Kootenai National Wildlife Refuge Floodplain Reconnection Project

Draft Environmental Assessment

SEPTEMBER 2024

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ACRONYMS AND ABBREVIATIONS

Administration Act	National Wildlife Refuge System Administration Act
ATR	Auto Tour Route
ABA	Architectural Barriers Act
BC	British Columbia
Bonneville	Bonneville Power Administration
CCP	Comprehensive Conservation Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corp of Engineers
Council	Northwest Power and Conservation Council
CWA	Clean Water Act
DOE	Department of Energy
DOI	U.S. Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse gas
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDP	Inadvertent Discovery Plan
Improvement Act	National Wildlife Refuge System Improvement Act of 1997

IPCC	Intergovernmental Panel on Climate Change
KNWR	Kootenai National Wildlife Refuge
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NWI	National Wetlands Inventory
Northwest Power Act	Pacific Northwest Electric Power Planning and Conservation Act of 1980
NRHP	National Register of Historic Places
Refuge System	National Wildlife Refuge System
SGCN	Species of Greatest Conservation Need
SHPO	State Historic Preservation Office
SPCC	Spill Prevention Control and Countermeasures
TMDL	Total Maximum Daily Load
Tribe	Kootenai Tribe of Idaho
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Climate Research Program
WFL	Western Federal Lands

CHAPTER 1 PURPOSE AND NEED FOR ACTION

1.1 Introduction

Bonneville Power Administration (Bonneville) is deciding whether to fund the Kootenai River Floodplain Reconnection Project sponsored by the Kootenai Tribe of Idaho (Tribe). This project is located on the Kootenai National Wildlife Refuge (KNWR) in Boundary County near Bonners Ferry, Idaho, (Figure 1-1). The KNWR is owned and managed by the U.S. Fish and Wildlife Service (USFWS). The project is designed to improve habitat conditions for Endangered Species Act (ESA) listed Kootenai River white sturgeon and bull trout and other native fish species, benefit channel morphology and instream processes, and protect existing infrastructure within the KNWR. Moreover, the project proposes additional road work within the KNWR that would improve habitat for wildlife. This improved habitat would provide Bonneville with credits for partial mitigation of wildlife impacts associated with operation of the federal hydroelectric facilities on the Columbia River and its tributaries.

The proposed restoration action would result in four levee breaches along the Kootenai River, Myrtle Creek, and Deep Creek; vegetation planting to establish new wetland and riparian habitats; and the realignment, raising and reconstruction of two existing roads that cross the KNWR: the Auto Tour Route (ATR) and Riverside Road.

Bonneville is the lead agency preparing this environmental assessment (EA) under the National Environmental Policy Act (NEPA) as amended (42 United States Code [U.S.C.] 4321 § *et seq*.) and its implementing regulations. NEPA requires federal agencies to assess the impacts of proposed actions on the environment and disclose this information to the public. The USFWS is a cooperating agency for the NEPA review and will use this document to inform any decisions it may need to make related to this project.

Bonneville prepared this EA to determine if the Proposed Action would significantly affect the environment, and thus, warrant the preparation of an environmental impact statement (EIS), or whether it is appropriate to prepare a finding of no significant impact (FONSI), if warranted.

This chapter describes Bonneville's need and the purposes that the agency seeks to achieve. The chapter also includes project background and summarizes the public-scoping process and comments received.

1.2 Purpose and Need

1.2.1 Bonneville

Bonneville is a federal power-marketing administration that is part of the U.S. Department of Energy. Multiple statutes govern Bonneville's operations, including the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. 839 § *et seq*.), which directs Bonneville to protect, mitigate, and enhance fish and wildlife affected by the development and operation of the Federal Columbia River Power System (FCRPS). To assist in accomplishing this, Bonneville funds fish and wildlife protection, mitigation, and enhancement actions consistent with the Northwest Power and Conservation Council's (Council) Columbia River Basin Fish and Wildlife Program and other purposes of the Act. The Council makes recommendations to Bonneville concerning which fish and wildlife mitigation measures to implement.

Bonneville needs to respond to the Tribe's request for funding the Kootenai River Floodplain Reconnection Project. In meeting the need for action, Bonneville seeks to achieve the following purposes:

- Support ongoing efforts to mitigate for the effects of development and operation of the FCRPS on fish and wildlife in the mainstem Columbia River and its tributaries pursuant to the Northwest Power Act.
- Support conservation of ESA-listed species considered in the 2020 ESA consultation with USFWS on the operations and maintenance of the Columbia River System.
- Support Bonneville's commitments under the existing Memorandum of Agreement with the Tribe, as amended; and
- Minimize adverse impacts to the human environment, avoid jeopardizing the continued existence of ESA-listed species, and avoid adverse modification or destruction of designated critical habitat.

1.2.2 USFWS

The mission of the USFWS is "working with others, to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people." Although the USFWS shares this responsibility with other Federal, state, tribal, local, and private entities, the USFWS has specific trust responsibilities for migratory birds, endangered and threatened species, and certain anadromous fish and marine mammals.

As part of the above conservation responsibilities, the USFWS manages the 865-million-acre National Wildlife Refuge System (Refuge System). The Refuge System is the world's largest network of public lands and waters set aside specifically for conserving wildlife and protecting ecosystems. It is important to note that the needs of wildlife and their habitats come first on refuges, in contrast to other public lands that are managed for multiple uses.

The USFWS' purpose for the Kootenai River Floodplain Reconnection Project is to restore KNWR floodplain habitats and improve use by migratory birds, native and ESA-listed fish species, and improve visitor safety, use and satisfaction. The project is needed to address the historical loss of Kootenai River floodplain and off-channel habitats, and to increase resiliency and primary productivity and nutrient exchange between the river and the floodplain. Floodplain-dependent fish and wildlife, including endangered Kootenai River white sturgeon, would benefit from restoration of floodplain connectivity and improved habitat complexity.

Restoring the historic connection of the Kootenai River to the KNWR could benefit both riparian and wetland habitat by scouring or reflooding wetland basins and by depositing mineral soils needed for black cottonwood germination. However, dike breaching was considered but originally dismissed as a KNWR Comprehensive Conservation Plan (CCP) action for several reasons: (1) The River's hydrologic cycle is highly altered from historic conditions (annual spring flooding no longer occurs, and periodic water releases from Libby Dam to benefit Kootenai River white sturgeon are lower and more variable than those that occurred prior to completion of Libby Dam); (2) Breaching of refuge levees would destroy wetland management infrastructure needed to control water levels in this highly altered ecosystem, leading to degradation and loss of productivity of refuge wetlands; and (3) dike breaching could threaten adjacent private lands (USFWS, 2011; CCP).

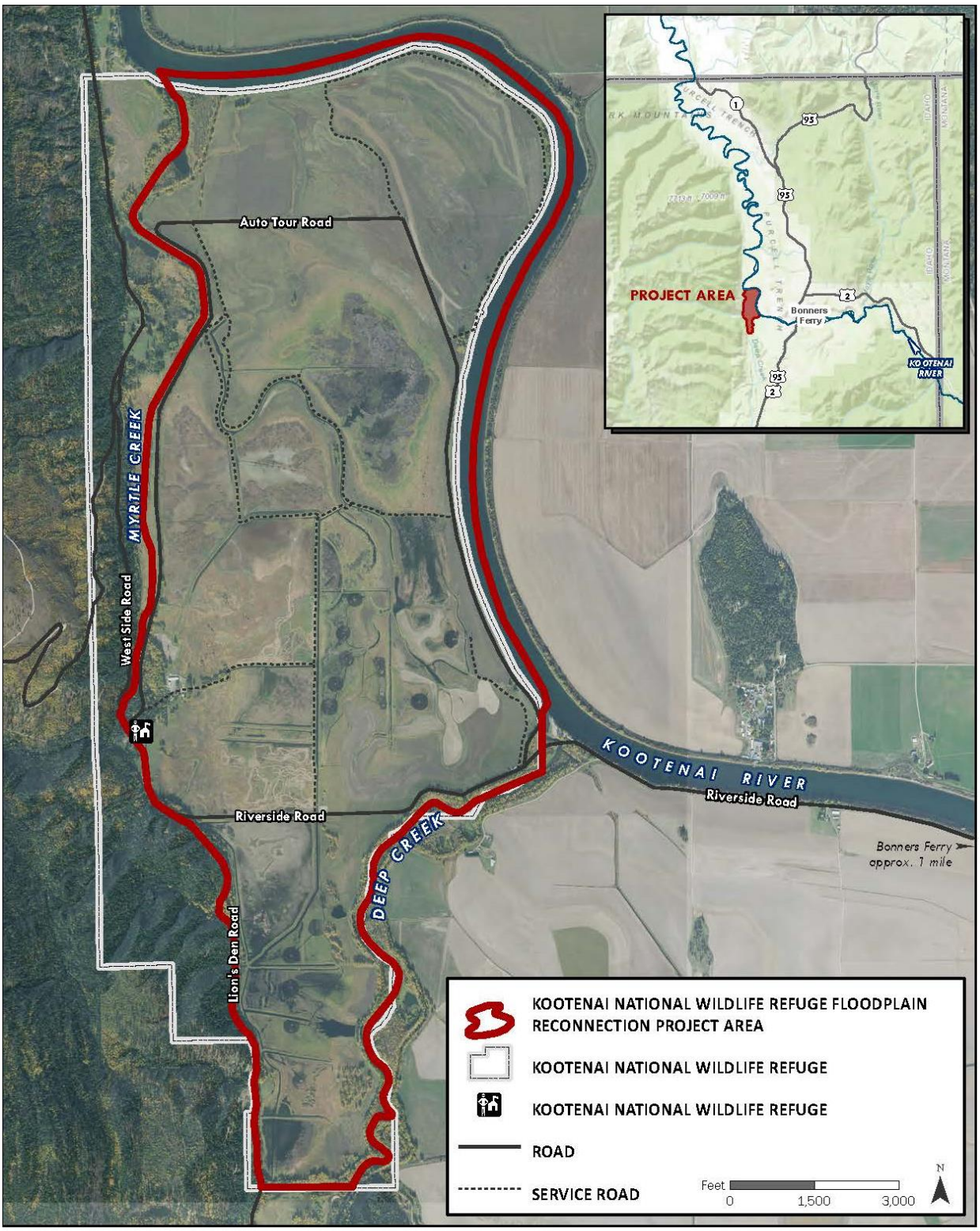
However, despite the Kootenai River hydrograph being altered in magnitude, the post-dam spring freshet still resembles the shape and timing of the historical spring freshet of the Kootenai River. The post-dam hydrograph displays a spring freshet that is roughly half the magnitude of the pre-dam freshet, and the timing of the freshet is similar for both time periods. An unnatural attribute of the post-dam hydrograph is

the increased winter flows to support hydropower operations. In response, a multi-agency coordination effort to adaptively manage the timing and volume of the springtime flows from Libby Dam has been implemented to accomplish not only Kootenai River white sturgeon biological objectives, but also other ecological objectives, e.g. cottonwood recruitment.

Recent upgrades to KNWR wetland management infrastructure were designed to withstand flooding and water overtopping of berms and water control structures. In addition, the Kootenai River Floodplain Reconnection Project includes structures that limit the high surface water flood elevation at 1764 feet to reduce the depth and overall duration of flooding to protect important refuge resources. The timing of the spring freshet does not impact wetland management actions for timed wetland drawdowns, nor would it occur during vegetation management activities. In fact, the spring freshet will likely reduce the KNWR's need to pump water to the wetlands every spring. No private land would be impacted by the dike breaches on the KNWR because the Kootenai River Floodplain Reconnection Project and its effects would be limited to the KNWR boundaries.

Action is also needed to meet priorities outlined in the National Wildlife Refuge System Administration Act (16 U.S.C. 688dd–688ee, et seq.; Administration Act), as amended by the National Wildlife Refuge System Improvement Act of 1997 (Public Law 105-57, Improvement Act); support the Refuge System mission; and be consistent with the purposes of the KNWR and several habitat goals and visitor services goal identified in the Comprehensive Conservation Plan for the KNWR (USFWS, 2011; available at https://ecos.fws.gov/ServCat/Reference/Profile/43324).

Figure 1-1: Kootenai National Wildlife Refuge Overview Map.



1.3 Background

1.3.1 Kootenai River Restoration Program Master Plan

In 2006, Bonneville provided funding to the Tribe to begin development of a Master Plan, and to continue with critical data collection and planning activities. In 2009, the Tribe completed a master plan for a large-scale, ecosystem-based river habitat restoration program. This master plan called for restoration of the Kootenai River, from the confluence of the Moyie and Kootenai rivers, downstream to the Canadian border (55 miles). It provides a summary of historical and existing conditions and identifies specific physical and biological characteristics in each of the river segments of the project area, along with identified factors that limit habitat for aquatic species including sturgeon, burbot, trout, and other native fish species within the project area. Based on this information, the plan identified restoration strategies and habitat enhancements to address the limiting factors in each river segment.

With funding primarily from Bonneville, the Tribe has implemented 14 habitat restoration projects under this plan from 2011 to 2023. The KNWR Floodplain Reconnection Project would be the fifteenth project to be implemented under the Kootenai River Habitat Restoration Program and would work in conjunction with the past Kootenai River Habitat Restoration Program projects to help create a more resilient ecosystem, capable of sustaining diverse native plant and animal populations, and tolerant of natural disturbances and altered regimes.

1.3.2 USFWS Background Documents

National wildlife refuges are guided by the mission and goals of the Refuge System, the purposes of an individual refuge, USFWS policy, and laws and international treaties. Relevant guidance includes the Administration Act, as amended by the Improvement Act, and selected portions of the Code of Federal Regulations and U.S. Fish and Wildlife Service Manual. Additional details are provided within Chapter 1 of the KNWR's Comprehensive Conservation Plan (USFWS, 2011; CCP). A complete list of laws pertaining to the USFWS and the Refuge System can be found at http://laws.fws.gov.

The mission of the Refuge System, as outlined by the Administration Act, as amended by the Improvement Act, is:

> *"… to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans…."*

Additionally, the Administration Act mandates the Secretary of the Interior in administering the Refuge System (16 U.S.C. 668dd(a)(4)) to:

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the Refuge System;
- Ensure that the biological integrity, diversity, and environmental health of the Refuge System are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the Refuge System described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the states in which the units of the Refuge System are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the Refuge System and the purposes of each refuge;

- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the Refuge System through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the Refuge System for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

1.3.3 Riverside Road Improvement Project

In 2018 the Federal Highway Administration (FHWA), Western Federal Lands (WFL) Highway Division began planning for the reconstruction and widening of about 4.5 miles of Riverside Road between Bonners Ferry, Idaho and the KNWR Headquarters building. FHWA intended to use funding through the Federal Lands Access Program, which improves transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Federal Lands Access Program supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators.

Project planning included a NEPA evaluation (FHWA, 2020) with the purpose of improving safety and reliability of the route by widening the roadway to accommodate pedestrians, wildlife viewers, and bicyclists, who frequently use this road to access the KNWR, U.S. Bureau of Land Management-managed lands, U.S. Forest Service Panhandle National Forests, and Tribal Lands of the Kootenai Tribe of Idaho. Project elements would include roadway striping to enhance safety to multi-modal users; include a minor increase in the 2022 Boundary County right-of-way easement through the refuge along Riverside Road; the replacement/addition of culverts to protect and lengthen the lifespan of the roadway and improve the capability of the KNWR to better manage the flow of water through the KNWR; enhancements of wildlife viewing/parking areas and associated trails; and the addition of a wildlife viewing pullout area.

FHWA held a public meeting on July 23, 2019, to inform the public of the planned improvements and take comments. Approximately 40 people attended the meeting, and both written and oral comments were received.

Project delays have resulted in an increase in construction costs causing FHWA to focus their funding on the 2.8-mile-long portion of Riverside Road that runs between Bonners Ferry, Idaho and Deep Creek. In 2023, the Tribe approached FHWA regarding the possibility of raising a portion of Riverside Road to allow for an increased area of floodplain inundation. By the end of 2023, FHWA agreed to consider redesigning the project to allow for raising and reconstruction of the 1.7 miles of Riverside Road that crosses the KNWR. Bonneville funding would be used to raise 0.75 mile of Riverside Road that lies within the existing floodplain. As discussed above, the raising of the roadway would support the floodplain reconnection work that would improve habitat conditions for ESA listed Kootenai River white sturgeon and bull trout and other native fish species, benefit channel morphology and instream processes, and protect existing infrastructure within the KNWR. This work would also ensure the road remains passable during the periods of high water inundation. The reconstruction of the remaining 1.0 mile of Riverside Road would occur outside of the floodplain inundation area, but within the KNWR. This overall portion of the BPA-funded Riverside Road work in KNWR in combination with the other habitat restoration work would be the basis for Bonneville to claim credits for partial mitigation of wildlife impacts associated with the operation of the federal hydroelectric facilities on the Columbia River and its tributaries, such as Libby Dam.

FHWA would also fund and reconstruct the contiguous portion of Riverside Road between Bonners Ferry and Deep Creek (an additional 2.8 miles). This action would occur without Bonneville or KNWR funding or participation. Because the reconstruction of the 2.8 miles of Riverside Road outside of the KNWR would be an action separate from the Kootenai NWR Floodplain Reconnection and road work on KNWR, the effects are not further analyzed in this EA.

1.4 Cooperating Agencies

1.4.1 USFWS

The USFWS is a cooperating agency in the preparation of this EA because it manages the KNWR where the Floodplain Reconnection Project is proposed for implementation. To support its obligations under NEPA, USFWS needs to decide whether to amend relevant KNWR CCP objectives and strategies that would change the existing approach to refuge management. USFWS must also decide whether to allow for implementation of the Proposed Action on refuge lands.

1.5 Public Involvement

To help determine the issues addressed in this EA, Bonneville conducted public scoping from April 18, 2024 to May 18, 2024. Bonneville mailed letters to potentially interested and affected persons, agencies, Tribes, and organizations. The letter provided information about the project, public scoping meeting, and scoping period, and requested comments on issues to be addressed in the EA. The letter also described how to comment (through mail, fax, telephone, and Bonneville's website). Bonneville posted the letter on the project website to provide information about the Kootenai River Floodplain Reconnection Project and the EA process: *http://www.bpa.gov/nepa/kootenai-natl-wildlife-refuge*. Bonneville held a public scoping meeting on April 30, 2024, in Bonners Ferry, Idaho.

Consistent with the Council on Environmental Quality's (CEQ) November 30, 2022, Memorandum and Guidance for Federal Departments and Agencies on Indigenous Knowledge, Bonneville engaged Tribes and Indigenous Peoples including the project sponsor, the Tribe, for information and perspectives regarding environmental, cultural, and community impacts.

Bonneville received 12 comment letters during the scoping period, which can be found at the website provided above. The following issues relevant to the Proposed Action and this assessment were raised:

- Amount of agriculture available to migrating birds/loss of hunting opportunity
- Loss of recreation opportunity (e.g. walking, running, cycling, cross country skiing, birdwatching and auto tours)
- Increase in the mosquito population caused by increased areas of open water
- Increased travel time (commuting/emergency vehicles) caused by detour using Lion's Den Road during reconstruction of Riverside Road
- Protection of water quality during and following construction and compliance with the Clean Water Act
- Increase in methylmercury levels in KNWR wetlands
- Air Quality impacts during construction
- Impacts to environmental justice populations

These scoping comments are addressed in the appropriate sections of the EA.

CHAPTER 2 ALTERNATIVES

This chapter describes the alternatives analyzed in detail in this EA: The Proposed Action and the No Action alternatives. It compares the alternatives by potential environmental consequences and also identifies potential mitigation measures.

2.1 Proposed Action

The Kootenai National Wildlife Refuge Floodplain Reconnection Project would use levee breaches, floodplain grading and revegetation to allow for the exchange of surface water and nutrients between the Kootenai River and its floodplain and establish additional riparian habitats. In addition, Riverside Road, maintained by Boundary County Road and Bridge Department, and the ATR, maintained by USFWS, would be raised to allow for greater extent of inundation while allowing safe passage during periods of high water (Figure 2-1) for a portion of the project area and the rest of Riverside Road would be reconstructed to improve wildlife habitat and allow increased road safety and improved user experience.

2.1.1 Levee Breaches

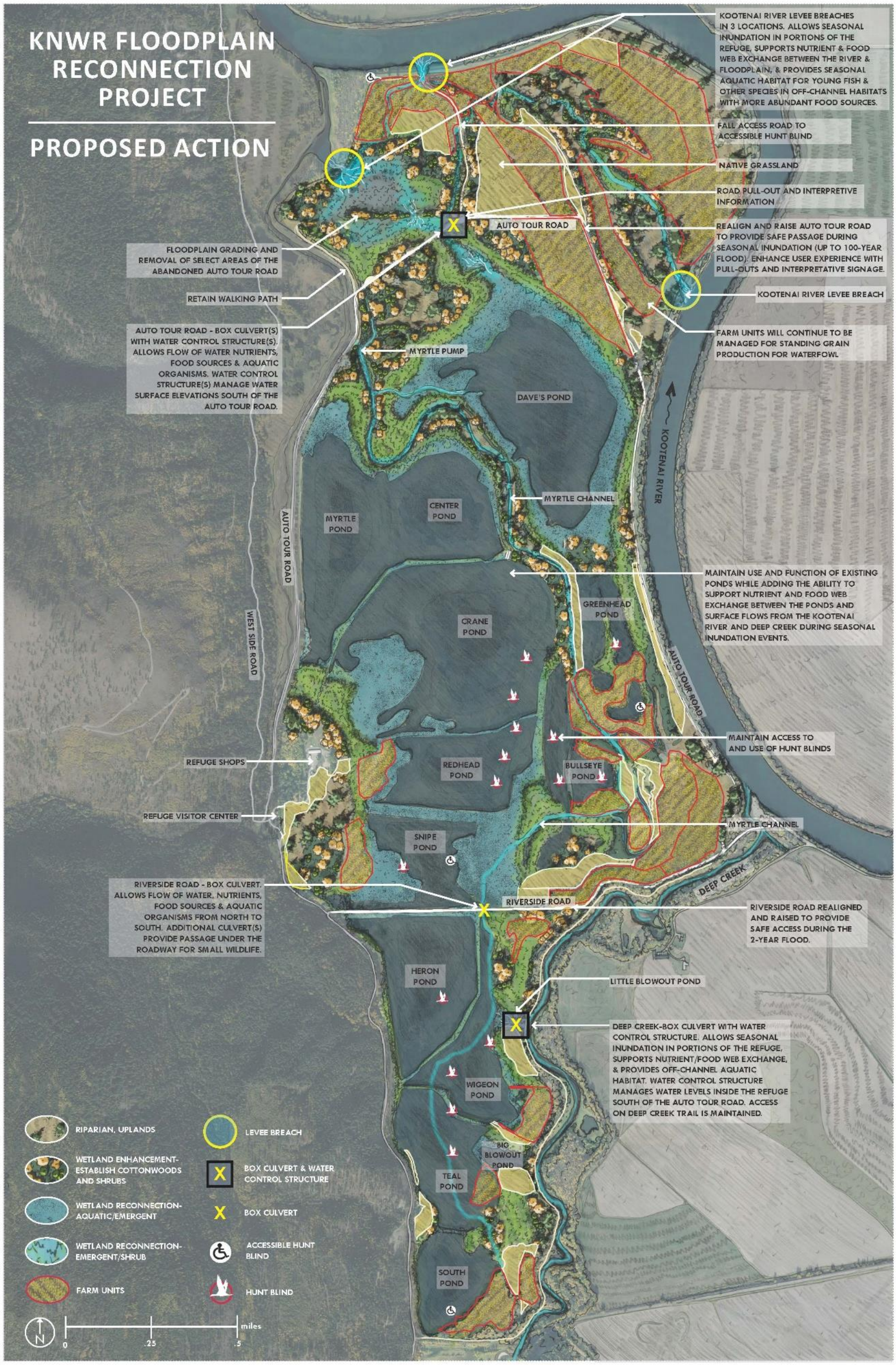
A connection between the Kootenai River and interior KNWR would be established by excavating two breaches of the mainstem Kootenai River levee, one levee breach on Myrtle Creek and one levee breach on Deep Creek, which would include the installation of a box culvert and a water control structure to regulate flows.(Figure 2-1) The width at the breaches would be approximately 50 feet wide with sloping banks up to a top width of approximately 150 feet. The total area of disturbance for the four breaches would be approximately 5 acres. Material excavated from the breaches would be used to reconstruct the ATR and Riverside Road as described in Section 2.1.4. Breach locations were selected based on existing low points in the floodplain topography. Existing low points correspond to floodplain channels that would be used to distribute flow throughout the KNWR.

Levee breaches would provide seasonal floodplain connection in most years during May and June and is expected to last 1 to 2 months (April-June).

2.1.2 Floodplain Grading

Approximately 50 acres of floodplain grading would occur on the northern portion of the KNWR and would include creating channels and swales that would help distribute flows throughout the refuge. The constructed channels and swales would be designed to drain water efficiently to reduce the potential for fish entrainment and mosquito production as flows recede. Additional grading would be done to create floodplain mounds, ridges and furrows, logs and brush would be installed in floodplain grading areas to provide a wider variety of surface elevations, provide stability and complexity and protected microsites for vegetation establishment. In areas where non-native reed canary grass sod would be removed it would be disposed of in upland areas. Work in this area may occur in 2025 using construction crews from the USFWS.

Figure 2-1: Kootenai National Wildlife Refuge Floodplain Reconnection Project Proposed Action.



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Floodplain surface roughness treatments would be applied to finished ground surfaces and disturbed floodplain areas. Floodplain surface roughness treatments incorporate ridges and furrows (plus or minus 1 foot in elevation) and wood installation in the final ground surface. Wood includes medium and small logs and brush that are scattered throughout the finished surface and partially buried at varying angles and orientations in the ground.

2.1.3 Revegetation

Revegetation would be used to establish riparian and wetland vegetation within the grading extents and in other key locations, including within constructed swales, adjacent to design inundation boundaries, and along flow paths. Revegetation would include planting trees and shrubs, installing live vegetative cuttings, seeding, and creating conditions that support natural recruitment of native plant species. Commercially purchased seed mixes would be used for most of the seeding efforts. All other construction related disturbance areas would be reclaimed and seeded to re-establish vegetative cover and discourage weed invasion. Browse protection measures such as dense brush placement, browse protector cages, or fencing would be installed and maintained until plants have matured and are capable of withstanding wildlife browse. Follow-up maintenance actions would likely be limited to infrequent use of equipment for vegetation replanting in areas requiring supplemental plantings due to mortalities.

2.1.4 Infrastructure Actions

Road reconstruction would occur on the Refuge ATR and Boundary County Riverside Road. Both roads are located within the interior of KNWR and would be subject to increased flooding as a result of the levee breaches. Each road would be raised to an elevation to ensure it remains passable during seasonal inundations. Water control structures would be utilized to regulate flows and maintain a maximum water elevation designed to protect infrastructure.

2.1.4.1 Realign and Raise the KNWR Auto Tour Route

The ATR is a one-way, gravel road that begins at KNWR Headquarters and ends near the mouth of Deep Creek for a total distance of approximately 4.5 miles. The existing road is approximately 12 to 15 feet wide, and the speed limit is 20 miles per hour. Most of the ATR is located on existing levees or high ground except for a 1.25-mile-long (6,700 linear feet) segment that would be raised up to 12 feet above adjacent ground topography. The reconstructed road would follow the current alignment except for a 2,000-foot segment on the northwest portion of the Refuge which would be realigned. The reconstructed ATR would have a 16-foot top width and 4:1 side slopes to facilitate wildlife crossing. Numerous vehicle pullouts would be included along the reconstructed segment.

The reconstructed road would follow the current alignment except for a 2,000-foot-long segment, which would then be converted to an Architectural Barriers Act (ABA)-compliant wildlife viewing trail. The road would be graded and convert to a 16 feet wide gravel trail leading toward Myrtle Creek.

2.1.4.2 Raise Riverside Road

Riverside Road is a Boundary County Road that connects the City of Bonners Ferry to West Side Road. Riverside Road is a two-lane paved road with a speed limit of 35 miles per hour. Prior to the KNWR Floodplain Reconnection Project, Riverside Road had been planned for reconstruction through the Federal Lands Access Program which provides funding for transportation facilities adjacent to or located on Federal lands. Coordination between the Tribe, Bonneville, Boundary County, KNWR, and FHWA led to a partnership agreement for funding through the Kootenai River Habitat Restoration Program to

elevate the road to accommodate and enhance the habitat benefit of the Proposed Action. The length of Riverside Road that would be raised would be approximately 4,000 linear feet. The new road surface would have two lanes, each 11-feet wide with 5-foot shoulders (32 feet total). Because the road would be 6-feet higher, a wider base would be constructed, and the side slopes would be 2:1 ratio. The increase in height and width of Riverside Road would require a minor increase in the 2022 Boundary County right-of-way easement through the refuge along Riverside Road.

2.1.4.3 Reconstruct Riverside Road

The portions of Riverside Road on either end of the raised portion are outside of the historic floodplain and would not need to be raised for 0.5 mile on the eastern end and 0.4 mile on the western end. These two sections would be reconstructed as they were previously designed by FHWA for their Riverside Road Project. Road reconstruction would involve removing all pavement material along the existing alignment and replacing it with new pavement. The new surface would have two lanes, each 11-feet wide with 5-foot shoulders (32 feet total).

2.1.4.4 Culvert and Water Control Structure Installation

Culverts and water control structures would be installed under the ATR and at the Deep Creek levee breach to convey water and provide floodplain connection throughout the KNWR. A water control structure (e.g., box culvert with tide gate as shown in Figure 2-2) would be installed under the ATR to allow water to flow into the southern portion of the KNWR. The box culverts would be rectangular structures, 10-feet long and 8-feet high with concrete wingwalls and riprap to prevent erosion on either side.

Figure 2-2: Example concrete box culvert with automated tide gate proposed for the Auto Tour Route and Deep Creek Breach.

The tide gate would remain open during dry periods. Once water from the Kootenai River begins flowing onto the Refuge during seasonal inundations the tide gate would allow water to flow under the ATR. Once the water level reaches 1764 feet the tide gate would close restricting the water surface elevation to 8 feet below the new ATR elevation of 1772 feet.

Another culvert and water control structure would be installed as part of the Deep Creek levee breach. As with the ATR, the culvert would allow water to flow from Deep Creek into the KNWR. Once the water elevation reaches 1764 feet the tide gate would close, restricting the water elevation to 2-feet below the new Riverside Road elevation of 1766 feet.

Under Riverside Road an 8-ft by 10-ft concrete box culvert would be installed to replace an existing 30-inch corrugated metal pipe. The box culvert would be approximately 60 feet long and include concrete wingwalls and riprap to prevent erosion on either side. A tide gate would not be installed at Riverside Road.

A small wildlife passage culvert would be installed under Riverside Road that would provide passage for reptiles, amphibians, and young birds. The culvert would be 8-feet wide and 4-feet high.

2.1.5 Construction Activities

Construction for the restoration actions would take approximately 5 months (June 1-October 31). Construction of the Riverside Road portion of the Project is expected to last about 4 months (July 1-October 31). Temporary staging areas would be created adjacent to the ATR on the north end and along Riverside Road. Each staging area would be approximately 2 acres.

Construction access for the restoration actions would use Riverside Road, the ATR, and other existing Refuge service roads. Many of the KNWR roads are unpaved so roads would be graded and treated for dust control (water application) as needed to support haul traffic during construction. Silt fences would be installed between the haul roads and adjacent wetlands and temporary construction fencing would be installed along access routes through existing wetlands to minimize the disturbance footprint. Stormwater would be managed using existing drainage patterns with runoff routed into natural depressions in the existing topography or constructed settling basins in the work area. Since there would not be any in-water work, turbidity monitoring would not be necessary. Construction equipment such as large excavators, scrapers, motor graders, bulldozers, and dump trucks would be used for earthwork and grading associated with levee breaches, floodplain grading and excavation of additional material needed to raise the ATR. Additional earthwork and grading would also be required for road modifications and Refuge infrastructure modifications. The amount of material to be excavated (cut) and placed (fill) for the ATR and Riverside Road is provided in Table 2-1 and 2-2. A summary of the culverts to be installed is provided in Table 2-3.

Table 2-1: Earthwork summary for the Auto Tour Road.

Project Feature	Cut (cubic yards)	Fill (cubic yards)
Raising Auto Tour Road	-	82,538
Kootenai River Levee Breaches	26,000	-
Total ATR	82,538	82,538

Source: (KTOI, 2024)

Table 2-2: Earthwork summary for Riverside Road.

Project Feature	Cut (cubic yards)	Fill (cubic yards)
Rasing Riverside Road	-	41,311
Deep Creek River Levee Breach	346	-
Total Riverside Road Alternative 2	**41,311**	**41,311**

Source: (KTOI, 2024)

Table 2-3: Culvert summary for the KNWR Floodplain Reconnection Project.

Location	Size
Auto Tour Road	10-ft span by 8-ft height
Riverside Road Center Ditch	5-ft span by 5-ft height
Deep Creek Breach	10-ft span by 8-ft height
Riverside Road Wildlife Crossing	8-ft span by 4-ft height

Source: (KTOI, 2024)

2.1.6 Amendments to KNWR Comprehensive Conservation Plan Objectives and Strategies

KNWR CCP objectives described under Wildlife and Habitat Goals 1, 5, and 6 and Public Use Goal 1 would need to be amended prior to implementation of the Proposed Action. Relevant Wildlife and Habitat Objectives under Goals 1, 5, and 6, and Public Use Goal 1 are proposed to be amended, along with updates to some strategies needed to achieve those objectives. Updating relevant Wildlife and Habitat Objectives would allow the refuge to shift focus to management of more riparian habitat acreage and decrease annual grasslands management focus than was initially contemplated in the CCP. Riparian and scrub shrub forest is important for maintaining the biological diversity, integrity, and environmental health of the Refuge. Mature deciduous woodland is important to many ungulates, large mammals, bird species, invertebrates, and aquatic species. Since annual grasslands are not a limited habitat type in the Kootenai River Valley, increasing alluvial riparian woodland and shrub scrub plant communities would help return an important habitat component largely lost from the Kootenai River Valley due to river flow alterations and tree clearing for agricultural production.

Proposed changes to CCP objectives and strategies are consistent with USFWS' policies for CCP amendments and step-down planning (602 FW 3.16B and 602 FW 4). The amendments would remain consistent with existing CCP Vision and Goals and would not result in a substantial change to the Refuge program or resource management.

Amendments to Wildlife and Habitat Objectives and Strategies

The KNWR Floodplain Reconnection Project would improve ecosystem function in the Meander Reach of the Kootenai River by breaching levees and allowing the exchange of surface water and nutrients between the river and the floodplain. The Proposed Action is consistent with the refuge goals to provide, manage and enhance a diverse assemblage of grassland, wetland, and riparian habitats for foraging and nesting migratory waterfowl and other wildlife characteristic of the Kootenai River Valley. Furthermore,

the Proposed Action would protect, maintain, and where feasible restore habitats on the KNWR to benefit native fishes and the species that depend on them including endangered Kootenai River white sturgeon.

To fully realize the benefits described in the Floodplain Reconnection Project, the following italicized changes to the KNWR CCP objectives and strategies are proposed:

GOAL 1: Provide and manage a mixture of secure, diverse, productive grassland habitats for foraging and nesting migratory waterfowl and grassland-dependent wildlife.

- Objective 1.1. Annually maintain *100-119 acres* of managed grasslands with the following attributes to provide habitat for migratory landbirds (e.g., western meadowlark, savannah sparrow), small (e.g., vole spp.) and large mammals (e.g., white-tailed deer, elk), native amphibians, reptiles and invertebrates.
- Objective 1.2. Within the lifetime of the CCP, and where appropriate and feasible, *restore 97-175 acres* of native upland grasslands and wet meadow to provide habitat for migratory landbirds (e.g., western meadowlark, savannah sparrow), small (e.g., vole spp.) and large mammals (e.g., white-tailed deer, elk), native amphibians, reptiles and invertebrates.

GOAL 5: Provide, manage, and enhance a diverse assemblage of riparian habitats characteristic of the Kootenai River Valley.

- Objective 5.1. Annually, protect and maintain *171 acres, and by 2026 initiate restoration on, 5-15 acres* of mid- to late-successional, alluvial riparian woodland to benefit a diverse assemblage of riparian-dependent species (e.g., red-eyed vireo, veery, wood duck, red-naped sapsuckers, bald eagle).
- Objective 5.2. Annually, protect and maintain *318 acres, and by 2026 initiate restoration on 20-30 acres,* of riparian scrub-shrub habitat to benefit landbirds (e.g., willow and dusky flycatchers, lazuli bunting, black-chinned and rufous hummingbirds) and other wildlife (e.g., white-tailed deer, elk).

GOAL 6: Protect, maintain, and where feasible restore instream habitats on the KNWR to benefit native fishes and the species that depend on them.

- Objective 6.2. Within the life of the CCP, investigate opportunities and strategies to restore the lower 2.17 miles of Myrtle Creek *and the historic floodplain connection of the Kootenai River and its tributaries within the KNWR* for the benefit of native salmonids, burbot, Kootenai River white sturgeon, and fish-eating mammals and birds.

Strategies Applied to Achieve Objective

Conduct feasibility study for restoring sinuosity to lower Myrtle Creek *and the historic Myrtle Creek floodplain on the interior of the KNWR*, including an evaluation of altering the dike system to allow overflow of a portion of the historic floodplain. *The Tribe conducted a study on the feasibility of floodplain reconnections on the Kootenai River and its tributaries along the 55-mile reach of the Kootenai River that extends from the confluence of the Moyie and Kootenai rivers, downstream to the international border. The results were published and shared with the public and stakeholders in the form of the Kootenai River Restoration Master Plan in 2009 (KTOI, 2009).*

Work with partners to examine the feasibility of, and develop strategies for, restoration; conduct restoration activities where feasible. *Site specific feasibility and implementation was further refined through analysis by the Kootenai River Restoration Program Team, and reports developed by the KTOI and USFWS Branch of Biology. (KTOI, draft unpublished report, 2018; Wenick, 2022).*

Amendments to Public Use Objectives and Strategies

In order to accommodate floodplain reconnection and the associated fish, wildlife, and habitat improvements and to improve the visitor experience proposed in this EA, KNWR public access infrastructure would need to be modified and improved to meet the goals of the CCP. The proposed changes to public use strategies are shown below in italics.

GOAL 1: Wildlife Observation, Photography, and Interpretation Provide opportunities for visitors to safely observe and photograph a diversity of wildlife in a natural setting. Interpretation and education will enhance visitors' appreciation for and understanding of the Refuge's natural resources and increase their success in observing and photographing wildlife. Rewarding experiences ultimately build support for Kootenai NWR and the National Wildlife Refuge System.

- Objective 1.1. Improve the 4.5 mile long Auto Tour Route so that it provides visitors numerous opportunities to view and photograph wildlife and supports an average of 200 vehicles per week, spring through fall.

Strategies Applied to Achieve Objective

Maintain and improve the *4.5* mile long Auto Tour Route *by widening, changing elevation, realigning and regrading the northwest portion of the ATR to improve public safety and wildlife viewing opportunities.* Refer to Section 2.1.4.1 Realign and Raise the KNWR Auto Tour Route for a detailed description of the ATR changes.

Provide *at least* two additional pullouts/wide spots/passing areas for vehicle passage.

Develop an Americans with ABA compliant wildlife viewing trail along a 2,000-foot section of the ATR that would be abandoned as part of this project.

2.2 No Action Alternative

Under the No Action Alternative, Bonneville would not fund the Kootenai River Floodplain Reconnection Project, and the Tribe would not construct the project. The KNWR would continue to be managed as described in the KNWR CCP with wildlife, habitat and public use programs remaining essentially unchanged.

BPA would not provide funding to FHWA and Riverside Road would not be raised on the KNWR.

2.3 Comparison of the Alternatives

Table 2-4: Summary and Comparison of Potential Environmental Impacts of the Alternatives.

Resource Category	Proposed Action	No Action
Geology and Soils	Short-term low-level impacts to soil, such as compaction, from implementing restoration actions and road reconstruction. Low-level long-term effects of restoration actions would ultimately improve soil quality and productivity.	There would be no effects to geology and soils resulting from the No Action Alternative. Beneficial effects to soil quality and productivity from the Proposed Action would not occur.
Vegetation	Short-term loss of vegetation due to crushing and removal, would occur during construction. Long-term moderate benefits to vegetation would occur due to restored floodplain function and revegetated native plant communities.	There would be no effect to vegetation resulting from the No Action Alternative. Beneficial effects from the Proposed Action would not occur.
Water Resources	Short-term effects to water resources would result from turbidity reaching the Kootenai River following the initial seasonal inundation. Long-term there would be benefits to water resources from restored floodplain function on the KNWR and revegetated native plant communities.	There would be no effects to water resources resulting from the No Action Alternative. Beneficial effects from the Proposed Action would not occur.
Wetlands	Some short-term wetland loss would occur from floodplain grading in wetland areas. Long-term beneficial effects to wetlands would occur from reconnecting the historic Kootenai River floodplain and the resulting wetland enhancement.	There would be no effects to wetlands resulting from the No Action Alternative. Beneficial effects from the Proposed Action would not occur
Fish and Aquatic Species	Reconnection of the historic Kootenai River floodplain would provide beneficial effects for fish by allowing for seasonal inundation of the KNWR. These conditions would increase access to off-channel habitats for fish species, increase primary productivity and nutrient exchange between the river and the floodplain, and create floodplain conditions that allow for more complex and diverse riparian vegetation to develop	There would be no effect to fish and aquatic species resulting from the No Action Alternative. Beneficial effects from the Proposed Action would not occur
Wildlife	Noise from construction activities could result in short-term displacement of wildlife from their preferred habitats. Long-term beneficial impacts for wildlife would result with improved habitat conditions such as increases in habitat type complexity	There would be no effect to wildlife resulting from the No Action Alternative. Beneficial effects from the Proposed Action would not occur

Resource Category	Proposed Action	No Action
Cultural Resources	Previously identified resources in the area would either not be affected or were determined to be not eligible for listing on the National Register of Historic Places.	There would be no effect to cultural resources resulting from the No Action Alternative.
Land Use and Recreation	There would be no change to land uses as the result of the Proposed Action. The portion of the KNWR where construction would occur would be closed during construction so recreationalists would temporarily lose access to the Refuge during that time. Following construction, the improvement to roads, viewing areas, and native habitats would result in beneficial impacts to the refuge and the recreationalists that use it.	There would be no effect to land use or recreation resulting from the No Action Alternative. The beneficial impacts from the Proposed Action would not occur.
Transportation	The closure of Riverside Road would require drivers to follow a detour which would add 30 minutes for travel between the KNWR HQ and Bonners Ferry, Idaho. Long term, Riverside Road would be wider and safer for drivers as well as cyclists, pedestrians and ATV users.	There would be no effects to transportation resulting from the No Action Alterative. Beneficial effects from reconstructing Riverside Road would not occur.
Climate Change	Construction equipment for the restoration actions and road improvements would have short-term low-level greenhouse-gas emissions. Long-term the restoration actions on the KNWR would contribute to the amelioration of climate change by restoring functional riparian, wetland, and floodplain habitats that store carbon.	There would be no greenhouse gas emissions as a result of the No Action Alterative. The amelioration of climate change effects from the Proposed Action would not occur.
Noise	Construction activities would result in elevated noise levels during daytime hours. Because the Refuge would be closed during construction no visitors would be present during construction, and thus, would not be affected. Several residences exist across Myrtle Creek on Westside Road but are greater than 150 feet away, so construction noise would result in a minimal elevation of noise above ambient levels	Construction activities would not occur so ambient noise levels would not change.
Public Health and Safety	The potential health and safety risks to workers and the public during construction would have low short-term effects during construction.	There would be no effects to public health and safety as a result of the No Action Alterative.

2.4 Mitigation Measures

To minimize impacts to resources from the Proposed Action, the mitigation measures described in Table 2-5 would be implemented during the design and construction of the project.

Table 2-5: Mitigation Measures.

Resource Category	Mitigation Measures
Geology and Soils	Use sediment barriers, such as silt fences, ballast berms, and straw wattles. Minimize the area of disturbance. Use water trucks to apply water to control dust, as needed. Apply mulch or straw to exposed soil areas to reduce erosion and dust. Sequence construction to minimize soil exposure and erosion potential. Decompact staging areas and decommissioned access roads through subsoiling to a minimum of 18 inches and replanting.
Vegetation	Wash construction equipment before it is mobilized to the project area to control the spread of non-native species. Minimize disturbance to native vegetation. A floodplain revegetation plan would guide riparian planting locations.
Water Resources	Obtain Clean Water Act permits and apply permit-specific protection measures. Develop a Spill Prevention Control and Countermeasures (SPCC) Plan prior to project initiation. Identify and locate staging areas, storage sites (fuel, chemical, equipment, and materials) potentially polluting activities, and secure them using methods identified in the SPCC. Wash heavy equipment before delivery to the project site to remove oils, fluids, grease, weed seed, etc. Inspect and clean heavy equipment regularly. Repair any leaks immediately upon discovery. Always Have a spill containment kit on site during construction. Dispose all waste (solid waste, hazardous materials, etc.) off site, as regulated by the state. Remove all equipment, materials, supplies, and waste from project site when complete. Contaminant monitoring, including mercury and selenium bioaccumulation monitoring would occur on an annual basis.
Wetlands	Same as water resources
Fish and Aquatic Species	None identified
Wildlife	None identified.
Cultural Resources	Halt all project activities in the event of an Inadvertent Discovery of cultural resources during project implementation and notify the USFWS Archeologist. Implement an Inadvertent Discovery Plan (IDP) to ensure that any previously unidentified cultural resources are not inadvertently damaged during project implementation.

Resource Category	Mitigation Measures
Land Use and Recreation	Inform area residents via a public notification of the expected closure of the KNWR during construction. Post signs at all access points notifying users of the planned closure during construction.
Transportation	Notify residents of anticipated construction timelines and potential for increased traffic along Birch Creek Road and Taylor Lane. Post signage and assign personnel to direct traffic during construction to facilitate the flow of traffic and access by emergency vehicles. Require workers to wear all necessary personal protective equipment when working with potentially hazardous materials.
Climate Change	Limit idling for construction vehicles and machinery.
Noise	None identified
Public Health and Safety	Conduct construction safety meetings to start each workday to review potential safety issues and concerns.

CHAPTER 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter evaluates the potential effects of the Proposed Action, as well as the No Action alternative, on human and natural resources. For each resource, the existing environment that could be affected by the alternatives and the potential environmental consequences of the alternatives are described. Discussion of the cumulative effects (incremental effects of the Proposed Action when added to other past, present, and reasonably foreseeable future actions) is at the end of this chapter.

The impact levels are characterized as high, moderate, low, or no impact.

Table 3-1 identifies resources initially considered for impact analysis. Not all the resources present in the project area would experience impacts that require further analysis in this EA because alternatives would result in either no impact or a negligible impact on the resource.

Table 3-1: Resources Initially Considered for Impact Analysis.

Resource	Resource Status	Resource Evaluation
Geology and Soils	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Vegetation	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Water Resources, Wetlands and Floodplains	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Fish and Aquatic Species	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Wildlife	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Cultural Resources	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Land Use and Recreation	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Transportation	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Greenhouse Gases	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Noise	Present, Affected	Impacts are further disclosed under Environmental Consequences.
Public Health and Safety	Present, Affected	Impacts are further disclosed under Environmental Consequences.

Resource	Resource Status	Resource Evaluation
Visual Quality	Present, Negligible Impact	The primary views throughout the KNWR are from the ATR and Riverside Road. Views would be enhanced by the roads being raised and the additional viewing areas. Visual quality impacts in construction areas would be temporary with all equipment and materials removed after construction, resulting in a short-term low visual impact, and a long-term low beneficial impact.
Air Quality	Present, Negligible Impact	Temporary, localized air quality impacts from ground-disturbing activities and use of construction equipment could occur that would not violate air quality standards Thus, the project would result in low impacts.
Socioeconomics	Present, Negligible Impact	Construction labor would likely be supplied from the surrounding region. Project construction would provide employment and would have a positive but very small impact relative to the macro regional economy
Environmental Justice	Present, Negligible Impact	Because the Project Area is comprised entirely of the KNWR, there are no minority or low-income populations in the area to be affected. Residents of Westside Road would be temporarily affected by construction detour but affects would not cause disproportionately high and adverse impacts and would be a benefit to residents in the long term.

3.1 Geology and Soils

3.1.1 Affected Environment

The proposed project area is within the Boundary County soil survey area, which is within the Northern Rocky Mountains geographic province. Between 100,000 and 11,000 years ago, the Cordilleran ice sheet (a large mass of ice, also known as a continental glacier) covered most of the valley areas in the region, leaving only the higher mountain peaks exposed. These glacial episodes created much of the surface materials and topography that exists today. Alpine glaciers eroded the craggy, jagged peaks and filled in mountain valleys with moraine (soil and rock deposited by glaciers) and outwash (sand and gravel left by melting water) deposits. The ice sheet extended as far south as Coeur d'Alene Lake, 75 miles to the south. The glaciers left thick deposits of glacial till (unsorted glacial sediment) and silt, transported large boulders to the area, and scoured some areas, leaving bedrock exposed at the surface (USDA NRCS, 2013).

Soils in the Kootenai River floodplain are comprised of silty, alluvial (material deposited by flowing water) deposits left behind from floodwaters that spread over the floodplain and deposited silt, clay, and very fine sands (USDA NRCS, 2013). More ashy, silty loam soils occur on the gently sloping areas bordering the shoreline, floodplain, and the steep escarpments.

The KNWR includes areas of soils that meet the requirements for prime farmland and that economically produce high yields of crops when drained. Because these project-area soils are not currently drained there is no prime farmland in the project area.

3.1.2 Environmental Consequences – Proposed Action

Heavy machinery would excavate, compact and expose soils, which may erode, in the immediate vicinity of the breaches, ATR, and Riverside Road. Construction equipment would use existing roads to access the various construction sites. Post-construction, equipment would loosen soils at the surface and prepare the area for revegetation. The realignment of the ATR would result in abandoning a 2,000-foot-long segment of the existing road, which would then be converted to an elevated ABA-compliant walking trail. The material that is removed would be used in the overall raising of the ATR.

During construction activities, BMPs such as straw bales, coir wattles or silt fences (see Table 2-5) would be utilized to minimize impacts to soils and subsurface geology, to maintain long-term productivity of soils in riparian ecosystems, and to minimize soil erosion. Soil productivity and function would be impaired in the short term but would likely recover quickly once loosening of the soil and revegetation efforts are completed. The realignment and raising of Riverside Road and ATR would have minor impacts to soils since material would be placed in those areas where excavation would not be necessary. The source of the material used for the road would come from widening of Riverside Road between Bonners Ferry and Deep Creek and from the lowering of portions of the ATR.

In the restored floodplain areas, seasonal flooding would contribute to fine sediment deposits, which promote the growth of riparian vegetation. The deposited sediment also amends the soil's physical function by increasing water-holding capacity and providing a substrate for seedlings to establish. Reestablishing these processes in riparian areas and floodplains allows soil hydrologic, biologic, and nutrient-cycling functions to be restored and maintained (Stromberg et al., 2007; Tabacchi et al., 1998).

Because the exposed soils resulting from grading and excavation activities would be replanted and the habitat conditions improved, the proposed project would have temporary **low** impacts on soils and geology. Long-term impacts would ultimately improve soil quality and productivity, which would result in a **moderate beneficial impact.**

3.1.3 Environmental Consequences – No Action

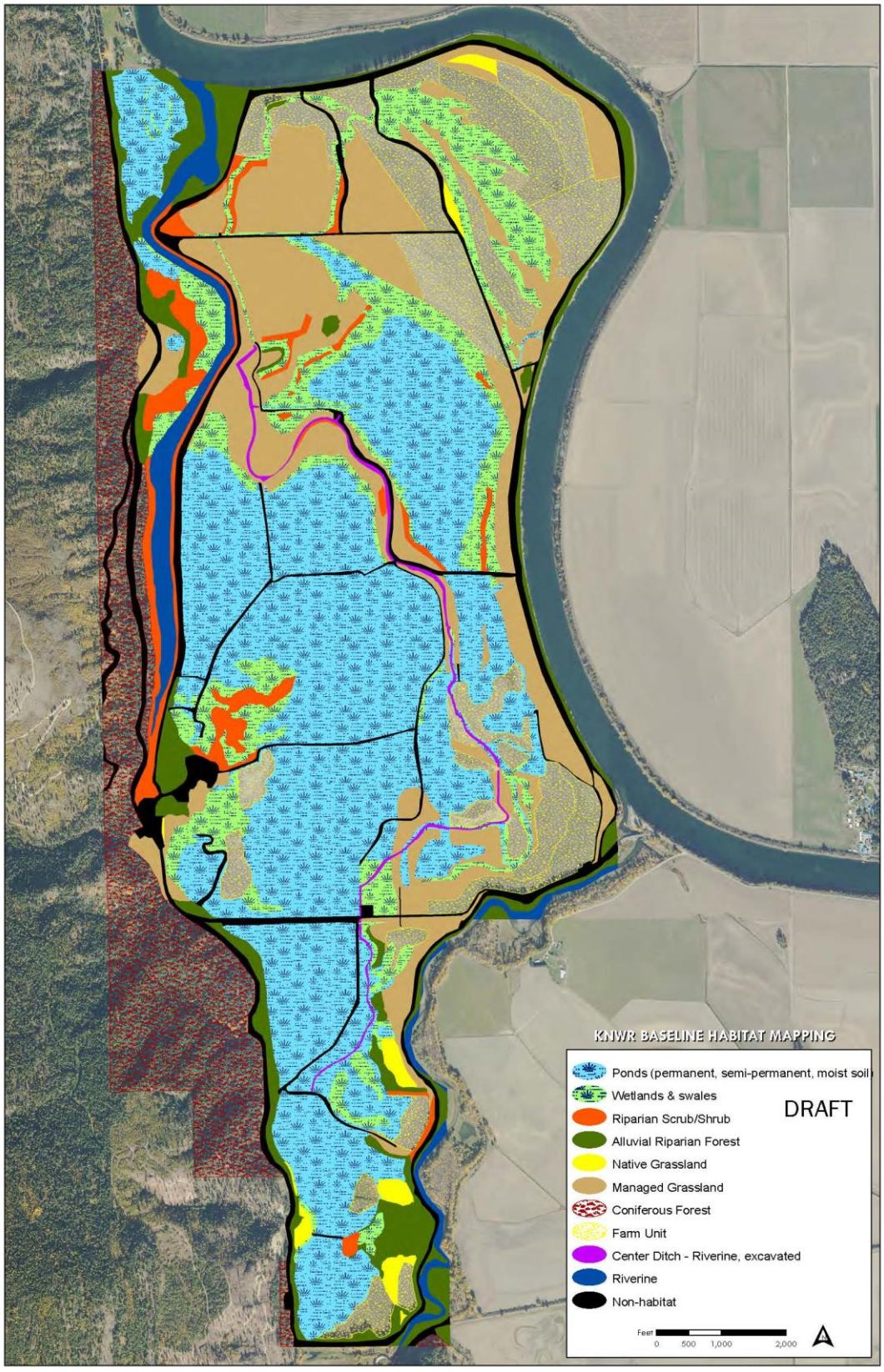
Under the No Action Alternative, no construction impacts would occur, the KNWR would continue to be managed as described in the KNWR CCP, and land management programs would remain essentially unchanged resulting in **no impact** to soils and geology. The potential beneficial impacts from the Proposed Action would not occur.

3.2 Vegetation

3.2.1 Affected Environment

The CCP describes the following management habitats within the KNWR (USFWS, 2011) (Figure 3-1):

Figure 3-1: Existing vegetation habitats in the Kootenai National Wildlife Refuge.



- **Managed and Native Grassland** – located throughout the KNWR outside of ponds in areas that are generally above high water extents:
    - Areas that include native grasses, sedges, and forbs that provide food and cover for a wide array of birds, mammals, amphibians, reptiles and invertebrates. To reduce the cover of invasive weeds, integrated pest management practices may be used such as prescribed fire and mowing along with mechanical, cultural, biological, and chemical control of invasive plants species; followed by agricultural practices such as seeding, disking, fertilizing and soil amendments to rehabilitate grasslands. Managed grasslands may include fallow crop fields, and these habitats have some non-native species that still provide a diversity of wildlife habitats.
- **Cropland** – located throughout the KNWR in areas that are generally not flooded, but some areas where seasonal flooding or saturated soils may be present:
    - Since 2012, 125 to 200 acres have been plowed and seeded into small grain crops (winter wheat, barley, and millet) to provide annual standing forage for fall and early winter migratory waterfowl (CCP 2.4.2 Goal 2, USFWS, 2011). The acreage has been divided roughly half and half between the managed hunt units and sanctuary units. Barley and millet fields are planted in the spring and winter wheat fields are planted in the late summer. Per the CCP, moist soil management has the potential to provide important food sources for migratory waterfowl and as the KNWR refines their management in these locations, the number of farmed acres can be restored to native habitats, such as seasonal wetlands, wet meadows, and upland grassland. Although agricultural grains contain large amounts of carbohydrates, they lack necessary amino acids and minerals, which must be acquired by eating natural seeds and invertebrates. Thus, supporting the nutritional needs of wintering waterfowl requires abundant wetlands that contain a variety of food types (Lancaster and Askren, 2023).
- **Permanent Aquatic Bed** – located in the deepest portion of ponds throughout the KNWR:
    - Areas with nearly perennial, open shallow surface water typically between 24 to 26 inches deep. Less than 25 percent cover native emergent wetland vegetation may be present in these habitats that are periodically managed to maintain open water habitats.
- **Semi-permanent Wetland** – located at the edges of permanent aquatic bed habitats around the ponds in the KNWR:
    - Areas with a matrix of native emergent wetland vegetation cover (30 to 70 percent cover) and open water (30 to 50 percent cover). Water depths generally range from 1 to 20 inches deep for at least 4 months of the growing season each year. Desired native vegetation includes cattails, bulrush, burreed, sedges and spikerushes.
- **Moist Soil** – located at the edges of permanent aquatic bed and intermixed with semi-permanent wetlands:
    - Areas that contain moist-soil annual plants such as smartweeds, wild millet, water plantain between May 15 to June 15 for spring migrants and between August 15 to November 15 for fall migrants. These areas have minimal cover of cattails and bulrush and may include disking and tilling to manage the cover of these species. Water management occurs in these areas to meet criteria for inundation depth and timing including flooding in September and maintaining up to 3 feet of surface water from January to May with drawdown beginning June 15.
- **Seasonal Emergent Wetland** – located around the edges of wetland ponds:
    - Areas with vegetation similar to moist soil habitats, but with water management that creates saturated soils and occasional surface water inundation up to 12 inches deep.

These habitats occur around the outside edges of the ponds at the periphery of semipermanent wetlands and permanent aquatic bed habitats.

- **Riparian Scrub/Shrub** – located in scattered locations throughout the KNWR around ponds and along portions of the Myrtle Creek:
    - Areas dominated by shrub and young tree species including willows, aspen, alder, red osier dogwood, chokecherry, serviceberry, elderberry and others. Within the KNWR, hedge of Siberian snow pea, an introduced species, occur at old homesites.
- **Alluvial Riparian Forest** – located along Myrtle Creek, Deep Creek, portions of the Kootenai River streambanks and small areas within the KNWR near these streams:
    - Areas dominated by riparian deciduous forest, including cottonwoods and aspen, with a shrub understory including willows, red osier dogwood, chokecherry, alder, serviceberry, and others.
- **Coniferous Forest** – located primarily along the west side of the KNWR on mountainous hillsides:
    - Areas dominated by late seral conifer trees including ponderosa pine and Douglas fir. Generally, these areas include a mix of moist mixed conifer and dry conifer habitats depending on the location.

There are no ESA-listed or sensitive plant species that are known to exist on the KNWR (K. Moroney, pers.com., July 29, 2024).

There are a number of noxious an invasive species of plants on the KNWR:

- spotted knapweed; statewide containment list, Boundary County noxious weed
- Canada thistle; statewide containment list, Boundary County noxious weed
- Houndstongue; statewide containment list, Boundary County noxious weed
- oxeye daisy; statewide containment list
- common toadflax; statewide containment list, Boundary County noxious weed
- common tansy; Boundary County noxious weed
- poison hemlock

The KNWR has an integrated pest management plan that has been in place since 2012 to manage the spread of noxious weeds (USFWS, 2011).

3.2.2 Environmental Consequences – Proposed Action

Under the Proposed Action, the raising and realigning of ATR and Riverside Road would reduce the vegetated areas located immediately adjacent to those roadways because of the expanded footprint of the roadbed. From this action approximately 20 acres of vegetation would be permanently lost. In the vicinity of levee breaches, habitats would also be impacted by construction actions to create these openings between the riverine waterbodies and the floodplain including the removal of 5 to 10 mature cottonwoods within the extent of 3 of the 4 levee breaches (100-foot sections) on Myrtle and Deep creeks. Within the KNWR, floodplain grading would modify ground surface elevations in coordination with the levee breaches to support flow of seasonal flood waters through the KNWR and create a diversity of surfaces to support a variety of floodplain and wetland vegetation communities. These construction activities would result in areas of vegetation being disturbed by excavation and grading but this disturbance would be temporary since all areas would be replanted following construction. Overall, the Proposed Action would increase the area and extent of seasonal flooding in the KNWR to support an increase in wetland/riparian

acres Table 3-2 summarizes expected changes in habitat acres within the KNWR. Figure 3-2 illustrates habitats expected as a result of the Proposed Action.

Table 3-2: Summary of habitats within the KNWR, including existing (baseline) acres and expected acres associated with the Proposed Action.

Habitat Name	Baseline Acres	Proposed Action Acres
Native Grassland	21	111
Agricultural Units	319	319 total (of this, 100-119 managed grasslands, annually)
Managed Grassland	415	
Managed Ponds	893	893
Managed Wetlands & Swales	267	315
Riparian Scrub Shrub	84	304
Alluvial Riparian Forest	164	171
Coniferous Forest	327	377
Riverine	71	71
Myrtle Channel - Riverine, excavated	16	16
Non-habitat (roads, buildings, levees)	185	185
Total	**2,762**	**2,762**

Source: KTOI, 2024

There would be short-term impacts to plants and plant communities from construction activities, including damage to existing vegetation. Construction activities could also create bare soils that are more susceptible to establishment of noxious and invasive species. To reduce this potential impact, the project area would be visually inspected for noxious and invasive species prior to commencing construction. Any identified weeds would be treated prior to the construction. Any ground disturbed by the project activities would be seeded with an appropriate native erosion-control seed mix to reduce the risk of erosion and invasion by noxious and invasive weeds. Equipment and materials brought to the project site would be cleaned and inspected for noxious and invasive species and their seeds prior to work initiating. Certified weed-free mulch may be applied as a short-term protection for disturbed soils.

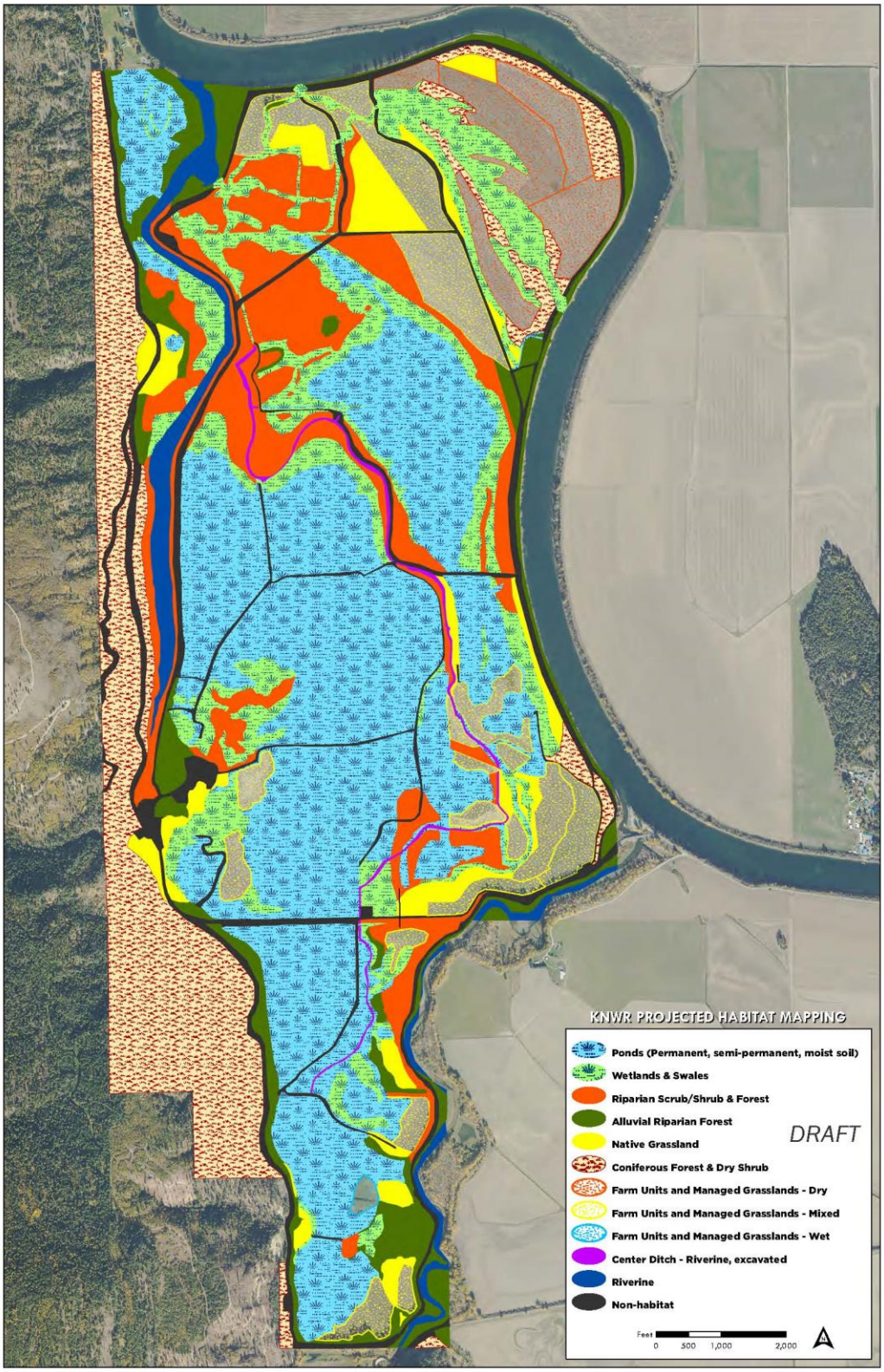
In summary, there would be **low** short-term adverse impacts to vegetation from construction and the resulting changes to plant communities. Long-term **high** beneficial impacts would result from restored floodplain function and revegetation of native plant communities. Overall, the short- and long-term impacts would be **moderate to high** and beneficial.

3.2.3 Environmental Consequences – No Action

Under the No Action Alternative, no construction impacts would occur, the KNWR would continue to be managed as described in the KNWR CCP, and land management programs would remain essentially unchanged resulting in **no impact** to vegetation.

Beneficial effects to vegetation that would result from the Proposed Action would not occur.

Figure 3-2: Projected habitats in the Kootenai National Wildlife as a result of the Proposed Action.



3.3 Water Resources

3.3.1 Affected Environment

3.3.1.1 Hydrology

The Kootenai River (spelled "Kootenay" in Canada) originates in southeastern British Columbia (BC). From the headwaters, it flows south into Lake Koocanusa, which straddles the border between BC and Montana. Libby Dam, operated by the U.S. Army Corps of Engineers (Corps), holds the river back to form the Lake Koocanusa Reservoir. Downstream of the dam, near Libby, Montana, the river turns and flows westward toward Idaho. Near Bonners Ferry, Idaho, the river turns north, and flows again into BC where it enters Kootenay Lake. From the outlet on the west arm of the lake near Nelson, BC, the river flows westward, through several hydropower facilities, to its confluence with the upper Columbia River near Castlegar, BC.

The Kootenai River subbasin encompasses approximately 18,000 square miles (seven percent) of the Columbia River basin. It is the third largest sub-basin by area, and the second largest by volume of water (KTOI, 2009).

Historically, the amount of water in the Kootenai River has varied greatly throughout the year. As with many rivers in the Columbia River basin, the Kootenai is fed by melting snow, and the annual peak flows occurred in the spring. Once the snow had melted at higher elevations, hot dry summers would result in dramatic decreases in flows through late summer into the fall, when winter rains would resume. Following the construction of Libby Dam in 1972, peak springtime flows have been reduced by 50 percent, and winter flows have increased by 300 percent (USFWS, 2006).

Flows in the Kootenai River through Bonners Ferry are also affected by a backwater effect (reduced water surface slope which causes little or no current in the river) caused by Kootenay Lake. Kootenay Lake is 70 miles downstream of Bonners Ferry and is regulated by Corra Linn Dam. When high flows raise the level of Kootenay Lake during the spring runoff, a backwater effect occurs in the portion of the Kootenai River between Kootenay Lake and Bonners Ferry. In most years, the upstream extent of the backwater reaches river mile 153 near Bonners Ferry. This backwater effect changes the slope of the water surface, and consequently, the velocity of the water passing through the proposed project area. When the amount of water in the river is greatest, the velocity of the water slows through the proposed project area and the water surface elevation increases. When the flows are lower, and the lake level drops, the velocity of the water through the proposed project area increases, and water surface elevation decreases.

Deep Creek is a tributary to the Kootenai River originating in the Selkirk Mountains of north Idaho. Historically, Deep Creek headwater streams flowed through a wet meadow complex that has since been impounded to create the McArthur Lake Wildlife Management Area managed by Idaho Department of Fish and Game (IDFG). McArthur Lake accounts for approximately 18 percent of the contributing drainage area of the watershed. Deep Creek is a meandering cobble/gravel bed river that flows through a moderate gradient valley dominated by residential and agricultural land use and bounded on both sides by railroads. Closer to the Kootenai River and adjacent to the KNWR, Deep Creek's gradient decreases, sinuosity increases, entrenchment increases and the bed transitions to fine gravel and coarse sand.

Myrtle Creek originates in the Selkirk mountains west of the KNWR and flows down out of the mountains through a steep canyon until it reaches the Kootenai River floodplain. Historically, Myrtle Creek would have flowed through a series of floodplain wetlands before joining the Kootenai River but in the early 1900s it was straightened and bounded by levees that disconnected it from the floodplain wetlands and it now flows directly into the Kootenai River.

3.3.1.2 Water Quality

Under Section 303(d) of the Clean Water Act, Idaho Department of Environmental Quality (IDEQ) must regularly assess the quality of the state's waters and report conditions to the Environmental Protection Agency (EPA). From those assessments IDEQ identifies and maintains the Section 303(d) list of waterbodies considered impaired and thus not meeting state water- quality standards. A Section 303(d) listing requires development of a total maximum daily load (TMDL)—the numerical value that represents the highest amount of a pollutant that a waterbody can receive while still meeting state, tribal and national water quality standards.

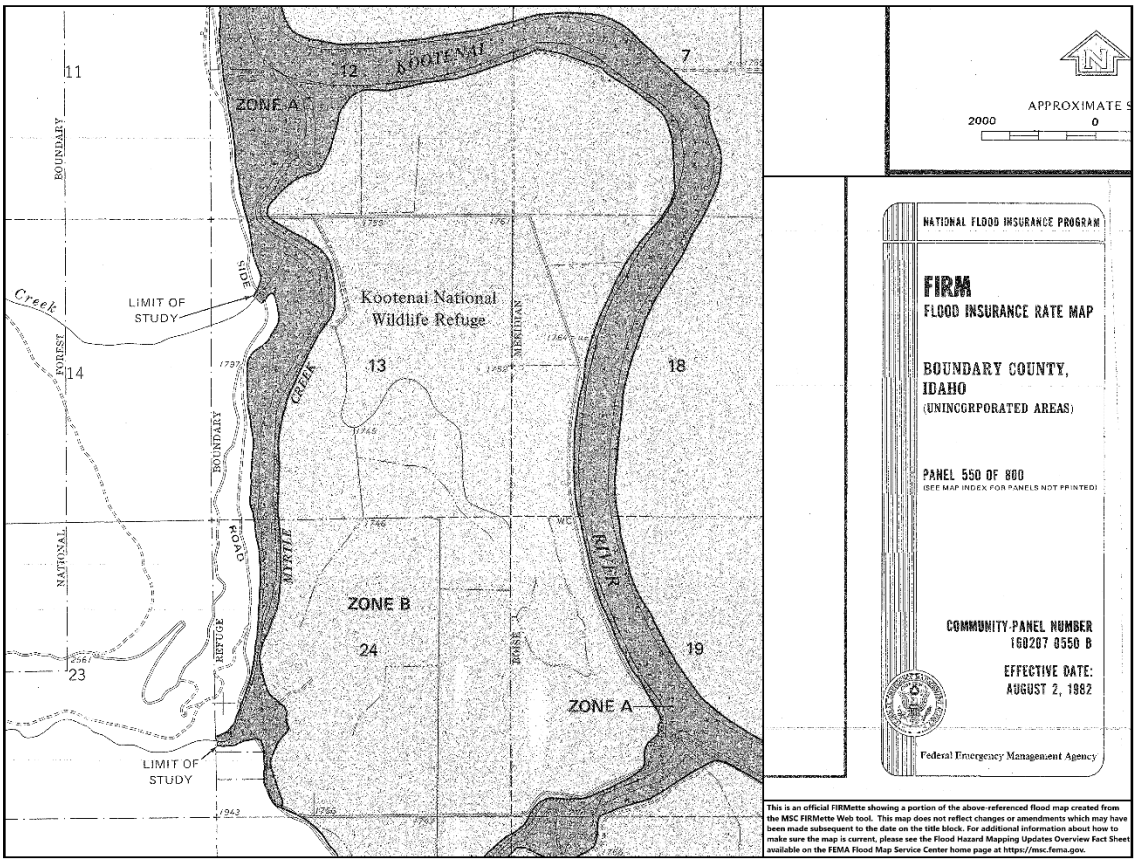
IDEQ has included the lower Kootenai River, Deep Creek, and Myrtle Creek on the 303(d) as impaired for temperature (IDEQ, 2014). Deep Creek is on the 303(d) list and has a TMDL for sediment. Upstream of the project area, between the Moyie River and Idaho/Montana boarder, the Kootenai River is listed as impaired for selenium.

3.3.1.3 Floodplains

A floodplain is an area near a river or a stream that floods when the water level reaches flood stage. The Federal Emergency Management Agency (FEMA) defines the 100-year floodplain as any area that has a 1 percent chance of flooding during a given year.

FEMA uses flood insurance rate maps (FIRM) to identify the areas with the potential to flood. Because the KNWR is completely protected by levees, a base flood elevation, rather than a floodplain area, is used to determine flood risk. Like the 100-year floodplain, the base flood elevation is the height that has a one percent chance or greater of occurring in a given year. The base flood elevation for the area adjacent to the KNWR is 1768 feet. Because Libby Dam primarily regulates flows in the Kootenai River, the Corps ensures that flows do not exceed the base flood elevation. The KNWR is mapped as Zone B per the effective regulatory FIRM for the project area (Panel 160207 0550 B, effective 8/2/1982). Zone B includes areas protected by levees from the base flood. An excerpt from the current regulatory FIRM panel is shown in Figure 3-3.

Figure 3-3: Flood Insurance Rate Map panel for the KNWR Floodplain Reconnection Project.



3.3.2 Environmental Consequences – Proposed Action

The Proposed Action intends to restore river and floodplain ecological processes by returning water to the floodplain through seasonal inundation. Seasonal inundation of the floodplain would increase access to off-channel habitats for focal fish species, increase primary productivity and nutrient exchange between the river and the floodplain, and create floodplain conditions that allow for more complex and diverse riparian vegetation to develop.

Levee breaching activities would be completed in dry conditions so the potential for short-term impacts to water quality during construction would likely be small. A surface water connection to the Kootenai River from the construction areas on the KNWR would not occur until several months following construction when river levels rise and inundation occurs. A small pulse of turbidity could occur at this time but would be negligible. Inadvertent spills of fuel or oils from construction equipment or substances stored on site could impact water quality if the spills remained in the area and entered any waterbodies. Contractors would be required to have a Spill Prevention Control and Countermeasures Plan in place when construction begins reducing potential for inadvertent spills, and the impact if they did occur would likely be low.

Within the project area the Kootenai River, Myrtle Creek and Deep Creek are on the 303(d) list for temperature and sediment. The temperature TMDL for these streams specifies maximum weekly

temperature and maximum daily temperatures between June 1 and September 30. Construction of the Proposed Action would result in the loss of small amounts of vegetation in the levee breaching areas that may result in the loss of small amounts of shade during summer months. The additional inundation provided by the levee breaches would result in large areas of standing water during the spring runoff.

Surface water from the seasonal inundations has the potential to filter down and enhance groundwater. Because of the KNWR's proximity to the Kootenai River, groundwater table is already very close to the surface during the months when seasonal inundations would occur. This means the Proposed Action would have little to no effect on groundwater.

Contaminant monitoring, including mercury and selenium bioaccumulation monitoring, was initiated by the Tribe in 2006 and has continued to track mercury and selenium levels in fish tissue through funding from EPA. This monitoring has indicated mercury bioaccumulation, likely sourced from atmospheric deposition, particularly in fish residing in Kootenay Lake (KTOI, 2024). The monitoring program will continue to sample fish tissues, periphyton, crawfish, and water from both upstream and downstream of KNWR to identify the trends, transport, uptake, and transfer of contaminants in the Kootenai River ecosystem. This data will be utilized to inform future adaptive management strategies. It is currently unknown how selenium bioaccumulates in the food web, thus strategies on adaptively managing selenium in wetland habitats have not been identified (KTOI, 2024). The high levels of selenium and mercury in the Kootenai River originate from mining operations in Canada (KTOI, 2024). No selenium or mercury is expected to be produced because of the Proposed Action. Therefore, relative to the amounts of selenium or mercury already identified in the Kootenai River any increase would be minimal and the potential impacts from the Proposed Action would be **low.**

Because of the potential for some increased turbidity once seasonal inundation begins the Proposed Action would have **low impact** to surface waters. Construction impacts to Wetlands is discussed on Section 3.4.2.

KNWR is a self-contained drainage district and all flooding from the breaches would be contained within the KNWR boundary and managed by water control structures. This means the Proposed Action would allow seasonal inundations to the KNWR during high water and that would result in **moderate beneficial impacts** while the existing levee system would continue to prevent flooding on adjacent properties and result in no impact to areas outside the KNWR.

3.3.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be disconnected from the Kootenai River precluding Refuge habitat management activities from having any effects to Kootenai River floodplains or affecting Kootenai River, Deep Creek, or Myrtle Creek water quality.

3.4 Wetlands

3.4.1 Affected Environment

Existing wetland delineations completed within the KNWR include the following:

- The Riverside Road right-of-way through the KNWR in 2018 (U.S. Department of Transportation, 2018)
- The North Bend Unit of the KNWR in 2019, including the mouth of Myrtle Creek (KTOI, 2020)
- Additional areas along the Mrytle Creek channel in 2023 (KTOI, 2023)

- Ponds and other wetlands north of the Riverside Road and east of the ATR in 2023 (USFWS, 2023)

Areas not previously delineated include Dave's Pond and the surrounding area as well as areas south of Riverside Road in the KNWR. Additional wetland delineation work is planned for summer 2024 to update findings for areas delineated more than 5 years in the past and to delineate wetlands in portions of the KNWR not previously investigated. National Wetlands Inventory (NWI) mapping was used to estimate the area of existing wetlands where delineations have not occurred.

Wetlands documented in the KNWR include the following (Table 3-3):

- Palustrine aquatic bed and unconsolidated bottom wetlands:
    - Mapped at managed ponds, swales, and some water conveyance channels. Surface water depths may be up to several feet deep during the early spring or summer, and in the fall if water is pumped to the wetlands to provide fall habitat for waterfowl. Dominant plant species include cattail and bulrush. The NWI maps some of the ponds in the KNWR as lacustrine habitats; however, the ponds are not deep enough or large enough to meet the criteria to have lacustrine features.
- Palustrine emergent wetlands:
    - Mapped at the edges of ponds and in low elevation swales throughout the KNWR including some farmed areas in low elevation swales. Groundwater is generally within 12 inches of the ground surface for much of the growing season and the wetlands may be shallowly inundated for part of the growing season. Reed canarygrass is a dominant species in many of the emergent wetlands; other observed species in emergent wetlands include water sedge, Kentucky bluegrass, field horsetail, panicled bulrush, and spiked bentgrass. Farmed emergent wetlands are dominated by wheat and barley.
- Palustrine forested wetlands:
    - Mapped along portions of the stream channels that flow through or next to the KNWR including Myrtle Creek, Deep Creek and the Kootenai River. Black cottonwood is the dominant tree species with red osier dogwood and reed canarygrass in the understory. These areas are seasonally flooded by the creeks or the Kootenai River.
- Palustrine scrub shrub wetlands:
    - Mapped along portions of Deep Creek and Myrtle Creek in areas that are seasonally flooded or saturated. Dominant species are typically red osier dogwood, alder and willows.
- Riverine wetlands:
    - Includes the channels of the Kootenai River, Deep Creek, Myrtle Creek and portions of Center Ditch below the ordinary high-water mark.

Table 3-3: Delineated wetlands and National Wetlands Inventory mapped wetlands in the KNWR project area.

Wetland Class	Area (acres)
Lacustrine	103
Palustrine Aquatic Bed	16
Palustrine Emergent	936
Palustrine Emergent, farmed	10
Palustrine Emergent, excavated	8
Palustrine Forested	4
Palustrine Scrub Shrub	2
Palustrine Unconsolidated Bottom	132
Palustrine Unconsolidated Bottom, excavated	5
Riverine	18
Riverine Unconsolidated Bottom	21
Riverine Unconsolidated Bottom, excavated	3
Total	**1,258**

Sources used to estimate existing wetland acres: USDOT, 2018; KTOI, 2022; KTOI, 2023; USFWS, 2023; NWI, 2024.

3.4.2 Environmental Consequences – Proposed Action

Raising, realigning and expanding of the ATR and Riverside Road would result in the permanent loss of approximately 1.3 acres of wetlands, mostly consisting of emergent wetlands adjacent to the roadways and palustrine unconsolidated bottom wetlands in the new alignment of the ATR.

The approximately 17 acres of excavation in wetlands is expected to enhance the existing wetlands with revegetation actions to establish wetland vegetation. The levee breaches along the Kootenai River and Myrtle Creek, the box culvert at the Deep Creek levee breach, and the floodplain grading would result in enhanced reconnection flow paths and create a variety of surface elevations to support a diverse mix of wetland vegetation communities. Temporary access roads are expected to impact between approximately 0.5 and 0.75 acre of wetlands. All construction staging areas would be located outside of wetlands.

Based on preliminary designs and existing wetland delineation data approximately 18 acres of existing wetlands would be impacted by construction related activities, which would include 1.3 acres of wetland loss due to fill placement and enhancement of 17 acres of existing wetlands (Table 3-4).

Table 3-4: Estimated wetland impacts based on the preliminary design for the Proposed Action.

Wetland Impact Type	Estimated Wetland Impacts (acres)
Fill Impacts to Wetlands – Riverside Road and ATR Modifications (fill)	1.3
Excavation Impacts to Wetlands – Levee Breaches and Floodplain Grading (Enhancement)	17
Total	**18.3**

The Proposed Action would create additional wetland acres in the KNWR by allowing seasonal flooding associated with reconnection events during the spring freshet. Floodplain grading would create approximately 30 acres of new, low elevation features that would be expected to develop into wetlands. In addition to creating wetland acres, improvements in wetland functions would be expected, particularly in areas outside of the existing ponds, such as increased primary production, nutrient exchange between the floodplain and the Kootenai River, increased cover of wetland and riparian plant species, and increased diversity of aquatic and wetland habitats. Ponds in the KNWR would be inundated during flood events with water overtopping the levees, which would contribute to nutrient exchange between the ponds, the floodplain and eventually the Kootenai River and its tributaries. Flooding associated with levee breaches would support the development of riparian, non-wetland habitats that would contribute to the increase function in the floodplain (Table 3-5).

The Proposed Action would result in the permanent loss of some wetlands and construction activities would also result in a temporary loss of some wetlands. BMPs such as straw bales, coir wattles or silt fences (see Table 2-5) would be utilized to minimize erosion from entering wetlands. Overall, the project would result in the enhancement of wetlands during seasonal inundations which have not occurred since the levees were constructed. As a result, the Proposed Action would have a **low t**emporary negative impact and **moderate** long term beneficial impact on wetlands.

Table 3-5: Summary of the expected change in wetlands in the KNWR based on the preliminary design for the Proposed Action.

Wetlands in the KNWR	Area (acres)
Existing Wetlands and Waters	1,258
Projected Wetlands and Waters	1,288
Estimated Change in Wetland and Waters	+30

3.4.3 Environmental Consequences – No Action

Under the No Action Alternative, no construction impacts would occur, the KNWR would continue to be managed as described in the KNWR CCP, and land management programs would remain essentially unchanged resulting in **no impact** to wetlands.

Riverside Road and the ATR would not be modified and the fill of 1.3 acres of wetlands would not occur and also, the beneficial effects to wetlands that would result from the Proposed Action would not occur.

3.5 Fish and Fish Habitat

3.5.1 Affected Environment

Numerous native fish species including bull trout, westslope cutthroat trout, Columbia River redband trout, kokanee, burbot, and Kootenai River white sturgeon exist in the Kootenai River and its tributaries in or near the proposed project area. No anadromous fish (fish that live part of their life in the ocean, then return to the river to spawn, e.g. salmon and steelhead) populations occupy the Kootenai River. Two fish species listed under the ESA may exist in the project area: the Kootenai River white sturgeon (endangered), and the Columbia River bull trout (threatened) (USFWS, 2013). IDFG species of greatest conservation need (SGCN) in the project area include Kootenai River white sturgeon (Tier 1) and burbot (Tier 1), and bull trout (Tier 3) (IDFG, 2024).

Juvenile Kootenai River white sturgeon live year-round in the Kootenai River adjacent to the KNWR. About one-third of Kootenai River white sturgeon in spawning condition are believed to migrate upstream to the Bonners Ferry area annually (May through July) (USFWS, 2013).

The Kootenai River is one of 22 designated bull trout recovery units in the Columbia River Basin, and has been designated as critical habitat, including Deep Creek and Myrtle Creek. Field studies show that adult bull trout exist in the Idaho portion of the mainstem Kootenai River in very low densities (USFWS, 2013). Bull trout have two life history strategies: migratory or resident. Migratory forms move between lakes or mainstem rivers to small tributaries to spawn. Resident forms remain in the small tributaries all year long. Migratory forms of bull trout in the Kootenai River use the mainstem Kootenai River as a migratory corridor to move downstream to Kootenay Lake or to move upstream to spawning tributaries located in Montana. Overwintering may also occur in the mainstem Kootenai River. After spawning in small tributaries in September and October, they move downstream into deep pools in the mainstem Kootenai River or Kootenay Lake in late October and November.

3.5.2 Environmental Consequences – Proposed Action

The levee breaching activities that would occur as part of the Proposed Action have the potential to impact native fishes found in Myrtle Creek, Deep Creek, and the Kootenai River. Construction activities would occur in late summer when river levels are at their lowest and breaching would not require in-water work that would disturb fish or fish habitat. Due to the lack of a surface water connection to the KNWR, there are currently no native fish species naturally occurring within any interior wetland units of the KNWR. Therefore, construction activities occurring within the existing levee system would have **no impact** to fish and aquatic species in the Kootenai River, Deep Creek or Myrtle Creek.

All other areas are separated from surface waters by a levee so would have no impact on fish and aquatic species.

The levee breaching that would occur as part of the Proposed Action is intended to restore river and floodplain ecological processes by returning water to the floodplain through seasonal inundation. Seasonal inundation of the floodplain would be beneficial for fish because of increased access to off-channel habitats, increased primary productivity and nutrient exchange between the river and the floodplain, and the creation of floodplain conditions that allow for more complex and diverse riparian vegetation to develop. Therefore, the Proposed Action would result in **moderate long- term beneficial impacts** from seasonal inundation of the KNWR, nutrient exchange between the floodplain and the Kootenai River, and new access to floodplain habitat that was previously unavailable.

3.5.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be managed as described in the KNWR CCP and fishery enhancement activities identified in the CCP would continue unchanged resulting in **no impact** to fish and fish habitat.

Beneficial effects from seasonal inundations for fish and fish habitat would not occur.

3.6 Wildlife

3.6.1 Affected Environment

Within the lower Kootenai River basin, a diverse assemblage of wildlife species is found utilizing the habitats adjacent to the river. This includes large game mammals, such as elk, moose, whitetail and mule deer, black bear, and mountain lion; furbearer species, such as mink, river otter, beaver, and muskrat; and migratory waterfowl, such as mallard, Northern shoveler, green-wing teal, and wood duck. Additionally, numerous nongame species utilize the basin and include a variety of neotropical songbirds, amphibians, reptiles, pollinators and other benefical invertebrates (USFWS, 2011).

The USFWS has identified four ESA-listed wildlife species -woodland caribou, grizzly bear, Canada lynx and North American wolverine- that could occur in Boundary County (USFWS, 2024b). However, these species are unlikely to occur in the project vicinity as these species have a higher probability to occur in the remote and higher elevation areas of the County, none of these species are river dependent, and do not frequently visit developed areas with moderate to high levels of human activity. Therefore, these species are not analyzed further in this EA.

Other species that warrant special consideration such as bald and golden eagles, candidate species, and 23 IDFG SGCN have a moderate potential to be found using the project area (IDFG, 2024). Bald eagles have historically nested within the project area and regularly use the wetland and riparian habitats on the KNWR. Currently, there are no bald eagle nests within the project boundaries, although there is an active territory directly adjacent to the northwest corner of the project. Golden eagles' nest in the Myrtle Creek drainage in the cliffs adjacent to the headwaters of the creek. Golden eagles periodically utilize the project area for forage. The monarch butterfly is a candidate species and is not listed or proposed for listing. However, agencies are implementing conservation actions to protect the species. Occurrence records of adult or larval monarch are sparse for northern Idaho, including KNWR. Additionally, the occurrence of any milkweed species (*Asclepias spp.*) is not well documented. There is a patch of planted common milkweed (*Asclepias spp.*) in the north bend unit on the KNWR and two recorded instances of monarch adults and larvae were detected in 2016.

Thousands of waterfowl, representing more than 29 species use KNWR as a stopover site during spring and fall migration, including focal species such as northern pintail (SGCN), mallard, redhead, and trumpeter swan (SGCN) that utilize the moist-soil, semipermanent and permanent wetlands for roosting and foraging. In addition, there are 15 species of waterfowl that utilize KNWR wetlands for nesting and brood rearing, including western Canada goose, mallard, northern shoveler, and cinnamon teal (SGCN). KNWR wetlands also provide nesting and foraging habitat for marsh birds, songbirds, and waterbirds, such as American bittern (SGCN), black tern (SGCN), sandhill crane (SGCN), marsh wren and sora rails. Furthermore, KNWR wetlands provide foraging, breeding, and lounging habitat for moose (SGCN), common garter snake (SGCN), western painted turtle, North American river otter, and Columbia spotted frogs.

The managed and native grasslands are found predominately north of the ATR and provide breeding habitat for grassland-dependent nesting birds, including western meadowlark, savannah sparrow, and grasshopper sparrow (SGCN). Surveys conducted in 2022 and 2023 in the managed grassland units, detected 25 and 20 species, respectively (FWS, unpublished data, 2024). Grasshopper sparrow was only detected once in 2022, with European starlings, western meadowlarks, and savannah sparrows comprising most of the detections. The managed grasslands also provide browse for white-tailed deer and elk.

Riparian forest and shrub-scrub habitat on KNWR is limited but provides foraging, nesting, and roosting habitat for a high diversity of migratory birds, which includes American redstart, red-eyed vireo, Bullock's oriole, common nighthawk (SGCN) and Lewis's woodpecker (SGCN). Surveys conducted since 2006, have detected 110 different bird species within this habitat, with some of the most abundantly detected species being yellow warbler and western wood-pewee. In addition, riparian forests are important foraging and roosting habitats for little brown myotis (SGCN) and Yuma myotis (SGCN) bats. Common garter snakes (SGCN), long-toed salamander, and Sierran treefrog also predominately use the riparian forest.

3.6.2 Environmental Consequences – Proposed Action

Much of the impacts to wildlife species from the Proposed Action would be during construction from noise and the presence of heavy machinery. These types of disturbances would be of short duration and limited scale. Animals that were displaced during this time would likely return or be replaced by other individuals. Much of the habitats located in the interior of the refuge would not be disturbed during construction and would likely serve as sanctuary from construction activities. Because construction of the restoration actions would occur in the dry season, July to October, construction impacts to nesting breeding birds and spring/fall migrating birds would be avoided. However, construction may begin earlier on Riverside Road. Bald eagles often maintain several nesting locations within their territories. In 2024, the pair was using a nest outside of the project area but on the west side of Myrtle Creek. In 2023, the pair was using a nest across the Kootenai River, ¼ mile downstream of the current nest. The Tribe conducts annual nesting surveys of bald eagles in the Kootenai River valley and will have the data available for the nest location during construction. The construction timeframe should not impact nesting eagles as most of the young have fledged by late June.

Levee breaching, grading, and realignment of the ATR would result in the removal of vegetation that would cause disturbance to wildlife species. This includes the removal of some (5-10) mature cottonwoods within the extent of 3 of the 4 levee breaches (100-foot sections) on Myrtle and Deep creeks. A floodplain revegetation plan will provide riparian planting specifications to supplement the natural recruitment of floodplain vegetation. Reduced quality habitat for wildlife would occur after construction until the floodplain vegetation matures. However, as much of the area affected by construction is low-quality pasture grass, the habitat would be enhanced above existing conditions, and the impact would be considered temporary and **low**.

Under the Proposed Action, approximately 300 acres of managed grassland would be restored to riparian shrub-scrub. The loss of the managed grassland may permanently displace some grassland-dependent birds. However, point-count surveys have demonstrated that very few grassland birds are utilizing the areas identified for the Proposed Action (~2-5 pairs of savannah sparrows, ~2-6 pairs of western meadowlarks). However, both species will also readily utilize shrubby areas and cultivated fields (Davis & Lanyon, 2020; Wheelwright & Rising, 2020) for forage, roosting, and nesting. Grasshopper sparrows have been found to prefer some shrub cover in their breeding habitat (Vickery, 2020), thus the Proposed Action may have a **beneficial impact** on the potential for the sparrows to nest.

The Proposed Action would increase the amount of seasonally inundated wetland acreage which would provide substantial benefits to migrating, roosting, and breeding wetland-dependent bird species, including waterfowl, shorebirds, and other waterbirds. The cycle of inundation and scour provides the bare ground necessary for nutrient rich annual plants to establish which then sustains waterfowl and aquatic invertebrates. This is particularly true in the breeding season when waterfowl shift to a diet dominated by aquatic invertebrates to meet the specific nutrient demands for egg production. In comparison, agricultural grains generally contain large amounts of carbohydrates, and lack the necessary

amino acids and minerals that waterfowl require in all seasons (Lancaster and Askren, 2023; Fredrickson and Taylor, 1982). Thus, a diversity of habitat types is required to provide a diversity of food sources for waterfowl populations. The Proposed Action would primarily inundate the floodplain for a period of 30 – 45 days, typically starting mid-May to late-June. As many of the breeding bird species that nest on the ground within the wetlands are also migratory, there would be **minimal to no impact** to breeding birds due to flooded nests (i.e., cinnamon teal, northern shoveler, and Wilson's snipe). However, western Canada geese and mallards, are either resident or arrive soon after snow melt to initiate nesting, and thus may be impacted by nest flooding due to the Proposed Action. Mallards will readily renest if a nest is destroyed during the egg stage, but geese are less likely to renest (Drilling et al., 2020; Mowbray et al., 2020). Geese tend to be generalists with nest site selection and are just as likely to build a nest on the ground or elevated in vegetation or an artificial platform (Mowbray et al., 2020). By mid-May, most geese have fledged their young and the risk of an active nest being flooded is minimal. Increased spring and summer flooding should increase the amount of brood water habitat available on the refuge.

The Proposed Action would also increase the height of Riverside Road and the ATR. While the ATR, in places, would be up to 12 feet higher than the adjacent habitat; the design of the one-way route would promote safe wildlife crossing. Specifically, the reroute of the ATR would connect two disjunct wetland areas and the 4:1 vegetated slope would provide a graduated, protected cover for smaller mammals, reptiles, and amphibians to cross. The lower speed limit, daytime-only operation, and purpose of the road for wildlife viewing reduces instances of vehicular impacts with larger mammals. Riverside Road would be raised, in places, up to 8 feet higher than the adjacent habitat. In the road's current condition, larger mammals are seldomly impacted or encountered, but small mammals, turtles, amphibians, and young birds are commonly struck and killed by speeding traffic. While raising the road would reduce the amount of these smaller-bodied and less mobile wildlife from crossing the road, it would also serve as a wall separating the wildlife population between the north and south wetland units. Thus, as part of the road design, small wildlife passage culvert would be installed under Riverside Road that would provide passage for reptiles, amphibians, and young birds in the area where most of the crossings are currently observed. The design for the small wildlife passage culvert would match specifications to the extent possible listed in "Guidelines for Culvert Construction to Accommodate Fish and Wildlife Movement and Passage" (Arizona Game and Fish Department, 2006). The design of Riverside Road would also include traffic calming features, which have been shown to reduce motorist speed (Retting et. al., 2003), and the road would be straightened slightly to improve visibility at the Deep Creek levee.

The levee breaching that would occur as part of the Proposed Action is intended to restore river and floodplain ecological processes by returning water to the floodplain through seasonal inundation. Seasonal inundation of the floodplain would be beneficial for wildlife, particularly waterfowl, because of the creation of floodplain conditions that allow for more complex and diverse riparian vegetation to develop. Therefore, the Proposed Action would have short- term adverse impacts due to construction disturbance and **moderate** long- term beneficial impacts with improved habitat conditions.

3.6.3 Environmental Consequences – No Action

Under the No Action Alternative, no construction impacts would occur, the KNWR would continue to be managed as described in the KNWR CCP, and land management programs would remain essentially unchanged resulting in **no impact** to wildlife.

3.7 Cultural Resources

3.7.1 Affected Environment

Cultural resources are physical objects and places that show evidence of human occupation or activity related to history, architecture, archaeology, engineering, and culture. Historic properties, as defined by 36 Code of Federal Regulations (CFR) 800 (the implementing regulations for Section 106 of the National Historic Preservation Act [NHPA]) are a subset of cultural resources. This subset consists of any district, site, building, structure, artifact, ruin, object, work of art, or natural feature important in human history that meets defined eligibility criteria for the National Register of Historic Places (NRHP) (NHPA; 16 USC 470 *et seq.)*

The NHPA requires that federal agencies identify and evaluate cultural resources for eligibility for listing and consider the effects of their actions on these resources. Federal agencies evaluate cultural resources for eligibility in the NRHP using specific criteria, including an examination of the cultural resource's age (at least 50 years old), integrity (of location, design, setting, materials, workmanship, feeling and association), and significance. A cultural resource must meet at least one criterion to be eligible for listing in the NRHP. These criteria include association with important events; association with important people; the embodiment of distinctive construction methods or artistic value; and properties that have yielded or are likely to yield information important in the pre-contact, ethnohistoric, or historic periods. Historic properties may include pre-contact cultural resources that predate European contact and settlement, as well as those dating to the ethnohistoric and historic periods.

3.7.1.1 Ethnographic Overview

The proposed project area is within the traditional territory of the Ktunaxa (Kootenai) Nation, and specifically, the Lower Kootenai people. The Kootenai Tribe of Idaho is part of the Ktunaxa Nation. The Lower Kootenai people traditionally occupied the Kootenai River, nearby valleys, and the surrounding areas, from what are now Libby and Jennings, Montana, to Kootenay Lake in British Columbia.

A few Lower Kootenai would accompany the Upper Kootenai on snowshoes (before they had horses), to areas east of the Rocky Mountains, on their yearly bison-hunting expeditions (Brunton, 1998). One of the stops along the river where groups would find resources was at the mouth of the Moyie River, now the site of the Tribe's Twin Rivers Canyon Resort and Twin Rivers Sturgeon and Burbot Hatchery (on a portion of the Kootenai Tribe Reservation). Some of the Kootenai, especially the Lower Kootenai, would join large tribal gatherings at Kettle Falls, for the July and August runs of Chinook, coho, and sockeye salmon (Kennedy and Bouchard, 1998). In the summer and fall, they collected berries, fall roots, seeds, and various plants, and hunted for deer, elk, caribou, and moose. They also hunted or trapped beaver, muskrat, mountain goats, bear, lynx, wolf, and other animals for their hides and, occasionally, for food. Bird hunting was essential to the Lower Kootenai, and sought-after species included cranes, ducks, gulls, fool hens, and geese. In the fall, Kootenai people would prepare the village for winter.

3.7.1.2 Historical Overview

David Thompson, a British-Canadian surveyor and fur trader, was the first non-Indian to explore the area. In 1807, Thompson travelled up the Kootenai River from Kootenay Lake in southeastern BC. He stored canoes near Bonners Ferry and traveled on horseback up the Moyie River valley, to the area that is now Cranbrook and Ft. Steele, BC. (Tyrell, 1916).

Following the early exploration of the region by fur traders, the discovery of gold caused the first sustained rush of Euro-American settlers to northern Idaho. This inspired the construction of a transportation system sufficient to carry people and goods. After the initial rush of prospectors brought development of more stable communities, interest turned to rock mines. This, in turn, required a regional transportation system to bring the massive equipment that the mills and smelters required (Ostrogorsky et al., 1991).

In 1882, workers completed the transcontinental Northern Pacific Railroad. It spanned northern Idaho, north of the Clark Fork River, around the north side of Lake Pend Oreille, along the north side of the Pend Oreille River. There, it crossed just above Albeni Falls, and then went southwest from Newport to Spokane, Washington.

In 1893, James J. Hill completed his Great Northern Railroad, which ran from Duluth, Minnesota, to Seattle, Washington, by way of the Kootenai River and Bonners Ferry. The railway route in north Idaho crossed the Kootenai River at Bonners Ferry, ran south to cross Lake Pend Oreille at Sandpoint, and continued across the Rathdrum Prairie to Spokane. The Spokane International line followed in 1905, crossing the Kootenai River at Bonners Ferry, and connecting Spokane with the Canadian Pacific Railway (Bonner County History Book Committee, 1991).

Railroads opened the area to large-scale logging, mining, and agricultural development. This gave rise to small communities and lumber mills along their routes. Small towns including Addie, Meadow Creek, Snyder, and Moyie Springs in Idaho, depended on the railroad for supplies and communication.

Agriculture in the Bonners Ferry area began in support of the logging and mining communities. As early as 1881 there were discussions and plans to develop the Kootenai River Valley for agricultural use, by diverting, damming, or channelizing the Kootenai River due to annual flooding. Beginning in 1921, 47 miles of the Kootenai River, and many of its tributaries, were diked in order to drain the bottomland for agriculture. In 1925, the area that would one day become the KNWR was established as Drainage District #7. By 1947, agriculture dominated the fertile river valley (Aymond and Burk-Hise, 2021; Thomas and Jenks, 2019; USFWS, 2011). The onset of the Great Depression greatly affected many residents of the Kootenai River Valley and New Deal Era programs such as the Resettlement Program brought some relief. The Boundary Farms, resettlement program, resulted in the federal purchase of thousands of acres of farmland in the area within Drainage Districts 3, 5, 7, and 15 (Cannon, 1996; USFWS, 2011), including the area that is now KNWR. Numerous farmsteads were carved out of the floodplain-turned-farmland behind the dikes.

A historic 1947 aerial photograph of the project area appears to show eight possible homesteads within the project area. These possible homesteads were investigated as part of the pedestrian cultural resource inventory. Limited information is available on these possible homesteads, however, due to the age of the aerial photograph it is likely that some of them were associated with the New Deal era Resettlement Program. Previous studies investigated three of these possible homesteads during the 2023 field season and found no remnants of them (Mingus, 2023).

3.7.1.3 Kootenai National Wildlife Refuge Previous Cultural Resource Inventories and Cultural Resources

KNWR has had numerous cultural resource inventories conducted within the refuge. KNWR has not been completely inventoried and surveys have been limited to project specific cultural resource inventories. About 422 acres, or 15 percent, of KNWR has been inventoried for cultural resources, representing 31 NHPA Section 106 or Section 110 projects. There are seven (7) cultural resources located within KNWR, three (3) archeological sites and four (4) historic sites. The archeological sites include a pre-contact

campsite, the remnants of a historic homestead, and the remnants of a historic power plant. The historic sites include a historic barn from the New Deal Resettlement Program, a historic bridge, a historic pack trail, and the levee system associated with Drainage District #7. In addition to these cultural resources, remnants of historic homesteads associated with the New Deal Era Resettlement Program remain within KNWR, including fruit trees, building foundations, and historic debris scatters.

3.7.2 Environmental Consequences – Proposed Action

The Proposed Action has the potential to cause effects to historic properties. A review of Idaho State Historic Preservation Office (SHPO) and USFWS records identified 18 cultural resources within 1 mile of the project area. Of these, two are located within the project area. One is a historic barn associated with the New Deal era Resettlement Program; this barn is known as the KNWR Gothic Arch Barn. The Gothic Arch Barn was previously determined eligible for listing in the NRHP (Speulda, 1999; Thomas and Jenks, 2019). However, the building is located outside of the construction footprint and would not be directly impacted by the proposed project activities. The second cultural resource is the levee system associated with Drainage District #7. The Drainage District #7 levee system was previously determined not eligible for listing in the NRHP (Thomas and Jenks, 2019). The Drainage District #7 levee system would be directly affected by project activities, particularly the breaching of the levee: two on the Kootenai River, one on Myrtle Creek, and one on Deep Creek. However, because the Drainage District #7 levee system is not eligible for listing in the NRHP, it is not considered a historic property and does not retain its historic integrity. Therefore, the impacts to the levee system from the breaches would result in no effect to the Drainage District #7 levee system historical properties.

Additional cultural resources may be present within the project area, including sites associated with the pre-contact, ethnohistoric, and historic periods. However, based on the environmental setting, which includes the presence of an active/natural floodplain, and past land use, which includes extensive agricultural cultivation, the likelihood of discovering intact cultural resources dating to before the 1920s (when the Kootenai River was channelized) within the project area are low.

Portions of the project area have been previously inventoried for cultural resources (Mingus, 2023; Thomas and Jenks, 2019). No cultural resources, other than those identified above, were identified within the project area as part of these previous cultural resource inventories.

Although the potential for additional undiscovered cultural resources is low, the presence (or absence) of cultural resources cannot be predicted with certainty. In the event of an Inadvertent Discovery of cultural resources during project implementation, all project activities will be halted, and the USFWS Archeologist would be notified (see Table 2-5). To ensure that any previously unidentified cultural resources are not inadvertently damaged, an Inadvertent Discovery Plan (IDP) shall be implemented and utilized during project implementation.

No additional cultural resources were identified within the project area, and the USFWS has determined that no additional cultural resource identification efforts are necessary. Therefore, the potential for the Proposed Action to affect cultural resources is **low**.

3.7.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be managed under the current CCP. Land management programs would remain essentially unchanged resulting in **no impact** to cultural resources.

3.8 Land Use and Recreation

3.8.1 Affected Environment

The KNWR CCP provides a detailed description of the land use and recreational history of the refuge and is incorporated here by reference and summarized below (USFWS, 2011).

3.8.1.1 Land Use

Prior to European settlement, the lands that now comprise the KNWR were a portion of the Kootenai River floodplain, a mosaic of forest, swamps, marshes, and grasslands. With European settlement of the Kootenai River valley, the lands that now comprise the KNWR were designated as Drainage District 7. Levees were built to separate the floodplain from the river, and the lands within Drainage District 7 were drained and converted to agricultural use. Since KNWR establishment in 1964, the lands within the KNWR have been primarily converted to a mosaic of wetlands, grasslands, and croplands. The current land use is now dedicated to wildlife conservation and will be so for the foreseeable future.

3.8.1.2 Recreation

The KNWR currently provides recreational opportunities in the form of hunting, fishing, wildlife observation, photography, environmental education, and interpretation.

Wildlife observation, photography, walking, jogging, and leashed-dog walking are allowed on the ATR. Wildlife observation, photography, and walking are allowed on four trails (3.7 miles total). Bicycling, cross-country skiing, and snowshoeing occurs on the ATR as weather and road conditions permit. Cross-country skiing and snowshoeing are allowed on refuge trails as conditions permit. Interpretation and environmental education programs are limited due to minimal staffing, limited assistance of temporary staff, volunteers, and the Friends Group.

Waterfowl hunting is allowed 4 days per week, in accordance with the State's season. The waterfowl hunt area is currently 582 acres with an additional non-shooting retrieval area of 266 acres, to provide for public safety. Retrieval of game is allowed in the non-shooting area. The non-shooting area is 200 yards wide along the west side of the ATR and the Deep Creek Trail. Hunting occurs throughout the waterfowl hunt area unless hunt program monitoring demonstrates that user group conflicts exist. There are eighteen fixed waterfowl hunt blinds, three of which are ABA-compliant located within the 582-acre hunt area on the KNWR. Hunters have the option of hunting from the fixed locations blinds or to "free roam" and hunt anywhere within the hunt area boundaries. An adaptive management strategy, based upon hunter surveys, hunt program monitoring, or data on habitat quality and waterfowl use of wetlands, determines the location of hunting activities.

Big game and upland game (grouse only) hunting west of Westside Road was discontinued due to public safety concerns, increasing law enforcement violations, and low hunt quality. Big game and grouse hunting is allowed west of Lion's Den Road. Turkey hunting is allowed west of Lion's Den Road. Special Access Permits to hunt from an Accessible Deer Hunt Blind are available to hunters with disabilities through a lottery drawing. Multiple 7-day white-tailed permits are available annually. Possession of a State of Idaho issued disabled hunter license is required to be eligible for the random drawing

Fishing is allowed from the banks of Myrtle Creek and Deep Creek in accordance with Idaho state regulations and seasons. Fishing from boats, float tubes, or other personal floatation devices on Myrtle Creek is prohibited and the landing of boats on the banks of Deep Creek within the KNWR is prohibited.

3.8.2 Environmental Consequences – Proposed Action

3.8.2.1 Land Use

Under the Proposed Action Alternative, **no** change to current land use on the Refuge would occur. The KNWR would continue to be managed for wildlife conservation and compatible public use.

3.8.2.2 Recreation

Access to the KNWR north of Riverside Road would be temporarily closed during construction so all recreation activities in this area would not occur for approximately four months.

The Proposed Action would include new pull-outs and allow visitors closer proximity to the restored habitat, allow for more opportunities for wildlife observation and photography, and improve vehicle/pedestrian safety. As part of the modifications to the ATR, approximately 0.40 miles of the ATR would be abandoned and turned into an elevated ABA-compliant pedestrian access trail that would provide viewing opportunities of Cascade Pond and restored wetlands on the interior of the refuge. Riparian and wetland restoration would increase the diversity of plant communities and wildlife using the refuge thereby improving the opportunities for KNWR visitors engaged in wildlife viewing and photography. All access points, trails, and parking lots that currently exist within the project area would be maintained or raised as needed to the appropriate elevation above the design flood elevation to maintain current access regardless of seasonal flooding.

There are no proposed changes to the size and location of the waterfowl hunt program. The new water management system including water control structures, channels, swales, and low-profile berms installed in 2022-2023 allow the KNWR wetland management to improve wetland plant communities and increase waterfowl use. Water surface levels would not change during the fall/winter waterfowl season. The Proposed Action would not change the amount or percentage of grains planted in the hunt area, and planting sites would be strategically located to avoid spring flooding or converted to grains more suitable to moist conditions (i.e. millet) where appropriate. If construction on Riverside Road is not completed prior to the opening of waterfowl season (October 4, 2025), a temporary access road from the KNWR headquarters parking lot to the main center parking lot along Riverside Road would be utilized for hunter access to the north-end hunt area. If construction on Riverside Road is still ongoing, the Greenhead Pond ABA blind would be temporarily inaccessible by vehicle due to construction. There would not be a temporary access route on the one-way ATR to the Greenhead Pond ABA hunt parking lot and trail, but access to two ABA blinds (Snipe and South Pond) would still be available.

There would be no change to the hunting program west of Lion's Den Road. The breach of Myrtle Creek levee would prevent access to the white-tailed deer ABA blind in the northwest corner of the project area. To ensure continued hunter access to the blind, an existing field service road to the east would be used and modified to ramp up to the current ABA white-tailed deer hunt blind. The hunt blind and parking would be improved to allow more space for parking and turning vehicles. The new alignment of the hunter access road would also improve road safety for passenger vehicles by moving the access road off the narrow and steep levee road and replace it with a field level road with gentle side slopes and dry fords.

Prior to construction, public notifications in the newspaper and street signs would be used to notify area residents of the expected closure of the KNWR during construction of the Proposed Action. Signs would also be posted at all access points notifying users of the planned closure during construction.

The closure of the KNWR north of Riverside Road during construction would result in a temporary short-term loss of recreational opportunities, but the improvements to viewing areas and available habitat for wildlife would result in **moderate long- term beneficial impacts** for recreation opportunities on the KNWR.

3.8.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be managed as described in the KNWR CCP and recreation programs would remain essentially unchanged.

3.9 Transportation

3.9.1 Affected Environment

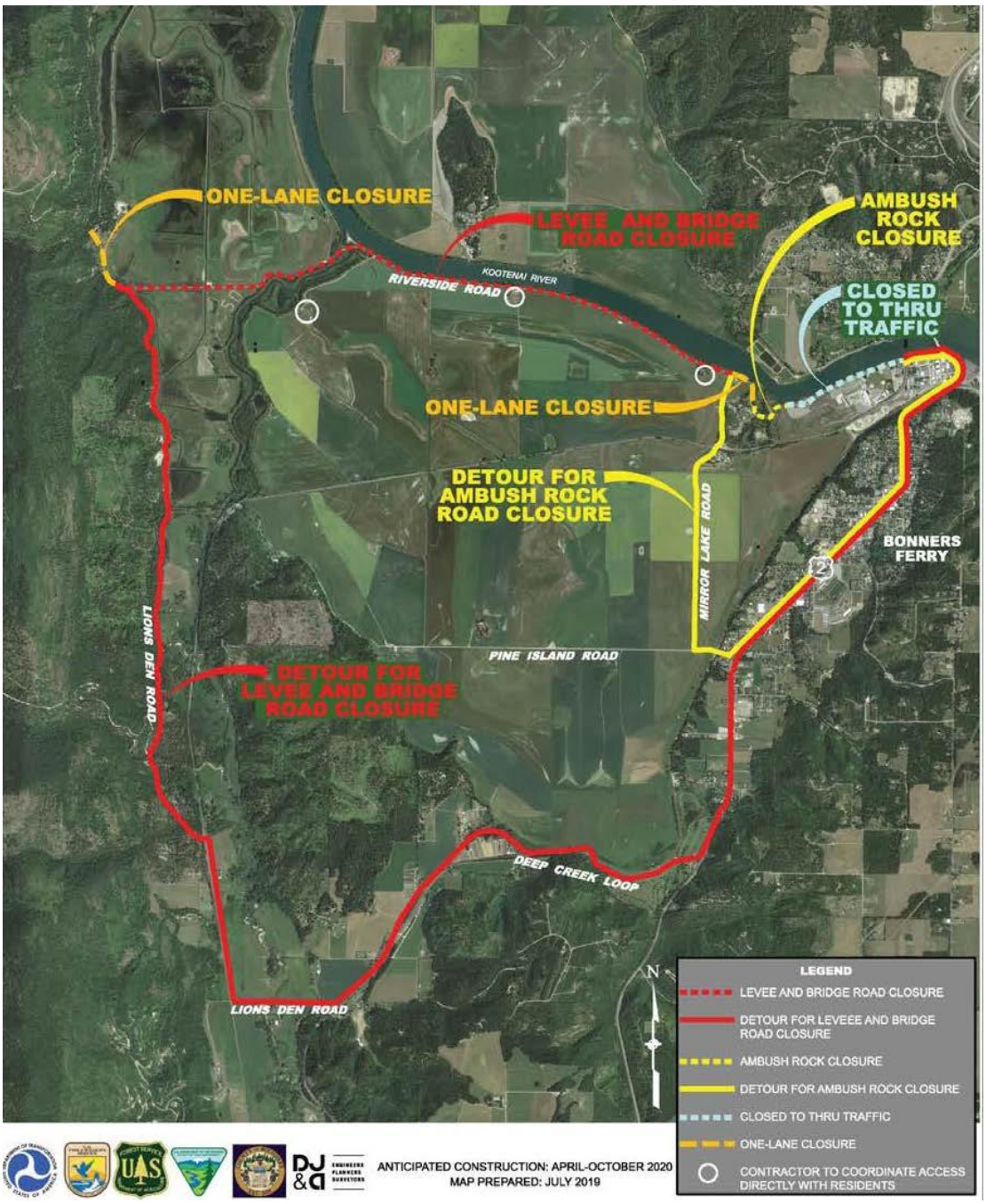
Riverside Road is the primary vehicular transportation roadway in the project area (Figure 3-4). Riverside Road runs 4.5 miles between Bonners Ferry, Idaho and the KNWR Headquarters. From Bonners Ferry, the road runs a northwest direction, paralleling the Kootenai River until reaching a bridge over Deep Creek. From there, the road turns west and crosses the KNWR. Once across the KNWR, at the intersection with Lion's Den Road, it turns into Westside Road and continues for 0.25 mile before reaching the KNWR Headquarters. Traffic volumes along the entire stretch of Riverside Road average 370 vehicles daily as accounted for in the annual average daily traffic statistics (IDOT, 2024). All county roads are maintained by Boundary County Roads and Bridge Department.

Riverside Road currently does not have facilities for pedestrian or bicycle traffic but biking and walking still occurs along the road. The speed limit is 35 mph.

3.9.2 Environmental Consequences – Proposed Action

Boundary County would be responsible for the reconstruction and widening of Riverside Road for its entire length in accordance with FHWA contract requirements. Reconstruction of Riverside Road would start in Spring 2025 and traffic impacts would continue through October 2025. Construction between Bonners Ferry and Deep Creek would be funded by FHWA. Effects for this action are discussed under cumulative effects, Section 3.13.

Figure 3-4: Riverside Road Detour Route.



Riverside Road from Deep Creek to the intersection with Lion's Den Road would be closed to through traffic for approximately four months (June-October). When Riverside Road is closed, Boundary County would maintain a detour using U.S. Highway 2, Deep Creek Loop, and Lion's Den Road (Figure 3-4). This detour would be used by residents who live on Westside Road north of the KNWR, KNWR employees, and anyone using Westside Road to access other destinations along Westside Road north to the Canadian Border.

The detour route would add 6 miles, approximately 20-25 minutes, for anyone wishing to drive to Bonners Ferry and points north. For anyone traveling to destinations south of where Deep Creek Loop intersects with U.S. Highway 95 (Mile post 504) the detour route would represent the regular travel route and so the closure of Riverside Road would not cause additional delays.

The proposed Action would alter transportation patterns for travelers wishing to use Riverside Road for a period of approximately four months, resulting in a temporary **moderate** impact. Once completed, Riverside Road would have a new road surface and provider greater safety for both vehicle and pedestrian traffic, resulting in a long-term **moderate beneficial** impact.

3.9.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be managed as described in the KNWR CCP and essentially remain in its current state including the current ATR and River Road alignments.

Riverside Road would not be closed, and the associated detours would not be needed. The current condition of Riverside Road would be maintained and the improvements to the road under the Proposed Action would not be realized.

3.10 Climate Change

3.10.1 Affected Environment

Greenhouse gases (GHGs) are chemical compounds in the earth's atmosphere that absorb and trap infrared radiation (heat) that is reflected or emitted from the surface of the earth. The trapping and subsequent buildup of heat in the atmosphere creates a greenhouse-like effect that maintains a global temperature warm enough to sustain life. Some forms of GHGs can be produced either by natural processes or by human activities. However, the current scientific consensus is that human-made sources are increasing atmospheric GHG concentrations to levels that would raise the earth's average temperature. The United States Global Climate Research Program (USGCRP) found that since the 1970s, average U.S. temperatures and sea levels have risen and precipitation patterns have changed (USGCRP, 2009). The Intergovernmental Panel on Climate Change (IPCC) found similar patterns on a global climate scale (IPCC, 2007).

Ongoing global climate change has implications for the current and likely future status of aquatic and riparian flora and fauna, but particularly for the Pacific Northwest, where snow melt into the Columbia River Basin has substantial influence on regional hydrology. Recent studies describe the potential impacts of climate change in the Basin. These impacts may decrease snowfall, increase early year runoff, decrease summer and fall flow, and generally increase water temperatures (RMJOC, 2018; USGCRP, 2018).

On April 16, 2021, the United States Department of the Interior (DOI) issued Secretary's Order 3399 (Office of the Secretary, 2021) to prioritize action on climate change throughout the Department and to restore transparency and integrity in decision-making processes. This order directed several DOI Department Operating Manual parts to be updated. These updates serve to develop a strategy to reduce climate pollution; improve and increase adaptation and resilience to the impacts of climate change; address current and historic environmental injustice; protect public health; and conserve DOI-managed lands. Updates to Department Manual parts that related to the KNWR and the Proposed Action or No Action Alternatives include the following:

- Adaptive Management Implementation Policy (Office of Policy Analysis, 2023a):

  Incorporate adaptive management into policies, plans, guidance documents, agreements and other management or co-stewardship resources. Adaptive management will use meaningful and strategic engagement with relevant authorities, subject experts and stakeholders with high quality information. It must be flexible and iterative, define a problem, set objectives and alternatives, and utilize consequence modeling and alternative tradeoff analysis. Actions must be monitored and learning applied. Planning documents must address these fundamental components and results must be communicated with the DOI and collaborators.

- Climate Change Policy (Office of Policy Analysis, 2023b):

  Incorporate climate change adaptation routinely in planning and decision making to ensure measures are grounded in high quality information, including Indigenous Knowledge. Recognize the inherent uncertainty associated with climate change by analyzing for multiple scenarios that span a wide range of potential outcomes, addressing the highest risk situations relevant to the decision being analyzed. Use Bureau publications and subject matter experts to increase understanding of climate change, consider Indigenous Knowledge and engage with Indigenous Peoples to address climate change impacts on health, infrastructure, livelihoods, economy and society, traditional practices, natural and cultural resources. Actions would conserve and restore core habitat areas, habitat linkages and key ecosystem services, and prepare for shifting wildlife movement patterns.

- Applying Climate Change Science (Office of Policy Analysis, 2023c):

  Incorporate high quality information from current and future climate change projections into planning and decision making, management plans, priorities for scientific research and assessments, and major investment decisions. Use IPCC (IPCC, 2007), Coupled Model Intercomparison Project (WCRP, 2024a), World Climate Research Programme (WDRP, 2024b), USGCRP (USGCRP, 2024) or other United States Government entity or cooperator climate change scenarios and model projections. Use multiple models and scenarios, capturing a range of outcomes including higher risk outcomes. Include other high-quality information from social sciences, other biophysical sciences and Indigenous Knowledge to inform understanding of climate change impacts, baseline climate and ecosystem conditions, ecosystem thresholds and scenario election.

- Nature-Based Solution (Office of Policy Analysis, 2023d):

  Implement nature-based solutions to the maximum extent practicable and as permitted by law to protect, sustainably manage, restore and enhance managed natural, cultural, and infrastructure resources and assets. Incorporate nature-based solution principles into policies, plans, guidance documents, agreements and other instruments for the management or co-stewardship of resources under the DOI's jurisdiction. Prioritize nature-based solution projects that use stakeholder participation to benefit people and nature, leverage collaborations and interweave equity; use high quality information to incorporate uncertainty and consider temporal scale; and measure effectiveness and integrate adaptive management. Examples of nature-based solutions applicable to the Proposed Action include:
  - River barrier removal, floodplain reconnection, wetland restoration, fish passage restoration
  - Invasive plant species removal, native flora restoration, reforestation, riparian buffer restoration
  - Wildlife and pollinator habitat and linkage restoration

3.10.2 Environmental Consequences – Proposed Action

The Proposed Action would adhere to and advance all DOI climate change policies by utilizing high quality topographic, hydrologic, land use data, indigenous knowledge, and climate change science as a way to ensure meaningful and strategic engagement with stakeholders on nature-based solutions and adaptive management.

GHG emissions associated with the Proposed Action (primarily carbon dioxide, methane, and nitrous oxide) would be localized and temporary. They would be generated by the short-term emissions from construction equipment, off-road vehicles, and on-road vehicles (including worker commuting and material delivery). By comparison, after accounting for workers operating off-road construction equipment and making on-road vehicle round trips to the project area, Bonneville previously found that a large-scale habitat-restoration project comparable to the Proposed Action would result in GHG emissions of about 940 tons carbon-dioxide equivalent (CO2e) (Bonneville, 2014). Based on the EPA's GHG equivalencies calculator, this CO2e level would equate to driving 184 gasoline-fueled passenger cars for one year. Consistent with this estimate, given the short construction duration and low number of vehicles and equipment (see Section 2.2.2) the impact from GHG emissions would be **low** and therefore the potential for the Proposed Action to accelerate climate change would be **low**.

The Proposed Action would remove barriers to the Kootenai River and Deep Creek accessing their floodplains, providing an increase in water table inputs and ecosystem connectivity. This reconnection, as well as native flora restoration and invasive plant species management, would also restore a greater diversity of wetland types including tree and shrub wetlands which increase riparian buffer shading, and slow evapotranspiration rates. By including multiple levee breach locations and elevations, the Proposed Action would address uncertainty related to future climate change and resiliency in wetland habitats. Modeling indicates that during expected low flow years, floodplain reconnection would still occur to support project objectives; and during high water years, these connections would affect a larger area of the floodplain, particularly north of the ATR where there would be open breaches with the Kootenai River. Diversity in frequency and extent of annual floodplain reconnection mimics natural processes where flows in river systems vary between years. This diversity in flow regimes would support the establishment of different riparian vegetation communities in floodplains, which would support a greater diversity of terrestrial wildlife and pollinator species habitats, ensuring their resiliency during climate change. Wetlands can accumulate large carbon stores, making them an important sink for atmospheric carbon dioxide and holding up to, or in some cases, even more than 40 percent soil carbon (Vepraskas and Craft, 2016), which is substantially greater than the 0.5- to 2-percent carbon commonly found in agricultural soils (Lal et al., 1995). Since the Proposed Action would enhance and restore riparian, wetland, and floodplain habitats within the KNWR there would be a corresponding increase in the diversity of wetland types and expansion in the amount of wetland soils in which atmospheric carbon would be sequestered (Nahlik and Fennessy, 2016). By increasing stored carbon through the increase of wetland soils, the Proposed Action would help mitigate for the release of GHGs.

In summary, the Proposed Action would result in **low** GHG contributions during construction but would also have **low** long-term **beneficial impacts** through the increase in the amount and quality of wetland soils in which atmospheric carbon would be sequestered.

3.10.3 Environmental Consequences – No Action

Under the No Action Alternative, the KNWR would continue to be managed as described in the KNWR CCP resulting in no changes in the level of GHG emissions current management activities contribute.

Because construction would not occur, no emissions would occur and no dust would be generated from construction that could result in an air quality impact from the Proposed Action. Ongoing effects from KNWR management would continue, therefore, emissions from construction equipment would not occur.

Long term the beneficial impacts resulting from the increase in wetland soils would not occur. There would, however, be continued wetland management that does contribute to amelioration of GHG accumulation to a lesser degree than the Proposed Action.

3.11 Noise

3.11.1 Affected Environment

Natural sounds such as flowing water, wind moving through trees and vegetation, and wildlife generally characterize the soundscape in the absence of human-generated sounds. Human-generated sounds frequently elevate noise levels in the project area, notably from trains regularly passing along the east bank of Deep Creek on the Burlington Northern railroad, which can elevate noise levels to around 80dB or higher. In addition, low-level vehicle traffic on Riverside Road that bisects the project area and Westside Road that is to the west, could elevate noise levels to around 50dB or higher. Finally, in addition to managing the wildlife-associated cropland, active agricultural fields are east of the project area and contribute noise to the landscape. In general, typical day-night average sound levels for agricultural crop land similar to the project area is around 45 dB (EPA, 1974).

Sensitive noise receptors in the project area are nearby residents living along Westside Road and KNWR visitors recreating in or near the project area that would be susceptible to noise effects. Existing noise sources include traffic along Riverside Road, the ATR, and train traffic on the Burlington Northern Santa Fe railway line, which passes a little over 1 mile south of the project area. Ambient/background noise levels in rural are typically less than 45 dBA during the day and 35 dBA at night (EPA, 1974).

3.11.2 Environmental Consequences – Proposed Action

Implementing the Proposed Action would require use of heavy equipment for short periods during the construction period. Heavy equipment use would increase ambient noise levels in the short term. On a short-term basis, construction activities would elevate existing noise levels to between 80-100 dBA at the construction site. Such noise would come from construction, transportation, and site rehabilitation activities and the associated equipment (e.g., heavy machinery, heavy equipment, vehicles, generators, compressors, etc.). Many of these noises are loud, but they would vary in duration and timing. High noise levels would not be constant.

Construction-related noise could impact nearby residents during construction. The project, therefore, would limit construction activities to normal daytime working hours (see Table 2-5). Short-term impacts to nearby residents from noise are expected to be minimal due to their distance from the activity (0.25 miles and the relatively short duration of construction.

Once implemented, the resulting floodplain reconnection would not make noise, except for that from limited vehicle access to the site to monitor and maintain it. Follow-up maintenance actions would likely

be limited to infrequent use of equipment for vegetation replantings. The noise from these actions, however, is expected to be similar to or less than that generated near the project area prior to restoration actions, and from those in surrounding areas.

For these reasons, the Proposed Action would result in a **low impact** to noise levels.

3.11.3 Environmental Consequences – No Action

The KNWR would continue to be managed as described in the KNWR CCP and noise levels would not change beyond the existing levels from current refuge management actions.

3.12 Public Health and Safety

3.12.1 Affected Environment

Boundary County Sherriff's Office, City of Bonners Ferry Police Department, Boundary Ambulance, and Bonners Ferry Fire Department provide law enforcement and emergency services.

The KNWR is located in a rural setting and accessed via Riverside Road, West Side Road, and Lion's Den Road. These roads also provide access to residences along West Side Road, north of the KNWR.

Public health and safety risks present at and near the sites are typical of those for rural areas with limited development, including events such as traffic accidents, weather-related travel hazards, wildfires, floods and medical emergencies.

3.12.2 Environmental Consequences – Proposed Action

The KNWR would be closed during implementation of the Proposed Action so the public would not be in close proximity during construction. All standard safety protocols would be followed throughout project construction, and standard construction BMPs would minimize risks to human health and safety.

Riverside Road would be closed for four months during reconstruction. A detour route would be established using Lion's Den Road and Deep Creek Loop (Figure 3-4). It is anticipated and typical for the contractor's traffic control plan to accommodate emergency vehicles and allow access through the construction site. Even with this allowance, emergency vehicles would likely be delayed while traveling through the construction area.

Following completion of the Proposed Action, Riverside Road would have a new asphalt surface, lines, guard rails, and better sight lines, all of which would provide long-term **beneficial impacts** to drivers. Pedestrians, cyclists, and ATVs would have a 5-foot shoulder along Riverside Road, which would result in a beneficial impact for those road users.

Mosquitoes that are produced by managed seasonal wetlands, especially during summer irrigations and fall flooding, are known as floodwater mosquitos. Other common mosquitos utilize standing water for egg laying and reproduction. The life cycle of the floodwater mosquito begins with flooding of ground that has undergone a dry period. Once flooded, eggs that were laid during the previous dry cycle hatch, pupate, and emerge as adults. Females then return to lay their eggs on drying soil or at the bases of grasses and other plants in areas that have been flooded previously. Restored flow regimes and seasonal flooding in the reconnected floodplain are intended outcomes from implementing the Proposed Action. The restored floodplain connection would create seasonal inundations that would pond water long enough to provide breeding habitat for mosquitoes, which are a nuisance and a public-health threat, since

they can serve as vectors for disease. This impact is anticipated to be low given the increase in such habitat would not occur every year. In addition, the KNWR on-going land management practices would also minimize the available areas of mosquito habitat:

- water management – few, if any, summer irrigations, fast fall flooding of wetlands, followed by maintaining stable surface water elevation reduces the number of mosquito generations;
- vegetation management - mowing and disking thick vegetation to 50 percent or less vegetation cover reduces habitat for mosquito eggs. The wetland berms are all designed so they could be mowed, which reduces the amount of dense vegetation at the waterline; and
- wetland infrastructure - the KNWR has repaired/replaced approximately 80 percent of the berms and water control structures in 2022-2023 to reduce leaking. The infrastructure improvements improve the ability to manage water with less waste, less leakage and less accidental mosquito habitat.
- Several bat houses have been installed on the refuge providing a biological control of mosquito populations
- Floodplain grading would be designed to convey water and reducing pooling to limit mosquito production and avoid stranding fish and other aquatic organisms.

The Proposed Action would result in **moderate** short-term impacts caused by the potential delay of emergency vehicles and a **low to moderate** impact on public health and safety from mosquitos.

3.12.3 Environmental Consequences - No Action Alternative

The KNWR would continue to be managed as described in the KNWR CCP resulting in no changes to public health and safety on KNWR lands.

No traffic delays would occur, but the benefits from improved traffic safety due to the road improvements would not occur.

3.13 Cumulative Impacts

Cumulative effects are those that could occur when considered in addition to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Current actions are those projects, developments, and other actions that are underway because they are either under construction or occurring on an ongoing basis. Reasonably foreseeable future actions generally include those actions formally proposed or in the planning stages. Cumulative effects can result from actions with individually minor but collectively significant effects taking place over a period of time.

Past actions that have affected natural and human resources along the Kootenai River in Idaho include the construction of Libby Dam, timber harvest, diking, agriculture, road development, commercial and residential development, and mining. Since 2011, the Tribe has implemented aquatic and riparian habitat restoration projects along the Kootenai River intended to benefit native fish and wildlife species, focusing in particular on the recovery of Kootenai River white sturgeon and burbot. The Tribe has also implemented upland restoration actions along the Kootenai River's historical floodplain and tributaries.

In determining the present and reasonably foreseeable actions with the potential to contribute to cumulative effects, when combined with the effects of the alternatives, Bonneville considered other planning efforts, large-scale projects, or restoration actions along the Kootenai River below Libby Dam that would be likely to result in effects that could interact cumulatively with those from the proposed

project. Timber harvesting activities (on U.S. Forest Service, Idaho Department of Lands, and private lands) are a regular occurrence in the Kootenai basin and are known to contribute sediment to the rivers and streams that flow into the Kootenai River. Private timber sales could occur that could result in effects to wetlands, vegetation, and water quality.

The Kootenai Valley Restoration Initiative has received Collaborative Forest Landscape Restoration Program funding to implement restoration actions on U.S. Forest Service lands that focus on:

- Reforestation
- Pre-commercial Thinning Prescribed Burning
- Invasive Plant Management
- Culvert Upgrades
- Fish Passage Culvert Replacements
- Road Decommissioning
- Road Maintenance

3.13.1 Soils and Geology

The past, present, and reasonably foreseeable future actions that could cumulatively affect soils and geology are habitat restoration actions, continued dam operations, and land- disturbing actions such as road construction, agriculture, commercial and residential development, and mining. The Proposed Action would require excavation during construction and temporarily affect soils, but these effects would be minimized through the implementation of mitigation measures described in Table 2-5. When considered with past, present, and future habitat restoration projects in the Kootenai Basin below Libby Dam, the project would contribute to preventing soil loss over time by reestablishing healthy native vegetation within the KNWR. Therefore, negative cumulative effects from the project on soils and geology, when considered with past, current, and proposed actions, would be **low**.

3.13.2 Wetlands

While the Proposed Action would result in a small loss of wetlands, there would be an overall increase in wetland area and improved wetland functions in the long term. Therefore, the Proposed Action would not contribute to the cumulative effects of the loss of wetlands along the Kootenai River that have occurred over time. Implementation of the mitigation measures described in Section 2.4 would ensure that the negative short-term cumulative effects on wetlands, when considered with past, current, and proposed actions, would be **low**.

3.13.3 Water Resources

The past, present, and reasonably foreseeable future actions that could cumulatively affect water resources are habitat restoration actions, continued dam operations and land- disturbing actions such as road construction, agriculture, commercial and residential development, and mining. As discussed in Section 3.3.2, there would be no water quality effects from the Proposed Action during construction and, in the long-term would likely improve water quality from reconnected floodplain areas, and native plantings. Thus, when considered with past, current, and proposed actions, the cumulative effects of the Proposed Action on water resources would be **low**.

3.13.4 Fish and Fish Habitat

The past, present, and reasonably foreseeable future actions that could cumulatively affect fish and fish habitat include continued dam operations and land-disturbing actions such as road construction, agriculture, commercial and residential development, and mining. The cumulative effect of habitat restoration actions in the recent past have benefitted fish and fish habitat, but the cumulative effects of the adverse actions listed above continue to result in on-going negative effects. The Proposed Action would provide long-term beneficial effects from the reconnection of the river's historic floodplain and the resulting increase in diversity and complexity of habitats. Overall, project construction, when combined with past, current, and proposed actions, would have a low adverse cumulative impact on fish and would have long-term moderate beneficial cumulative impacts to fish and wildlife.

3.13.5 Recreation and Land Use

Past and present actions such as, dam operations and land-disturbing actions such as road construction, agriculture, mining, and commercial and residential development, have not had a substantial impact on recreational uses along the Kootenai River. Since the KNWR was created in 1964 it has been one of the only public access points along the lower Kootenai River that allowed for recreational opportunities. The Proposed Action would result in the short-term negative effects on recreation from the partial closure of the KNWR during project construction, but long-term benefits to recreation are expected from the improved access to the KNWR and the improved habitats that would attract a greater quantity and diversity of wildlife. Therefore, the Proposed Action's overall cumulative effect on recreation, when considered with past, current, and proposed actions, would be **low**.

The primary land uses along the Kootenai River between Bonners Ferry and the Canadian border have been primarily agricultural since the early 1900s. The Proposed Action would not alter existing land uses so there would be **no cumulative impact** to existing land use.

3.13.6 Transportation

According to Boundary County Road and Bridge Department, there are no other road construction projects that would result in additional delays to anyone who needed to use the Riverside Road Detour (Route Ryals, Pers. Com., June 18, 2024). U.S. Highway 95 is the primary highway going north/south through northern Idaho and traffic delays are common while passing through Bonners Ferry. Anyone required to travel the Riverside Road Detour Route may encounter additional delays on U.S. Highway 95 that they otherwise may have avoided. Since the detour route is temporary (July-October) and heavy traffic only causes traffic delays during short periods of time, the cumulative transportation effects, when considered with past, current, and proposed actions, would be **low**.

3.13.7 Cultural Resources

Cultural resources in the project area have likely been cumulatively affected by past, present, and current development activities. Most effects have likely occurred as a result of inadvertent disturbance or destruction from land-disturbing actions such as road construction, agriculture, mining, and commercial and residential development. Implementation of the mitigation measures described in Section 2.4 would reduce the potential for construction activities to contribute incrementally to the cumulative effects on unknown cultural resources. In the event that previously undiscovered cultural resources are encountered, potential effects would depend on the level and amount of disturbance, and the eligibility of the resource for listing in the NRHP. The Proposed Action's cumulative effect on cultural resources, when considered with past, current, and proposed actions, would be **low**.

3.13.8 Climate Change

There would be no long term, or permanent sources of pollutant emissions from this project. While any GHG emissions play a role in contributing cumulatively to global GHG concentrations and climate change, the emissions caused by the temporary construction of the Proposed Action would be minimal. In the long-term the Proposed Action would ameliorate certain effects from warming climates by restoring wetland and floodplain habitats and increasing riparian shading and habitat resiliency. Therefore, cumulative contributions to global GHGs concentrations, when considered with past, current, and proposed actions, would be **low**.

3.13.9 Noise

While the Proposed Action would cause a temporary increase in noise levels, there would be no long term or permanent source of new sound introduced into this area by this project. The soundscape that exists now would not be changed in the long term. The Proposed Action, when considered with past, current, and proposed actions, would have **no cumulative effects** on noise.

3.13.10 Public Health and Safety

The Proposed Action may introduce a minor amount of roadway travel risk on public roads and highways as heavy equipment is moved in and out, but it makes no permanent or long term change in any roadway travel, utility, or communication feature that would affect public safety or the delivery of law enforcement, fire protection, or emergency response capabilities currently available. The closure of Riverside Road during construction would require a detour using Lion's Den Road and Deep Creek Loop (Figure 3-4) that could result in temporary delays for emergency vehicles. No other roadway projects would affect the detour route so the cumulative effects to public safety, when considered with past, current, and proposed actions, would be **low**.

CHAPTER 4 ENVIRONMENTAL CONSULTATION, REVIEW, AND PERMIT REQUIREMENTS

Several federal and state statutes, implementing regulations, Executive Orders, and other consultation, review, and permit requirements are potentially relevant to this project (Table 4-1). For this table, similar resources (e.g., vegetation and wildlife) have been combined when statutes or regulations overlap multiple resource areas.

Table 4-1: Potential Applicable Statutory and Regulatory Requirements, and Other Considerations.

Potentially Applicable Requirement	Relevant Project Information
All Resources	
National Environmental Policy Act (NEPA) as amended 42 U.S.C. § 4321 *et seq.*	Bonneville has prepared this EA pursuant to CEQ and Department of Energy (DOE) regulations implementing NEPA, which requires federal agencies to assess, consider, and disclose to the public the impacts that their actions may have on the environment before taking major federal actions.
Council on Environmental Quality Guidance for Federal Departments and Agencies on Indigenous Knowledge (November 30, 2022)	Consistent with CEQ regulations and related guidance including CEQ's November 30, 2022, Guidance for Federal Departments and Agencies on Indigenous Knowledge, Bonneville and USFWS has engaged affected communities, Tribes, and Indigenous Peoples including the Kootenai Tribe of Idaho to inform the assessment of environmental effects.
Geology and Soils	
The Farmland Protection Policy Act (7 U.S.C. 4201 *et seq.)*	The Farmland Protection Policy Act (7 USC 4201 *et seq.)* directs federal agencies to identify and quantify adverse effects of federal programs on farmlands. This act minimizes the number of Federal programs that contribute to the unnecessary and irreversible conversion of agricultural land to nonagricultural uses. There is no prime farmland in the sites affected by this project, and the Proposed Action would not permanently convert any area of agricultural land to non-agricultural uses.
Vegetation, Wildlife, and Fish	
Endangered Species Act of 1973 16 U.S.C. § 1531 *et seq.*	Impacts to Endangered Species Act-listed species, bull trout and Kootenai white sturgeon, and their designated critical habitat are addressed through formal consultation with the USFWS.
Bald Eagle and Golden Eagle Protection Act of 1940 16 U.S.C. § 668-668d	Bald eagles have historically nested within the project area and regularly use the wetland and riparian habitats on the KNWR. Currently, there are no bald eagle nests within the project boundaries, although there is an active territory directly adjacent to the northwest corner of the project. The nearest possible bald eagle nest is about 600 feet from the project area. Based on eagle observations, if this active nest is determined likely to be occupied and active or another bald or golden eagle nest discovered, the project would implement a buffer (See Section 2.4) and would consult with USFWS' Migratory Bird Office prior to beginning project construction.
Migratory Bird Treaty Act (MBTA) of 1918 16 U.S.C. § 703-712	Many bird species protected under the MBTA are present in the KNWR and some nest in the general vicinity. Potential impacts on nesting birds are described in Section 3.6, Wildlife. Compliance with the MBTA was completed through consultation with the USFWS' Migratory Bird Office on, July 3, 2024. a

Potentially Applicable Requirement	Relevant Project Information
Responsibilities to Federal Agencies to Protect Migratory Birds Executive Order 13186	
Fish and Wildlife Conservation Act, 16 U.S.C. § 2901 *et seq.* Fish and Wildlife Coordination Act 16 U.S.C. § 661 *et seq.*	Bonneville contacted USFWS and IDFG during scoping and the preparation of this EA. Impacts on fish and wildlife are described in Section 3.5, Fish and Aquatic Species, and Section 3.6, Wildlife.
Waters, Wetlands, and Floodplain Protection	
Clean Water Act (Sections 401, 402, 404, and 303(d)) 33 U.S.C. § 1251 *et seq.*	The Kootenai River, Deep Creek, Myrtle Creek and wetlands in the project area constitute waters subject to regulation under the Clean Water Act (CWA). The Tribe and FHWA would obtain the necessary permits for this project as regulated under CWA Sections 402 and 404. For Section 404, this project is anticipated to be covered by the Corps under Nationwide Permit 27. For Section 402, Idaho Department of Environmental Quality would issue an Idaho Pollutant Discharge Elimination System permit for construction that disturbs soils. As discussed in Section 3.3.1.1, the Kootenai River, Deep Creek, and Myrtle Creek, in the vicinity of the KNWR, are impaired for temperature. Deep Creek is impaired for sediment. The project would not violate water quality standards and would adhere to the TMDLs established in IDEQ's Lower Kootenai River TMDL and Water Quality Management Plan (IDEQ, 2014).
Safe Drinking Water Act of 1974 (42 U.S.C. § 300(f) *et seq.*).	There are no designated sole-source aquifers protected under Section 1424(e) of the Safe Drinking Water Act in the project area.
Floodplain/Wetlands Environmental Review Requirements 10 CFR 1022.12 Floodplain Management Executive Order 11988 Protection of Wetlands Executive Order 11990	As part of this NEPA review, DOE NEPA regulations require assessing impacts on floodplains and wetlands along with an evaluation of alternatives for protection of these resources in accordance with Compliance with Floodplain and Wetlands Environmental Review Requirements (10 CFR 1022.12), Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. Low short-term impacts would occur during construction from floodplain grading in wetland areas. Moderate long-term beneficial impacts would occur following construction from reconnecting the floodplain and wetland enhancement.
Air Quality and Greenhouse Gases	
The Clean Air Act, as revised 42 U.S.C. § 7401 *et seq.*	Air quality impacts of the Proposed Action would be low, localized, and temporary, as described in Section 3.10.
Final Mandatory Reporting of Greenhouse Gases Rule (40 CFR 98)	Greenhouse gas emissions would be low and short in duration as described in Section 3.10. As discussed in that section, the estimated GHG emissions resulting from the Proposed Action would be around 940 tons CO2e, which is the amount of GHG emissions estimated to result from a large-scale habitat restoration project.

Potentially Applicable Requirement	Relevant Project Information
Cultural and Historic Resources	
Antiquities Act of 1906 16 U.S.C. § 431-433 Historic Sites Act of 1935 16 U.S.C. § 461-467 National Historic Preservation Act, as amended, inclusive of Section 106 54 U.S.C. § 306108 *et seq.* Archaeological Data Preservation Act of 1974 16 U.S.C. § 469 – 469-1 Archaeological Resources Protection Act of 1979, as amended 16 U.S.C. § 469 a-c Native American Graves Protection and Repatriation Act 25 U.S.C. § 3001 *et seq.* Indian Sacred Sites Executive Order 13007 American Indian Religious Freedom Act of 1978 42 U.S.C. § 1996	The USFWS is the lead federal agency for compliance with Section 106 of the National Historic Preservation Act. No additional cultural resources were identified within the project area, and the USFWS has determined that no additional cultural resource identification efforts are necessary. If previously unidentified cultural resources that would be adversely affected by the Proposed Action are found during construction, Bonneville and USFWS would follow the procedures set out in Table 2-5 and in compliance with applicable regulations.
Noise, Public Health, and Safety	
Noise Control Act of 1972 42 U.S.C. § 4901 *et seq.*	Noise disturbance would be short in duration and would occur during daylight hours as described in Section 3.11.
Spill Prevention, Control, and Countermeasures Regulation 40 CFR 112 Comprehensive Environmental Response, Compensation, and Liability Act 42 U.S.C. § 9601 *et seq.* Resource Conservation and Recovery Act 42 U.S.C. § 6901 *et seq.*	Small amounts of hazardous chemicals such as fuels, and motor and lubricating oils could be released into the environment by the Proposed Action or used during construction work. Use of chemicals would be controlled via use of a Spill Prevention Control and Countermeasures Plan. Any generated waste material would be disposed of according to state law and the Resource Conservation and Recovery Act. Solid wastes would be disposed of at an approved landfill or recycled.

Potentially Applicable Requirement	Relevant Project Information
Environmental Justice	
Executive Order 12898 and 14096	Because the project occurs on federal land where no environmental justice populations are present, no effects are expected. For these reasons, the Proposed Action would not cause any disproportionate and adverse human health and environmental effects (including risks) and hazards on environmental justice populations.

APPENDIX A: REFERENCES

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APPENDIX B: TRIBES, AGENCIES, AND PERSONS RECEIVING THE EA

The project mailing list contains contacts for Tribes; local, state, regional, and federal agencies; public officials; interest groups and businesses; and potentially interested or affected landowners. These groups of stakeholders have directly received or have been given instructions on how to receive all project information, including the draft EA, made available so far. Specific entities (other than private persons) receiving the scoping notification, and this EA are listed below by category.

Federal

Federal Highway Administration

U.S. Fish and Wildlife Service

U.S. Forest Service

Natural Resources Conservation Service

U.S. Environmental Protection Agency

Representative Sage Dixon

Representative Mark Sauter

Senator Scott Herndon

State

Idaho Department of Lands

Idaho Department of Fish and Game

State of Idaho, Office of the Governor

Tribes

Confederated Salish and Kootenai Tribes

Kootenai Tribe of Idaho

Local Governments

City of Bonners Ferry

Boundary County

BONNEVILLE POWER ADMINISTRATION

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