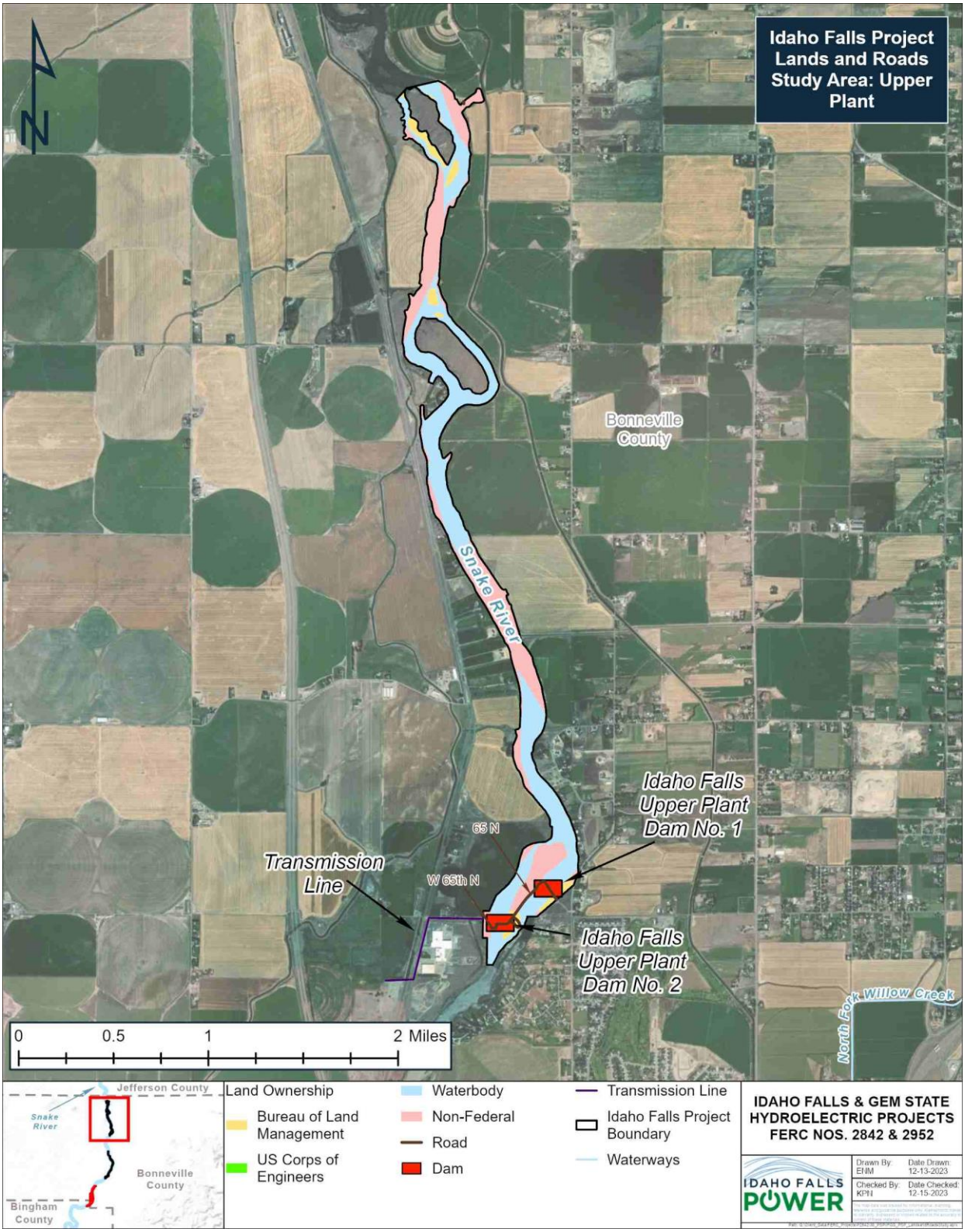

FIGURE 1 IDAHO FALLS PROJECT LANDS AND ROADS STUDY AREA: UPPER PLANT

FIGURE 2 IDAHO FALLS PROJECT LANDS AND ROADS STUDY AREA: CITY PLANT AND LOWER PLANT

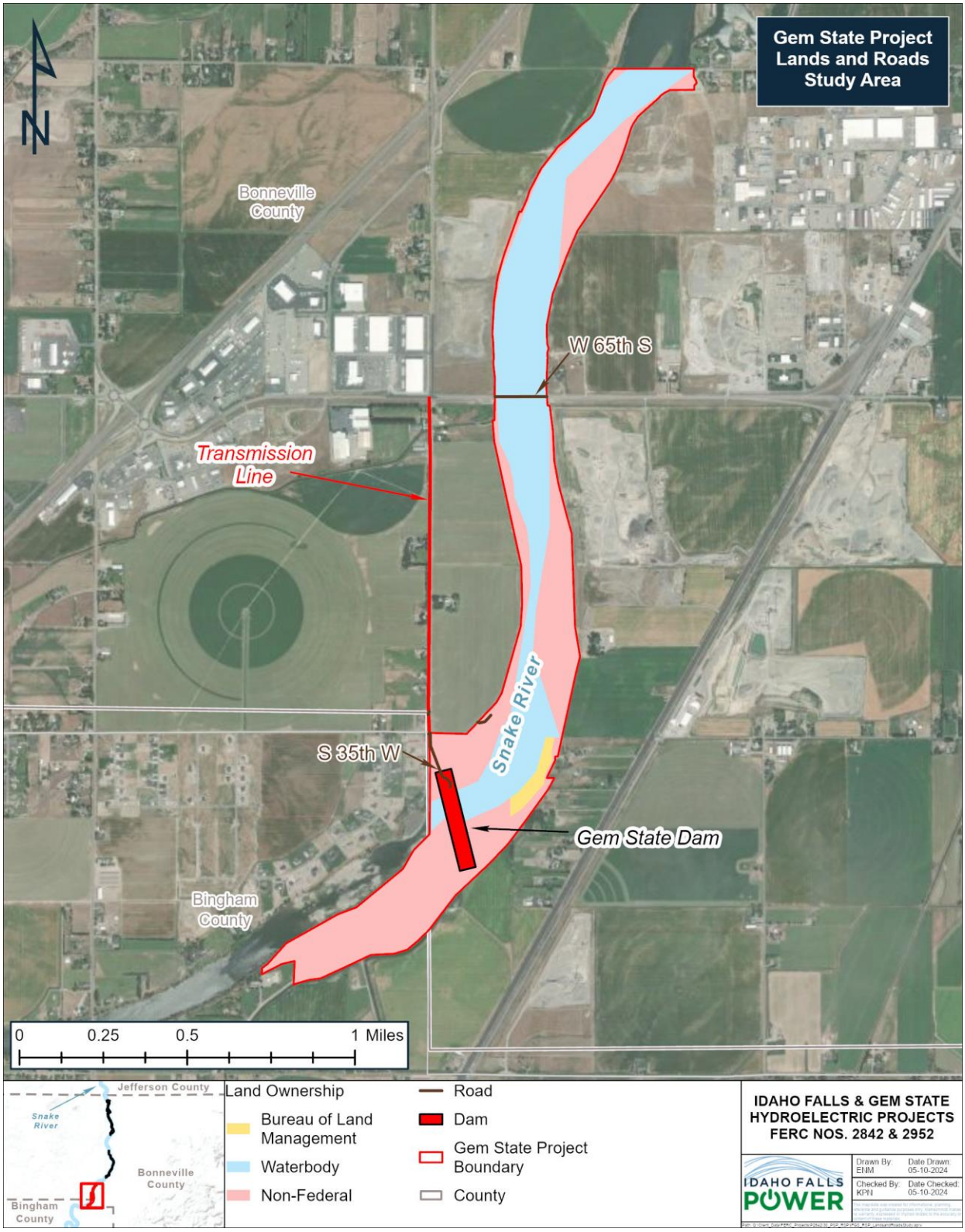

FIGURE 3 GEM STATE PROJECT LANDS AND ROADS STUDY AREA STUDY METHODOLOGY

To ensure both Idaho Falls Project and Gem State Project Boundaries conform with 18 CFR §4.41 (Exhibit G) requirements, IFP proposes the following methods to assess and potentially propose modifications to the FERC Project Boundaries under the term of new licenses.

Assess the current Project Boundaries for accuracy:

- Compile currently filed and approved Project Boundary geographic information system (GIS) data and Exhibit G drawings.
- Analyze current boundary and adjacent lands within GIS software to determine any mapping errors, omissions, or potential removal or addition of lands to the future Idaho Falls Project and Gem State Project Boundaries.

Assess current Project lands ownership information:

- Gather accurate land ownership data for all lands currently within or with the possibility of being added to the Idaho Falls Project and Gem State Project Boundaries.
- Ensure that Project lands are correctly distinguished between federal and non-federal lands within applicable GIS layers.
- Assess federal lands and parcels to determine administrative approach for management (e.g., administrative withdrawal).

Assess Project areas to identify roads currently or proposed to be used primarily for Project purposes:

- Obtain the most recent GIS data of the city of Idaho Falls Department of Parks and Recreation roads.
- Identify roads currently or proposed to be used predominately for Project purposes, such as operation, maintenance, or access within the Idaho Falls Project and Gem State Project Boundaries for recreation.

The results of other studies may influence potential modifications to the Idaho Falls Project and Gem State Project Boundaries. As relevant LAND-1 results and analyses are completed, IFP will

consult with the city of Idaho Falls Department of Parks and Recreation, BLM, and other landowners to determine if other Project-related resource areas should be removed or included in the Idaho Falls Project and Gem State Project Boundaries.

4.1 EXISTING INFORMATION

IFP will use the following sources for implementation of this study:

- Approved FERC Boundary GIS data
- Approved Exhibit G drawings for the Projects
- Bonneville County tax parcel GIS data
- Bingham County tax parcel GIS data
- Federal land ownership GIS data
- Aerial imagery
- Idaho Falls Department of Parks and Recreation roads GIS database

5.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

LAND-1 will be implemented as a desktop analysis in the spring 2024, shown in Table 1. A progress report will be provided as part of the Initial Study Report, discussing preliminary results of the study to date. A Draft Report will be distributed in February 2026 for a 30-day review. The Final Report will be included in the Draft License Application in September 2026.

TABLE 1 STUDY PLAN DEVELOPMENT MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Study Implementation	Spring 2024
Initial Study Report	June 2025

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Draft Report	February 2026
Updated Study Report	June 2026
Draft License Application	September 2026

5.1 CONSULTATION RECORD

With the filing of the Pre-application Document (PAD) and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during the relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. Table 2 lists those comments relevant to the LAND-1 Plan. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a Proposed Study Plan meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024; there were no comments received for the LAND-1.

TABLE 2 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP Response
25	11/30/2023	BLM	The Idaho Falls Hydro (FERC No. P-2842) contains approximately 9.86 acres BLM-managed lands that have been withdrawn to the City of Idaho Falls, BLM serial number IDI-23387. In recent years, it has come to the attention of the City of Idaho Falls	Noted. This comment has been incorporated into the goals of this study plan and will be addressed throughout

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP Response
			and the BLM Upper Snake Field Office that there is a parcel of BLM encumbered by the Lower Plant which was never withdrawn for this project or included in the FERC license. The parcel is legally described as lot 19 of section 25, T. 2 N., R. 37 E., Boise Meridian, Idaho, and is 1.64 acres. Our office highly recommends that this parcel be included as part of this relicensing effort and withdrawn for this purpose. The BLM issued a Right-of-Way Grant (IDI-35152) to the City of Idaho Fall on the east side of the river, south of Pancheri to the Idaho Falls Project Lower Plant Dam for the recreational purpose of the Idaho Falls River Walk (Snake River greenbelt).	implementation of the LAND-1 study.

6.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

7.0 REFERENCES

City of Idaho Falls (Idaho Falls). 1978. Application for License: Idaho Falls Hydroelectric Project.

Federal Energy Regulatory Commission (FERC). 1979. Order Issuing License (Major) Idaho Falls Hydroelectric Project No. 2842.

Legal Information Institute (LII). 2023. 18 CFR § 4.41 Contents of application. Accessed on November 15, 2023. 18 CFR § 4.41 - Contents of application. | Electronic Code of Federal Regulations (e-CFR) | US Law | LII / Legal Information Institute (cornell.edu).

RECREATION USE AND FACILITY INVENTORY STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS
FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

140 S CAPITAL AVE

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RECREATION USE AND FACILITY INVENTORY STUDY PLAN

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2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Recreation is a recognized project purpose under section 10(a) of the Federal Power Act. The licensee will undertake measures, including ongoing maintenance of recreation facilities at both Projects for project purposes throughout the license term. Therefore, FERC would have ongoing responsibility over the new license term. A standard practice within FERC relicensing is estimating use through recreational observations and spot counts at recreation sites and conducting a Recreation Facility Inventory and Condition Assessment.

3.0 STUDY GOALS AND OBJECTIVES

The goal of the Recreation Use and Facility Inventory Study (REC-1) is to gather current information on recreation facilities, recreational use, and potential Projects' effects to determine existing and future recreation use and capacity at the Idaho Falls and the Gem State Projects. Study goals will be accomplished by completing the following six objectives:

1. Inventory and identify the condition of the recreation facilities and associated amenities at FERC-approved Idaho Falls Project and Gem State Project recreation sites identified in Table 1 and Table 2.
2. Identify who owns, operates, and maintains each of the Idaho Falls Project and Gem State Project recreation sites and facilities.
3. Describe each Idaho Falls Project and Gem State Project recreation sites and facilities in relation to their associated Project Boundaries.
4. Evaluate recreation use at the FERC-approved Idaho Falls and Gem State Project recreation sites, including both an assessment of the amount of use that each site is receiving (including percent of capacity) and the recreation activities that occur at the site.
5. Collect visitor feedback regarding their perception and experience at recreation facilities within the Idaho Falls and Gem State Project Boundaries.
6. Determine the adequacy of the FERC-approved Idaho Falls Project and Gem State Project recreation sites and if modifications to the sites would be needed to meet current or future recreation needs.

4.0 GEOGRAPHIC SCOPE

Section 5.7, *Recreation and Land Use*, of IFP's Preliminary Application Document (PAD; 2023) provides background information about recreational opportunities at the Projects and describes existing FERC-approved recreation sites. These sites are listed in Table 1 and Table 2, and their locations are depicted in Figure 1 and Figure 2.

TABLE 1 IDAHO FALLS PROJECT FERC-APPROVED RECREATION SITES[1]

DEVELOPMENT	SITE NAME	DESCRIPTION
Upper Plant	*Site 1*	Unimproved parking river access
	Site 2	Access road to the island
	Site 3	Unimproved parking area and boat launch
	Eagle Rock Crossing	Historical landmark, picnic area with benches and a drinking fountain, overlook structures, a parking area, restroom facilities, and trail access to the Greenbelt
	John's Hole Forebay Park	Boat ramp and dock, picnic facilities, swimming, parking areas, restroom facilities, fishing access, a section of the Greenbelt, a trail along the river including picnic facilities, restrooms, and scenic viewpoints
	Keefer's Island	Boat accessible only, looping trail system
	Pederson's Sportsman's Park	Walking paths and bridges that span the river, an amphitheater sitting area, fishing access to the river, Friendship Garden
	Russell Freeman Park	Four baseball diamonds (one is lighted) with bleachers, dugouts, and parking areas; four picnic shelters, picnic tables, fireplaces; two restroom facilities, shelters, a band shelter, disc golf course, a war memorial; several pieces of playground equipment; large parking area; nature trail designed for use by older and persons with disabilities as well as others and informational and educational signage along the trail
	South Capital Park	Parking area, picnic shelter with tables, a fishing pier, playground, restroom facilities, a river overlook, and trail access to the Greenbelt

[1] Since release of the PAD, further research has determined that the following amenities are located outside of the FERC Boundaries: fishing access at City Plant, picnic tables at Keefer's Island, and the boat launch at Russell Freeman Park.

DEVELOPMENT	SITE NAME	DESCRIPTION
Lower Plant	*South Tourist Park*	Boat launching ramp and docking facilities with adjacent parking, informal swimming, fishing access, a restroom building, 16 designated camping areas, movable picnic tables, garbage cans, area lighting, playground equipment, access to the Greenbelt trail

TABLE 2 GEM STATE PROJECT FERC-APPROVED RECREATION SITES

SITE NAME	DESCRIPTION
Upper Marina	Boat ramp, docks, floats, parking, picnic tables, fire pits, toilets meeting Americans with Disabilities Act (ADA) standards, garbage cans and a parking area
Lower Marina	Car-top boat access, footpath, parking; boat ramp, docks, restrooms, and picnic shelters
Tailrace Fishing Access	Parking area, ADA restroom facilities, garbage cans, and informational signage
Fishing Pond (south of powerhouse)	Fishing, parking area, trail, picnic tables, benches, and trash receptacles

FIGURE 1 IDAHO FALLS PROJECT RECREATION SITES

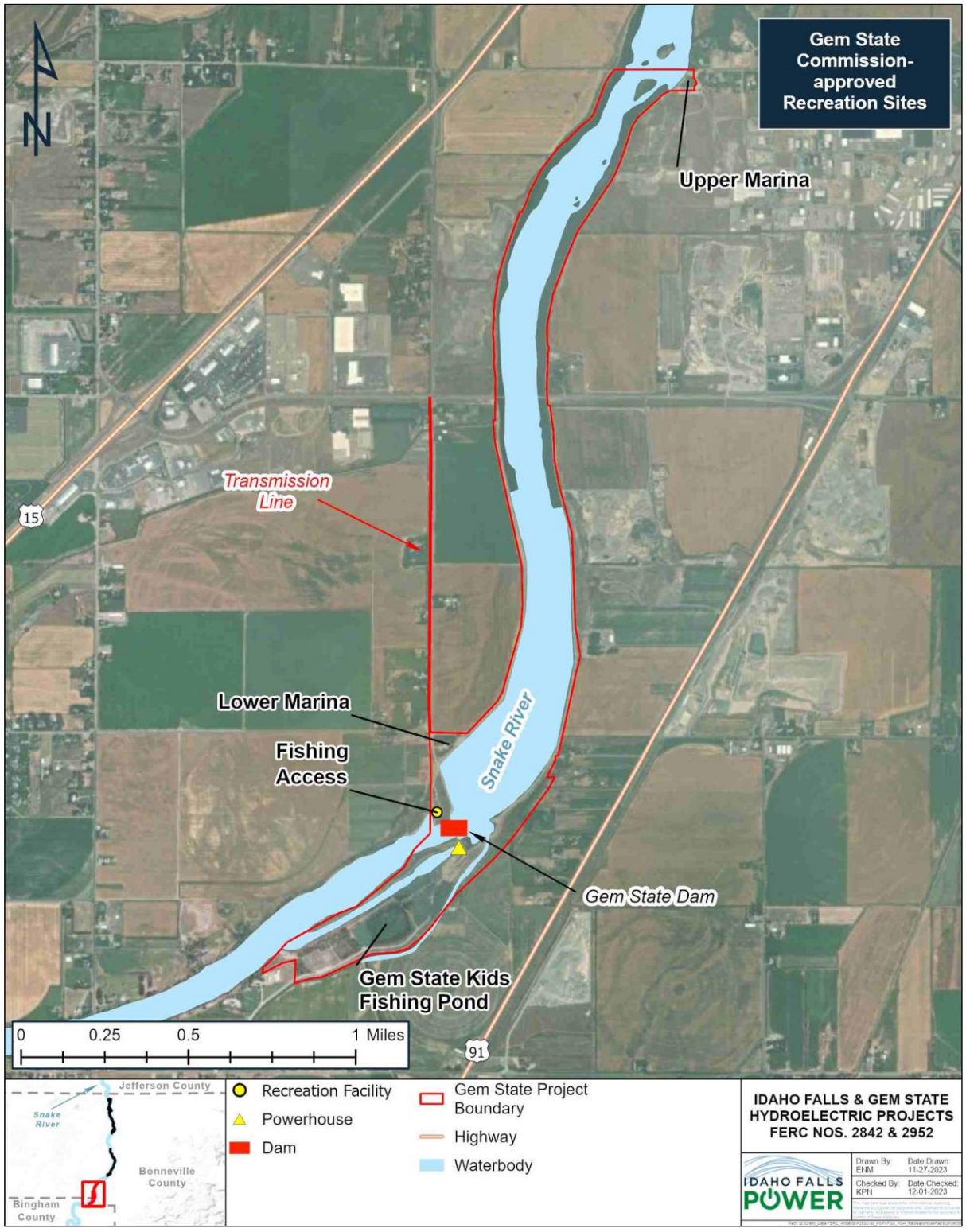

FIGURE 2 GEM STATE PROJECT RECREATION SITES

5.0 STUDY METHODOLOGY

REC-1 will include two parts: 1) a Recreation Facility Inventory and Condition Assessment and 2) a Recreation Use Assessment.

5.1 RECREATION FACILITY INVENTORY AND CONDITION ASSESSMENT

The licensee will perform a field inventory to document the existing recreation facilities and amenities at the FERC-approved recreation sites at the Idaho Falls Project and the Gem State Project (Table 1 and Table 2). Field teams will visit each facility and collect data using a handheld device. Data collected during the inventory will include the following:

- the location of facilities in relation to the associated Project Boundary,
- the types and number of amenities provided at each site and facility,
- the condition of the facility/amenities,
- the entities responsible for the operation and maintenance of each facility,
- hours/seasons of operation, and
- site photographs.

Additionally, field investigations at each recreation site will identify areas that have characteristics of erosion, slumping, or other forms of instability. The field investigation will include photographs of areas of instability. The Recreation Facility Inventory and Condition Assessment form that will be used is available in Appendix A. The conditions of the facilities will be assessed as follows:

- **N** = Needs replacement (Facility/amenity is non-functional or has broken or missing components)
- **R** = Needs repair (Facility/amenity has structural damage or is in an obvious state of disrepair)
- **M** = Needs maintenance (Facility/amenity needs maintenance, such as cleaning or painting)
- **G** = Good condition (Facility/amenity is functional and well maintained)

5.2 RECREATION USE ASSESSMENT

The Recreation Use Assessment includes spot counts, use surveys, and traffic counters at the FERC-approved recreation sites at the Idaho Falls and Gem State Projects (Table 1 and Table 2), as described below.

The Recreation Use Assessment spot counts and use surveys will be conducted over 1-hour intervals at different times of day on a rotating basis to account for time-of-day use patterns. A designated observer will conduct the observations and surveys over the days as outlined in Table 3. Each weekday and weekend day will be randomly selected.

Traffic counters will also be used to collect use information at recreation sites that are suitable for traffic counter placement. Traffic counters will be installed 2 weeks ahead of the Recreation Use Assessment dates to ensure proper functionality prior to the study season. Traffic counters will be checked and data will be downloaded on each Recreation Use Assessment day.

TABLE 3 RECREATION USE ASSESSMENT SCHEDULE

MONTH	RECREATION USE ASSESSMENT DAYS
May	• Holiday weekend day (either on Memorial Day or during the associated Memorial Day weekend in 2025)
June	• 2 weekend days • 2 weekdays
July	• 2 weekend or holiday days (1 day will be on the Fourth of July or during the associated Fourth of July weekend) • 2 weekdays
August/ September	• 2 weekend days (1 day will be on Labor Day or during the associated Labor Day weekend in 2025) • 2 weekdays

5.2.1 SPOT COUNTS

IFP will conduct spot counts at the parking areas of FERC-approved recreation sites at the Idaho Falls[2] and the Gem State Projects. The spot counts will represent short-term counts (approximately 5 minutes per site) in which IFP will record the number of vehicles parked at a site and the number of users observed. The spot counts will represent a snapshot in time depicting specific user groups and their activities during randomly selected intervals. The designated observer will fill out an observation form (available in Appendix B) during survey days outlined in Table 3. These observations will include the following information:

- date and time,
- observer,
- weather conditions,
- number of people observed,
- observed activities, and
- pertinent notes.

5.2.2 RECREATION USE SURVEYS

IFP will directly survey users at the FERC-approved recreation sites at the Idaho Falls and Gem State Projects (Table 1 and Table 2). The proposed survey form is in Appendix C. The purpose of the Recreation Use Survey is to gain user opinions regarding the existing recreation facilities and amenities. The survey will record the number of people in a party, their primary reason (recreational activity) for visiting the site, their perception of the level of use, and their opinions regarding the amount and types of recreation opportunities offered within the Idaho Falls Project and Gem State Project areas.

[2] Spot counts will not be conducted at Keefer's Island as this is a boat-only accessible site.

5.2.3 TRAFFIC COUNTERS

Traffic counters will be installed at recreation facilities with suitable installation locations as an additional method of collecting recreation site use, specifically how many vehicles visit a site during the study season. Traffic counter locations will be selected in the field prior to deployment in May 2025. To ensure proper functionality of the traffic counters, IFP will conduct calibration counts at each of the sites where traffic counters are installed. Calibration counts will occur over a period of approximately 2 hours and will be performed once per month in June, July, and August for a total of three calibration count days during the study season. Calibration counts will record the number of people observed, observed activities, number of vehicles and trailers, time in, and time out. Results will be documented on calibration count survey forms (available in Appendix D) and will be used to verify traffic counters are functioning properly and estimate recreation site turnover rates.

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

Traffic counters will be deployed in spring 2025, at which time staff will conduct the facility inventory and conditions assessment. Recreation use surveys and spot counts will begin Memorial Day Weekend (observed), as described above in Table 2. A progress report will be provided as part of the Initial Study Report, discussing progress completed to date, btu will not include preliminary data. A Draft Report will be distributed in February 2026 for a 30-day review. The Final Report will be included in the Draft License Application in September 2026 shown in Table 4.

TABLE 4 STUDY PLAN IMPLEMENTATION MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Study Implementation	Spring – Fall 2025
Initial Study Report	June 2025

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Draft Report	February 2026
Updated Study Report	June 2026
Draft License Application	September 2026

6.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. Table 5 lists those comments relevant to the REC-1 Plan. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024; no comments were received relevant to REC-1.

TABLE 5 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON STUDY PLANS

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
8	11/30/2023	Idaho Fish and Game (IDFG)	Section 5.7.2.2 of the PAD states the Gem State Fishing Pond is closed March 1 through June 15 for waterfowl nesting in the area. The PAD does not state who initiated the closure. This closure does not align with fishing seasons on other public fishing ponds in the area and reduces angling opportunity during a popular fishing season. IDFG	Comment noted. IFP looks forward to discussing this with the Idaho Department of Fish and Game during the relicensing; any changes will be

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			does not have authority to enforce this seasonal restriction because the pond is not listed as special rule water and therefore is open to year-round angling. IDFG contends that providing fishing access during the seasonal closure will benefit the local public interest greater than protecting nesting waterfowl. IDFG recommends removing the seasonal closure on Gem State Fishing Pond to reduce recreational confusion and enforcement conflicts. Permitting year-round fishing would provide greater community benefits because angler use of local fishing ponds is high in the April-May timeframe. If the applicant and FERC agree that protecting nesting waterfowl is appropriate based on biological data and actual waterfowl production, IDFG can reconsider this recommendation.	discussed in the Draft Licensing Application.

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

Idaho Falls Power (IFP). 2023. Final Pre-application Document, Idaho Falls and Gem State Hydroelectric Projects, FERC Project Nos. 2842 and No. 2952. August 2023.

APPENDIX A: RECREATION FACILITY INVENTORY FORM

Idaho Falls Project (P-2842), Gem State Project (P-2952)
Recreation Facility Inventory Form

Form may be entered into electronic format.

Surveyor: _____ **Date/Time:** _____
Project: ☐ Idaho Falls / ☐ Gem State
Development: ☐ Upper Plant ☐ City Plant ☐ Lower Plant ☐ Gem State

Idaho Falls Recreation Site: ☐ Site 1; ☐ Site 2; ☐ Site 3; ☐ Fishing Access; ☐ Eagle Rock Crossing; ☐ Keffer's Island; ☐ John's Hole Forebay Park; ☐ Pederson's Sportsman Park; ☐ Russell Freeman Park; ☐ South Capital Park; ☐ South Tourist Park

Gem State Recreation Site: ☐ Upper Marina; ☐ Lower Marina; ☐ Tailrace Fishing Access; ☐ Fishing Pond

GPS Coordinates: _____

*Please note:
1) Photos of **all** facilities, amenities, signs, parking areas, roads, and areas of erosion should be taken. Location of each needs to be specified via GPS coordinates or on sketch.

2) If there is more than one facility/amenity of the same type, and they are in different conditions, this needs to be distinguished in notes on this form. Location of each needs to be specified via GPS coordinates or on sketch, and condition should be specified in some way to distinguish the varied conditions for the same facility/amenity type.

3) If there is not sufficient space on this form for notes, pages may be added as needed.

Site and/or Facility Type:

☐ Boat Launch Area	☐ Fishing Area	☐ Picnic Area
☐ Trail	☐ Campsite	☐ Other: _____

Road Access: Condition Description (N-replace, R-repair, M-maintain, G-good):

☐ Paved access # entrances _____ # lanes _____ Condition _____
☐ Unpaved access # entrances _____ # lanes _____ Condition _____

Parking Area: Condition Description (N-replace, R-repair, M-maintain, G-good):_____

Type	# Paved	# Estimated Gravel	Space Delineation
Designated Handicap Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage
Regular Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage
Vehicle & Trailer Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage

---

Recreation Site Operations:
Operating Hours: _____
☐ Fee: (Site $_____; Parking $_____; Other _____)

Site Amenities (if needed, please provide additional specifications on additional pages):

#	Type	Condition (N-replace, R-repair, M-maintain, G-good) for each[1]
_____	Picnic Shelter	_____
_____	Picnic Tables	_____
_____	Grills	_____
_____	Trash Receptacles	_____
_____	Benches	_____
_____	Restrooms	_____
_____	Fishing Pier/Platform	_____
_____	Boat Launch	_____
_____	Boat Dock	_____
_____	Fishing Prep Area	_____
_____	Overlook	_____
_____	Pedestrian Trail	_____
_____	Firepit/ring	_____
_____	Information Kiosk	_____
_____	Informational Signage	_____
_____	Safety Signage	_____
_____	Playground	_____
_____	Campsite (primitive)	_____
_____	Campsite (improved)	_____

Other (specify) _____
_____
_____

Boat Launch: Condition Description (N-replace, R-repair, M-maintain, G-good): _____
☐ Hard surface ☐ Gravel ☐ Unimproved (informal) _____ # of Lanes
Other notes: _____
_____

Boat Dock / Fishing Pier: Condition Description (N-replace, R-repair, M-maintain, G-good): _____
☐ Boat Dock (can secure boat to platform) ☐ Fishing Pier (cannot secure boat to platform)
Length (ft):_____ Width (ft):_____
Other notes: _____

Trails (within the recreation site): Condition Description (N-replace, R-repair, M-maintain, G-good)
Type: _____ Length (ft):_____ Condition: _____
Type:_____ Length (ft):_____ Condition: _____
Type: _____ Length (ft):_____ Condition: _____
Other notes: _____
_____

[1] If more than one and different conditions, distinguish the condition/location of each. Can label by number and indicate on sketch. If all are the same condition, don't need to specify with label.

Signage / Interpretive Information: Condition Description (N-replace, R-repair, M-maintain, G-good)

☐ Part 8 Quantity: _____ Condition: _____
☐ Trail Markers Quantity: _____ Condition: _____
☐ Historical Quantity: _____ Condition: _____
☐ Fishing Regulations Quantity: _____ Condition: _____
☐ Boating Safety Quantity: _____ Condition: _____
☐ Informational Quantity: _____ Condition: _____ Content: _____
☐ Other: _____ Quantity: _____ Condition: _____

Restrooms : Condition Description (N-replace, R-repair, M-maintain, G-good)

	# Flush	# Portable	# Showers	Condition
Unisex	_____	_____	_____	_____
Women	_____	_____	_____	_____
Men	_____	_____	_____	_____

Erosion:

☐ Areas of noticeable erosion, slumping, or other forms of instability

Description of Erosion: _____
_____

Evidence of Use at Site: _____
(C) Compaction, (E) Erosion, (L) Litter, (UI) Unauthorized improvements, (V) Vandalism, (O) Other (Specify)

Evidence of Overcrowding: _____
(A) Anecdotal information, (I) Improper parking, (SD) Site degradation, (U) Unauthorized sites, (W) Waiting lines, (O) Other (Specify)

Notes (including general condition, any restrictions/alerts, invasive species, etc.):

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Sketch of Site, including <u>all</u> facilities and amenities:

APPENDIX B: RECREATION USE SPOT COUNT FORM

Idaho Falls Project (P-2842), Gem State Project (P-2952)

Recreational Observations / Spot Counts

Form may be entered into electronic format.

Observer: _____ Date: _____ Time: _____

Weather: ☐ Sunny; ☐ Partly Cloudy; ☐ Cloudy; ☐ Light Rain; ☐ Heavy Rain

Approximate Temperature (°F): _____

1. Project: ☐ Idaho Falls / ☐ Gem State

2. Development:

☐ Upper Plant
☐ City Plant
☐ Lower Plant
☐ Gem State

3. Upper Plant Recreation Site:

☐ Site 1
☐ Site 2
☐ Site 3

4. City Plant Recreation Site:

☐ Fishing Access
☐ Eagle Rock Crossing
☐ Keefer's Island
☐ John's Hole Forebay Park
☐ Pederson's Sportsman Park
☐ Russell Freeman Park
☐ South Capital Park

5. Lower Plant Recreation Site:

☐ South Tourist Park

6. Gem State Recreation Site:

☐ Upper Marina
☐ Lower Marina
☐ Tailrace fishing access
☐ Fishing Pond

7. Number of People Observed: _____

8. Observed Activities:

☐ Fishing from the shore
☐ Fishing from a boat
☐ Motorized boating
☐ Canoe/Kayaking
☐ Stand-up Paddle Boarding
☐ Waterskiing / Wakeboarding / Tubing
☐ Swimming
☐ Playing in the water
☐ Hiking / Walking / Jogging
☐ Bicycling
☐ Picnicking
☐ Relaxing / Resting
☐ Camping
☐ Viewing Wildlife / Birdwatching
☐ Photography
☐ Other: _____

9. Notes:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

APPENDIX C: RECREATION USE SURVEY FORM

Idaho Falls Project (P-2842), Gem State Project (P-2952)

Recreational Use Survey Form

Form may be entered into electronic format.

A. Observer: _____

B. Date: _____

C. Time: _____

D. Project: ☐ Idaho Falls / ☐ Gem State

E. Development: ☐ Upper Plant ☐ City Plant ☐ Lower Plant ☐ Gem State

F. Upper Plant Recreation Site:

☐ Site 1
☐ Site 2
☐ Site 3

City Plant Recreation Site:

☐ Fishing Access
☐ Eagle Rock Crossing
☐ Keefer's Island
☐ John's Hole Forebay Park
☐ Pederson's Sportsman Park
☐ Russell Freeman Park
☐ South Capital Park

Lower Plant Recreation Site:

☐ South Tourist Park

Gem State Recreation Site:

☐ Upper Marina
☐ Lower Marina
☐ Tailrace Fishing Access
☐ Fishing Pond

1. **The purpose of the survey is to obtain information about recreational user experience at the site and to determine the adequacy of the site. This recreational use survey is associated with the relicensing process for the Idaho Falls and Gem State Hydroelectric Projects. The survey will take approximately 5 minutes and is completely anonymous. No personal information will be collected. Would you be willing to participate in the survey?**

   ☐ Yes ☐ No

2. **Including yourself, how many people are in your party today?** _____

3. **Have you been to this site before?**

   ☐Yes ☐No

   If yes, approximately how many times do you visit this site per year? _____
   If yes, during what season(s) do you typically participate in recreation activities at this site? *(Select all that apply)*

   ☐ Spring ☐ Summer ☐ Fall ☐ Winter

4. **Please indicate which of the following recreational activities you are participating in or have participated in at this site: (***Mark all that apply***)**

☐ Fishing from the shore
☐ Fishing from a boat
☐ Ice Fishing
☐ Motorized boating
☐ Canoe/Kayaking
☐ Stand-up Paddle Boarding
☐ Waterskiing / Wakeboarding / Tubing
☐ Swimming
☐ Playing in the water
☐ Hiking / Walking / Jogging
☐ Bicycling
☐ Picnicking
☐ Relaxing / Resting
☐ Camping
☐ Viewing Wildlife / Birdwatching
☐ Photography
☐ Other: _____

5. **Of the activities listed above, please indicate which is the primary activity of this trip:**
(Choose only one)

☐ Fishing from the shore
☐ Fishing from a boat
☐ Motorized boating
☐ Canoe/Kayaking
☐ Stand-up Paddle Boarding
☐ Waterskiing / Wakeboarding / Tubing
☐ Swimming
☐ Playing in the water
☐ Hiking / Walking / Jogging
☐ Bicycling
☐ Picnicking
☐ Relaxing / Resting
☐ Camping
☐ Viewing Wildlife / Birdwatching
☐ Photography
☐ Other: _____

6. **On a scale from 1 to 5, with 1 being infrequently and 5 frequently, how much do you perceive this site is used for recreation? (Circle one number)**

1	2	3	4	5
Infrequently		Moderately		Frequently

If your rating is 1-2, please explain: _____
_____

7. **Are you aware of any issues associated with overcrowding of parking areas or facilities at this site?**
   ☐ Yes ☐ No ☐ N/A
   If yes, please explain: _____
   _____

8. **In your opinion, are the amount and types of recreation facilities/amenities offered at this site sufficient?**
   ☐ Yes ☐ No ☐ N/A
   If no, please explain: _____
   _____

9. **On a scale from 1 to 5, with 1 being poor and 5 excellent, how would you rate the overall condition of this site?** *(Circle one number)*

1	2	3	4	5
Poor	Fair	Satisfactory	Good	Excellent

   If your rating is 1-2, please explain: _____
   _____

10. **Are there any modifications to the site or facilities that you think should be made?**
    ☐ Yes ☐ No ☐ N/A
    If yes, please explain: _____
    _____

11. **Do you have any additional comments about public recreation facilities/amenities at this recreation site?** *(Please be as specific as possible)***:**
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____
    _____

Thank you for participating in this survey!

APPENDIX D: CALIBRATION COUNT SURVEY FORMS

Calibration Form

Site Name:

Staff Person: Date:

Time Start: Time End:

Start Count: End Count:

Weekend or Weekday?

					# of people participating in activity during visit											
Vehicle Description	Trailer Y/N	Time in	Time out	Total # of People	Motor Boating	Non motor boating	Camping	Fishing	Picnic	Walk/ Jog/ Hike	Biking	Sightseeing	Swim	Birding	Other Rec Use	Non Rec Use

ENVIRONMENTAL JUSTICE STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

140 S CAPITAL AVE

IDAHO FALLS, ID 83402

PREPARED BY:

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

ENVIRONMENTAL JUSTICE STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects". The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by about 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing any changes to the existing Projects' operations or facilities. This study plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Project operations and maintenance can potentially affect human health or the environment within environmental justice and disadvantaged communities within the geographic scope of analysis. Examples of resource impacts may include, but are not limited to:

- erosion or sedimentation of private properties;
- groundwater or other drinking water sources;
- subsistence fishing, hunting, or plant gathering;
- access to recreation;
- housing or industries of importance to environmental justice communities; and
- operation-related air quality, noise, and traffic.

3.0 STUDY GOALS AND OBJECTIVES

The goal of this Environmental Justice Study (EJ-1) is to identify the potential effects of continued project operations during the term of a new license on environmental justice communities in both Projects' study areas. Study goals will be accomplished by completing the following five objectives:

1. Identify the number and location of environmental justice communities within the study area.
2. Identify the number and location of non-English-speaking populations within the study area.
3. Conduct public outreach to engage environmental justice communities and non-English-speaking populations in the relicensing process.
4. Discuss (a) the potential effects of relicensing on the identified environmental justice communities, (b) effects that are disproportionately high and adverse, and (c) potential effects on non-English-speaking communities.
5. If needed, identify mitigation measures to avoid or minimize project effects on environmental justice and non-English-speaking communities.

4.0 GEOGRAPHIC SCOPE

Due to the lack of construction or operational changes being proposed as part of this relicensing, the geographic scope of analysis (i.e., study area) of EJ-1 will include all areas within 1 mile of the existing FERC Project Boundaries and include all developments of both Projects. Each state, county, and applicable census block will be analyzed within the 1-mile buffer surrounding the Idaho Falls Project and Gem State Project Boundaries.

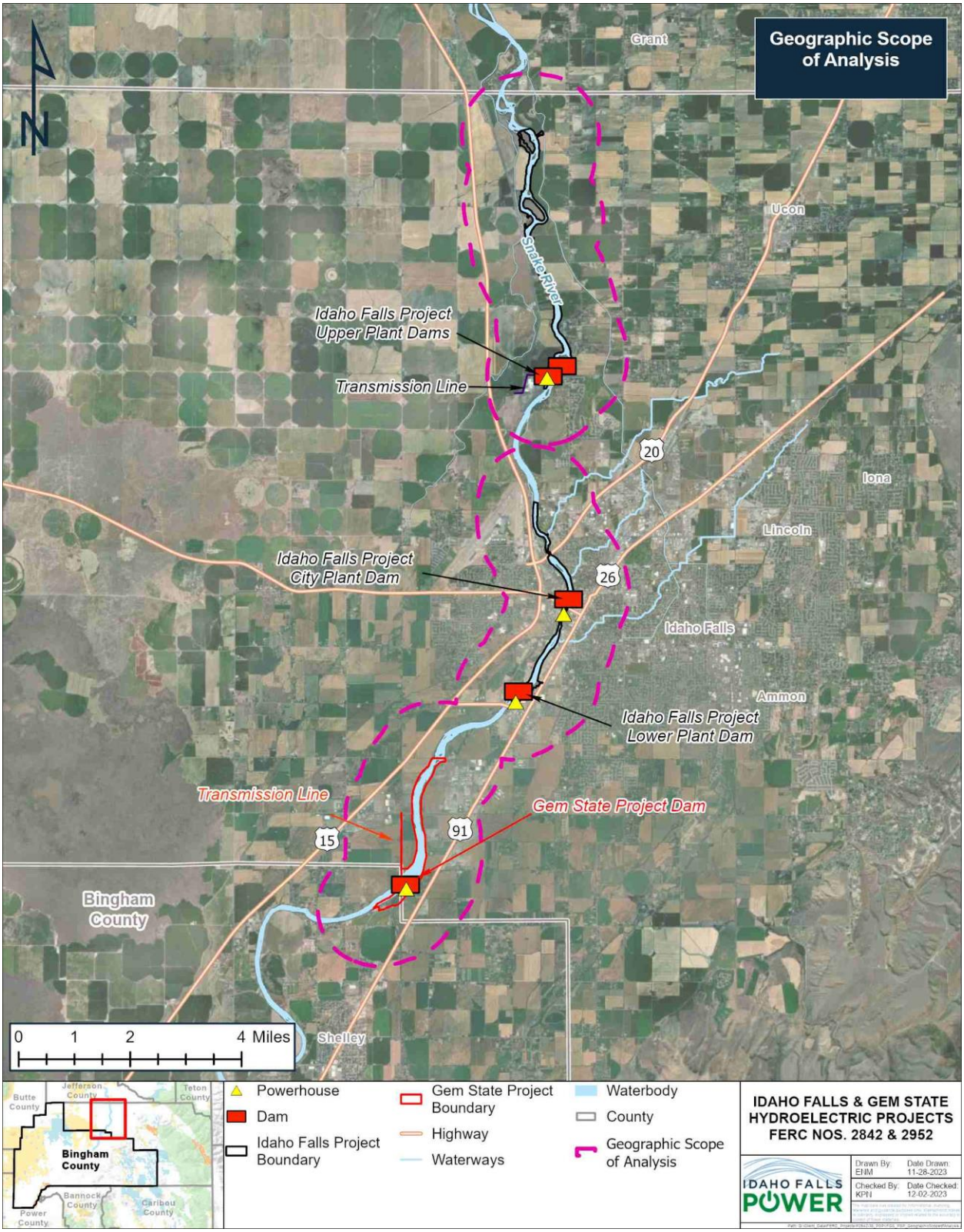

FIGURE 1 GEOGRAPHIC SCOPE OF EJ-1 ANALYSIS

5.0 METHODOLOGY

For this study, minority population percentages will be determined using Census Table B03002. Minority populations considered significant for environmental justice purposes will either exceed 50 percent of the general population or be "meaningfully greater" than the minority population percentage in the county population (also referred to as the reference population). Minority populations are defined herein as people who identify themselves as Asian or Pacific Islander, American Indian or Alaskan Native, Black (not of Hispanic origin), Hispanic, either alone or in combination with other ethnicities, individuals identifying as a race other than one of the surveyed choices, and individuals identifying as any combination of two or more races. Low-income populations will be identified using Census Table B17017. They will be considered a low-income environmental justice community if the block group percentage exceeds the county's percentage. Additionally, non-English-speaking populations will be identified using Census Table B16004. IFP proposes using the United States Environmental Protection Agency (USEPA) 2016 Promising Practices[1] guidance document and the Council on Environmental Quality's proposed National Environmental Policy Act (NEPA) Phase 2 Regulations[2] as guidelines for conducting this assessment. The following actions will be used to conduct the study:

5.1 STATISTICS TABLE

Using data from Census Table B03002, a table will be prepared that includes the racial, ethnic, and poverty statistics for each state, county, and census block group within the study area. The table will include the following information from the U.S. Census Bureau's most recently available census data for each state, county, and block group:

- total population;
- total population of each racial and ethnic group (i.e., White Alone [Not Hispanic], Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and

[1]The EPA Promising Practices for Environmental Justice Methodologies in NEPA Reviews document can be accessed at the following URL: Promising Practices FOR EJ Methodologies IN NEPA Reviews

[2] The NEPA Phase 2 Rule can be accessed at the following URL: Federal Register: National Environmental Policy Act Implementing Regulations Revisions Phase 2

Other Pacific Islander, some other race, two or more races, Hispanic or Latino origin [of any race]) (count for each group);

- minority population, including individuals of Hispanic or Latino origin as a percentage of the total population[3]; and
- total population below the poverty level as a percentage[4].

[3] To calculate the percent total minority population, subtract the percentage of "White Alone Not Hispanic" from 100 percent for any given area.

[4] To calculate percentage of total population below poverty level, divide the total households below the poverty level by the total number of households and multiply by 100.

The statistics table will be presented in the following format:

	RACE AND ETHNICITY DATA										**LOW-INCOME DATA**	
Geography	Total Population (count)	White Alone, Not Hispanic (%)	African American (%)	Native American/ Alaska Native (%)	Asian (%)	Native Hawaiian & Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority (%)	Below Poverty Level (%)	Non-English-speaking Population (%)
State												
County or Parish												
Census Tract X, Block Group X												

5.2 IDENTIFICATION OF ENVIRONMENTAL JUSTICE COMMUNITIES BASED ON MINORITY POPULATIONS

Utilizing the data gathered from the U.S. Census Bureau, environmental justice communities will be identified by block group based on the presence of minority populations by applying the "50-percent" and the "meaningfully greater" analysis methods. As described above, the "50-percent" analysis method will determine whether the total percent minority population of any block group in the affected area exceeds 50 percent. The "meaningfully greater" analysis will be used to determine whether any affected block group is 10 percent greater than the minority population percent for the reference population. The following equation will be used for the "meaningfully greater" calculation:

(County minority population) x (1.10) = value above which a block group minority percent population must be for inclusion as an environmental justice community.

5.3 IDENTIFICATION OF ENVIRONMENTAL JUSTICE COMMUNITIES BASED ON LOW-INCOME POPULATIONS

The "low-income threshold criteria method" will be used to determine environmental justice communities based on the presence of low-income populations. To qualify, the percent of the population below the poverty level in the identified block group must be equal to or greater than that of the reference population. Data will come from Census Table B17017.

5.4 IDENTIFICATION OF NON-ENGLISH-SPEAKING POPULATIONS

Non-English-speaking groups within the study area will be identified using U.S. Census Bureau data from Table B16004, regardless of whether the group is part of an identified environmental justice community. Previous or planned efforts to identify and communicate with non-English-speaking populations will be reported.

5.5 OUTREACH EFFORTS

As presented in §5.9.5 of IFP's Preliminary Application Document (PAD; 2023), environmental justice communities are present within the geographic scope of analysis. IFP will conduct public outreach efforts regarding both Projects' relicensings and provide information regarding outreach efforts in the Study Reports, including a summary of any outreach efforts and consultation to the communities, a description of the information provided to environmental justice communities, and any planned future outreach activities with the communities. IFP proposes to begin outreach efforts during the summer of 2024 to allow adequate time for meaningful engagement, as recommended by the USEPA Promising Practices Guidance. Outreach efforts will consist of contacting local advocacy groups for marginalized communities, as well as faith leadership. These sources are generally trusted by environmental justice communities and would be able to disseminate information about engagement opportunities to populations that may be unable to receive notification individually. IFP will begin outreach by contacting the Idaho Falls African American Alliance and the American Civil Liberties Union of Idaho. IFP will also reach out to the First Presbyterian Church and the St. John's Lutheran Church due to their proximity to the Project Boundaries. IFP will continue to refine groups to contact per the recommendations of these initial groups.

5.6 MAPPING EFFORTS

Maps will be developed to include the FERC Project Boundaries and identified environmental justice communities by census block group. The map(s) will denote whether the environmental justice community is based on the presence of minority populations, low-income populations, or both.

5.7 DATA ANALYSIS: PROJECT EFFECTS ON ENVIRONMENTAL JUSTICE COMMUNITIES AND PROPOSED MITIGATION MEASURES

Following outreach with environmental justice communities, any identified Project-related effects on environmental justice communities will be evaluated to be disproportionately high or adverse. Any measures developed by the relicensing team as a result of the findings of the EJ-1 study will

be discussed with stakeholders. Mitigation measures and project effects will not be discussed in the final technical report but will be included in the Draft License Application (DLA). Discussion in the DLA will include a description of any relevant mitigation measures proposed to avoid or minimize the effects of both Projects on environmental justice communities and non-English-speaking groups.

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

Initial identification of EJ communities and outreach will begin in fall of 2024, shown in Table 1. The relicensing team will continue outreach and conduct informational meetings during the 2025 study season. A progress report will be provided as part of the Initial Study Report, discussing initial findings of the study to date, and a draft report will be distributed in February 2026 for a 30-day review. The final report will be included in the Draft License Application in September 2026.

TABLE 1 STUDY PLAN DEVELOPMENT MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Identification of EJ communities and initial outreach	Fall 2024
Continued outreach and meetings	Spring – Summer 2025
Initial Study Report	June 2025
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

6.1 CONSULTATION RECORD

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a short list of potential studies to be considered during relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued Scoping Document 1 (SD1) on October 2, 2023, and Scoping

Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. No comments specific to EJ-1 were received during that comment period. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024; there were also no comments relevant to EJ-1 on the PSP.

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

Council on Environmental Quality (CEQ). 2023. National Environmental Policy Acy Implementing Regulations Revisions Phase 2. Available online: Federal Register: National Environmental Policy Act Implementing Regulations Revisions Phase 2.

Idaho Falls Power (IFP). 2023. Final Pre-application Document, Idaho Falls and Gem State Hydroelectric Projects, FERC Project Nos. 2842 and No. 2952. August 2023.

United States Environmental Protection Agency (USEPA). 2016. Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. Available online: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf.

CULTURAL RESOURCES STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS (FERC PROJECT NOS. 2842 AND 2952)

CULTURAL RESOURCES STUDY PLAN

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2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Section 106 of the 1966 National Historic Preservation Act (NHPA), as amended, and its implementing regulations, require the lead federal agency to consider the effects of project operations or facilities on historic properties, which are properties that are listed on or eligible for the National Register of Historic Places (NRHP).

Pursuant to Section 106 implementing regulations, IFP has requested to serve as the non-federal representative for information consultation under Section 106 during the relicensing. This proposed Cultural Resources Study (CR-1) will facilitate consultation obligations under Section 106 regarding identifying historic properties and assessing and resolving adverse effects, thereby helping meet key management goals for cultural resources.

3.0 STUDY GOALS AND OBJECTIVES

The goal of CR-1 is to assess potential impacts to historic properties associated with operations and maintenance activities at both Projects. Additionally, CR-1 aims to ensure that future Project facilities and operations are consistent with the cultural resources management goals of land-holding agencies, interested historic parties, and tribal cultural entities. The objectives are to:

1. Identify and document archaeological and historic-era properties within the Area of Potential Effects (APE).

2. Evaluate NRHP eligibility for properties identified within each Projects' APE.

3. Determine potential Project effects on NRHP-eligible or listed archaeological and historic-era properties within each Projects' APE. Data collected and evaluated under this study will allow for the development of a Historic Properties Management Plan (HPMP) as described below.

3.1 RELATIONSHIP TO OTHER STUDIES

The results of CR-1 and the Tribal Resources Study (TR-1) will inform the HPMP(s) developed for the Idaho Falls Project and Gem State Project. The results and field efforts of these two studies may correlate with each other. For example, an identified prehistoric archaeological site may correlate with an identified ethnographic site or Traditional Cultural Property (TCP), plant, or resource collection area. The inventory studies and ethnographic analysis/report may reference other identified resources and studies, as needed. In such correlating cases, future management of these resources in the resulting HPMP may be addressed in a single management recommendation.

4.0 GEOGRAPHIC SCOPE

As defined under Section 106 of the NHPA [36 CFR § 800.16(d)], an APE must include "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." As proposed by IFP in its Preliminary Application Document (PAD) filed with FERC on August 2, 2023, the APE associated with the relicensing of the Projects would include the lands within the existing FERC

Project Boundaries for each respective Project. The proposed APE for field surveys in the Idaho Falls Project is depicted in Figure 1 (overview with inset sections 1, 2, and 3) and in more detail in Figure 2, Figure 3, and Figure 4. The proposed APE for field surveys in the Gem State Project is depicted in Figure 5 (overview with inset sections 1, 2, and 3) and in more detail in Figure 6, Figure 7, and Figure 8. Archival research will be conducted as a desktop analysis and include a 1-mile buffer surrounding the APE, which is defined as the Project area.

The proposed archaeological and historic architectural study areas are those portions of the APE where direct effects on historic properties from existing project operation and maintenance activity have potential to occur.

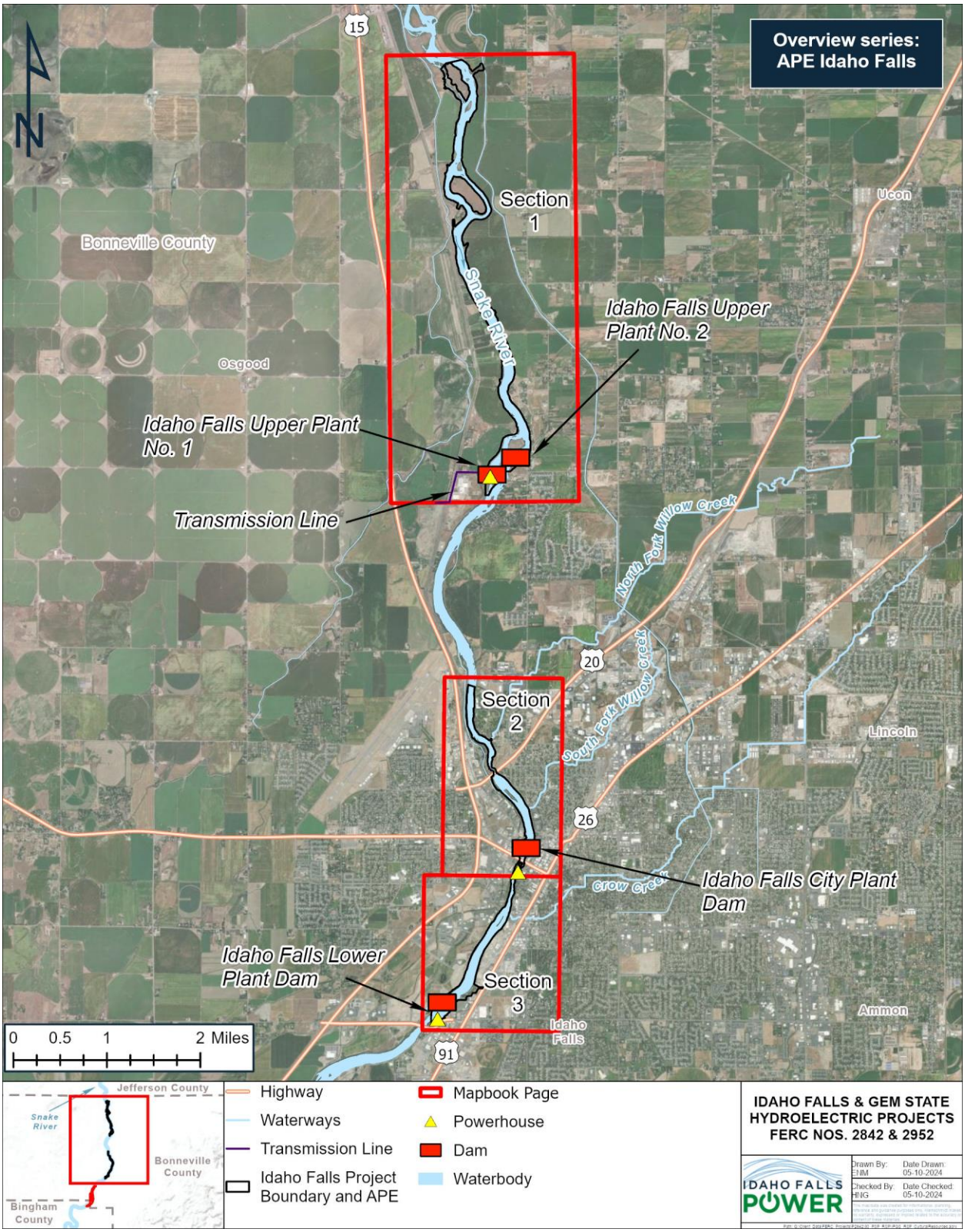

FIGURE 1 OVERVIEW AND SECTIONS OF THE PROPOSED APE ON CULTURAL RESOURCES FOR THE IDAHO FALLS PROJECT

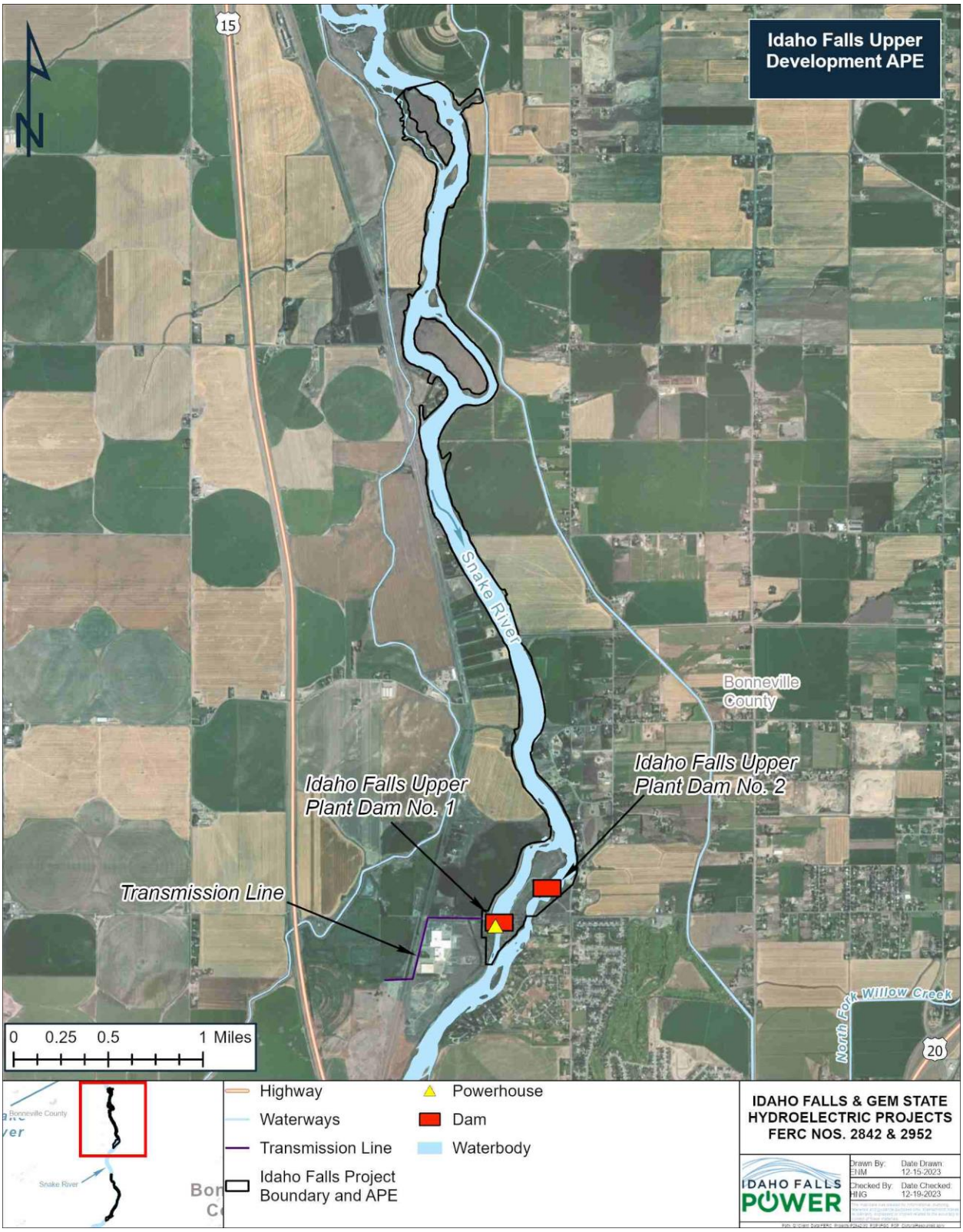

FIGURE 2 PROPOSED APE FOR THE IDAHO FALLS UPPER PLANT DEVELOPMENT – SECTION 1

FIGURE 3 PROPOSED APE FOR IDAHO FALLS CITY PLANT DEVELOPMENT – SECTION 2

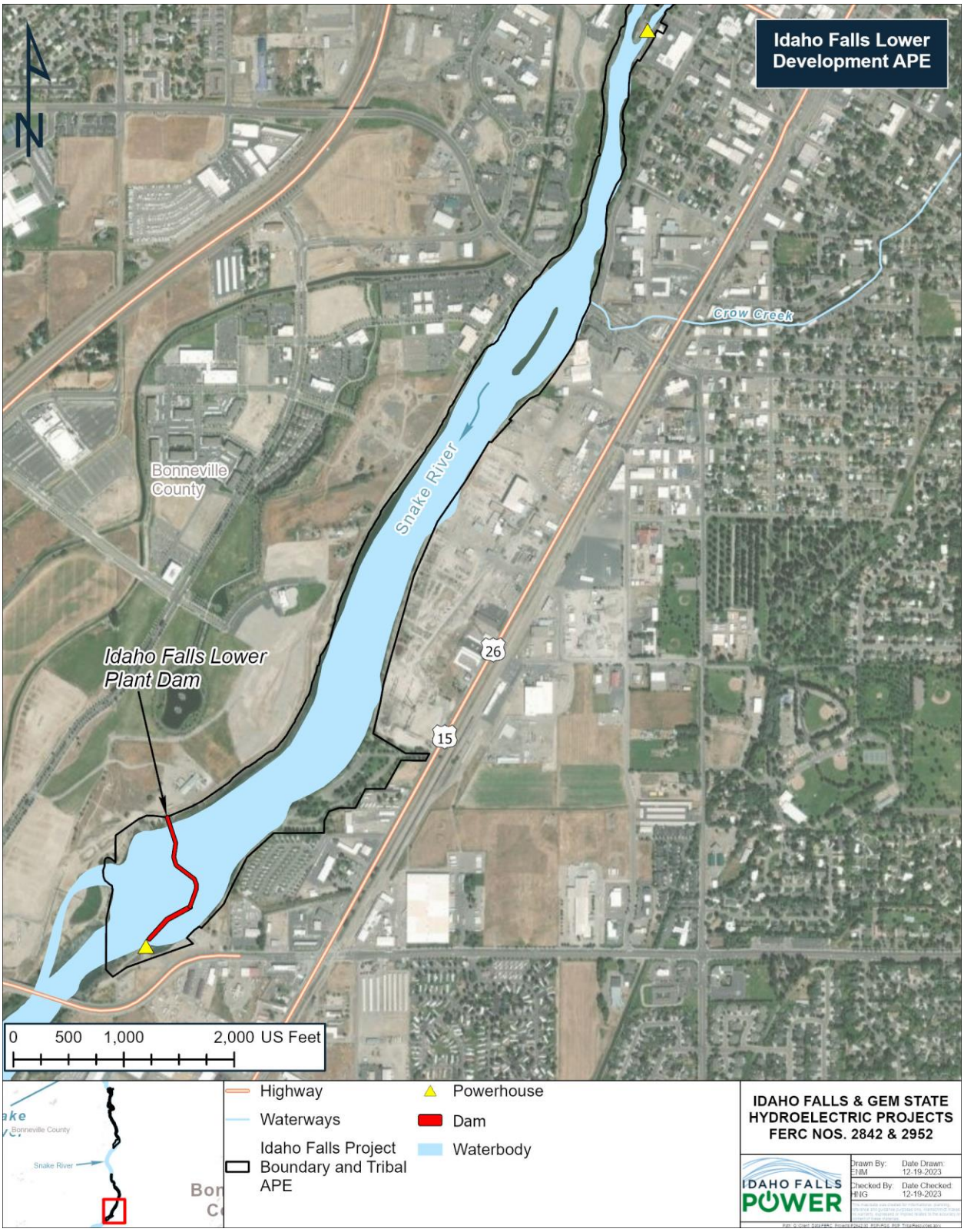

FIGURE 4 PROPOSED APE FOR IDAHO FALLS LOWER PLANT DEVELOPMENT – SECTION 3

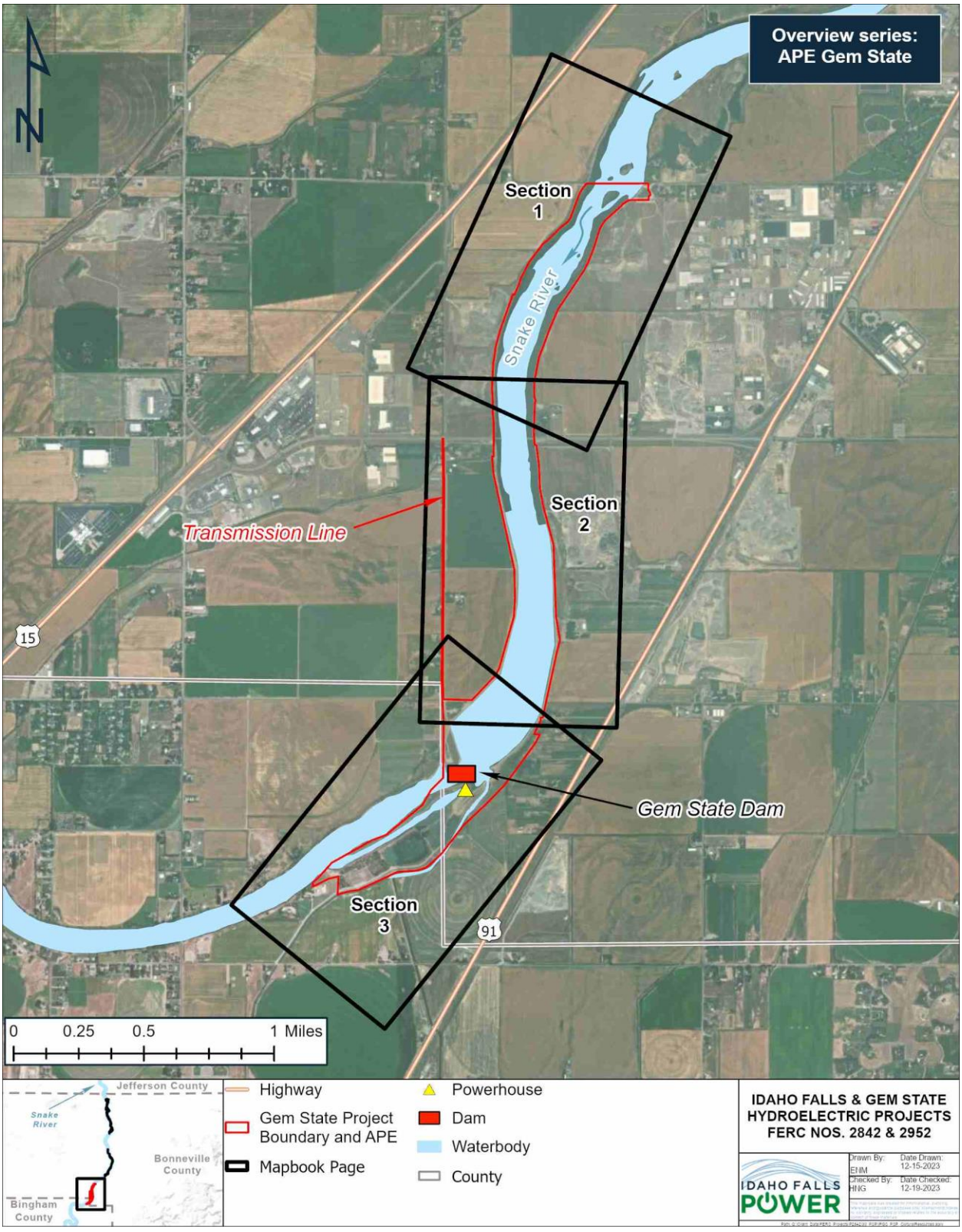

FIGURE 5 OVERVIEW AND SECTIONS OF THE PROPOSED APE ON CULTURAL RESOURCES FOR THE GEM STATE PROJECT

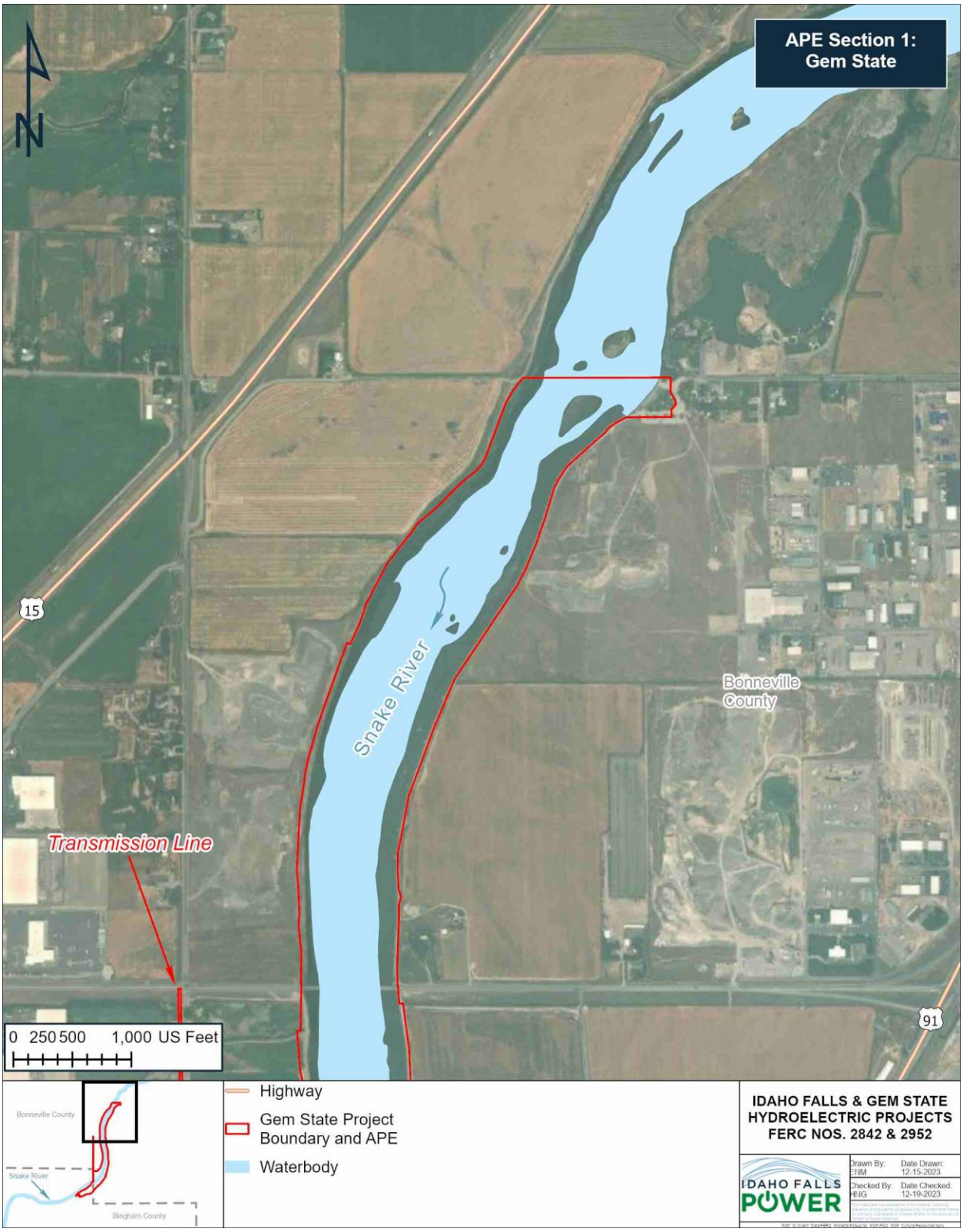

FIGURE 6 PROPOSED APE FOR THE GEM STATE PROJECT DEVELOPMENT - SECTION 1

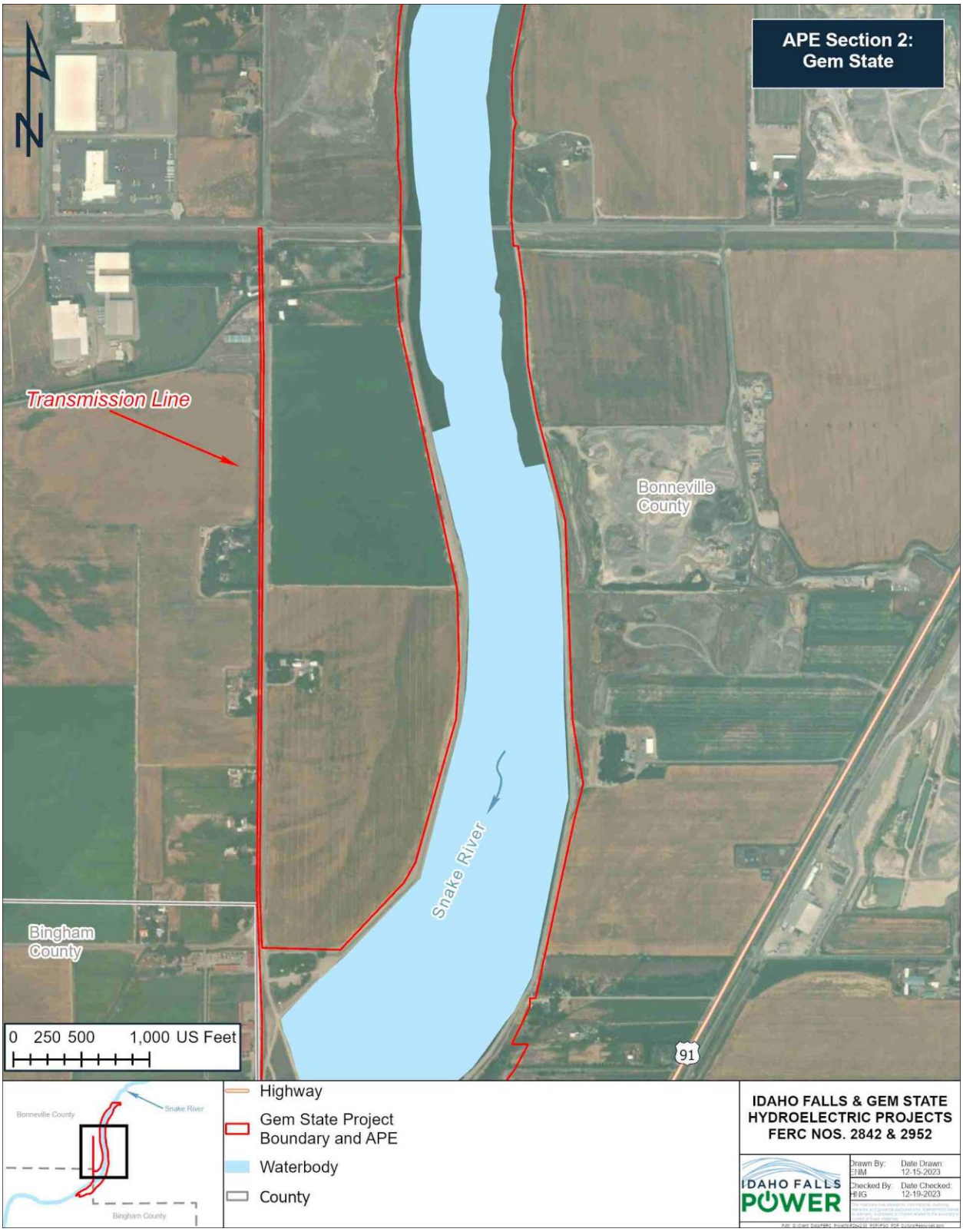

FIGURE 7 PROPOSED APE FOR THE GEM STATE PROJECT DEVELOPMENT - SECTION 2

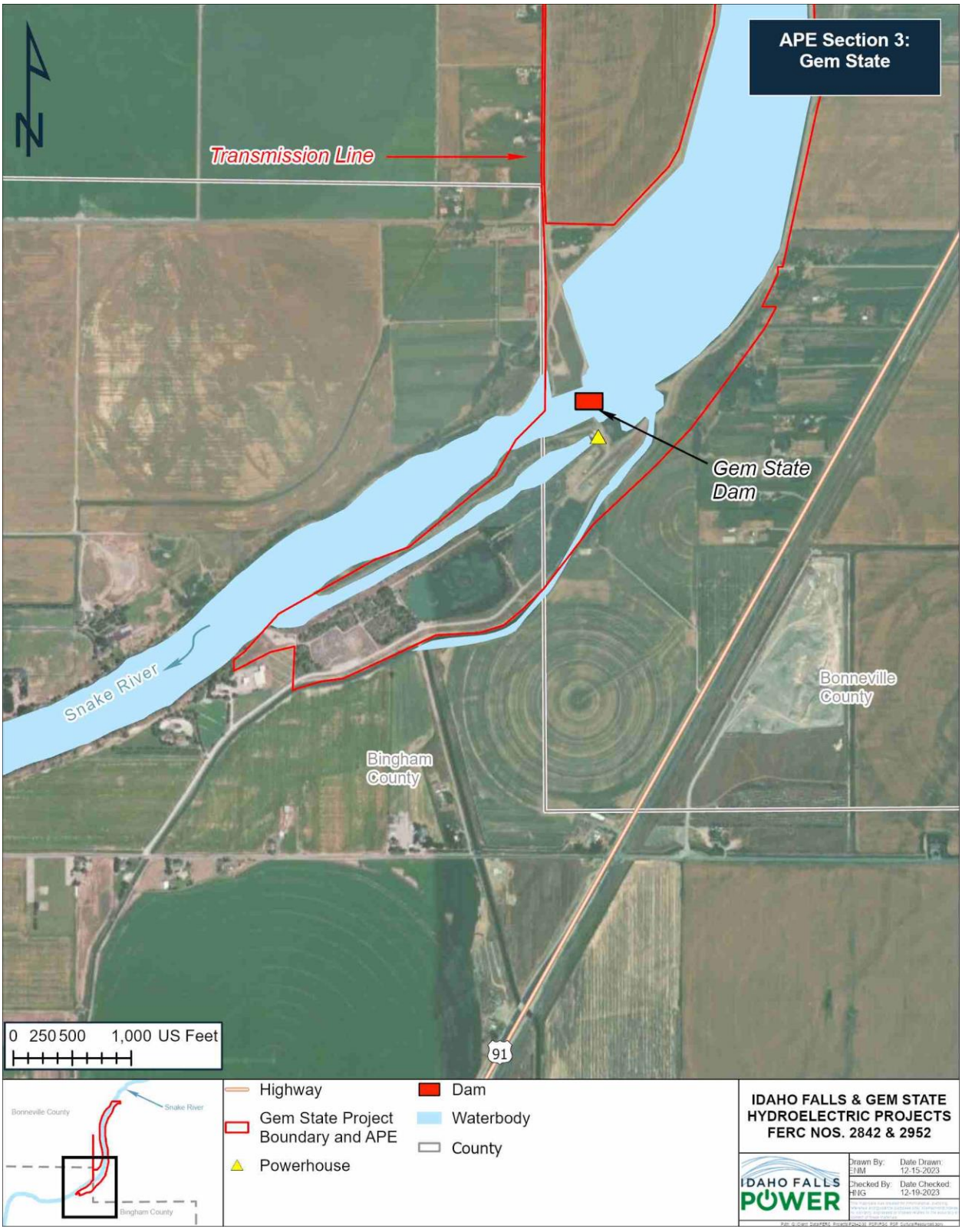

FIGURE 8 PROPOSED APE FOR THE GEM STATE PROJECT DEVELOPMENT - SECTION 3

5.0 METHODOLOGY

5.1 ARCHIVAL RESEARCH

A cultural resources records search was conducted in May 2022 as part of the development of the PAD (IFP 2023). This search included information from previously conducted archaeological surveys and sites that will be reviewed to assess areas of interest prior to conducting fieldwork. As necessary, additional archival research will be conducted to establish prehistoric and historic contexts by which archaeological and historic-era properties within the Projects' APE may be evaluated. Available historical and current aerial imagery, historical topographic maps, and general land office plat maps will be reviewed to identify any potential features or roads that intersect with the Projects' Boundaries. Potential places to be contacted or visited include:

- Idaho State Historical Society
- Bonneville County Heritage Association
- Idaho Falls Historic Preservation
- Idaho State Archives and Libraries
- Digital Library of Idaho

5.2 ARCHAEOLOGICAL SURVEY

An archaeological survey in the form of a Class III Inventory will be conducted within each of the proposed APEs. Survey methods will follow approved archaeological survey and inventory standards set by the Idaho SHPO (SHPO 2024). Surveys conducted on land managed by the United States Department of Interior Bureau of Land Management (BLM), or the Fish and Wildlife Service will adhere to stipulations under the Idaho BLM Cultural Resource Use Permit or Permit for Archaeological Investigations, respectively. The survey will be conducted by a qualified archaeologist who meets the Secretary of the Interior's (SOI) standards and supervised by the Project Principal Investigator. As required, an archaeological survey permit will be obtained prior to fieldwork. Survey transects will be spaced 30 meters (100 feet) apart, and the ground will be visually inspected on both sides of the surveyor to an approximate distance of 7.5 meters (24.5 feet) on each side. If a Class III Inventory is not possible due to safety concerns or access issues

(such as waterlogged areas), a Class II Inventory will be performed, consisting of transects spaced 50 meters (165 feet) apart. Instances of a Class II Inventory will be mapped and documented with photographs. Where possible, study leads will visually inspect such areas for potential archaeological features.

Field crews will use Samsung Tab Active 2 tablets equipped with Esri's Field Maps application and connected to a Juniper Geode global navigation satellite system receiver. Identified resources will be pre-loaded into the Field Maps application along with the FERC Project Boundaries, locations of previously documented sites received from record search data, and digitized locations of potential historic features identified during pre-field research. Newly and previously identified prehistoric and historic-era resources will be recorded according to Idaho SHPO standards in the Idaho Cultural Resource Information System (ICRIS) (SHPO 2024). Sites are defined as having 10 or more artifacts present within a 10-meter-diameter area or if a feature is present, regardless of the number of associated artifacts, if any. Sites will be evaluated for eligibility to the NRHP under four criteria and with consideration of seven elements of integrity (NPS 1997). In addition, prehistoric and historic-era isolated resources will be documented as isolated finds (IF). Consistent with the Idaho SHPO definition (SHPO 2024), an IF will be defined as any resource consisting of fewer than 10 artifacts within a 10-meter-diameter area with no associated features. IFs will be evaluated for NRHP eligibility following SHPO guidelines (SHPO 2024). Site and IF information will be recorded using Survey 123 and uploaded to ICRIS form.

5.3 ARCHITECTURAL SURVEY

An architectural inventory of built-environment properties 45 years or older that are fully within the Project Boundaries will be conducted. An Idaho SHPO data file search was conducted in May 2022 as part of the development of the PAD (IFP 2023) to identify architectural/linear resources within a 1-mile radius of the Project Boundaries. For the purposes of this survey, only those fully within or on parcels that intersect with the Project Boundaries will be surveyed and evaluated. Each resource will be recorded in ICRIS.

An architectural historian who meets the SOI's Professional Qualifications Standards for architectural history will supervise all fieldwork and reporting. Architectural historians will review

available documents to provide a basis for recommendations on eligibility, significance, and integrity. The survey will consist of a field visit and archival research following methods outlined in Idaho SHPO guidance (SHPO 2024). For this study plan, the two Projects are discussed separately.

5.3.1 IDAHO FALLS PROJECT

The Idaho Falls Project area has 10 previously documented architectural/linear resources fully within the Project Boundary (Table 1). Additionally, based on a review of Bonneville County Tax Parcels, aerial photographs, and estimates of building age from available imagery, an additional 12 parcels that intersect the Project area may have potential resources (Table 2).

TABLE 1 PREVIOUSLY DOCUMENTED ARCHITECTURAL RESOURCES WITHIN THE IDAHO FALLS PROJECT BOUNDARY

IDAHO HISTORIC SITES INVENTORY NUMBER	SITE NAME	NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILITY
19-18149	Lower Power Plant	Eligible
19-18272	John's Hole Bridge	Ineligible
19-18397	Sky-Vue Drive-In	Unevaluated
19-482	Eagle Rock Ferry	NRHP-listed
19-18227	Burgess Canal	Eligible
19-18241	Sage Canal	Ineligible
19-18317	Wilkins Canal	Eligible
19-18251	U.S. Highway 20	Eligible
19-18299	Idaho Falls Canal: Old City Canal	Ineligible
19-18172	Union Pacific Railroad	Eligible

TABLE 2 POSSIBLE HISTORIC ARCHITECTURAL RESOURCES WITHIN THE IDAHO FALLS PROJECT AREA

PARCEL NUMBER	ADDRESS	AGE (ESTIMATE)*
RP03N38E305866	6965 N 5TH W	1963
RP03N38E305769	6987 N 5TH W	1985
RP03N38E305575	7007 N 5TH W	1965
RP03N38E305479	7019 N 5TH W	1964
RP03N38E305420	7037 N 5TH W	1963
RP03N37E250181	7957 N RIVERFRONT DR	1973
RP03N37E250603	8116 N RIVER RD	Pre-1946**
RP03N37E130186	10810 N RIVER RD	1950
RP03N37E018831	758 W 129TH N	1980
RP03N37E360670	6116 N RIVER RD	1981
RPA00007128089	Russ Freeman Park	Pre-1973**
RPA00007240001 299	Japanese Friendship Garden	Pre-1946**

*= Source: Bonneville County GIS Assessor's Office 2024
**= Source: NetrOnline 2024

The Idaho Falls Project area has three previously documented archaeological sites within a 1-mile buffer, all within or adjacent to the Project Boundary (Table 3).

TABLE 3 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES LOCATED WITHIN ONE MILE OF THE IDAHO FALLS PROJECT AREA

SITE NUMBER	SITE NAME	SITE CLASS	SITE TYPE	NRHP ELIGIBILITY
10BV52*	-	Prehistoric	Artifact scatter	Undetermined
10BV161*	Keefer Bridge	Historic	Bridge	Undetermined
10BV280*	-	Historic	Concrete Box	Ineligible

Source: Idaho SHPO 2024
*Within or adjacent to (i.e., within 200 feet of) the Project Boundary

5.3.2 GEM STATE PROJECT

The Gem State Project area has three architectural/linear resources fully within the Project Boundary (Table 4). This includes the Gem State Dam, which has an Idaho Historic Sites Inventory Property Record ID but was not evaluated for the NRHP. Based on preliminary research, the Gem State Plant was built between 1985 and 1988 and likely did not replace an earlier facility. Additionally, based on the review of Bonneville County Tax Parcels, aerial photographs, and

estimates of building age from available imagery, an additional two parcels that intersect the Project area may have potential resources (Table 5).

TABLE 4 PREVIOUSLY RECORDED ARCHITECTURAL AND LINEAR RESOURCES WITHIN THE GEM STATE PROJECT FERC BOUNDARY

IDAHO HISTORIC SITES INVENTORY NUMBER	SITE NAME	NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILITY
19-18296	Gem State Dam	N/A
19-18041	Woodville Canal	Eligible
19-18042	Snake River Valley Canal	Eligible

TABLE 5 POSSIBLE HISTORIC ARCHITECTURAL RESOURCES WITHIN THE GEM STATE PROJECT AREA

PARCEL NUMBER	ADDRESS	AGE (ESTIMATE)*
RP01N37E036972	3040 W 65TH S	Pre-1946**
RP01N37E103186	6699 S 35TH W	1961

*= From Bonneville County Tax Parcel Data unless otherwise indicated
**= https://www.historicaerials.com/

The Gem State Project area has one previously documented archaeological site within a 1-mile buffer (Table 6). No sites have been identified directly within the Project Boundary.

TABLE 6 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES LOCATED WITHIN 1 MILE OF THE GEM STATE PROJECT AREA

SITE NUMBER	SITE NAME	SITE CLASS	SITE TYPE	NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILITY
10BV329	-	Historic	Building foundation	Ineligible

Source: Idaho SHPO 2022

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

6.1 SCHEDULE AND PERIODIC REPORTING

Archival research will begin in late 2024, with field surveys to be conducted during the 2025 field season, as outlined below in Table 7. A progress report will be provided as part of the Initial Study

Report, discussing non-confidential initial findings of the study to date. A confidential draft report will be provided to appropriate stakeholders once complete in February 2026 for a 30-day review.

TABLE 7 CULTURAL RESOURCES STUDY MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Archival Research	Late fall 2024
Field Surveys	2025
Initial Study Report	June 2025
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

6.2 INFORMAL PRE-FILING CONSULTATION

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a brief list of potential studies to be considered during relicensing of the Idaho Falls Project and Gem State Project. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. Table 8 lists all comments received to date relevant to the CR-1 Study Plan.

TABLE 8 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON THE CULTURAL RESOURCES STUDY PLAN

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
29	11/30/2023	BLM	In accordance with 36 CFR 800.1(a), BLM is requesting that a Class III Cultural Resource Inventory be conducted for the Idaho Falls-Gem State Hydroelectric Project areas of potential effect on public land. Additionally, documentation and evaluation of the project's associated	Noted. A Class III inventory has been incorporated into the methods of this study plan. Additionally, an National Historic Preservation Act

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			historic facilities, on or associated with BLM managed lands, should be completed as part of the Section 106 review process associated with federal undertakings. Information provided in the Pre-Application Document mentions that the Idaho Falls Project facilities (Upper Plant, City Plant, and Lower Plant) were initially constructed between 1913 and 1942. All structures or facilities associated with the Project that have surpassed the 50-year-old threshold should be documented and evaluated under provisions of the National Historic Preservation Act of 1966, as amended. A built environment inventory, recording, and assessment of the Project's facilities would provide important data about the history of the hydroelectric project, and aid in determining significance and eligibility for a potential nomination to the National Register of Historic Places. The inventory of the Project's built environment should be conducted by a qualified architectural historian.	evaluation, along with a built environment inventory, will also be conducted as part of CR-1. Work will be conducted by a qualified architectural historian.
3	4/18/2024	BLM	In the methodology section for the Cultural Resources Study Plan, it states that cultural resources (archaeological sites/isolates and historic built environment/architectural sites) will be recorded using Archaeological Site Inventory (ASI), Idaho Historic Sites Inventory (IHSI), and Isolated Find forms. However, as of January 22, 2024, the Idaho State Historic Preservation Office (SHPO) will no longer be accepting this format of site inventory, as they are transitioning to an online data entry platform and field app for cultural inventories and sites. The contractors will be required to use the new Idaho Cultural	Noted, the methodology for CR-1 has been updated.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			Information System (ICRIS) developed by SHPO for site recording (ICRIS).	

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

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TRIBAL RESOURCES STUDY PLAN

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER
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PREPARED BY:

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MAY 2024

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS (FERC PROJECT NOS. 2842 AND 2952)

TRIBAL RESOURCES STUDY PLAN

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1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842 and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls Project and Gem State Project Boundaries are separated by approximately 1.9 miles of free-flowing river between the tailrace of Idaho Falls Lower Plant and the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. IFP is not proposing changes to the existing Idaho Falls Project and Gem State Project operations or facilities. This Tribal Resources Study (TR-1) Plan is intended to characterize existing resources relative to comprehensive management plan objectives and statutory requirements.

2.0 PROJECT NEXUS AND RATIONALE FOR STUDY

Pursuant to the regulations set forth at 36 Code of Federal Regulations (CFR) § 800, FERC's licensing of a hydroelectric project is considered an "undertaking" as the permitted activities may "…cause changes in the character or use of historic properties, if any such historic properties exist…" (36 CFR § 800.16(d)). Historic properties are any prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP) (36 CFR § 800.16). In accordance with amendments to the National Historic Preservation Act (NHPA) in 1992 (§ 101[d][6][A]), which specify that properties of traditional religious and cultural importance to an Indian Tribe may be determined eligible for inclusion in the NRHP, IFP is proposing this TR-1 Plan. According to the NRHP, traditional religious and cultural properties may be eligible due to their "association with cultural practices or

beliefs of a living community that are: 1) rooted in that community's history; and 2) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998). Therefore, a property may also be significant if it has traditional or ethnographic significance because of its ties to the cultural past of communities or groups, including Native Americans.

Tribal Resources that may be affected by the undertaking include Indian Trust Assets (ITA), Traditional Cultural Properties (TCP), Tribal economic ventures, and other resources of traditional, cultural, or religious importance to the Native American community. An ITA is defined as a legal interest in property held in trust by the United States government or property protected under United States law for Indian Tribes and individuals. A TCP is defined as a property eligible for inclusion in the NRHP based on its associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions of a living community. There may be any number of gathering areas related to cultural practices within the Projects' Boundaries, as local Native American communities may access the area for medicinal or edible plants, materials for tools, and other items as part of ongoing cultural lifeways.

Continued operation and maintenance (O&M) of the Projects and other activities may impact historic properties, including ITAs, TCPs, treaty rights, Tribal economic ventures, relevant Tribal agreements, and other resources of traditional, cultural, or religious importance to the Native American community (Tribal Resources). The effect may be direct (e.g., the result of ground-disturbing activities), indirect (e.g., public access to Project areas), or cumulative (e.g., caused by a Project activity or public access in combination with other past, present, and reasonably foreseeable future projects). Therefore, FERC must comply with Section 106 of the NHPA, as amended, which requires an analysis of the effect of an undertaking on historic properties and Tribal Resources. IFP has requested to serve as the non-federal representative on both Projects for information consultation under Section 106 during relicensing. TR-1 focuses on the proposed methods to identify and document Tribal Resources that may not be inventoried and evaluated under the Cultural Resources Study Plan (CR-1).

3.0 STUDY GOALS AND OBJECTIVES

Pursuant to 18 CFR § 5.6 (d)(3)(xii) and § 5.9(b)(1), the primary goal of TR-1 is to assist FERC in identifying Tribal Resources that may be affected by the Proposed Action. The primary objectives of TR-1 are to identify and acknowledge Tribal values and resources from a Tribal perspective and develop an adequate baseline ethnohistory. Information gathered through this study will be used to inform CR-1 and the development of a future Historic Properties Management Plan (HPMP) with the goal of managing any NRHP-eligible Tribal Resources and other cultural resources with identified values. Study goals will be accomplished by completing the following objectives:

1. Archival Research: Research, identify, and document known Tribal Resources, including treaty rights, that may potentially be affected by the Projects within or immediately adjacent to the proposed Area of Potential Effects (APE) and describe those potential effects.
2. Field Inspection: CR-1 includes a Class III Archaeological Survey that will be conducted to identify historic properties and potential Tribal Resources and describe potential impacts. The TR-1 team will coordinate with the CR-1 team to ensure potential Tribal Resources are shared. Preliminary results of the potential Tribal Resources identified during the CR-1 fieldwork will be shared with the TR-1 team, with the results documented in a Cultural Resources Technical Report. Proposed mitigation methods to address potential adverse effects identified will be defined and implemented as part of the future HPMP.
3. Tribal Interviews: Conduct outreach and interviews with interested Tribal governments and their representatives.
4. Site Visit: If agreed upon, Tribal interviewees or representatives and an ethnographer may visit selected Project sites and share additional knowledge.
5. NRHP Eligibility: Evaluate each identified Tribal Resource for eligibility and inclusion in the NRHP.
6. Potential Effects: Identify and describe potential impacts to Tribal Resources from existing and proposed future O&M of the Projects and describe potential management issues that

may be included in the development of subsequent planning efforts and management plans associated with the issuance of a new license for the Projects.

3.1 RELATIONSHIP TO OTHER STUDIES

The results of the CR-1 and TR-1 studies may correlate with each other and will be used to develop individual HPMPs for the Idaho Falls and Gem State Projects. For example, an identified prehistoric archaeological site may correlate with an identified ethnographic site or TCP, plant, or resource collection area. Other resources of identified importance will be referenced accordingly in both the inventory studies and ethnographic analysis.

4.0 GEOGRAPHIC SCOPE

As defined under Section 106 of the NHPA [36 CFR § 800.16(d)], an APE must include "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." As proposed by IFP within its Preliminary Application Document (PAD) filed with FERC on August 2, 2023, the APE associated with the relicensing of both Projects includes the lands within the existing FERC Project Boundaries. For the purposes of this study, the TR-1 Study Area (Study Area) will be identical to the CR-1 Study Area (proposed APE) as shown in Figure 1 through Figure **4** for the Idaho Falls Project and Figure 5 through Figure 8 for the Gem State Project. Archival research will include a 1-mile buffer surrounding the APE, which is defined as the Project area.

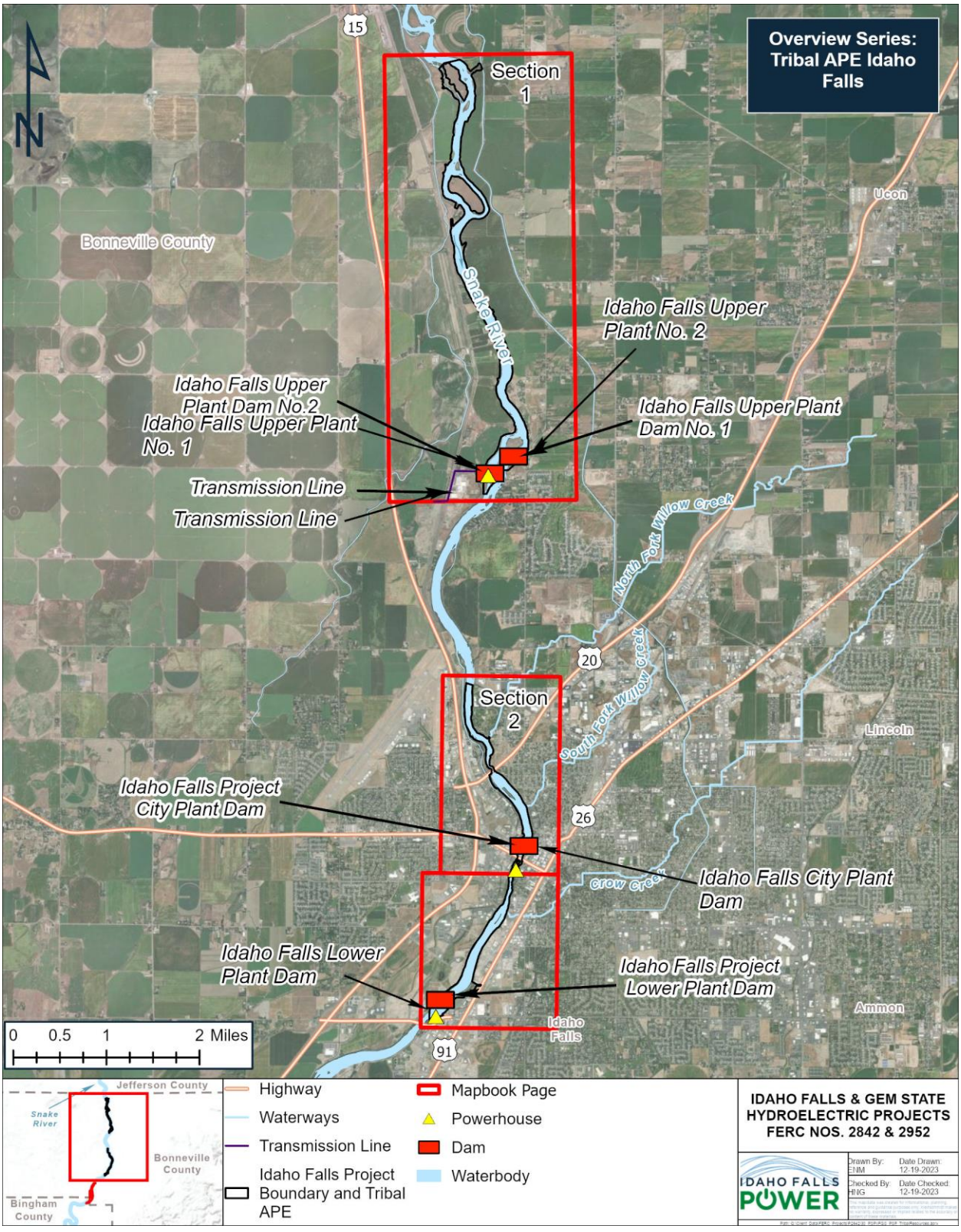

FIGURE 1 PROPOSED APE AT THE IDAHO FALLS PROJECT - OVERVIEW

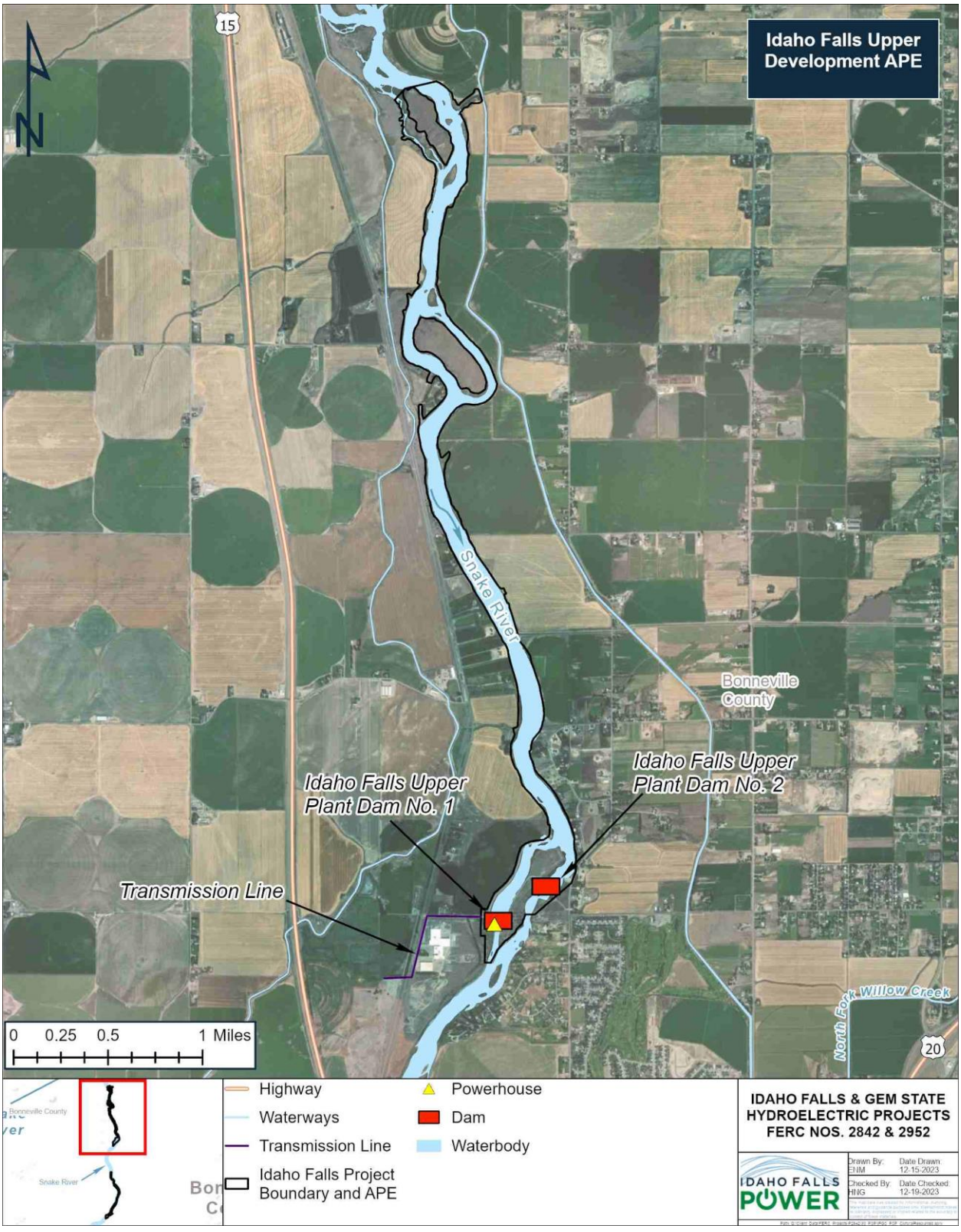

FIGURE 2 PROPOSED APE AT IDAHO FALLS UPPER PLANT DEVELOPMENT – SECTION 1

FIGURE 3 PROPOSED APE AT IDAHO FALLS CITY PLANT DEVELOPMENT – SECTION 2

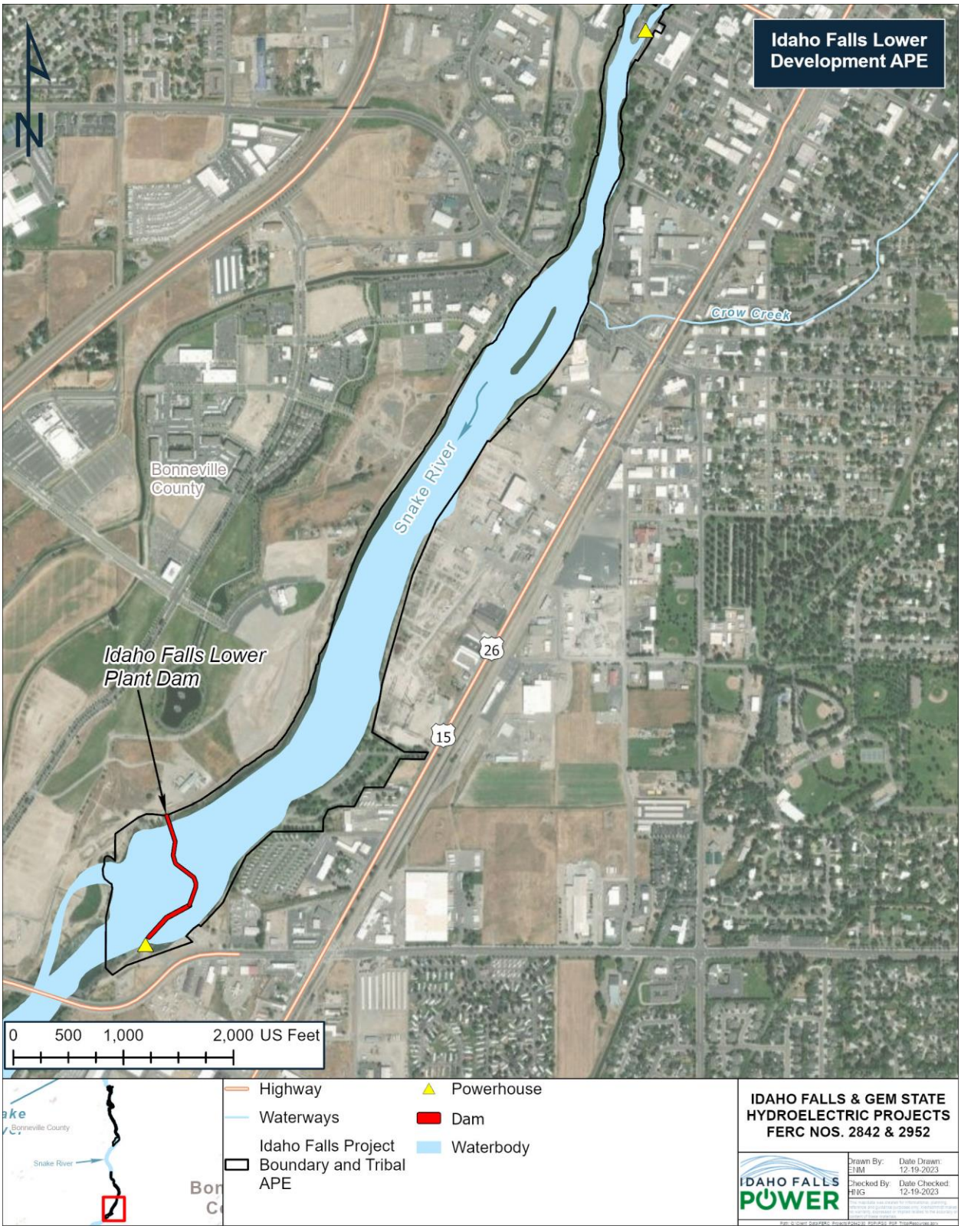

FIGURE 4 PROPOSED APE AT IDAHO FALLS LOWER PLANT DEVELOPMENT – SECTION 3

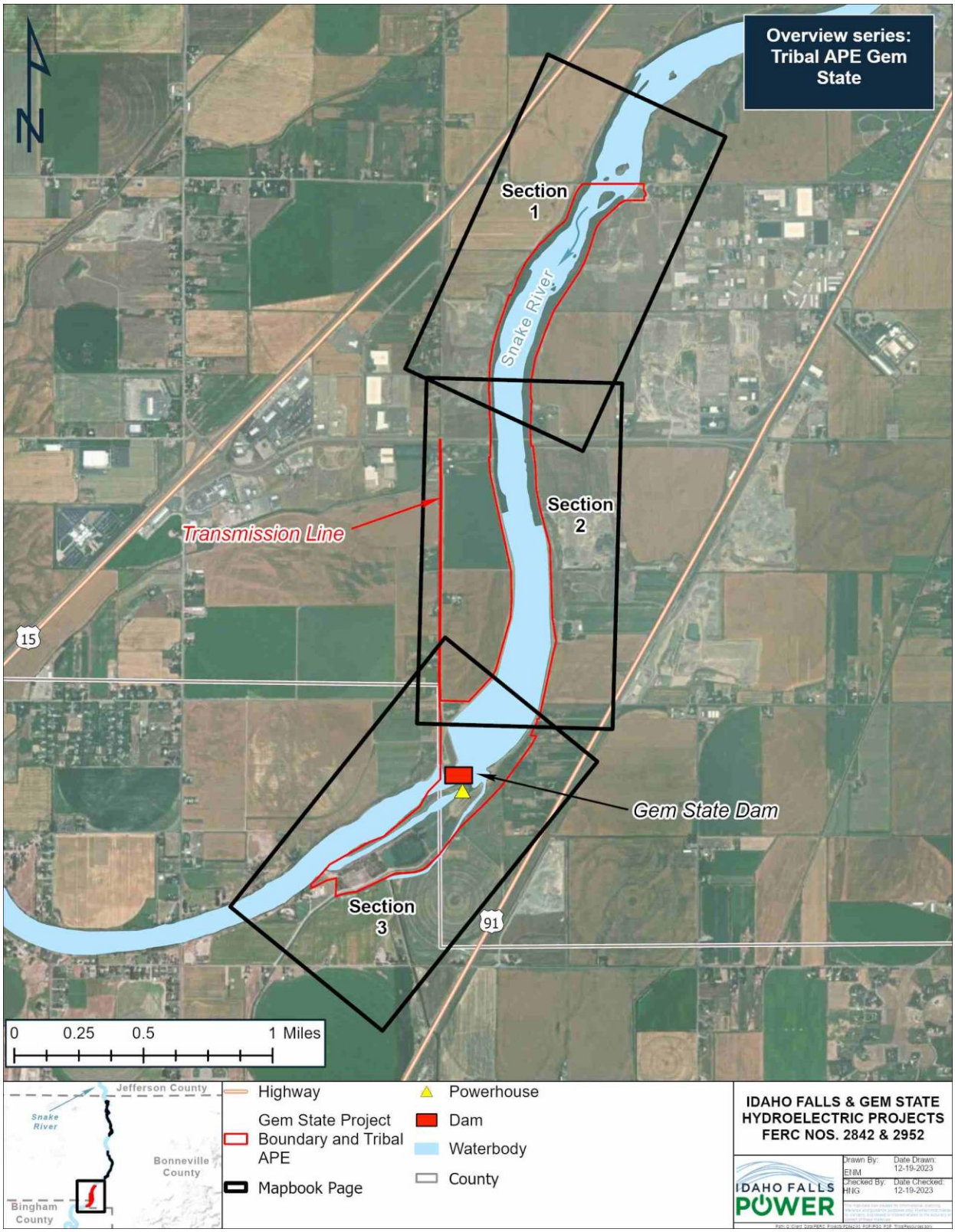

FIGURE 5 PROPOSED AREA OF POTENTIAL EFFECTS AT THE GEM STATE PROJECT - OVERVIEW

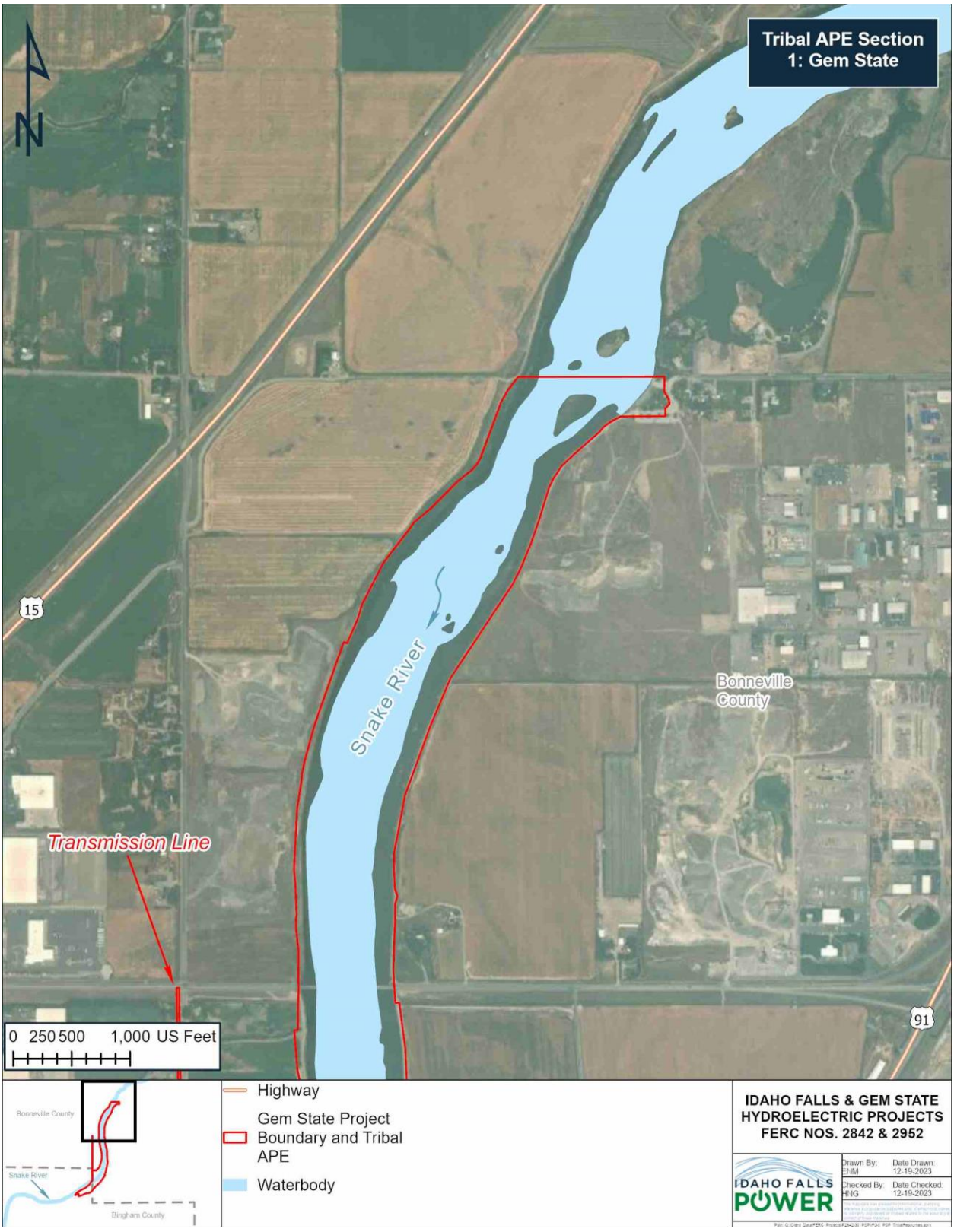

FIGURE 6 PROPOSED APE AT THE GEM STATE PROJECT - SECTION 1

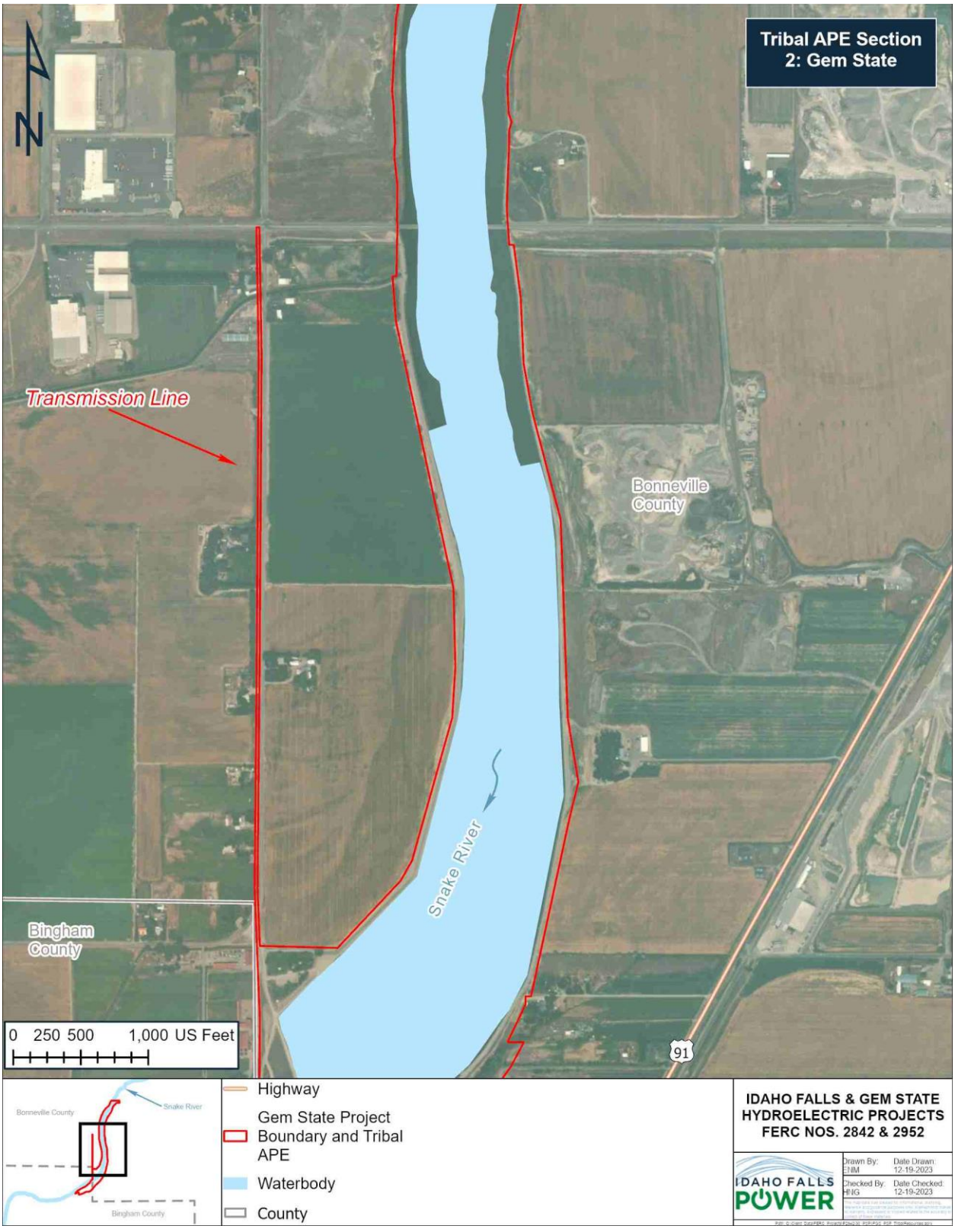

FIGURE 7 PROPOSED APE AT THE GEM STATE PROJECT - SECTION 2

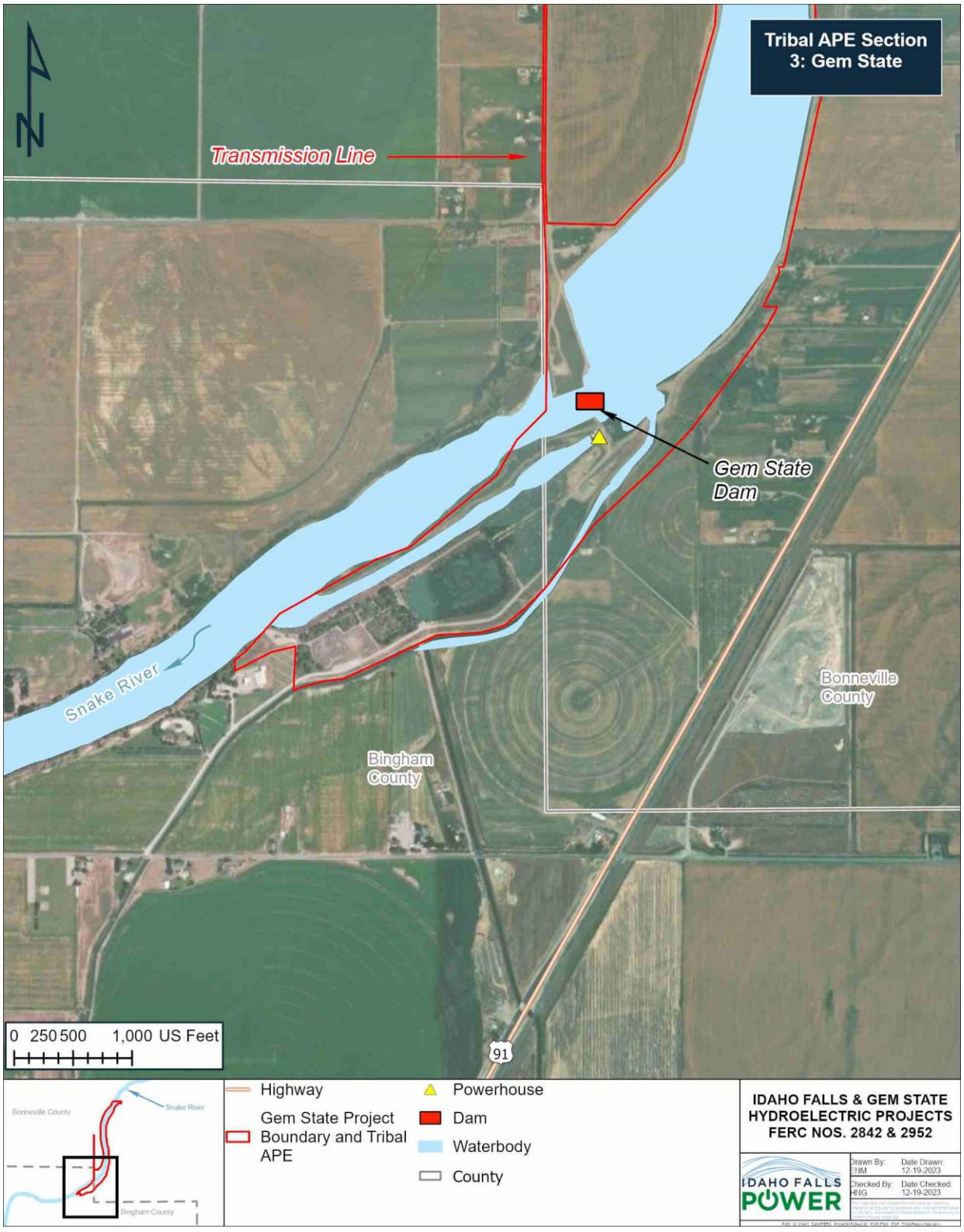

FIGURE 8 PROPOSED APE AT THE GEM STATE PROJECT -SECTION 3

5.0 STUDY METHODOLOGY

TR-1 will involve a multi-step process including archival research, oral interviews, a field inspection (i.e., a Class III archaeological survey), site visits, and NRHP evaluations. Results of this study will assist in assessing any potential effects associated with Tribal Resources. No known ethnographic study has been conducted for either of the Projects, however, there have been studies previously conducted in the Projects' vicinities, which may not have included all interested Tribes. TR-1 will be conducted in consultation with the State Historic Preservation Officer (SHPO), American Indian Tribes, and the Bureau of Land Management (BLM), as appropriate.

5.1 ARCHIVAL RESEARCH

Archival research will be conducted to identify previous studies and ethnographic information that can be used to establish a context by which potential Tribal Resources may be identified and evaluated. Archival data for the Study Area can be found in widespread repositories and provide a picture of native life, which supplements the commonly referenced ethnographic studies of the last century. Potential information sources include, but are not limited to, the following:

- Idaho SHPO Records Search
- Idaho Museum of Natural History
- Idaho State Museum
- Museum of Idaho
- Bannock County Historical Museum
- Museum of North Idaho
- Shoshone Bannock Tribal Museum
- Idaho State Historical Society
- Idaho Archaeological Society
- Nez Perce County Historical Society
- Herbert Joseph Spinden Collection of Nez Perce Cylinder Recordings at the Library of Congress

- Sam Morris Nez Perce Cylinder Collection at the Library of Congress
- Utah State Historical Society
- Academic Journals

5.2 TRIBAL INTERVIEWS AND IDENTIFICATION OF RESOURCES

In conjunction with archival research, the TR-1 includes consultation with appropriate Tribal elders and other Tribal representatives to identify places, gathering areas, resources of traditional cultural or religious importance (including TCPs), and other resources that may be present in the Study Area. Contact will include a combination of written correspondence to Tribal governments, interviews, and field visits if requested. If released by the interviewee, oral histories will be included in the discussion of Tribal Resources. All culturally sensitive materials will be marked with the appropriate confidential designation to prevent disclosure to non-authorized persons. Principal tasks anticipated are listed below:

- Contact Tribes and interview Tribal elders and other representatives, as required, to define Tribal Resources in the Study Area and to establish the significance of those resources.
- Interviews with Tribal elders or other representatives who may have knowledge of special interest areas within the Study Area will be respectfully conducted and documented by a qualified ethnographer.
- The ethnographer may accompany the archaeologists during field inventory to identify unique or unusual gathering areas, tended native gardens, historical artifacts made/used by Native Americans, and other resources.
- Site visits with Tribal representatives may be appropriate or necessary to define boundaries and the nature of potential TCPs or other Tribal Resources.
- If participating Native American Tribes do not wish to disclose the locations of potential resources due to spiritual, confidential, or other reasons, IFP will work with the Tribes to identify the general issues and concerns that the Tribe(s) may have regarding potential Project effects and will work to develop agreeable measures to alleviate these concerns. IFP shall not disclose Tribal Resource data to parties other than federal land management agencies, FERC, and/or SHPO.

- Interviews and resources will be documented as communicated by Tribal representatives, but in all cases, sufficient information will be presented to allow reviewers to analyze resource values.

The nature of interview questions will involve knowledge about the heritage of the Study Area and the relationship of the respondent to the area. Interviews conducted with available Tribal interviewees will be compensated for their time during the interview through an honorarium.

At a minimum, IFP will attempt to conduct interviews with representatives from the following Tribes, which are included on FERC's mailing list, are identified on the United States Department of the Interior's Bureau of Indian Affairs website, and/or have been identified as having a traditional cultural or religious connection to the lands in or around the Projects (BIA 2022):

- Burns Paiute Tribe
- Confederated Tribes of the Warm Springs Reservation
- Coeur d'Alene Tribe
- Eastern Shoshone Tribe of the Wind River Reservation
- Fort Belknap Indian Community of the Fort Belknap Reservation
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Shoshone-Paiute Tribes (including Shoshone-Paiute Tribe of the Duck Valley Reservation and Fort McDermitt Paiute-Shoshone Tribe)
- Northwestern Band of Shoshone Nation
- Kootenai Tribe
- Nez Perce Tribe

5.3 FIELD INSPECTION AND SITE VISIT

Tribal representatives and the ethnographer may wish to visit the Projects and archaeological sites identified during the TR-1 and CR-1 field surveys. The visits would provide Tribal representatives with the opportunity to examine archaeological sites and Tribal Resource locations encountered during the studies and potentially share additional knowledge with the ethnographer.

5.4 NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

Historic properties will be evaluated according to the four NRHP criteria and the seven aspects of integrity (NPS 1997). The evaluation process will help identify significant locations and the need to further consider potentially adverse impacts. Specific methods for the NRHP evaluation include the following:

- Develop a Tribal Resources NRHP Eligibility Evaluation Work Plan in consultation with the Tribes and resource agencies, as appropriate, and conduct studies.
- Conduct NRHP eligibility studies in adherence to National Register Bulletins Number 15 (NPS 1997) and Number 38 (Parker and King 1998).
- Conduct NRHP evaluations in consultation with appropriate Native American Tribes, THPOs, appropriate federal land management agencies, FERC, and SHPO.
- Provide NRHP evaluations to appropriate Native American Tribes and federal land management agencies (e.g., BLM) for review 30 days prior to submitting to the SHPO.
- Submit formal evaluations to the SHPO for concurrence.

5.5 IDENTIFY AND ASSESS POTENTIAL EFFECTS ON NRHP-ELIGIBLE TRIBAL RESOURCES

Tribal Resources are unique in the NRHP framework, as they are identified and evaluated by Tribal specialists in conjunction with others, such as the ethnographer, who may be assisting them in documentation. Similarly, evaluating the integrity of Tribal Resources requires specialized information from the community or group with values related to the place. Integrity of relationship describes the values of the place to the relationship with the traditional or Tribal activity and may not be connected to what the place looks like. If the community maintains its association with the place, the integrity of the relationship is intact, and such places may be evaluated as NRHP-eligible.

36 CFR § 800.5 describes the assessment of potential adverse effects and notes that the criteria of adverse effect will be applied in consultation with the SHPO and Indian Tribe (community) that attaches religious and/or cultural significance to identified historic properties. This application of effect will be within the Study Area. FERC shall consider any views concerning such potential effects which stakeholders and other interested parties have provided.

6.0 SCHEDULE, PERIODIC REPORTING, AND CONSULTATION

6.1 SCHEDULE AND PERIODIC REPORTING

Archival research will begin in late 2024, with field surveys to be conducted during the 2025 field season, as outlined below in Table 1. A progress report will be provided as part of the Initial Study Report, discussing non-confidential initial findings of the study. A confidential draft report will be provided to appropriate stakeholders once complete in January 2026 for a 30-day review.

TABLE 1 STUDY PLAN IMPLEMENTATION MILESTONES

STUDY PLAN DEVELOPMENT MILESTONES	DATE
Archival Research	Late fall 2024
Field Surveys	2025
Initial Study Report	June 2025
Draft Report	February 2026
Updated Study Report	June 2026
Include Final Report in Draft License Application	September 2026

TR-1 results will be documented in a Confidential Tribal Resources Technical Study Report and will not be publicly distributed. The Tribal Resources Technical Study Report will be formatted in accordance with relevant Secretary of the Interior (48 CFR § 44720-23), SHPO (2015), FERC, and BLM (2014) standards and guidance. The report will include, at a minimum, the following information:

- Project location and description
- Regulatory setting
- Ethnohistory of the Study Area
- Ethnographic context of the Study Area
- Review of Tribal and ethnographic resources
- Study methodology
- Study findings
- Tribal Resource evaluations

- Management recommendations
- Relevant Project and Tribal Resource mapping

6.2 INFORMAL PRE-FILING CONSULTATION

With the filing of the PAD and Notice of Intent on August 2, 2023, IFP included a brief list of potential studies to be considered during relicensing of the Idaho Falls and Gem State Projects. Following that filing, FERC issued their Scoping Document 1 (SD1) on October 2, 2023, and Scoping Document 2 on January 10, 2024, which identified FERC's preliminary list of issues and alternatives to be addressed during their environmental review process. The comment period for both the PAD and SD1 ended on November 30, 2023. IFP filed a Proposed Study Plan (PSP) on January 12, 2024, and held a PSP meeting on February 13, 2024, with interested stakeholders. The comment period for PSPs ended on April 13, 2024. Table 2 lists all comments relevant to the TR-1 Study Plan.

TABLE 2 IDAHO FALLS POWER RESPONSE TO COMMENTS RECEIVED ON THE TRIBAL RESOURCES STUDY PLAN

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
3	4/18/2024	BLM	The BLM appreciates and concurs with the proposed studies for Cultural and Tribal Resources. In the methodology section for the Cultural Resources Study Plan, it states that cultural resources (archaeological sites/isolates and historic built environment/architectural sites) will be recorded using Archaeological Site Inventory (ASI), Idaho Historic Sites Inventory (IHSI), and Isolated Find forms. However, as of January 22, 2024, the Idaho State Historic Preservation Office (SHPO) will no longer be accepting this format of site inventory, as they are transitioning to an online data entry platform and field app	Noted. A Class III inventory has been incorporated into the methods of this study plan. Additionally, an National Historic Preservation Act evaluation, along with a built environment inventory, will also be conducted as part of CR-1. Work will be conducted by a qualified architectural historian.

COMMENT NO.	DATE OF COMMENT	ENTITY	COMMENT	IFP RESPONSE
			for cultural inventories and sites. The contractors will be required to use the new Idaho Cultural Information System (ICRIS) developed by SHPO for site recording (ICRIS). The ICRIS is a GIS enabled application which provides internal SHPO workflow management tools resulting in efficiencies that will decrease turn-around times for federal project review. Additionally, it is a portal through which external stakeholders, who are professionally qualified can view all SHPO data via GIS, and create, upload, and track projects. The general public can view unrestricted data through the guest portal (Idaho SHPO, 2024).	

7.0 LEVEL OF EFFORT AND COST

The methods and approach described in this study plan were selected to represent an appropriate balance between cost-effectiveness and level of effort while meeting the study objectives. The study schedule and materials have been developed to streamline time and effort by building on existing information, filling data gaps, and incorporating stakeholder feedback.

8.0 REFERENCES

Bureau of Indian Affairs (BIA). 2022. Search of Federally Recognized Tribes by State. Available at: https://www.bia.gov/service/tribal-leaders-directory/federally-recognized-tribes. Accessed August 25, 2022.

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