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Montana Environmental Policy Act Environmental Assessment

Jetty Replacement and Main Canal Improvements Project

Broadwater County, MT

Prepared For:



Department of Natural Resources and Conservation

Water Resources Division

State Water Projects Bureau

Helena, MT

Prepared By:



HDR Engineering, Inc.

April 2023

MEPA Environmental Assessment

Jetty Replacement and Main Canal Improvements Project Broadwater County, MT



PART I. TYPE AND PURPOSE OF PROPOSED ACTION

A. Purpose and Need for Proposed State Action:

The Broadwater Dam Project is a 9.66 Megawatt, run-of-river hydroelectric facility owned by the State of Montana Department of Natural Resources & Conservation (DNRC) and operated by the State Water Projects Bureau (SWPB). The Broadwater Dam Project consists of a concrete gravity dam 51.5 feet high and 630 feet long that was originally constructed in 1940 as an irrigation diversion structure by the State Water Conservation Board as the Broadwater-Missouri Diversion Project.

Between 1987 and 1989, a Powerhouse was constructed in the left abutment that contains a single, pit-Kaplan hydroelectric generating unit. In addition, inflatable rubber bladder flashboards

were installed to control the upstream water surface elevation. The reservoir level is maintained at 3,952.6 +/- 0.6 feet year-round.

The original irrigation diversion structure was demolished and reconstructed concurrent with the addition of the Powerhouse between 1987 and 1989. Water from the reservoir is diverted into the Broadwater-Missouri Canal through an irrigation headgate structure (canal headworks) to the left of the Powerhouse (looking downstream). The canal headworks structure consists of four steel slide gates, each four feet wide by seven feet, three inches high. Three of the gates are manually operated; one is electrically operated. Each gate is protected by an individual trash rack installed vertically in stoplog guides located immediately upstream of the slide gates. The existing gates have reached the end of their useful life, are leaking and negatively impact operations, and need to be replaced. The proposed project involves replacing the slide gates in-kind.

Immediately downstream of the four gates is the Broadwater-Missouri Canal system. It begins as a concrete transition section that guides diverted water into a 450 foot long, 10-foot wide by 7-foot high, concrete box culvert. Downstream of the culvert, diverted water flows through a flared concrete transition section into an earthen canal that has an 18-foot bottom width and 1.5H:1V side slopes. The Broadwater-Missouri Canal system provides irrigation water for 21,000 acres from Toston to Townsend, supporting approximately 200 farming and ranching operations (DNRC 2021).

In 2000, a rock jetty was installed upstream from the Main Canal intake structure and Project intake to mitigate woody debris entrainment into the canal. The rock jetty extends approximately 160 feet into the reservoir to separate irrigation canal flow from the Powerhouse flow. The jetty has generally been effective in reducing debris from reaching the canal intake. However, long-term maintenance of the rock jetty has proved burdensome as rock continues to settle and shed toward the Powerhouse intake thus submerging the top of the jetty below the normal operating reservoir elevation.

Several deficiencies have been identified with the existing jetty that contribute to increased floating debris accumulation at the canal headworks, excess sediment (sand) being delivered into the canal and impacting operations, as well as contributing to rock material shedding towards the Powerhouse intake. The purpose of the proposed project is to provide a long-term, cost-effective rehabilitation solution to improve dam operations by removing the existing rock jetty and provide an alternate method to reduce the debris loading on the intakes.

Specific goals as documented through a scoping and alternative analysis include the following:

- Reconstruct or remove and stabilize the existing jetty to reduce/stop shedding of riprap into the Powerhouse intake;
- Protect the irrigation canal headworks from floating debris;
- Reduce sediment (primarily sand sized) deposition and inflow at the irrigation canal headworks; and
- Assess replacement options for existing canal gates.

The SWPB has also identified the need for repair and improvement of the irrigation infrastructure in a portion of the main irrigation canal. Improvements to the main irrigation canal infrastructure will facilitate increased safety of the canal, increased water measurement accuracy, decreased maintenance, and development of future water marketing.

The proposed project is located near the Broadwater Dam Project on the Missouri River, near the town of Toston, Montana. The site is approximately 20 river miles downstream of the headwaters of the Missouri and about 20 river miles upstream from Canyon Ferry Reservoir. The proposed project is located at the southern terminus of Toston Dam Road in Township 4N, Range 3E, Section 07. The project location is shown in **Figure 1** with site components shown in **Figure 2**.

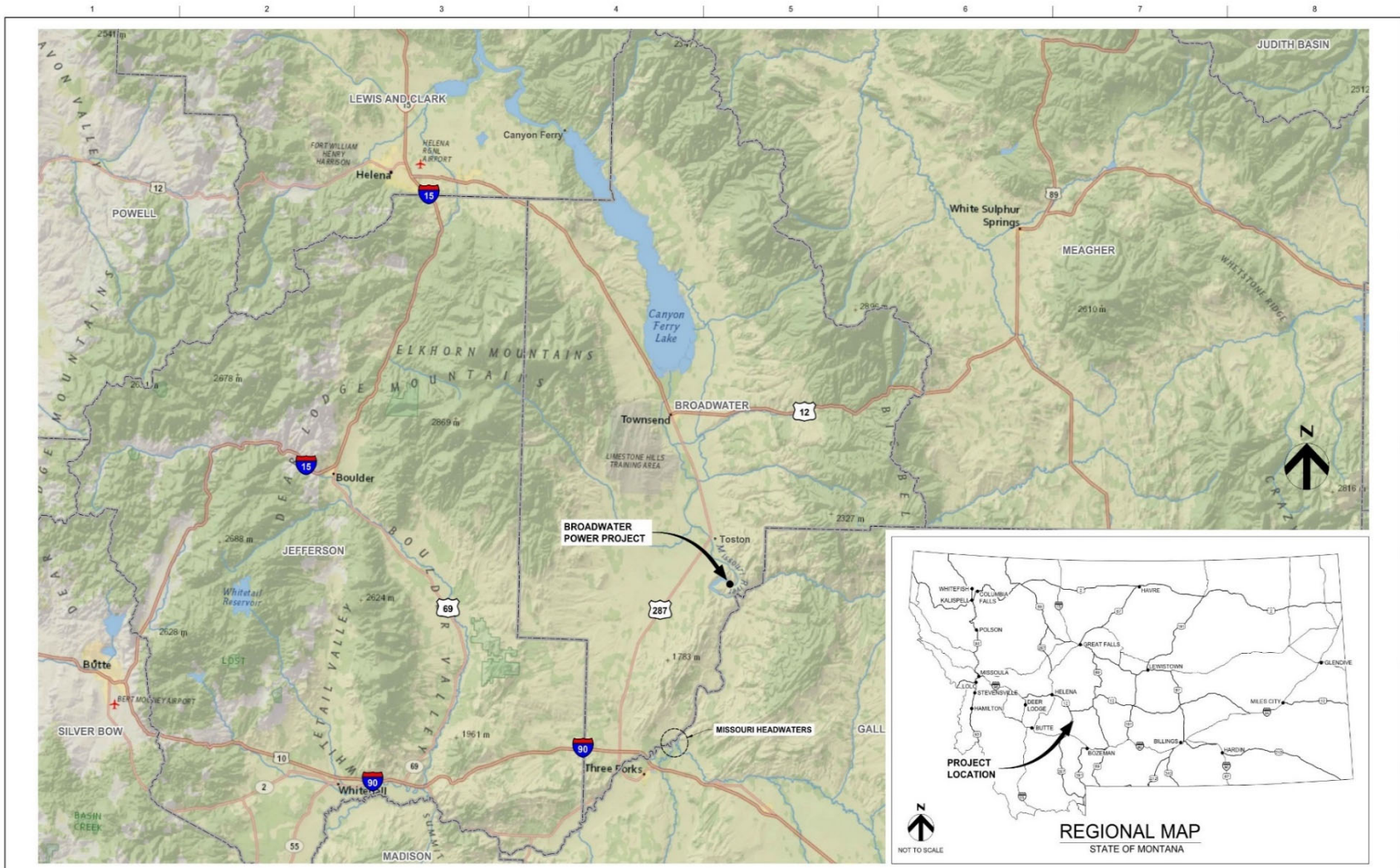


Figure 1. Project Location and Vicinity Map

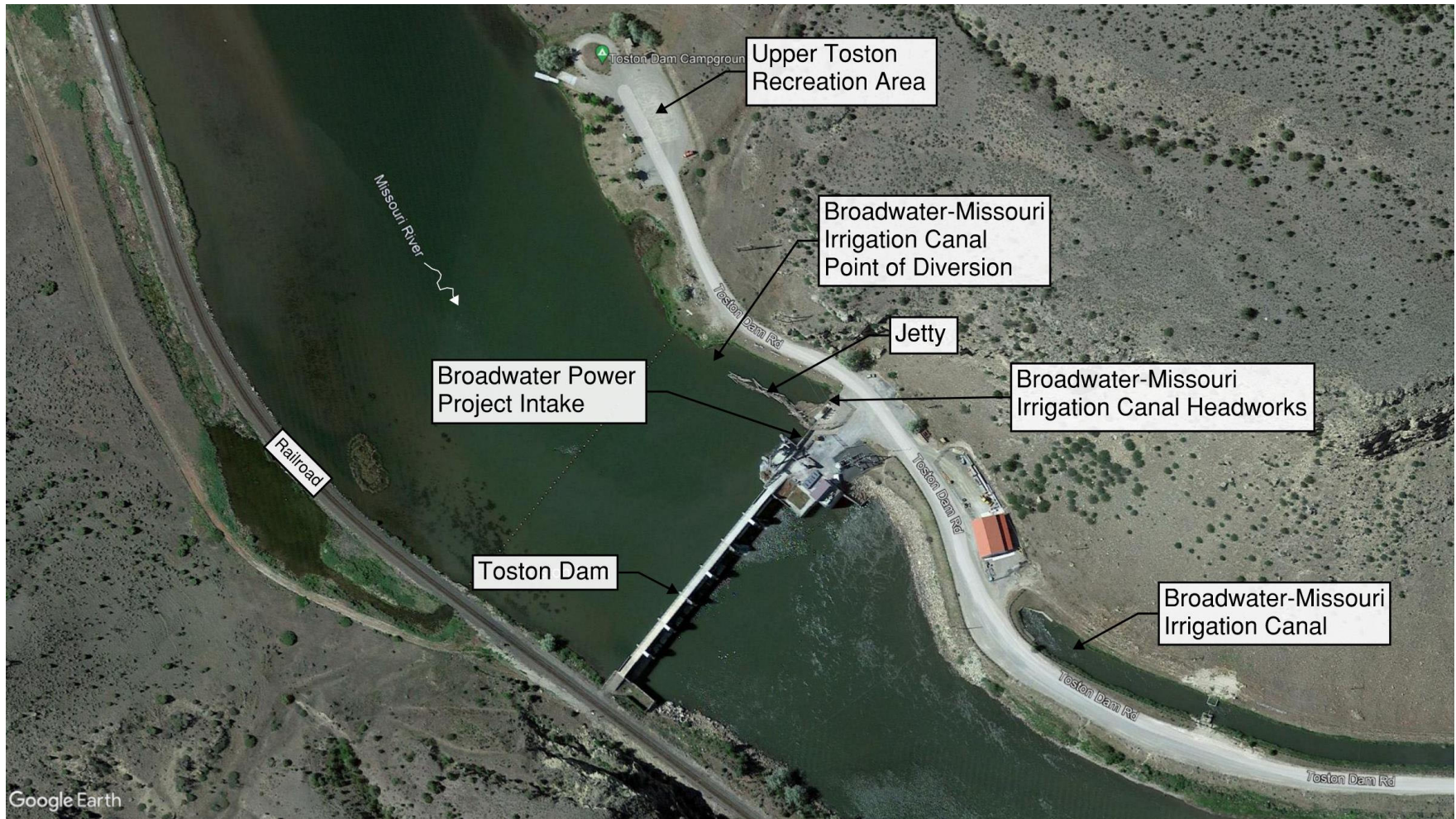


Figure 2. Site Map and Dam Features

A. Name of Project:

Jetty Replacement and Main Canal Improvements Project

B. Project Owner and Applicant:

Montana DNRC - Water Resources Division State Water Projects Bureau
1424 9th Ave.
Helena, MT 59620
406-444-6646

C. Anticipated Schedule:

The anticipated schedule is approximate and subject to change as design progresses.

Preliminary Design and MEPA Clearance	Spring 2023
Final Design and Permitting	2023-2024
Construction	Fall 2024-2025

D. Location:

The proposed project is located at the southern terminus of Toston Dam Road in Township 4N, Range 3E, Section 07. Refer to **Figure 1**.

E. Project Size:

Estimate the number of acres that would be directly affected that are currently:

<u>LAND USE</u>	
a. Developed:	
Residential	0
Industrial	0
b. Open Space/Woodlands/Recreation	0
c. Wetland/Riparian	<1
d. Floodplain	<1
e. Productive	
Irrigate Cropland	0
Dry Cropland	0
Forestry	0
Rangeland	0
Other	0

F. Local, State or Federal Agencies with Overlapping or Additional Jurisdiction:

a. Permits:

Agency Name Permits

U.S. Army Corps of Engineers	Clean Water Act Section 404 Rivers and Harbors Act Section 10
Federal Energy Regulatory Commission (FERC)	Approval ¹
Montana Fish, Wildlife, and Parks	SPA 124 Permit
Montana Department of Environmental Quality	401 Certification 318 (turbidity) Authorization MPDES General Permit for Stormwater Discharges (if disturbance is ≥ one acre) MPDES General Permit for Construction Dewatering
Montana Department of Natural Resources and Conservation	Easement on Navigable Waters
Broadwater County Floodplain Administration	Floodplain Development Permit

b. Other Overlapping or Additional Jurisdictional Responsibilities:

Agency Name Type of Responsibility

Montana Natural Heritage Program	Species of Concern
State Historic Preservation Office	Cultural Clearance

G. Description and Analysis of Reasonable Alternatives:

The *Broadwater Dam Project Jetty Replacement, Erosion Control, and Canal Intake Gates Preliminary Engineering Report (PER)*, developed by HDR Engineering on August 20, 2021 (included as Appendix A), included a detailed evaluation of a full range of reasonable alternatives to improve operations of the dam. The alternatives evaluation was conducted for the jetty rehabilitation project using a modified pairwise ranking method that ranked multiple criteria related to strengths and weaknesses of each alternative as well as how each addressed the project goals and objectives.

The descriptions below include an Alternative A, the Preferred Alternative, and Alternative B, the No-action Alternative as developed in the PER. The additional alternatives not carried forward from the PER are summarized in the “Other Alternatives Considered” section below. For a full description of each alternative, refer to the PER in Appendix A.

¹ The Proposed Action, because it is within the FERC project boundary and features affected are listed as project features, will require approval by FERC. DNRC has described this action in its license application currently under review by the Commission.

Alternative A: This alternative is the Preferred Alternative (i.e., Proposed Action) as recommended by the August 2021 PER. This alternative is the “Box Culvert” alternative and includes protection of the inlet channel upstream of the dam through the addition of box culverts that will consist of a tilted screen at the approximate location of the current bridge from shore to the end of the jetty; two parallel 100’ long 10’ x 10’ culverts; and a bulkhead near the current canal headworks. The existing canal headworks will remain in place and the existing jetty will be removed. The area landward of the new culverts will be backfilled and the water side will be stabilized and protected with riprap. Refer to **Figure 3** for a conceptual layout and Section H, below, for a detailed description.

Alternative B: This alternative is the No-action Alternative. The No-action Alternative involves continuing to operate the canal headworks and Powerhouse intake in its current condition with no additional improvements or modifications to the system. Under the No-action Alternative no modifications will occur. No measures will be taken to protect irrigation canal headworks from floating debris or reduce the sediment deposition in inflow at the irrigation canal headworks. The existing canal gates will not be replaced and continue to leak.

Other Alternatives Considered: The following include conceptual design alternatives described in the PER that were dismissed from further consideration for various reasons. These alternatives are described in greater detail within Appendix A.

- Floating Debris Barrier
- Floating Breakwater
- Riprap Jetty (Jetty Reconstruction)
- Flexible Intermediate Bulk Container (FIBC) Jetty (Jetty Reconstruction)
- Grout Jetty (Jetty Reconstruction)
- Sheet Pile Jetty Structure (Jetty Reconstruction)
- Trash Rake System
- Relocate Irrigation Headworks Upstream
- Relocate Irrigation Headworks Downstream

Components Common to All Alternatives

There are two project components that are common to all design alternatives: replacement of the four gates comprising the canal headworks structure, and improvements to the current Broadwater-Missouri Canal infrastructure that include a wasteway, turnout, water measurement, and headgate within the irrigation canal.

H. Narrative Summary of the Proposed Action:

The Proposed Action involves protection of the inlet channel upstream of the dam through the addition of box culverts that will consist of an inlet structure with trash rack screen; two parallel 100’ long 10’ x 10’ culverts; and a bulkhead near the current canal headworks. The existing canal headworks will remain in place and the existing jetty will be removed. The area landward of the new culverts will be backfilled and the water side will be stabilized and protected with riprap. Refer to **Figure 3** for a conceptual layout.

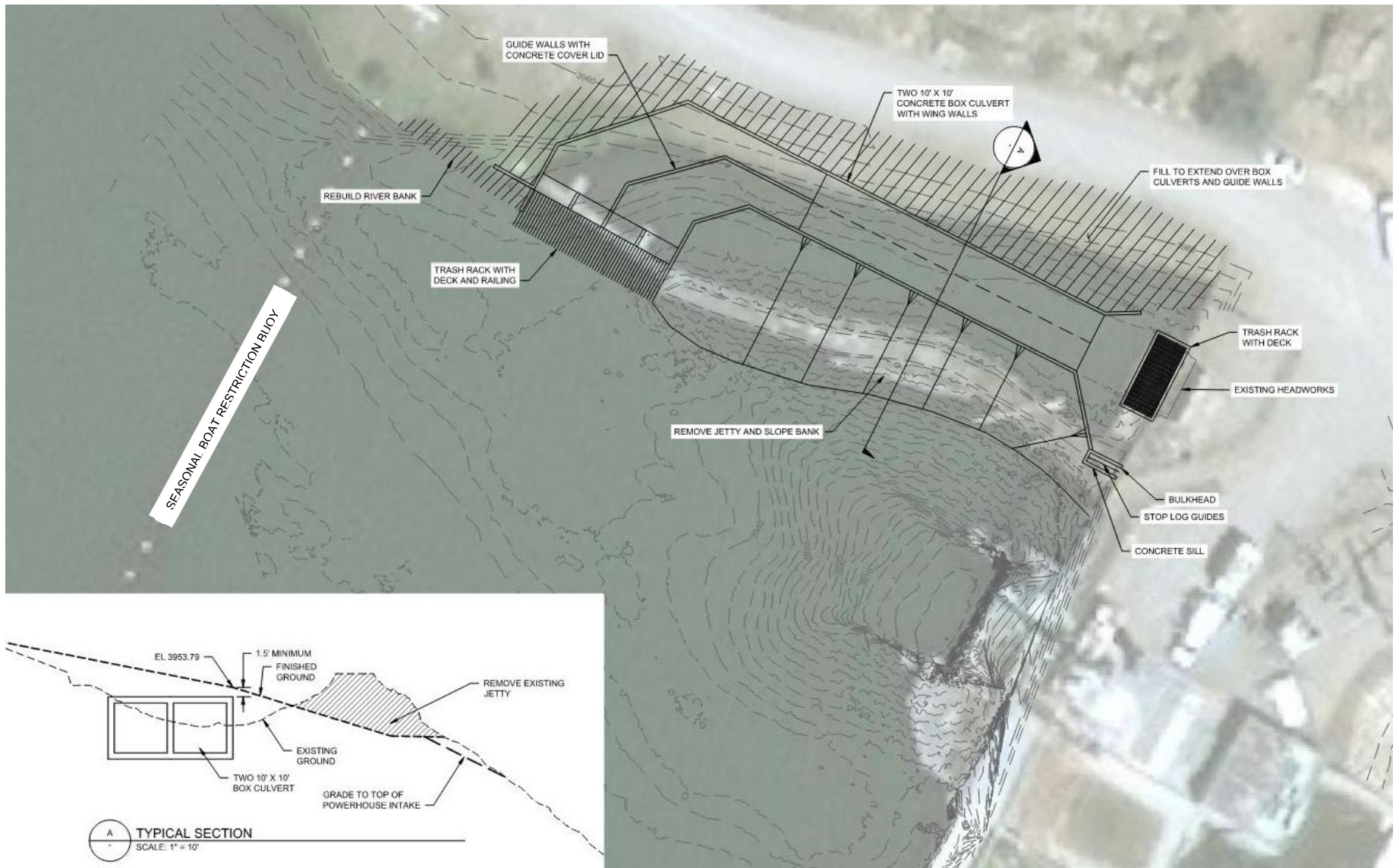


Figure 3. Box Culvert Conceptual Layout

The inlet alignment is preliminary and will provide increased protection from debris entrainment and will be optimized during final design. The new inlet will include safety features for access and maintenance to a new concrete sill and cutoff wall in front of the structure. The inlet will be designed with a nearly 90-degree bend downstream for tying into the box culverts with walls and vanes to reduce head losses. Total head requirements and losses will be evaluated during final design to verify the capacity to deliver required irrigation diversions. A schematic cross section of the canal headworks for this alternative is shown in **Figure 3**.

Extension of the box culvert and construction of the new inlet structure will require rebuilding of the bank into the reservoir. The reconstructed bank will be armored with riprap recycled from the existing jetty embankment. Dewatering of the project area is likely necessary to facilitate construction of the proposed action. Additional geotechnical investigations will determine the appropriate dewatering methods for constructability. In addition, lowering the reservoir elevation to assist dewatering may be necessary. Reduced reservoir elevations should be outside of irrigation demands, not interrupt power generation, or increase sedimentation transport through the power project intake. A portion of the existing rock jetty will be available for regrading and stabilizing the channel slope from the box culverts to the powerhouse turbine intake channel.

Advantages of the Proposed Action include the following:

- Will not require reconstruction of the jetty,
- The new inlet structure will be constructed to naturally deflect debris,
- The new inlet location will reduce the potential impacts caused by debris released from the powerhouse intake during sudden shutdowns,
- The new location will be less susceptible to sedimentation,
- The existing jetty riprap will be reused as backfill/armor protection around the river side of the new box culverts,
- The existing roadway will not have to be relocated saving significant dollars in earthwork/blasting as well as providing traffic control to maintain access to public BLM recreation site during construction,
- Extending the distance from the roadway to the edge of water increases roadway safety and reduces the need for additional roadway safety features,
- The canal headworks location and construction will address channel stabilization.

Disadvantages of the Proposed Action include the following:

- Initial cost,
- Significant construction work within the reservoir,
- Additional geotechnical investigations will be recommended for design,
- Extensive dewatering will be required.

The Proposed Action includes replacing the existing irrigation canal headworks slide gates in-kind. The slide gates will be replaced with new 48x87-inch stainless steel surface mounted slide gates with 16-foot-tall frames designed for 15 feet of seating and unseating head and seals to minimize leakage. Final gate design will occur during final design of the box culvert layout.

The Proposed Action also includes improvements to the Broadwater-Missouri Canal involving the installation of a wasteway connection to the Missouri River, a gated turnout integrated into

the wasteway, a secondary headgate followed by an additional water measurement station, a down canal headgate, and incorporation of an automated system to control the primary headgate. The wasteway will increase safety of the system by preventing canal overtopping scenarios from unbalanced canal flows and/or down canal conveyance obstructions. The turnout will facilitate alternative water deliveries and evacuation of sediment, and the additional water measurement station will allow for water measurement in the canal and turn out. Installation of a secondary headgate down canal from the wasteway will isolate the main canal from the reservoir, which will reduce flow rate variations related to fluctuations in the reservoir level. An automated system along with electronic water level monitoring may be installed in the canal to monitor canal depths. The monitoring system will be linked to gate controls on the primary headgate so the water level and associated flow rates could be adjusted without operator intervention. See **Figure 4** for an overview and **Figure 5** for the conceptual layout of the irrigation canal infrastructure improvements. **Figure 6** provides representative photos of the existing jetty and irrigation canal headworks.



Figure 4: Overview of Broadwater-Missouri Canal Improvements



Figure 5: Conceptual Layout of Broadwater-Missouri Canal Improvements



Figure 6: Representative Site Photos of the Existing Jetty and Irrigation Canal Headworks (photos taken July 2017)

I. Evaluation and Listing of Mitigation, Stipulation, or Other Control Measures Enforceable by the Agency or Another Government Agency:

The project will employ Best Management Practices, which are designed to reduce or eliminate environmental effects, namely sediment transport to waterways during construction. DNRC will develop the final design and specifications for the Proposed Action to include these requirements. All county, state and federal permits listed in Part I, Section F above will be obtained by DNRC or the contractor, as applicable, and the construction contractor will be required to adhere to any stipulations or special conditions included in the authorizations. A private contractor selected through the State's public contracting processes will complete the construction.

PART II. ENVIRONMENTAL REVIEW CHECKLIST

Evaluation of the impacts of the Proposed Action including secondary and cumulative impacts on the Physical and Human Environment.

A. PHYSICAL ENVIRONMENT

1. Land Resources

1. LAND RESOURCES	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
Will the proposed action result in:						
a) Soil instability or changes in geologic substructure?		X				1a.
b) Disruption, displacement, erosion, compaction, moisture loss, or over-covering of soil, which would reduce productivity or fertility?		X				1b.
c) Destruction, covering or modification of any unique geologic or physical features?		X				
d) Changes in siltation, deposition or erosion patterns that may modify the channel of a river or stream or the bed or shore of a lake?			X			1d.
e) Exposure of people or property to earthquakes, landslides, ground failure, or other natural hazard?		X				

- 1a. The project area (non-water area) is comprised primarily of Nielsen channery loam (15 to 60 percent slopes). The Natural Resources Conservation Service (NRCS) describes this soil type as well drained and derived from loamy shale parent material. This soil type does not have a hydric rating and is classified as Not Prime Farmland (NRCS 2022). The project area is in the Spokane Formation (Middle Proterozoic) (map unit symbol Ys) geologic setting and no known unique features are within the immediate project area. The NRCS soil report is provided as Appendix B.

Construction of the project will result in short-term soil instability in areas where excavation and/or streambank reconstruction is occurring. These areas will be restored following completion of the project.

- 1b. Temporary, short-term adverse effects are anticipated due to the increased potential for erosion during construction caused by heavy equipment working along the shoreline and within the river and temporary destabilized slopes. These potential adverse effects will be limited to the time needed to construct the project and until soils are stabilized.

Standard Best Management Practices will be implemented to mitigate the short-term construction impacts.

- 1d. Implementation of the Proposed Action will involve modifications to the irrigation canal headworks and intake areas of the dam and require placement of riprap and concrete within the ordinary high-water mark of the Missouri River. The Proposed Action will modify the current left bank area of the river channel by installing the box culvert and grading in the channel to reconfigure the riverbank. The river channel in the project area has been heavily modified in the past due to construction of the dam and dam operations. These modifications are anticipated to have negligible effect on the siltation, deposition, or erosion patterns that may affect the river channel.

2. Air

2. <u>AIR</u> Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Emission of air pollutants or deterioration of ambient air quality?		X				2a.
b) Alteration of air movement, moisture, or temperature patterns or any change in climate, either locally or regionally?		X				
c) Adverse effects on vegetation, including crops, due to increased emissions of pollutants?		X				

The project area is in an area that is in full attainment of National Ambient Air Quality Standards (NAAQS). The project area is not influenced by any special air quality regulations.

- 2a. Implementation of the Proposed Action will result in minor and short-term increase of emissions from operation of construction equipment. There will be a temporary increase in diesel exhaust and carbon monoxide from equipment used during construction. Dust may be temporarily generated during construction of the Proposed Action. Best Management Practices will be followed during all phases of construction to minimize emission risks and reduce dust. These impacts are anticipated to occur over a relatively short timeframe during construction and have no long-term adverse effect on the local or regional air quality. Minimal area of disturbance is anticipated and, therefore, issues due to fugitive dust and/or airborne particulates are expected to be negligible during construction.

3. Water

3. <u>WATER</u> Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Discharge into surface water or any alteration of surface water quality including but not limited to temperature, dissolved oxygen, or turbidity?		X				3a.
b) Changes in drainage patterns or the rate and amount of surface runoff?		X				
c) Alteration of the course or magnitude of floodwater or other flows?		X				
d) Changes in the amount of surface water in any water body or creation of a new water body?		X				
e) Exposure of people or property to water related hazards such as flooding?		X				
f) Changes in the quality of groundwater?		X				
g) Changes in the quantity of groundwater?		X				
h) Increase in risk of contamination of surface or groundwater?		X				3h.
i) Effects on any existing water right or reservation?			X		Yes Positive	3i.
j) Effects on other water users as a result of any alteration in surface or groundwater quality?		X				
k) Effects on other users as a result of any alteration in surface or groundwater quantity?		X				
l) Will the project affect a designated floodplain?			X			3l.
m) Will the project result in any discharge that will affect federal or state water quality regulations?		X				3m.

The project area is located within the Upper Missouri subbasin (hydrologic unit code [HUC] 10030101) and the Headwaters Missouri River watershed (HUC 1003010105). The Upper

Missouri subbasin drains an area of approximately 8,677 square kilometers. The project is located at the lower terminus of the Missouri River, headwaters to Toston Dam water quality assessment unit. This section of the Missouri River is listed as impaired on the State of Montana 303(d) list of impaired waterbodies. This assessment unit is documented as not fully supporting the beneficial uses of aquatic life and drinking water (DEQ 2022). A Total Maximum Daily Load has not been completed for this assessment unit.

The project area is located upstream of the Toston Dam on the left bank as well as immediately downstream of the dam within the Broadwater-Missouri Irrigation Canal. The dam impounds the river slightly, as a 2018 bathymetric survey showed the reservoir area to be approximately 275 acres and the volume to be approximately 2,400 acre-feet. Presently, the Proposed Action is not expected to require lowering the reservoir level to facilitate construction.

3a. Implementation of the Proposed Action will involve discharge into surface waters (Missouri River) due to placement of riprap and grading required to install the box culvert and construct the irrigation canal wasteway and energy dissipation structure on the left bank downstream of the dam. Short-term impact to water quality due to increased turbidity and sedimentation is anticipated as a result of soil disturbance occurring along the shoreline and within the river. Adverse effects to water quality will be minimized to the extent practicable through implementation of standard temporary and permanent Best Management Practices (BMPs), including the contractor requirement to utilize clean equipment and riprap that is clean of foreign materials.

Dewatering is anticipated during construction; however, exact construction methods are not available and will be determined by the contractor. The contractor will be required to obtain coverage under the Montana Pollutant Discharge Elimination System (MPDES) for dewatering activities.

3h. The use of heavy equipment during construction, especially operating near or within the river, will result in a slight risk of contamination from petroleum products. Soil disturbance during construction will temporarily increase potential for sediment delivery to the Missouri River. Permit requirements and the installation of temporary and permanent BMPs will be followed during all phases of construction to minimize these risks.

3i. The proposed irrigation canal improvements have a primary goal of continued facilitation and improvement of water delivery into the Broadwater-Missouri Canal system. The Proposed Action will have beneficial impact on existing water users.

3l. The proposed project will involve placement of fill material within a FEMA-regulated floodplain and require a floodplain development permit from Broadwater County. The proposed project is consistent with floodplain regulations and will not result in adverse effect to the floodplain or increase flood risk downstream.

3m. The project will be constructed in full accordance with the stipulations and conditions of the federal and state water quality permits obtained for the project. A 318 Authorization for any short-term turbidity effects that occur during construction will be required.

4. Vegetation

4. VEGETATION	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
Will the proposed action result in:						
a) Changes in the diversity, productivity or abundance of plant species (including trees, shrubs, grass, crops, and aquatic plants)?		X				4a.
b) Alteration of a plant community?		X				
c) Adverse effects on any unique, rare, threatened, or endangered species?		X				4c.
d) Reduction in acreage or productivity of any agricultural land?		X				
e) Establishment or spread of noxious weeds?			X		Yes	4e.
f) An effect on wetlands, or prime and unique farmland?		X				4f.

The general project area land cover type is predominantly classified as Rocky Mountain Lower Montane, Foothills, and Valley Grassland, which is typified by perennial bunch grasses and forbs and sparse shrub cover. Other less prominent land cover types include Big Sagebrush Steppe and Open Water.

An on-site field investigation was conducted on May 24, 2022, to review the project area for wetlands and characterize existing vegetation. Site-specific vegetation within the project area includes several grass species located along the road: smooth brome, crested wheatgrass, Kentucky bluegrass, cheatgrass, bluebunch wheatgrass, and Great Basin wildrye, as well as reed canary grass fringing the main canal and Missouri River downstream of the dam. The riverbank downstream of the dam is steep and rocky with sparse vegetation.

- 4a. The Proposed Action will have no impact on the plant diversity, productivity, or abundance. Impacts to existing vegetation will be negligible under the Proposed Action. Most of the shoreline affected by the Proposed Action is currently ripped with very little existing vegetation. The construction area footprint will be minimized to the extent possible to avoid impacting any existing vegetation. The proposed design will incorporate revegetation of native grasses along the restored riverbank.
- 4c. According to the Montana Natural Heritage Program (MTNHP), the following two plant species of concern (SOC) that may occur in the project vicinity include Limestone Larkspur and Andean Water-milfoil (MTNHP 2022a). Due to the presence of existing

riprap lining the riverbanks and general lack of vegetation within the immediate project area, neither of these plant SOC's is expected to occur and no impact on these species is anticipated. The MTNHP report is provided as Appendix C.

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool was used to identify threatened or endangered species with potential to occur in the project vicinity. According to the IPaC query, the Ute Ladies'-tresses has potential to occur in the project vicinity (USFWS 2022). The MTNHP Natural Heritage Map Viewer Generalized Observations database was reviewed to identify any documented observations of Ute Ladies'-tresses in the immediate project area. Per the MTNHP database, Ute Ladies'-tresses has not been documented in the project area (MTNHP 2022b). No impact to Ute Ladies'-tresses is expected to occur. The IPaC report is provide as Appendix D.

- 4e. Soils disturbed during construction have potential to colonize with noxious weeds. To mitigate this risk, where reclamation of disturbed slopes is desirable, areas will be reseeded with a native reclamation seed mix to reduce the establishment of weeds. Additionally, the contractor will be required to bring in clean equipment to the project site.
- 4f. No wetlands were observed within the project area during the May 24th, 2022, field investigation. The riverbank upstream of the dam is mostly vertical banks with some observed erosion. Downstream the riverbank is stable, and rocky and steep next to the flowing channel. No wetland fringe exists along the bank of the Missouri River or the main canal. No prime or unique farmland exists within the project area.

5. Fish/Wildlife

5. FISH/WILDLIFE Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Deterioration of critical fish or wildlife habitat?			X			5a.
b) Changes in the diversity or abundance of game animals or bird species?		X				
c) Changes in the diversity or abundance of nongame species?		X				
d) Introduction of new species into an area?		X				
e) Creation of a barrier to the migration or movement of animals?		X				
f) Adverse effects on any unique, rare, threatened, or endangered species?		X				5f.
g) Increase in conditions that stress wildlife populations or limit abundance (including harassment, legal or illegal harvest or other human activity)?		X				
h) Will the project be performed in any area in which T&E species are present, and will the project affect any T&E species or their habitat? (Also see 5f.)		X				See 5f.
i) Will the project introduce or export any species not presently or historically occurring in the receiving location?		X				

j) Is the project located within critical sage grouse habitat defined by the Montana Executive Order 12-2015?		X				5j.
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The project area vicinity provides habitat for a variety of wildlife including beaver, muskrat, raccoon, mink, and white-tailed deer. Mule deer and elk use the river and hills upstream and downstream of the Toston Dam (DNRC 1982, FERC 2000). The Montana Natural Heritage Program (MTNHP) has documented a bald eagle nest approximately three miles upstream and multiple golden eagle nests in the project vicinity (MTNHP 2022a).

The Montana Fish, Wildlife and Parks (FWP) document multiple fish species occupying the project area stretch of the Missouri River. Species include rainbow trout, mountain whitefish, arctic grayling, brown trout, longnose dace, mottled sculpin, largemouth bass, yellow perch, northern pike, burbot, common carp, redbelt shiner, longnose sucker, white sucker, mountain sucker, stonecat, and walleye (FWP 2022).

5a. The Proposed Action will have no impact on critical fish or wildlife habitats. The Proposed Action will require in-water disturbances and placement of riprap and concrete within the Missouri River, which will have a minor effect on the aquatic habitat within the immediate affected area. The use of standard BMPs that include erosion and sediment controls will minimize the potential for increases in turbidity and sedimentation.

5f. The MTNHP was consulted to provide a custom environmental summary report for the project area that includes Species of Concern (SOC) that may occur in the project area vicinity. According to the MTNHP, the following SOC may occur in the project vicinity: six mammal species (Little Brown Myotis, Long-eared Myotis, Fringed Myotis, Spotted Bat, Townsend's Big-eared Bat, and Hoary Bat) and four bird species (Bald Eagle, Golden Eagle, Pinyon Jay, and Great Blue Heron) (MTNHP 2022a). The MTNHP report is provided as Appendix C.

The USFWS IPaC tool was used to identify threatened or endangered species with potential to occur in the project vicinity. According to the IPaC query, three federally listed species are potentially affected by activities within the project vicinity: Canada lynx (threatened), monarch butterfly (candidate), and Ute ladies'-tresses (threatened; see Section 4c. above) (USFWS 2022). There are no designated critical habitats in the project vicinity. Due to the lack of suitable habitat in the immediate project area, Canada lynx is not expected to occur. No Canada lynx observations have been documented by the MTNHP in the project vicinity (MTNHP 2022b). Suitable habitat for monarch butterfly is also lacking. The primary larval host plant for this species, milkweed, was not observed in the project area during the May 24, 2022, field investigation and this species is not expected to occur in the project area. The USFWS IPaC report is provided as Appendix D.

Due to the relatively small project footprint, short construction period, and lack of suitable habitat that precludes species' occurrence in the project area, no impacts to any SOC or federally listed threatened or endangered species is anticipated as a result of the project. The Proposed Action is anticipated to have no effect on threatened or endangered species. Adverse cumulative effects are not anticipated.

- 5j. The Montana Sage Grouse Habitat Conservation Program mapping tool was reviewed, and the project area does not intersect with any Greater Sage-Grouse habitat types protected under Executive Order 12-2015 (i.e., General Habitat, Core Area, or Connectivity Area) (MTSGHCP 2022). The proposed project will have no effect on the Greater-Sage Grouse.

B. HUMAN ENVIRONMENT
6. Noise/Electrical Effects

6. NOISE/ELECTRICAL EFFECTS Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Increases in existing noise levels?		X				6a.
b) Exposure of people to severe or nuisance noise levels?		X				
c) Creation of electrostatic or electromagnetic effects that could be detrimental to human health or property?		X				
d) Interference with radio or television reception and operation?		X				

6a. Operation of construction equipment will cause a temporary, minor increase in noise levels at the project site. Any increase in noise level at the construction site will be short-term and minor. Construction will occur during daylight hours only.

7. Land Use

7. LAND USE Will the proposed action result in:	IMPACT					Comment Index
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	
a) Alteration of or interference with the productivity or profitability of the existing land use of an area?		X				7a.
b) Conflicted with a designated natural area or area of unusual scientific or educational importance?		X				
c) Conflict with any existing land use whose presence would constrain or potentially prohibit the proposed action?		X				
d) Adverse effects on or relocation of residences?		X				7d.

The DNRC is presently working with the Federal Energy Regulatory Commission on relicensing the Toston Dam. The dam underwent original licensing in the early 1980s, and the current operating license expires on June 30, 2024. The BLM owns and manages the Upper Toston Recreation Area that is adjacent to the Toston Dam. No specific land use or management plan exists for the Upper Toston Recreation Area; however, the BLM manages the recreation area consistent with the 2009 Butte Resource Management Plan (BLM 2009). The community of Toston, with a population of 100 in 2020 (USCB 2022), is the nearest population area to the project area. No other zoning or management plans relevant to the project area have been identified.

- 7a. The project area is located on state land owned the State of Montana managed by Montana DNRC and used for operation of the Broadwater Dam Project and the Broadwater-Missouri Canal. The proposed project is intended to benefit the existing land use by improving operations of the dam.
- 7d. There is no housing or residences within the project area and no impact or relocation of residences will occur.

8. Risk/Health Hazards

8. RISK/HEALTH HAZARDS Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Risk of an explosion or release of hazardous substances (including, but not limited to oil, pesticides, chemicals, or radiation) in the event of an accident or other forms of disruption?		X				8a.
b) An effect on an existing emergency response or emergency evacuation plan, or create a need for a new plan?		X				
c) Creation of any human health hazard or potential hazard?		X				
d) Use of any chemical toxicants? (Also see 8a.)		X				See 8a.

8a. No impact to human health and safety is anticipated to occur as a result of the Proposed Action. Public access to the Toston Dam has always been allowed and will continue to be allowed during construction, unless a safety issue is identified and a temporary public closure is warranted. The Proposed Action will have no impact on public access to the BLM Upper Toston Recreation Area. Construction of the proposed project is not anticipated to create any human health and safety concerns for the general public. The construction contractor will have specific safety protocols in place during construction to protect its employees.

There is a minor and temporary risk of fuel or oil from heavy equipment accidentally releasing on the project site during construction. The contractor will follow their standard spill prevention protocols and should have absorbent materials on site to respond to any accidental release. Similarly, standard Best Management Practices such as conducting daily startup inspection of all hydraulic lines and cylinder seals will reduce the potential for a release.

9. Community Impact

9. COMMUNITY IMPACT Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Alteration of the location, distribution, density, or growth rate of the human population of an area?		X				9a.
b) Alteration of the social structure of a community?		X				
c) Alteration of the level or distribution of employment or community or personal income?		X				9c.
d) Changes in industrial or commercial activity?		X				9d.
e) Increased traffic hazards or effects on existing transportation facilities or patterns of movement of people and goods?		X				9e.

Employment opportunities within the project area are limited to a few DNRC staff who operate and maintain the Power Project. Areas of employment adjacent to the project area are limited to BLM staff who visit the recreation area. No other employment opportunities exist in the project area or vicinity.

- 9a. The Proposed Action will have no effect on the density and distribution of population and housing because none exist within the project area. The proposed project has no potential to influence population distribution or housing given the nature of the work.
- 9c. The Proposed Action will have no long-term effect on the quantity or distribution of employment. Implementation of the Proposed Action will result in minor and short-term beneficial impacts on employment due to the creation of temporary construction jobs. There will also be a onetime increase in spending to procure the construction materials, some of which may be purchased locally.
- 9d. No impact on industrial or commercial activities or production will occur as a result of the Proposed Action because these activities do not currently exist in the immediate project area.
- 9e. Construction of the project will result in additional traffic on Toston Dam Road to transport materials, equipment, and laborers to the project site. There will be no change to existing traffic patterns, however, and any traffic-related effects will be short-term and minor.

10. Public Services/Taxes/Utilities

10. PUBLIC SERVICES/TAXES/UTILITIES	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
Will the proposed action result in:						
a) An effect upon or result in a need for new or altered governmental services in any of the following areas: fire or police protection, schools, parks/recreational facilities, roads or other public maintenance, water supply, sewer or septic systems, solid waste disposal, health, or other governmental services? If any, specify:		X				10a.
b) An effect upon the local or state tax base and revenues?		X				10b.
c) A need for new facilities or substantial alterations of any of the following utilities: electric power, natural gas, other fuel supply or distribution systems, or communications?		X				
d) An increased use of any energy source?		X				
e) Any change or increase in projected maintenance costs.			X			10e.

- 10a. The Proposed Action will have no effect on the demand for government services and no requirements for fire protection, police, schools, or other governmental services.
- 10b. The property on which the project is located does not contribute to the local tax base or revenue and the project will have no effect on local and state tax base or tax revenues.
- 10e. The Proposed Action will positively reduce maintenance cost of the jetty and canal headworks cleaning.

11. Aesthetics/Recreation

11. AESTHETICS/RECREATION Will the proposed action result in:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Alteration of any scenic vista or creation of an aesthetically offensive site or effect that is open to public view?			X			11a.
b) Alteration of the aesthetic character of a community or neighborhood?		X				
c) Alteration of the quality or quantity of recreational/tourism opportunities and settings?		X				11c.
d) Impacts to wild or scenic rivers, trails or wilderness areas?		X				

The existing project area aesthetics are defined by the surrounding hillsides and mountains, the Missouri River and reservoir, and the dam and associated infrastructure and buildings. Just northwest of the project area is the BLM Upper Toston Recreation Area, which consists of gravel parking area, picnic pavilions and tables, a bathroom, campsites, and boat launch and floating dock. Large, mature Russian olive trees exist at the north end of the recreation area and smaller trees exist between the shoreline and parking area. A transmission line traverses the east side of the recreation area.

- 11a. The aesthetics of the project area will change only minimally under the Proposed Action due to the modifications to the irrigation canal headworks and intake areas of the dam as well as the irrigation canal modifications occurring on the downstream side of the dam. Large areas of riprap already exist immediately upstream and downstream of the dam and construction of the Proposed Action is not anticipated to appreciably change the visual character of the project area. Temporary visual effects will occur during construction due to the operation of equipment and temporary stockpiles of rock and exposed sediments. These effects will be short-term in duration and the site will be restored following completion of the project.
- 11c. Recreational activities at the adjacent BLM Upper Toston Recreation Area will not be interrupted by the project. Short-term and temporary disruptions to accessing the BLM site will be expected during construction, but overall access to the recreation site will not be affected.

12. Cultural/Historic Resources

12. CULTURAL/HISTORICAL RESOURCES	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
Will the proposed action result in:						
a) Destruction or alteration of any site, structure or object of prehistoric historic, or paleontological importance?		X				12a.
b) Physical change that would affect unique cultural values?		X				
c) Effects on existing religious or sacred uses of a site or area?		X				
d) An effect on historic or cultural resources? (Also see 12.a.)			X			12d.

12a. Previous cultural resource investigations have occurred in the project area in the mid- to late-1980s as part of the original FERC licensing project. Investigations involved documentation of cultural sites within the FERC Area of Potential Effect (APE), an area that includes around the dam, the transmission line leading north to the substation, and approximately 4 river miles upstream of the dam. There are three cultural resource sites in the vicinity of the proposed action: Site 24BW126 (Broadwater-Missouri Diversion Project and Broadwater Dam Project Historic District), Site 24BW499 (Historic Irrigation System: Broadwater-Missouri eastside and westside canals), and Site 24BW149 (Possible Corps of Discovery campsite). Sites 24BW126 and 24BW499 are eligible for the National Register of Historic Places (NRHP) and Site 24BW149 is thought to either be destroyed or inundated by reservoir waters.

In 2020, the DNRC developed a Heritage Resource Management Plan as part of the Broadwater Dam Project FERC relicensing effort wherein it was determined that no effect to historic properties will occur. The 2020 report presents the results of Class II Survey (literature review) of the Project APE and a 0.5-mile buffer around the APE, as well as limited Class III Survey (field inspection) efforts of portions of the APE.

The Proposed Action will involve removal of the riprap jetty; however, the jetty was constructed in 2000 and is not a contributing element to Site 24BW126. The Proposed Action also involves minor modifications to Site 24BW499 to implement the proposed irrigation improvements.

12d. Consultation with the State Historic Preservation Office (SHPO) has been conducted specific to the irrigation improvements (Proposed Action). DNRC personnel met with SHPO staff on March 24, 2023. SHPO will require a site update form for the APE

specific to 24BW499, which is the Broadwater-Missouri west side canal. SHPO indicated the project area has numerous cultural inventories on file and our project is likely to not have an adverse effect on 24BW499.

C. SIGNIFICANCE CRITERIA

13. Summary Evaluation of Significance

13. SUMMARY EVALUATION OF SIGNIFICANCE Will the proposed action, considered as a whole:	IMPACT					
	Unknown	None	Minor	Potentially Significant	Can Impact Be Mitigated	Comment Index
a) Have impacts that are individually limited, but cumulatively considerable? (A project or program may result in impacts on two or more separate resources that create a significant effect when considered together or in total.)		X				
b) Involve potential risks or adverse effects, which are uncertain but extremely hazardous if they were to occur?		X				
c) Potentially conflict with the substantive requirements of any local, state, or federal law, regulation, standard or formal plan?		X				
d) Establish a precedent or likelihood that future actions with significant environmental impacts will be proposed?		X				
e) Generate substantial debate or controversy about the nature of the impacts that would be created?		X				

Minor and temporary impacts to the physical environment are anticipated during construction of the Proposed Action. These minor impacts will be short-term and primarily involve minor impact to the water quality of the Missouri River due to in-water construction resulting in temporary increases in turbidity. The Proposed Action will have no negative cumulative effects on the biological, physical, and human environments. The Proposed Action will not result in significant environmental impacts.

PART III. NARRATIVE EVALUATION AND COMMENT

Implementation of the Proposed Action will have minor adverse effects to water quality due to soil excavation and grading along the shoreline and fill being placed within the Missouri River and Broadwater-Missouri Main Canal. The Proposed Action will also result in short-term construction impacts due to emissions, noise, energy consumption, and temporary soil disturbance. These impacts are short-term and will last only as long as construction does, after which a return to baseline conditions would be expected. The anticipated impacts should be adequately mitigated through reclamation and revegetation of the project site to the extent practicable and implementation of standard Best Management Practices by the contractor during construction.

The Proposed Action will have no negative cumulative effects on the biological, physical, and human environments. The Proposed Action will not result in significant environmental impacts and should result in several important benefits to the environment due to improved operations at the hydroelectric facility and improvements to the Broadwater-Missouri Canal and its irrigation users.

Canada lynx and Ute ladies'-tresses are the only federally listed endangered species that have been identified as potentially occurring in the project vicinity. Based on the limited scope of the project, short construction period, and lack of suitable habitat in the project area, no impacts to either federally listed species is anticipated as a result of the project.

Soils disturbed during construction could colonize with weeds. Disturbed areas will be reseeded with a native seed mix where necessary to reduce the establishment of weeds. In conjunction with county weed control district, DNRC will use methods to control weeds in the project area as part of their operations and maintenance work at the project site.

PART IV. PUBLIC PARTICIPATION

A. Public Involvement:

DNRC has determined the proposed action will result in limited environmental impact and the following public notice strategy will provide an appropriate level of public review. DNRC did not perform any formal public scoping for this project and no public comment was sought. DNRC will post a draft of this Environmental Assessment for public comment for 30 days on the DNRC – Public Information, Environmental Documents webpage: <https://dnrc.mt.gov/Environmental-Docs/>

Other regulatory agencies involved (see Part I, Section G. above) include the U.S. Army Corps of Engineers; Montana Fish, Wildlife, and Parks; Montana Department of Environmental Quality; and the Broadwater County Floodplain Administration. Regulatory agencies and adjacent landowners will be informed of the project via the Joint Application for Work in Montana's Streams, Wetlands, Floodplains, and Other Water Bodies and/or the Montana Land-Use License or Easement on Navigable Waters.

B. Duration of Comment Period:

The public comment period will extend for (30) thirty days. Written comments will be accepted until 11:59 p.m. on May 12, 2023, and can be e-mailed to MMcNearney@mt.gov or mailed to the address below:

Jetty Replacement and Main Canal Improvements Project
DNRC Water Resources Division
State Water Projects Bureau (SWPB) c/o Mark McNearney, P.E.
1424 9th Ave.
Helena, MT 59620

PART V. EA PREPARATION

A. Based on the significance criteria evaluated in this EA, is an EIS required? *NO If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action.*

Based on an evaluation of impacts to the physical and human environment under MEPA and criteria established in ARM 36.2.524, this environmental review revealed no significant negative impacts and, therefore, an EIS is not necessary, and an environmental assessment is the appropriate level of analysis. In determining the significance of the impacts, the DNRC assessed the severity, duration, geographic extent, and frequency of the impact, the probability that the impact would occur or reasonable assurance that the impact would not occur. DNRC also assessed the growth-inducing or growth-inhibiting aspects of the impact, the importance to the state and to society of the environmental resource or value affected, any precedent that would be set as a result of an impact of the Proposed Action that would commit DNRC to future actions, and potential conflicts with local, federal, or state laws. As this EA revealed no significant impacts from the proposed action, an EA is the appropriate level of review and an EIS is not required.

B. Person Responsible for Preparing the EA:

Jonathan Schick, CEP
Environmental Planner
HDR Engineering, Inc.
700 SW Higgins Avenue, Suite 200
Missoula, MT 59803

C. List of Agencies Consulted During Preparation of the EA:

Montana Natural Heritage Program – Environmental Summary Report online request
Montana State Historic Preservation Office
U.S. Fish and Wildlife Service – Information for Planning and Consultation online request
U.S. Department of Interior, Bureau of Land Management Western District Engineering Department

PART VI. REFERENCES

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- MTNHP (Montana Natural Heritage Program). 2022a. Environmental Summary Report for Latitude 46.10249 to 46.13553 and Longitude -111.38482 to -111.42969. Retrieved on 4/22/2022.
- MTNHP. 2022b. Natural Heritage Map Viewer Generalized Observations database. Accessed at <<https://mtnhp.org/mapviewer/?t=7>>. Accessed on May 20, 2022.
- MTSGHCP (Montana Sage Grouse Habitat Conservation Program). 2022. Montana Sage Grouse Habitat Conservation Map. Accessed at <<https://sagegrouse.mt.gov/ProgramMap>>. Accessed on June 8, 2022.
- NRCS (USDA Natural Resources and Conservation Service). 2022. Custom Soil Report for Broadwater County Area, Montana. Report developed April 25, 2022.
- USCB (US Census Bureau). 2022. 2020 Decennial Census. Accessed at <<https://www.census.gov/>>. Accessed on May 17, 2022.
- USFWS (U.S. Fish and Wildlife Service). 2022. IPaC custom report. Accessed 4/22/22.

APPENDICES

- A. Broadwater Dam Project Jetty Replacement, Erosion Control, and Canal Intake Gates Preliminary Engineering Report
- B. USDA Natural Resources Conservation Service Custom Soil Report for Broadwater County Area, Montana
- C. Montana Natural Heritage Program Environmental Summary Report
- D. U.S. Fish and Wildlife Service Information for Planning and Consultation Report
- E. Heritage Resources Management Plan (Rennie 2020), FERC Relicensing Effort

APPENDIX A

Broadwater Dam Project Jetty Replacement, Erosion Control, and Canal Intake Gates Preliminary Engineering Report, August 2021

(SEPARATE ATTACHMENT)

APPENDIX B

USDA Natural Resources Conservation Service Custom Soil Report for Broadwater County Area, Montana

(SEPARATE ATTACHMENT)

APPENDIX C
Montana Natural Heritage Program Environmental Summary
Report

(SEPARATE ATTACHMENT)

APPENDIX D
**U.S. Fish and Wildlife Service Information for Planning and
Consultation Report**

(SEPARATE ATTACHMENT)

APPENDIX E
Heritage Resources Management Plan (Rennie 2020)

(AVAILABLE UPON REQUEST)