BUREAU OF RECLAMATION

Categorical Exclusion Checklist and Decision Record

Keno Dam Fish Ladder Antenna Array Installation

Interior Region 10 – California Great Basin
Klamath Project, Oregon/California
CGB-ED-2025-042

Prepared by:

AMANDA BABCOCK
Digitally signed by AMANDA BABCOCK
Date: 2026.05.08 16:28:35 -07'00'

Amanda Babcock
Natural Resource Specialist
Klamath Basin Area Office

Concur with item 6:

SCOTT WILLIAMS
Digitally signed by SCOTT WILLIAMS
Date: 2026.05.11 11:32:13 -07'00'

Scott Williams
Regional Archeologist
California-Great Basin Regional Office

Concur with item 10:

TORREY TYLER
Digitally signed by TORREY TYLER
Date: 2026.05.11 15:48:04 -07'00'

Torrey Tyler
Acting Indian Trust Assets Coordinator
Klamath Basin Area Office

Approved by:

TORREY TYLER
Digitally signed by TORREY TYLER
Date: 2026.05.11 15:49:26 -07'00'

Torrey Tyler
Supervisory Fisheries Biologist
Klamath Basin Area Office

May 2026

Proposed Action

The Bureau of Reclamation's (Reclamation) Klamath Basin Area Office proposes to install an antenna array, consisting of four antennas and associated equipment, in the Keno Dam fish ladder (Project) in order to monitor movement of Passive Integrated Transponder (PIT) tagged fish.

Location

The proposed Project would occur entirely on Reclamation-owned land, at Keno Dam (Figure 1), approximately 1.5 miles downstream (northwest) of where Oregon State Highway 66 crosses over the Klamath River, in Klamath County, Oregon, in the unincorporated town of Keno. PLSS: T39S, R7E of the Willamette Meridian. Latitude: 42.134699°, Longitude: -121.948071°.

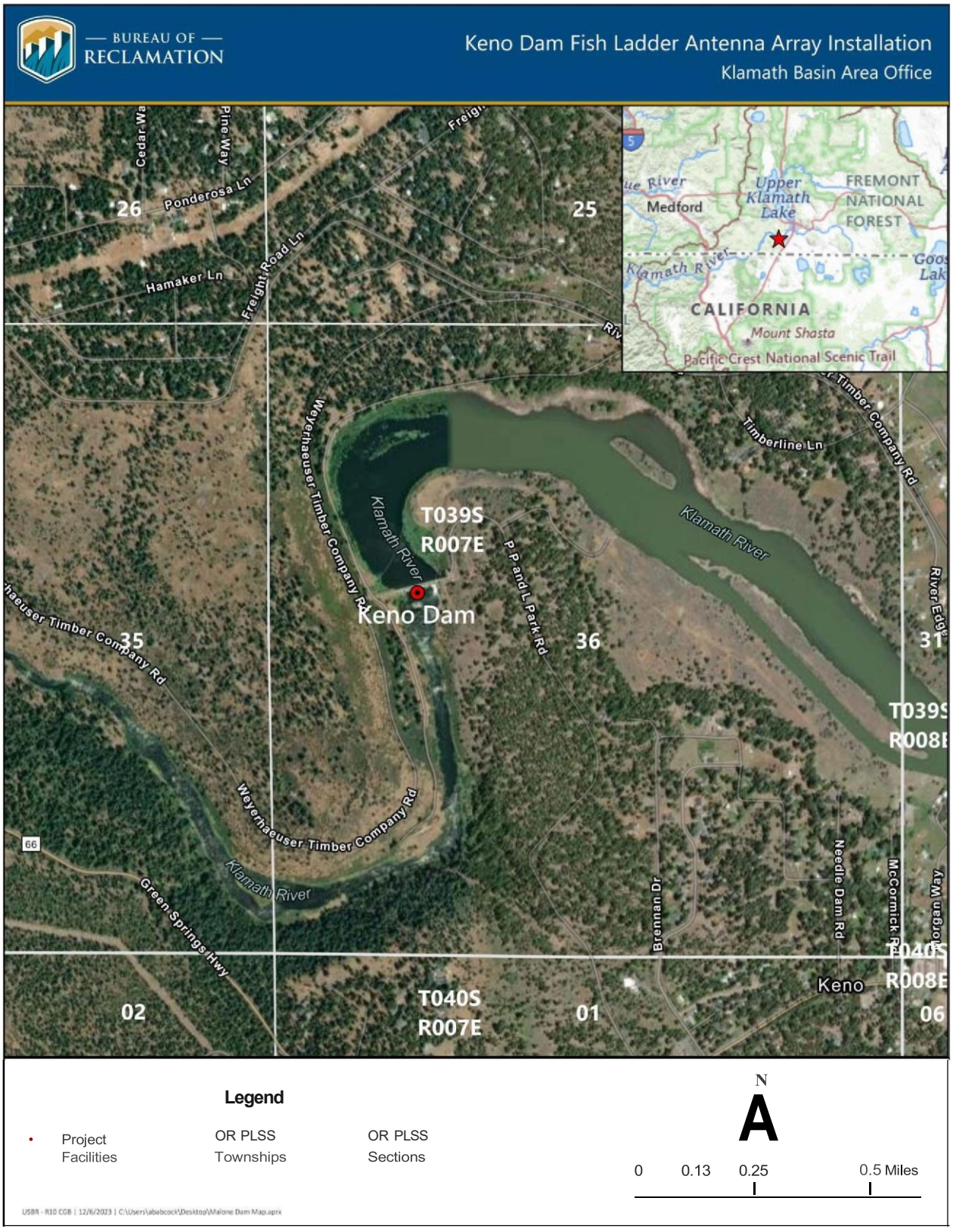


Figure 1. Overview map of Project area.

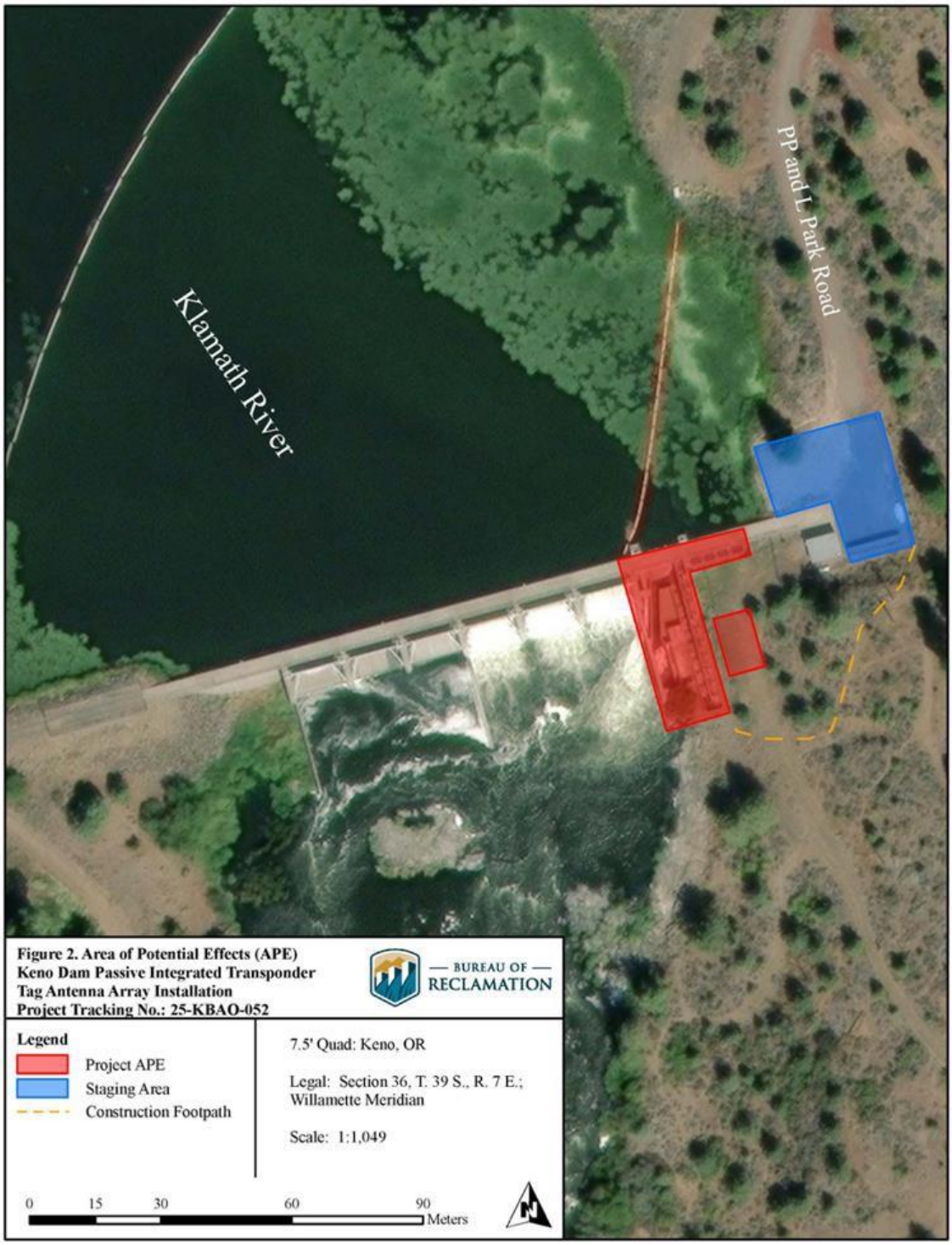


Figure 2. Map of immediate Project area.

Description

The fish ladder antenna array will consist of:

A) Three pool-style 3" high-density polyethylene (HDPE) pipe antennas
B) One shielded antenna
C) A Multiplexing Transceiver System (MTS) consisting of a Master Controller (MC) and data collection center
D) Exciter cables to power and transfer data from antennas to the data collection center
E) A node and battery box at the top of the dam
F) A node box near the fish ladder

Figure 3 shows the planned placement of antennas and associated equipment within the Keno Dam Fish ladder.

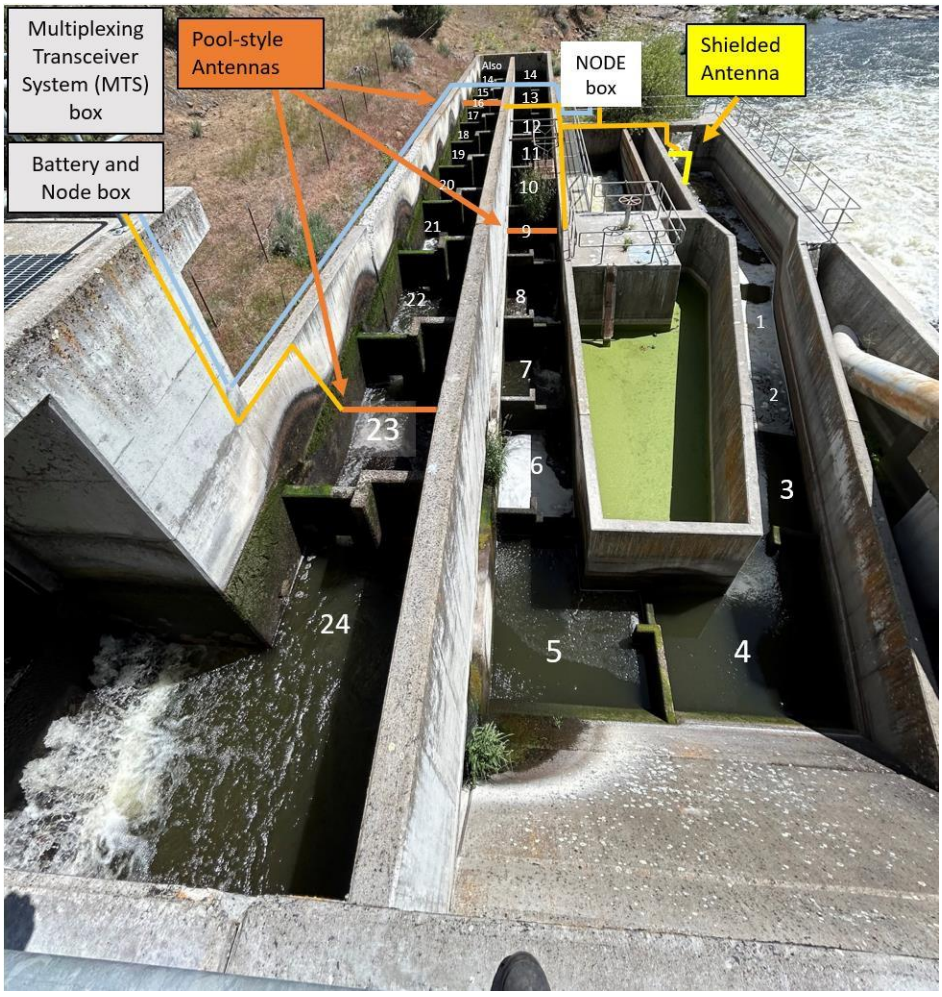


Figure 3. Keno Dam Fish Ladder with ladder bays numbered 1 to 24. Entrance of fish ladder, and most down river, shielded antenna denoted in yellow, and planned location of antennas 2, 3, and 4 denoted in orange. White boxes indicate approximate locations for Multiplexing Transceiver System (MTS), and node and battery boxes.

Three antennas, built from of 3" wide HDPE pipe, are planned to be placed in bays 9, 16, and 23. Each antenna will be attached directly to the fish ladder bay walls with four brackets using four Hilti HIT-RE 500 V3 epoxy adhesive anchors per bracket (Figures 3, B-1, and B-3). A total of 16 holes 3/8" wide by 3" deep will be used to affix each antenna to the inside of the bay. Each antenna will be elevated approximately four to eight inches from the bottom of the bay to allow for movement of bottom oriented species (Figure B-3). A single shielded antenna will be mounted on the inside of the fish ladder entrance upstream of the bulkhead slot (Figure B-2, and as indicated by the yellow box in Figure 3) using four I or H brackets and four Hilti HIT-RE 500 V3 Epoxy Adhesive Anchors (Figure B-2). The exact placement of antennas within the fish ladder bays may vary, or they may be placed in an adjacent bay if the concrete or other structural conditions are more compatible for installation.

The MTS is a 36" x 30" box that will be attached above the fish ladder to the railing of Keno Dam using Unistrut and U brackets (Figures 3 and B-5). The MTS holds the MC, which acts as the command, control, and data collection center for the PIT-tag monitoring system. The MC directs each IS1001 to activate its antenna and send stored tag IDs and diagnostic information. Power and communication transfers between IS1001 and MC occur through Controller Area Network (CAN) bus cables.

A node and battery box (Figures B-4 and B-5) will be installed at the top of the dam. As there is existing power approximately five feet from the proposed location of the node and battery box, installation of power to the node box will merely consist of new conduit along the existing rail. Exciter cables will be attached to the top of the Keno Dam fish ladder using brackets and PVC pipes to guide and hold the cables in place. Up to 20 two-hole brackets and PVC guides would be placed on top of the walls to guide exciter cables to the MTS. Power will be routed to the MTS by a Reclamation electrician. A lower node box will be placed downriver of Keno Dam outside of the fish ladder (Figure B-4). These nodes will be powered by the 175' CANbus Exciter cable running from the upper MTS and battery box to the lower node box.

Klamath Basin Area Office engineers have tested the concrete in the fish ladder and determined that the structural integrity is adequate for placing this equipment. All equipment is not of permanent nature and able to be removed, and holes backfilled, if needed.

The fish ladder will need to be un-watered (water shut off at top) for one to two days during installation and initial testing of the antenna array. Reclamation's Operation and Maintenance staff will manually shut the gate on top of the fish ladder and will use a Grove Model RT-750 crane to place two lower and one upper bulkhead. Bulb seals will be placed on bulk heads to decrease flow and trash pumps will be used to reduce water level. Fish will be salvaged from the fish ladder by Reclamation's Fisheries Branch prior to installation. Reclamation will coordinate with the appropriate agencies as necessary for this action.

National Historic Preservation Act Determination

Refer to Attachment A for documentation concerning compliance with Title 54 USC §306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations in 36 CFR Part 800.

In the event that previously unidentified cultural resources are encountered during implementation of the Proposed Action, the post review discoveries procedures outlined in 36 CFR §800.13 would be followed.

Indian Trust Assets Determination

Indian Trust Assets (ITAs) are legal interests in property or rights held in trust by the United States for Indian Tribes or individuals. The proposed Keno Dam Fish Ladder Antenna Array Installation project area is located approximately 6.24 miles west-northwest of the Klamath Tribal Designated Statistical Area of the Klamath Indian Tribe of Oregon. Based on the nature and location of the planned work, the Project is not anticipated to impact Indian hunting or fishing resources or water rights, nor are the proposed activities on actual Indian lands. Therefore, it is reasonable to assume that the Proposed Action will not have adverse impacts on ITAs.

Exclusion Category

Department of Interior National Environmental Policy Act (NEPA) Handbook, 516 DM 1, Appendix 2, Bureau of Reclamation, 14.5, C.3 – Minor construction activities associated with authorized projects which correct unsatisfactory environmental conditions or which merely augment or supplement, or are enclosed within existing facilities.

Extraordinary Circumstances

Below is documentation that Reclamation considered whether there were extraordinary circumstances associated with the proposed action. The criteria reflect the Extraordinary Circumstances detailed in 43 CFR 46.215 and Departmental and Reclamation policy on ITAs.

Extraordinary Circumstance	Yes, No, or Uncertain
(1) The proposed action would have significant impacts on public health or safety (43 CFR 46.215(a)).	No
(2) The proposed action would have significant impacts on such natural resources and unique geographical characteristics as historic or cultural resources; parks, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands; flood plains; national monuments; migratory birds; and other ecologically significant or critical areas (43 CFR 46.215 (b)).	No
(3) The proposed action would have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks (43 CFR 46.215(c)).	No
(4) The proposed action would establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects (43 CFR 46.215 (d)).	No
(5) The proposed action would have a direct relationship to other actions that implicate potentially significant environmental effects (43 CFR 46.215 (e)).	No
(6) The proposed action would have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (f)).	No
(7) The proposed action would have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated Critical Habitat for these species (43 CFR 46.215 (g)).	No
(8) The proposed action would significantly limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (43 CFR 46.215 (h), and 512 DM 3)).	No
(9) The proposed action would contribute to potentially significant effects resulting from the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act, and 43 CFR 46.215 (i)).	No

Extraordinary Circumstance	Yes, No, or Uncertain
(10) The proposed action would affect ITAs (512 DM 2 and Reclamation Policy Memorandum dated December 15, 1993).	No

NEPA Action Recommended

The proposed action is covered by a categorical exclusion and no extraordinary circumstances exist. The proposed action is excluded from further documentation in an Environmental Assessment or Environmental Impact Statement. This document certifies that Reclamation has considered all relevant information raised in the NEPA process and that the NEPA process has concluded. The proposed action described above complies with applicable laws, including the National Historic Preservation Act and does not require mitigation measures. Public involvement did not occur as part of this process.

Attachment A: Cultural Resources Compliance

CULTURAL RESOURCES COMPLIANCE
Division of Environmental Affairs
Cultural Resources Branch (CGB-153)

CGB-153 Tracking Number: 25-KBAO-052

Project Name: Keno Dam Passive Integrated Transponder Tag Antenna Array Installation Project

ED Number: GGB-ED-2025-042

NEPA Contact: Amanda Babcock, Natural Resource Specialist

CGB-153 Cultural Resources Reviewer: Scott Williams, Regional Cultural Resource Officer

Date: 6/12/25 SCOTT WILLIAMS Digitally signed by SCOTT WILLIAMS Date: 2025.06.12 08:06:19 -07'00'

Reclamation's Klamath Basin Area Office proposes to install an antenna array consisting of four antennas and associated equipment in the Keno Dam fish ladder in order to monitor the movement of passive integrated transponder tagged fish. The proposed Project would occur entirely on Reclamation-owned land, located in Klamath County, Oregon Reclamation's action for the proposed project constitutes an undertaking as defined in 36 CFR § 800.16(y) and is a type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a), requiring compliance under Title 54 USC§ 306108, commonly known as Section 106 of the National Historic Preservation Act (NHPA), as amended.

In an effort to identify historic properties, Reclamation reviewed previous cultural resources investigations, conducted a search of the Oregon Archaeological Records Remote Access (OARRA) and Oregon Historic Sites Database records, and conducted a pedestrian survey of the APE (Enclosure 1). These efforts resulted in the identification of two built environment cultural resources inside the APE: Keno Dam and the broader Klamath River Hydroelectric Project.

Reclamation reviewed prior evaluations of the Klamath River Hydroelectric Project and determined that the Project, in its entirety, is eligible for listing in the National Register of Historic Places (National Register) under Criterion A for its association with the development of hydropower in the Klamath Basin in the early to mid-twentieth century. Reclamation has reviewed the previous 2004 assessment of the Klamath River Hydroelectric Project and determined that it is still valid. Reclamation evaluated Keno Dam and determined that it was not individually eligible for listing in the National Register or eligible as a contributor to the larger Klamath River Hydroelectric Project under any Criteria.

Reclamation applied the criteria of adverse effect to the only eligible historic resource in the APE: the Klamath River Hydroelectric Project. Reclamation determined that the proposed undertaking would result in no adverse effect to historic properties pursuant to 36 CFR § 800.5(b). Reclamation consulted with the Oregon SHPO in a cover letter dated May 5, 2025 and received consensus from the SHPO on the National Register eligibility determinations and finding of effect on June **11,** 2025.

This document is intended to convey the completion of the NHPA Section 106 process for this undertaking. I concur that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) [43 CFR 46.215 (g)]. Consultation correspondence between Reclamation and the SHPO has been provided with this cultural resources compliance document for inclusion in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the SHPO, may be necessary. Thank you for providing the opportunity to comment.

Attachments:
Letter: Reclamation to SHPO dated May 5, 2025
Letter: SHPO to Reclamation dated June 11, 2025

Attachment B: Supplemental Photos and Diagrams



Figure B-1. A) Pool-style 3" wide HDPE pipe antenna, B) A single shielded antenna, C) A Multiplexing Transceiver System.

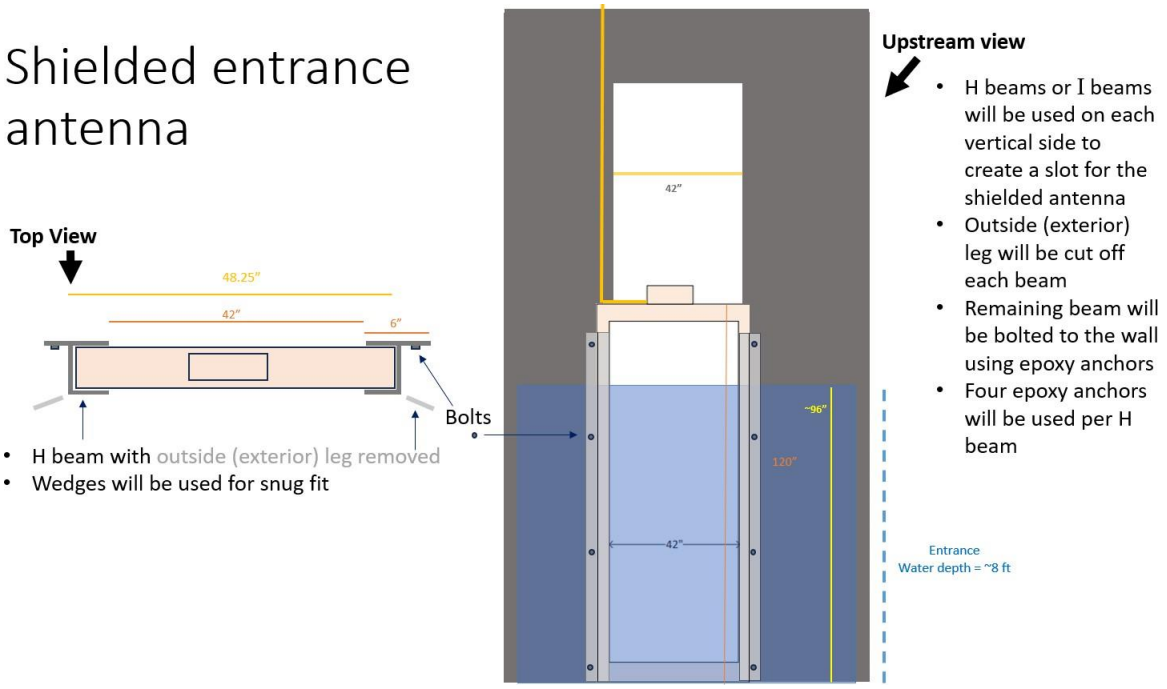


Figure B-2. Depiction of how the shielded antenna will be placed inside the fish ladder entrance.

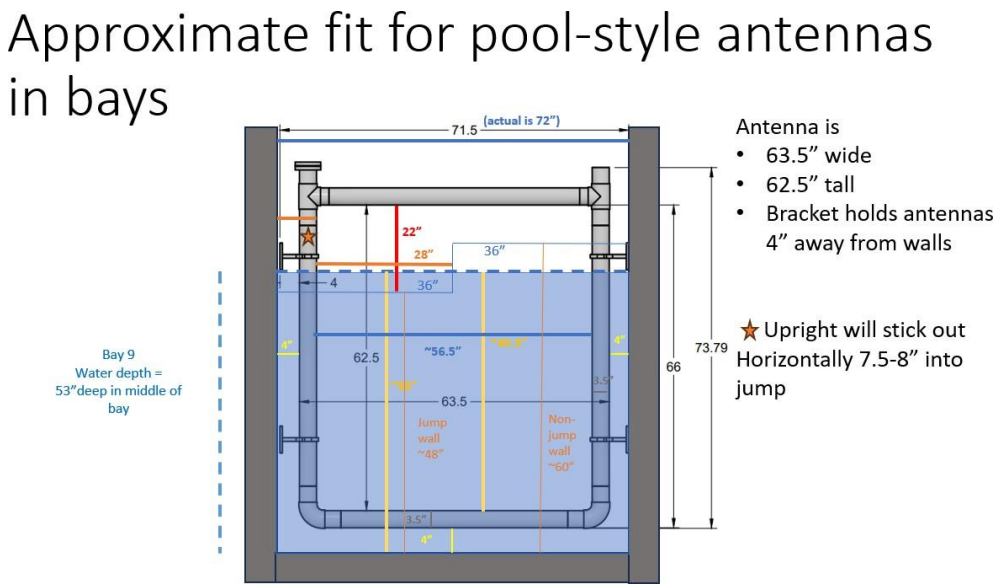


Figure B-3. Depiction of how pool-style antennas will be placed inside the fish ladder bays.

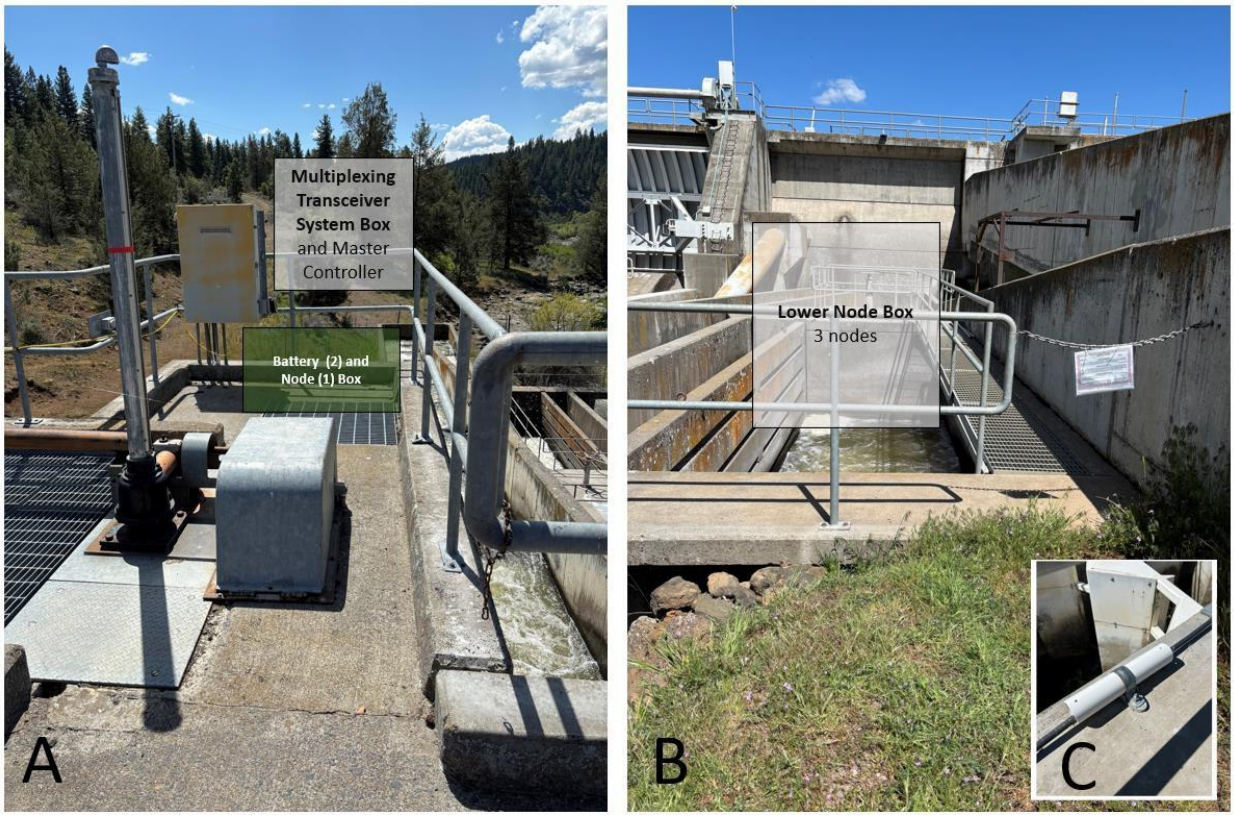


Figure B-4. A) Placement of Multiplexing Transceiver System Box (containing Master Controller) and Battery box (containing batteries and one node) on the top of Keno Dam, B) the lower node box will be placed downstream of Keno Dam outside of the fish ladder, C) exciter cables will be attached to the Keno Dam Fish Ladder using brackets and PVC pipes

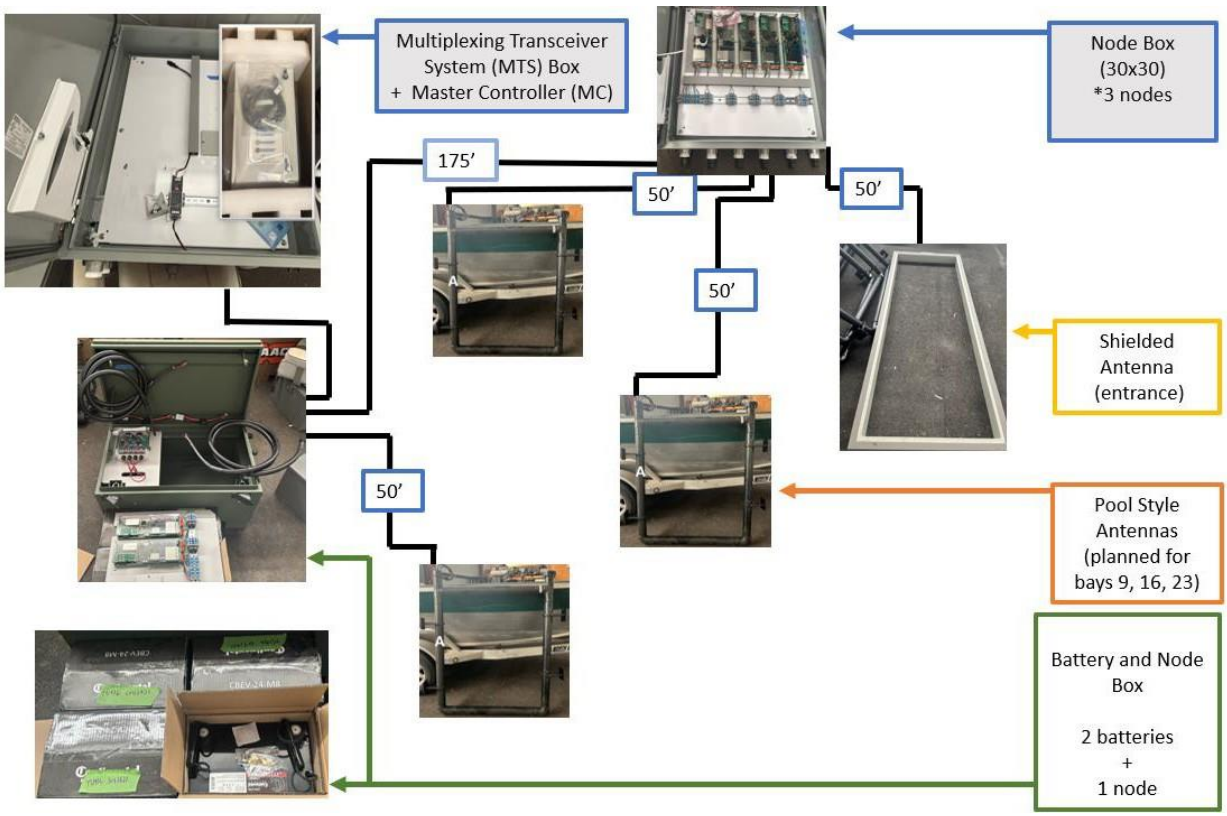


Figure B-5. Schematic of equipment layout for Keno Dam Fish Ladder.