US Army Corps of Engineers ®
Walla Walla District
BUILDING STRONG®

MILTON-FREEWATER REHABILITATION
OF THE NURSERY BRIDGE DROP STRUCTURE

PM-EC-2016-0023

ENVIRONMENTAL ASSESSMENT

February 2016

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SECTION 1 - INTRODUCTION

1.1 Introduction

The U.S. Army Corps of Engineers, Walla Walla District (Corps) proposes to repair high flow scouring on the downstream gabions and rip rap of the Nursery Bridge Drop Structure in Milton-Freewater, Oregon under the Corps Rehabilitation Program (RP). The drop structure which was built by the Corps in 1952 to protect the Nursery Street Bridge and a railroad crossing, and supports the diversion of water for a local canal company. The action is proposed to restore reliability and functionality of the structure during high flow and flood stage events.

The Nursery Bridge drop structure was constructed in phases between 1949 and 1952 to arrest degradation that was occurring within the levee system of the Walla Walla River. In 1966 the Corps added a fish ladder for fish passage on the west shore of the drop structure. However, changes in river flows shifted flows from the west shore to the east shore; essentially leaving the fish ladder dry. In 2001, a new fish ladder was constructed on the east shore.

The Corps has repaired the Nursery Bridge drop structure in the past after high flow events in the Walla Walla River. In 2014, a gabion mattress was constructed and the drop structure steel armor plate replaced under the RIP. An Environmental Assessment was prepared prior to that construction and a Finding of No Significant Impact (FONSI) was signed on June 11, 2014 (PM-EC-2013-0090). The proposed repairs are minor in scope relative to the 2014 effort; however, damage may be a continuing problem and the Corps has initiated the process to investigate the feasibility of alternatives to strengthen and reinforce the Nursery Bridge Drop structure. This year's proposed repair is necessary for continued performance of on-going flood risk management operations.

This EA was prepared in accordance with Engineer Regulation (ER) 200-2-2, *Procedures for Implementing NEPA,* and the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA),* Title 40 Code of Federal Regulations (CFR), Part 1500-1508. The objective of the EA is to evaluate potential environmental effects of the proposed Nursery Bridge Drop Structure Rehabilitation Project. If such effects are relatively minor, a Finding of No Significant Impact (FONSI) will be issued and the Corps will proceed with the federal action. If the environmental effects are determined to be significant, an Environmental Impact Statement (EIS) will be prepared before a decision is reached on whether to implement the proposed action. Applicable laws under which these effects will be evaluated include but are not limited to, NEPA, the Endangered Species Act, the Clean Water Act, the Clean Air Act, and the National Historic Preservation Act.

The National Environmental Policy Act is a full disclosure law, providing for public involvement in the NEPA process. All persons and organizations that have a potential interest in this proposed action – including the public, other federal agencies, state and local agencies, Native American tribes, and interested stakeholders – are encouraged to participate in the NEPA process.

1.2 Authority

The Corps has authority under Section 5 of the Flood Control Act of 1941, as amended, (33 U.S.C. 701n), commonly referred to as Public Law 84-99 to undertake activities, including the rehabilitation of flood risk management projects damaged or destroyed by floods. The Corps conducts these activities in accordance with 33 C.F.R. Part 203 and Engineer Regulation 500-1-1, "Civil Emergency Management Program", September 30, 2001. To be eligible, flood risk management projects must be active in the RP. The Nursery Bridge drop structure is eligible for RP assistance. On May 14, 2015, the Milton-Freewater Flood Control District (FCD) requested assistance from the Corps to repair the drop structure, as a result of the high water event between February 9 and 13, 2015. The proposed rehabilitation action is in response to that request.

1.3 Description of the Proposed Action Area

The Nursery Bridge drop structure is located in rural Umatilla County, Oregon, on the Walla Walla River at the intersection of the Walla Walla River and the Eastside Road (45°56'42.56"N, 118°23'4.78"W, Figure 1-1). The repair site is immediately downstream from the intersection of the Walla Walla River and the Eastside Road in Milton-Freewater, Oregon (Figure 1-2). The drop structure is part of the Milton-Freewater Floodwater Flood Risk Reduction Project. The area surrounding the project site is primarily agricultural with some residential areas to the southwest and industrial use to the northwest.

The Walla Walla River is constrained at this location by the Milton-Freewater levee system. The floodplain is virtually non-existent downstream from the project site for approximately two miles but is more functional upstream from the drop structure. This braided section of the river is an unstable channel that migrates within the levee system. The limited corridor of riparian habitat is important for fish and wildlife in the area and is dominated by cottonwood, willow, Russian olive, dogwood, water birch, and alder. While instream fish habitat is limited by low summer flows and high summer water temperatures, the upper Walla Walla River supports important populations of bull trout, Middle Columbia River steelhead, and reintroduced hatchery raised Chinook salmon.

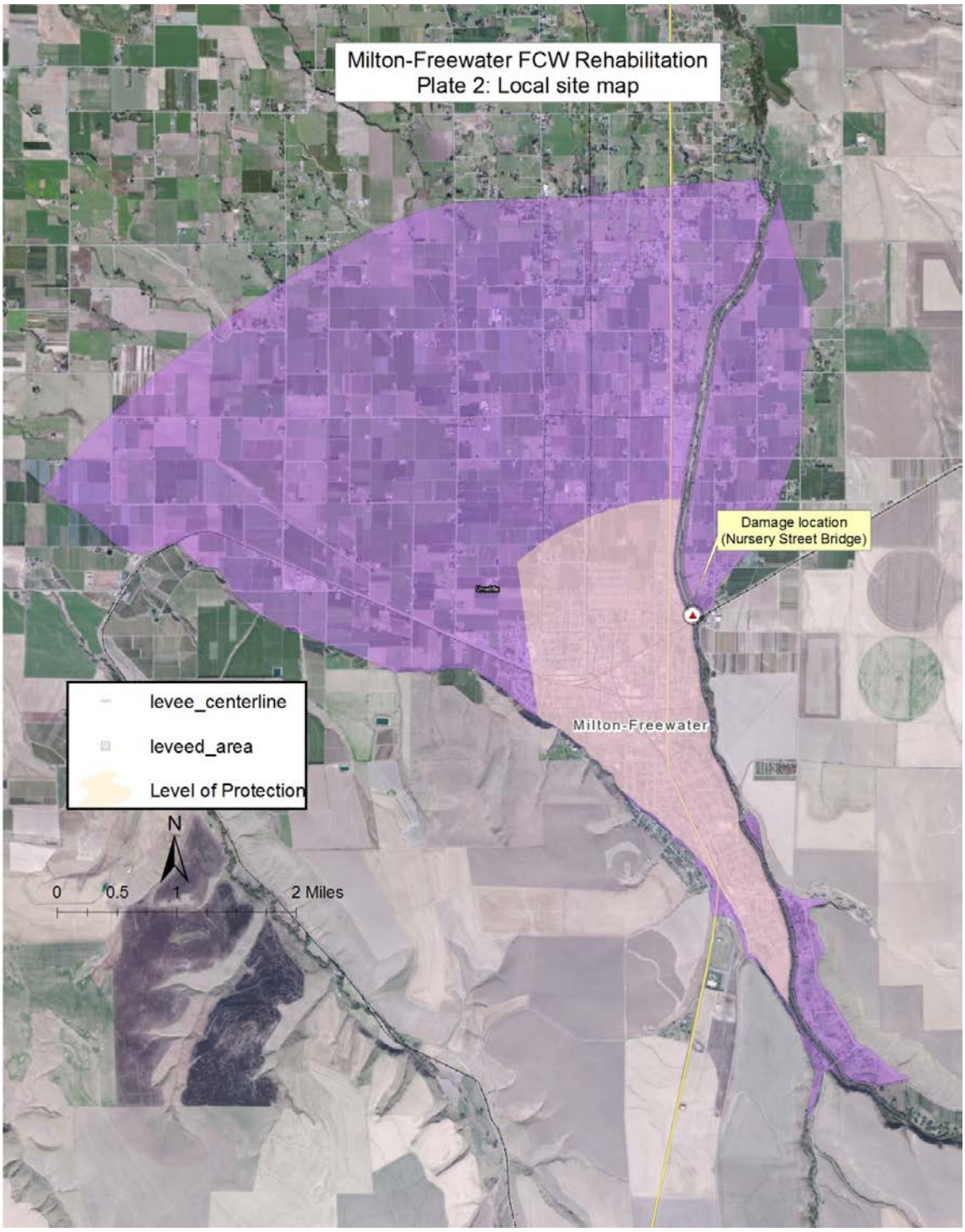

Figure 1-1. Location of the Nursery Bridge Drop Structure in Milton Freewater, Oregon.

For the purposes of this EA, the proposed action area is estimated to encompass approximately 42 acres around the drop structure. This is the estimated area in which wildlife may be disturbed from construction noise. Residences and commercial properties surround the proposed action area and Highway 11 runs north/south directly to the west of the work area. The actual work area is estimated to be approximately 0.21 acre (9,300 square feet) downstream of the drop

structure; however, equipment access may require modifying an access road on the western levee.

1.3 Purpose and Need

The purpose of the proposed action is to restore original flood risk reduction capability of the Milton-Freewater Floodwater Control Project (MFFCP) by repairing damages to the Nursery Bridge drop structure. The repair work is being proposed pursuant to the Rehabilitation Program under Public Law (P.L.) 84-99 and directed through Engineer Regulation 500-1-1. The Nursery Bridge structure is part of the MFFCP, which provides flood risk reduction benefits to the City of Milton-Freewater and surrounding residences and businesses. The Milton-Freewater Floodwater Control District (MFWCD) is the local owner and operator of the MFFCP. The structure also provides erosion protection for Eastside Road and a railroad bridge, and includes a fish ladder that provides migration access to the upper Walla Walla River for salmonid species listed under the Endangered Species Act (ESA) (Figure 1-2).

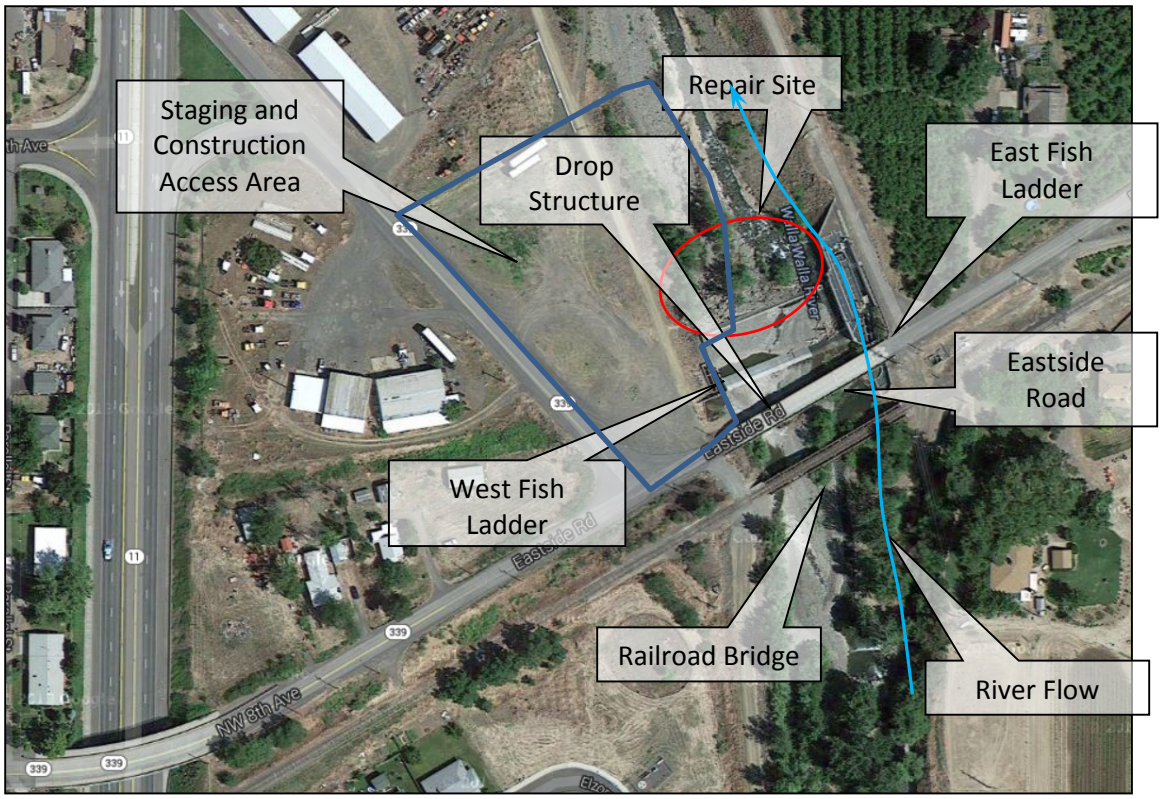

Figure 1-2: Aerial Overview of the Nursery Bridge Drop Structure and Staging Area.

Photo 1-1: Picture Showing Damage to the Concrete (Exposed Rebar) at the Toe of the Gabion Mattress.

The Corps plans to install a riprap blanket from the upstream end of the gabions to the toe of the gabion mattress constructed in 2014 and connect the rip rap to an environmental restoration project located downstream of the mattress, which was constructed by the Corps in June 2015. The rip rap would extend approximately 60 feet downstream of the toe of the gabions to tie into the downstream rock grade structure constructed in 2015 by the Walla Walla Basin Watershed Council. Damage to the drop structure includes erosion to the shotcrete surfaces of the gabion baskets located downstream of the stilling basin end sill. There is exposed gabion wire all along the corner of the second gabion step, and holes in the shotcrete and gabion basket on the third step down (Photo 1-1). The gabion mattress was coated with shotcrete coating a year ago. There is also minor concrete erosion adjacent to the drop structure steel armor plate and damaged or missing sealant between the steel plates and between the steel plate/concrete interface.

SECTION 2 - ALTERNATIVES

2.1 Introduction

The National Environmental Policy Act (NEPA) and 33 CFR Part 230 *Procedures for Implementing NEPA* require a reasonable range of alternatives be considered during the planning process. Two alternatives are evaluated in this EA; the No Action Alternative and the Installation of Rip Rap along the Gabion Mattress Alternative or the proposed action alternative. The "no action" alternative does not satisfy the project's purpose and need, but NEPA requires analysis of the no action alternative to set the baseline from which to compare other alternatives. "No action" does not mean there would be no environmental effects from this alternative.

During the planning process three additional alternatives were considered but dismissed because they were either not viable or outside of the purpose and need. These other alternatives considered included: 1) the restoration of the drop structure to its pre-flood condition without any "resilience" incorporated, 2) the complete restoration of the degraded stream channel downstream from the drop structure, and 3) the improvement or betterment of the existing drop structure. The first of these was dismissed because it had already been attempted in 2010 and had sustained extensive damaged during runoff events in 2013. The second would include the installation of multiple grade control structures to restore nearly one mile of degraded stream below the drop structure. This alternative went well beyond the scope of the purpose and need. The third alternative would require improvements to the existing drop structure that were considered a betterment that also went beyond the purpose and need by installing new sheetpile walls and 7,000 square feet of articulated block matting. Consequently, only the No Action and Proposed Action Alternatives were analyzed further.

2.2 Alternatives

2.2.1 Alternative 1 - No Action (Current Practice)

Under Alternative 1, the No Action Alternative, the Corps would not repair the drop structure, but would allow the structure to continue to function in its damaged state. No ground disturbing activities would take place and no alterations of the drop structure would occur. Periodic monitoring and inspections would take place and annual removal of sediments from the stilling basin would continue. Without repair, the drop structure would likely deteriorate and may eventually fail, leading to the loss of private property and public infrastructure.

The No Action Alternative does not meet the project purpose and need; however, it is carried forward to Section 3 for comparative purposes as required by NEPA.

2.2.2 Alternative 2 – Installation of Rip Rap along the Gabion Mattress (Proposed Action)

The Corps plans to repair the damaged shotcrete coated gabions below the end sill on the Nursery Bridge drop structure by installing a riprap blanket from the upstream end of the gabions

to the toe of the gabion mattress connecting the rip rap to the restoration project constructed in 2014 by the Walla Walla River Watershed Council. The rip rap would extend approximately 90 feet beyond the toe of the gabion mattress to provide dissipation of energy and stability to both the gabion mattress and the stream restoration efforts downstream.

Proposed action repairs are broken into two actions (1) installation of rip rap along the gabion mattress (see section 2.2.2.1), and (2) water diversion during construction (see section 2.2.2.2). The repair consisting of installing rip rap along the entire length of the spillway is divided into two sections; placing a riprap blanket at the toe of the spillway, and riprap or erosion protection extending 60 feet from the existing gabion foundation. All work would be conducted during the summer in-water work window (July 1 – September 30) to minimize effects to ESA listed fish.

Following is the general, expected construction sequence:

1. Backhoes and excavators would be used to excavate a temporary access road along the west levee to provide equipment access (Photo 2-1). This may require diverting stream flow to the east side of the channel and filling if the thalweg is against the west levee. If flow diversion is required, fish removal and exclusion will occur prior to any instream work (Figure 2-3). Any necessary silt fencing would also be placed at the edge of the construction area.

2. Excavation equipment would enter the streambed and place the water barrier to dewater the work area (Photo 2-2).

3. Excavation equipment would remove existing substrate. Substrate would be stored onsite within the streambed, likely along the west levee, for replacement upon project completion.

4. A track-hoe would place riprap to build grade up to 10:1 slope connecting the rip rap to the downstream roughened channel. A small swale will be built into the riprap within the gabion mattress (Figure 2-1) to dissipate energy before flow enters the downstream channel.

5. Once placement of riprap is complete, the existing removed substrate would be replaced to compact the riprap and complete the slope.

6. Silt fencing and the dewatering barrier would be removed, along with any other necessary debris cleanup.

7. Once equipment is removed, the any land disturbance on the levees would be stabilized.

Photo 2-1. Potential Equipment Access from the Western Levee to the Drop Structure. The area within the blue outline is the approximate anticipated diversion and fill area if the thalweg remains against the levee. Note that the scale of the sketch and the photo are not accurate to the exact affected area and should not be interpreted as such.

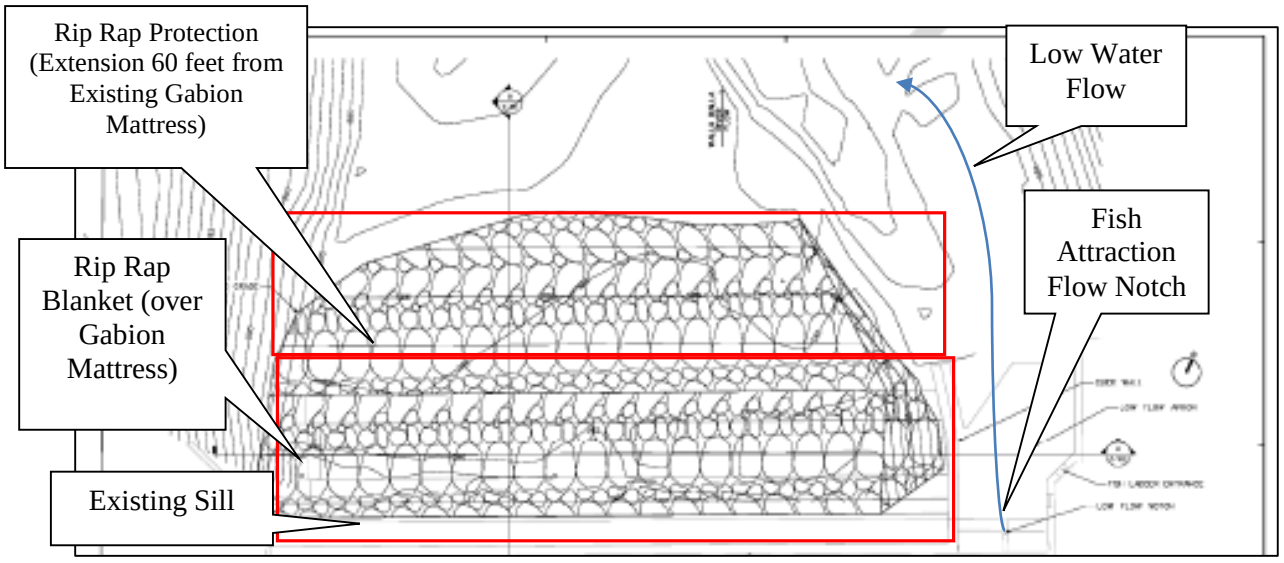

Figure 2-1: Plan View of Installation of the Rip Rap along Gabion Mattress. Approximately 9,300 square feet of existing substrate will be removed, replaced with rip rap tied to downstream roughened channel at a 10:1 slope, and re-covered and choked with the removed existing substrate.

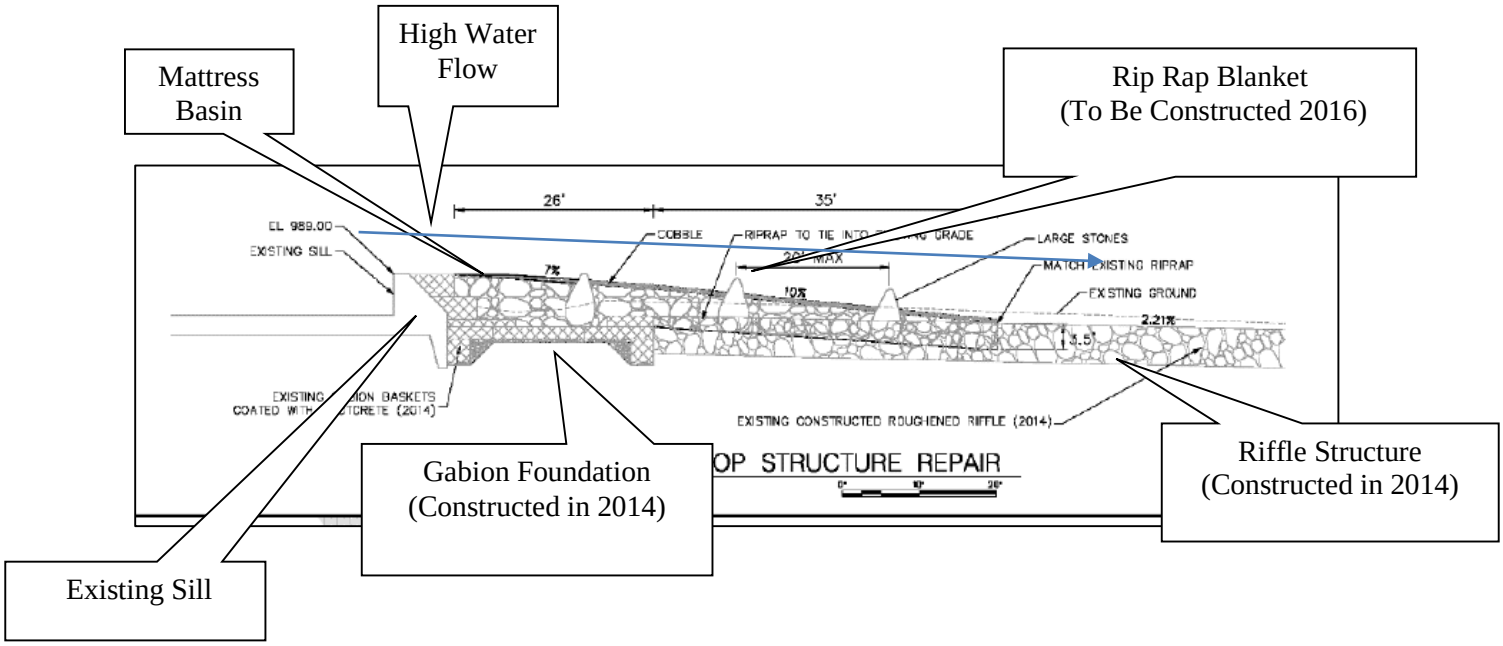

Figure 2-2: Cross Section of the Spillway Toe Showing Proposed Location of Rip Rap Installation.

2.2.2.1 Rip Rap Installation

Previous installations of riprap to protect the Nursery Bridge drop structure have failed. To prevent similar failures in the future, and to protect the end sill of the diversion structure from head cutting, a gabion mattress was constructed in 2014. The gabions were coated with concrete to prevent fish injury by gabion wire. During the spring of 2015, the concrete coating on the gabions eroded and exposed gabion wire. The proposed action would place a riprap blanket over the gabions to protect them (Figure 2-2).

The proposed project would excavate the existing substrate from Heavy equipment used during construction may include excavators, cranes, trackhoes, skid steers, and dozers. The riprap will be keyed in and a minimum of 4 inch rock with native cobble will be installed to reduce scour. In addition, it will be tied to the existing stream riffle constructed by the Walla Walla Basin Watershed Council to provide added stability to the rehabilitation project.

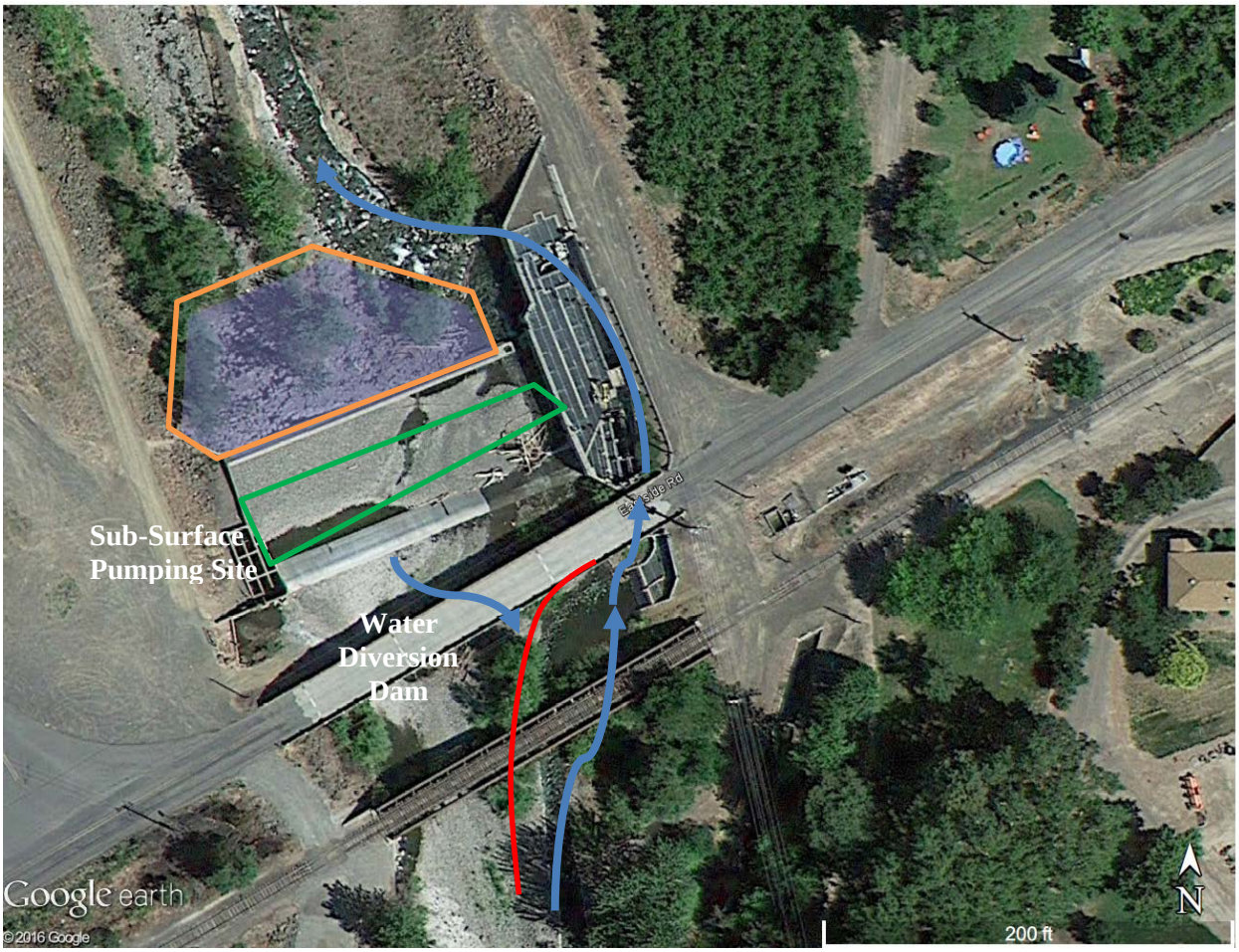

Figure 2-3: Aerial view of Nursery Bridge drop structure showing proposed diversion dams (red), pumping station (green), and work areas (orange) for the rip rap installation. Subsurface flows that find a way around the annual diversion dam are likely to enter the project site and may need to be diverted through pumping (blue).

Photo 2-2: Example of a Dewatering Barrier as Installed in 2014 at Nursery Bridge. The same approximate size and location of a barrier for the 2016 work would be used.

2.2.2.2 Water Diversion

Water would be diverted from the work site so that repairs would be conducted in the dry. Surface flows would be diverted using small earthen dams or similar structures, while subsurface flows would be diverted through pumping (Figures 2-3 and Photo 2-2). All flows would be diverted to the channel near the east fish ladder so that fish passage would not be interrupted.

The Oregon Department of Fish and Wildlife (ODFW) and Confederated Tribes of the Umatilla Indian Nation (CTUIR) annually builds a diversion each May or June, when waters in the Walla Walla River are low for fish passage. This effort is accompanied by fish salvage operation conducted by the Oregon Department of Fish and Wildlife (ODFW) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). As a result, Corps work for the proposed action would be conducted in the dry, while water flows are low and when all water is being diverted by the ODFW and CTUIR through the east fish ladder.

SECTION 3 - AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

Alternatives that satisfy the project's purpose and need have been developed. This section discusses the existing environmental conditions of the project study area, as well as potential effects anticipated to occur for the proposed action over a wide range of environmental and social elements. In addition, the No Action Alternative is evaluated, which provides a comparison to the proposed action.

This section describes the existing affected environment (existing condition of resources) and evaluates potential environmental effects on those resources for each alternative. Although only relevant resource areas are specifically evaluated for impacts, the Corps did consider all resources in the proposed project area and made a determination as to which could be eliminated from further review based on minimal or no effect (Table 3-1).

Table 3-1. Environmental Resources Not Evaluated Further.

Environmental Component	Explanation
Aesthetics/Visual Quality	The proposed action would repair the drop structure to its original condition and add rip rap to the structure on top of the gabion mattress and extend an additional 60 feet. The area is already highly disturbed and only visible upon close inspection.
Air Quality	The project area is in attainment for Oregon's ambient air quality standards. Air quality would be negligibly impacted by the action.
Environmental Justice	The proposed action would have no negative impacts (e.g. economically) on any minority/ethnic group or social class.
Noise	The project area is located at the edge of Milton-Freewater in rural Umatilla County and would occur in the confines of noise blocking levees. The nearest homes are 100 yards from the site.
Recreation	No noteworthy recreation activities are pursued at the site.
Socioeconomics	Under the Proposed Action there would be no negative impacts to socioeconomics in the project area.

The following resource areas were evaluated: Water Quality, Aquatic Resources, Vegetation, Wildlife, Threatened and Endangered Species, Cultural Resources, and Cumulative Effects. The Corps determined it was not necessary to conduct additional evaluation of Aesthetics/Visual Quality, Air Quality, Environmental Justice, Noise, Recreation and Socioeconomics as implementation of the proposed action would not affect these resources.

3.2 Water Quality

3.2.1 Affected Environment

The Walla Walla River and its tributaries drain about 480 square miles in Oregon. Water availability in the Walla Walla River basin is dependent on high-elevation snowpack in the Blue Mountains. Runoff occurs anytime during the precipitation period of October through May, with peaks occurring in April. Flows diminish rapidly after May, reaching their lowest levels in August and September. The Walla Walla River near Milton-Freewater is a cold water system characterized by braided channels that migrate within the confines of the levee system. Habitat degradation in the project area from urban and agricultural development, grazing, logging, recreational activities, and flood control structures have reduced water quality and quantity. Agricultural diversions have severely impacted streamflows in the Walla Walla River since the 1880s (Neilson, 1950).

Approximately 60 percent of current water usage in the basin is for crop irrigation (U.S. Army Corps of Engineers, 1997). Prior to 2000, these diversions regularly dewatered sections of the Walla Walla River. In 2000, irrigation districts in Oregon maintained a minimum instream flow of 13 cubic feet per second (cfs) at Nursery Bridge in Milton-Freewater, Oregon, based on a settlement agreement with USFWS. This instream flow was increased to 18 cfs in 2001, and then to 25 cfs in 2002. In 2003 and 2004, the minimum flow increased to 27 cfs through June 30th, and then decreased to 25 cfs for the remainder of the year. This additional water had an immediate effect by reducing the historic dewatered area below the Nursery Bridge structure. In 2001, the Walla Walla River had continuous overland flow from Nursery Bridge to the state line for the first time in decades.

Reduced streamflows created by water withdrawals adversely affect water quality within the basin by reducing streamflows, increasing water temperatures, reducing dissolved oxygen, and increasing pH. The Walla Walla River is currently listed as impaired by the Oregon Department of Environmental Quality for low dissolved oxygen. However, water temperature likely represents the most critical physiological barrier to salmonids, particularly for passage and rearing (Mendel et al., 2000). Lethal water temperatures for salmonids range from 75 to 84^0 F (Bjornn and Reiser, 1991). Mean water temperatures in the Walla Walla River range from 35 to 83^0 F, while water discharge ranges from 25 cfs in late summer to 1,600 cfs (Mendel et al., 2007).

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1: No Action

Under the No Action Alternative there may be significant effects on water quality in the project area. The continued operation of the damaged drop structure would have no short-term effects to water quality in the project area. However, long-term effects could include the undermining and failure of the drop structure and a significant release of sediments contained upstream of the drop structure.

3.2.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action the effects to water quality in the project area would be less than significant. Because water would be diverted from the project site prior to the proposed action, effects to water quality would be minimized. Effects, during construction, would likely include increased sediment transport and increased turbidity at the repair site and for some distance downstream. These effects would be localized and short term. To minimize sediment transport and increased turbidity, work would be conducted in the dry, while water flows are low and when all water is being diverted through the east fish ladder. Increased sediment may occur during summer storm events that can occur during the late summer and early fall. These events are rare and would be captured using secondary diversion structures such as sand bags and eco-blocks.

3.3 Aquatic Resources

3.3.1 Affected Environment

The Walla Walla River is home to several anadromous and resident fish species. Anadromous species include steelhead, Chinook salmon, western brook lamprey, and bull trout. Resident fish of the upper watershed include redband trout, mountain whitefish, and sculpin, while resident fish of the lower Walla Walla River include northern pikeminnow, chiselmouth, redside shiner, largescale sucker, and speckled dace. Non-native fish in the lower drainage include carp, channel catfish, smallmouth bass, and bluegill. Habitat at the Nursery Bridge drop structure is limiting, and few fish are found at the project site outside migration seasons. Species that may occur at the site during the year include steelhead, Chinook salmon, sculpin, whitefish, and bull trout. Potential effects to species listed under the Endangered Species Act (ESA), and efforts to minimize such potential effects, are discussed in section 3.6.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1: No Action

Under the No Action Alternative there may be significant effects on aquatic resources in the project area. The continued operation of the damaged drop structure could possibly block fish migration in the near future, while long-term effects could include the undermining and failure of the drop structure and a significant release of sediments contained upstream of the drop structure that would impact aquatic resources for some unknown distance downstream, and may block fish passage for some unknown period of time.

3.3.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action there would be minor, less than significant effects to aquatic resources in the project area. Effects to aquatic resources may include increased sediment and turbidity, and the conversion of cobble/boulder habitat to gabion/concrete structure. Temporary

increases in suspended sediment concentrations have highly variable effects on fish, ranging from behavioral effects including alarm reactions and avoidance responses to sub-lethal effects including reduced feeding and physiological stress. Elevated turbidity can also lead to decreases in macro-invertebrate numbers in fresh water streams. To minimize the short-term effects of construction activities, work would be conducted in the dry, while water flows are low and when all water is being diverted through the east fish ladder (July 15 – September 30). Increased sediment may still occur during storm events that can occur during the late summer and early fall. These events are rare and would be captured using secondary diversion structures such as sand bags and eco-blocks.

An estimated 3,500 square feet of area covered by gabion/concrete structure will be converted to boulder/cobble habitat. The new structure would provide moderately improved habitat for macro-invertebrate populations, and would provide migration habitat for fish populations. However, the current habitat is low and is dry for nearly six months of the year and no value as macro-invertebrate habitat.

3.4 Terrestrial Resources/Wildlife

3.4.1 Affected Environment

The diverse habitat of the Walla Walla River Basin is home to nearly 300 species of wildlife, including nearly 70 mammal species, over 200 bird species, and 25 species of reptile or amphibian. Common mammals that may occur in the project area include mule and whitetail deer, striped skunk, red fox, beaver, several species of mice, and cottontail rabbit. Birds in the area may include waterfowl species, upland game birds, song and migratory birds, and raptors.

Wildlife habitat at the project site is limited to scattered patches of shrubs and small trees with some areas of bunch grasses. Trees in the area include cottonwood, alder, and birch, while willow species are the dominant shrub species within and bordering the floodplain. The river channel is bordered by levees that are armored by rip rap, while the project footprint is almost entirely rock and cobble (Figure 2). Detailed information on non-game wildlife population numbers and locations is scarce, although in-depth data is available for most game species. Sensitive riparian species in the vicinity of the project area may include the northern leopard frog, bald eagle, great blue heron, and yellow-billed cuckoo (Marshall et al., 1996).

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1: No Action

Under the No Action Alternative there may be an effect on wildlife in the project area. The continued operation of the damaged drop structure would have no short-term effects to wildlife in the project area. However, long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and the potential loss of riparian vegetation both up- and downstream from the drop structure.

3.4.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action there would be minor, less than significant effects to wildlife in the project area. The installation of rip rap over the existing gabion mattress would have a minor benefit effect to wildlife species at the project site. Overlaying the concrete with rip rap may provide some microtopography habitat to an otherwise barren structure. As a result, there may be some small net gain of amphibian, reptile, and microinvertebrate communities. In addition, construction would not involve cutting of any woody vegetation (i.e. shrubs, trees). The in the construction footprint is boulder/cobble substrate with the concrete lined gabion mattress which provides very little wildlife value.

3.5 Threatened and Endangered Species

3.5.1 Affected Environment

3.5.1.1 Listed species under the Endangered Species Act for Umatilla County, Oregon:

There are four ESA-listed species and one candidate species in Umatilla County, Oregon. Following are these species and a brief description.

Threatened:	Steelhead (*Oncorhynchus mykiss*)
	Bull trout (*Salvelinus confluentus*)
	Gray Wolf (*Canis lupus*)
Candidate:	Washington Ground Squirrel (*Urocitellus washingtoni*)

Two of these species, mid-Columbia steelhead and Columbia Basin bull trout, are found in the Walla Walla River in the proposed project impact area. Gray wolf and Washington ground squirrel are not found near the proposed project.

- **Steelhead**

Mid-Columbia River steelhead were listed as threatened under the ESA in March 25, 1999. Critical Habitat was originally designated in September 5, 2015. Walla Walla River is designated as Critical Habitat for mid-Columbia River steelhead. Steelhead are an anadromous salmonid, and adults return to their natal streams from December through April to spawn. After spending one or two years rearing in the area, juveniles begin their outmigration to the ocean in April and May, when flows are usually higher than average. Periodic low flows, flood control measures, irrigation diversions, and habitat destruction can limit both adult and juvenile steelhead.

Steelhead utilize the project area for migration habitat to rearing habitat upstream. Adult steelhead have been regularly counted at Nursery Bridge since 1993. Traps were used to collect, identify and count fish until 2001, when video equipment was installed. Abundance estimates show the 30-year average for summer steelhead in Walla Walla Subbasin, as counted at the Nursery Bridge to be 546 fish (ODFW 2005). Counts of adult Middle Columbia Steelhead at nursery Bridge are shown in Figure x. Although steelhead may be found in the project area year

round, data suggests that the peak return months for adult summer steelhead passing through Nursery Bridge are March and April (Mahoney et al. 2015).

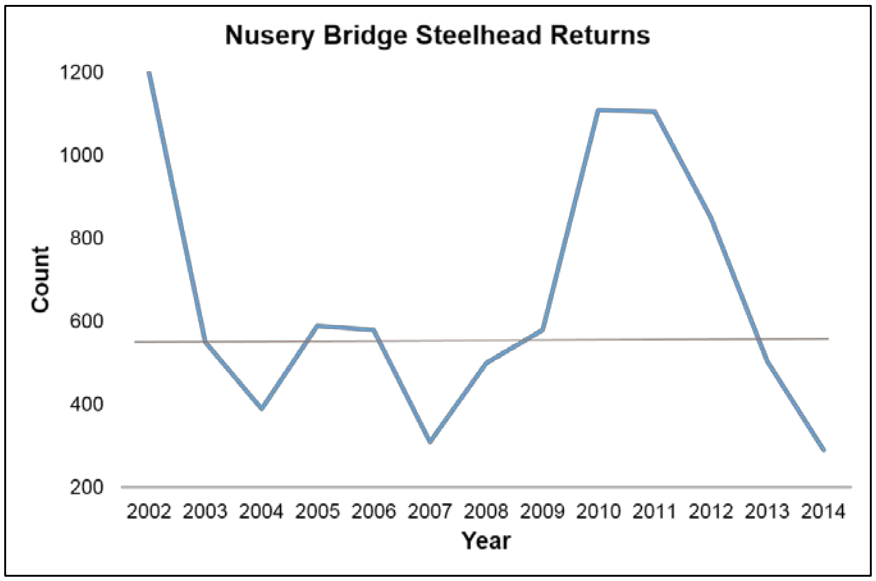

Figure 3-1. Adult Steelhead Counts at the Nursery Bridge Diversion, 2002-2014 (recreated from Mahoney et al. 2015). Counts include hatchery and wild origin fish. The orange line represents a median of 580 adults returning.

- **Bull Trout**

The USFWS listed Columbia Basin bull trout as threatened on July 10, 1998. Critical Habitat was designated for bull trout on September 30, 2010, and the Walla Walla River was included in the designation. Bull trout are a wide-ranging species that formerly inhabited most of the cold lakes, rivers, and streams throughout the western United States and British Columbia. They are piscivorous, and require an abundant supply of forage fish for vigorous populations. Resident bull trout spend their entire life-cycle in the same (or nearby) streams where they were hatched. They display a high degree of sensitivity at all life stages to environmental disturbance. Bull trout growth, survival, and long-term population persistence depends on the availability of quality habitat.

Bull trout are commonly found in the upper reaches of the Walla Walla Subbasin, but it is unclear if the lower reaches of the Walla Walla River were ever used extensively by bull trout. Among salmonids, bull trout exhibit the coldest water requirements. Tagging studies show that movement of bull trout in the Walla Walla Basin is limited, with the exception of the fluvial migration between June and November. The Bull Trout Recovery Plan for the Walla Walla Subbasin includes a goal to ensure that fish can move between spawning and wintering areas, and to ensure that movement can occur between local populations with each core area in a recovery unit. Specific recommendations include providing passage at Nursery Bridge Dam.

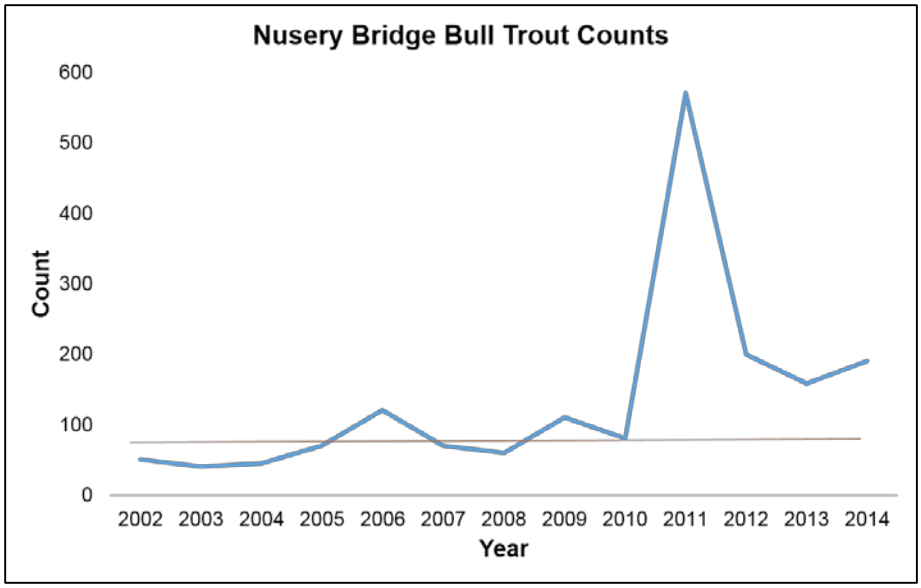

Figure 3-2. Bull trout counts at Nursery Bridge Dam, 2002-2014 (recreated from Mahoney et al. 2015). The orange line represents a median of 80 upstream migrants.

- **Washington Ground Squirrel**

The Washington ground squirrel is listed as a candidate species. It spends much of its time underground. Adults emerge from hibernation between January and early March, depending on elevation and microhabitat conditions, with males emerging before females. Their active time is spent in reproduction and fattening for their six-month or longer dormancy. Washington ground squirrels occur in dry grassland or in patches of grass and other herbaceous plants within low open sagebrush. They prefer deep, loose soil, which they need for digging burrows. The greater part of its current range is uncultivated steppe in Walla Walla, Franklin, Adams, Lincoln, and Grant Counties.

No suitable ground squirrel habitat exists in the proposed project area.

- **Gray Wolf**

The gray wolf was listed as an endangered species on January 4, 1974. Gray wolves were once common throughout most of Washington and Oregon. Records exist of wolves in the vicinity of the Walla Walla Valley. Currently, wolf packs and individuals have been confirmed in the Selkirk Mountains of northeastern Washington and in the northern Cascade Mountains. Wolves have also recently been reported in the Blue Mountains of the southeast Washington and northeast Oregon.

On May 5, 2011, the USFWS proposed to delist the gray wolf in the Northern Rock Mountains, in accordance with the April 15, 2011 legislation reinstating the USFWS's 2009 decision to delist biologically recovered gray wolf populations. In Washington, the NRM Distinct Population Segment (DPS) includes that portion of Washington east of the centerline of

Highway 97 and Highway 17 north of Mesa and that portion of Washington east of the centerline of Highway 395 south of mesa. In Oregon and Washington, gray wolves that occur outside of the boundaries of this DPS remain federally listed as endangered.

3.5.2 Environmental Consequences

3.5.2.1 Alternative 1: No Action

Under the No Action Alternative there could be minor effects to Threatened and Endangered species in the project area. The continued operation of the damaged drop structure would have minor effects on the listed fish species in the project area. Short-term effects would include additional erosion at the base of the end sill, making fish migration increasingly difficult. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and the potential loss of riparian vegetation both up- and downstream from the drop structure, and may block fish passage for an unknown period of time.

3.5.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action the Corps has determined that the proposed action is likely to adversely affect listed fish species in the project area. The Corps prepared a Biological Assessment (BA) and submitted it to the USFWS and NMFS (collectively the "Services") on February 1, 2016. The primary effect to listed species would come from the construction activities during the installation of riprap. Effects of these actions would be minimized by diverting water from the work site to the fish ladder during construction to reduce sediment and maintain fish passage and use of erosion and sediment control measures to reduce turbidity. Construction is expected to require 3 to 4 weeks. All work would be completed during the in-water work window when few, if any, listed salmonids would be in the project area. Long-term effects include the conversion of a homogenous gabion/shotcrete structure to a marginal cobble/boulder habitat. While this structure does not provide high quality fish habitat, it improves the habitat for fish and maintains fish passage. For a more detailed analysis of the effects of the proposed action on threatened and endangered species see the BA (Appendix A).

The Corps has made the following determinations. The proposed action:

- May affect and is likely to adversely affect mid-Columbia River steelhead and may also affect their designated critical habitat. The District has requested formal consultation with NMFS.
- May affect and is likely to adversely affect Columbia Basin bull trout and may also affect their designated critical habitat. The District has requested formal consultation with USFWS.
- Would have no effect on Washington ground squirrels.
- Would have no effect on gray wolves.

No direct effects to ESA-listed fish species would occur. Any indirect effects which may occur would be minor and likely unmeasurable. Implementation of the proposed action would not result in significant effects to ESA-listed species.

3.6 Vegetation

3.6.1 Affected Environment

The riparian plant community near the project site is unvegetated within 500 feet upstream and downstream of the Nursery Bridge Drop Structure. Cultivation, logging, domestic livestock grazing, residential and commercial development, and flood control activities have affected riparian vegetation throughout much of the mid-lower elevation reaches of the subbasin. Vegetation within the project footprint is limited to invasive species such as common mullein (*Verbascum thapsus*).

Photo 3-1: Vegetation Growing within the proposed construction area. (Viewing North)

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1: No Action

Under the No Action Alternative there would be minor, less than significant effects on vegetation in the project area. The continued operation of the damaged drop structure would

have minor effects on the riparian vegetation immediately below the drop structure as additional erosion undermines individual plants and washes them downstream. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments. These sediments currently hold significant riparian habitats in place above the drop structure and their loss would undermine these plants and likely damage or destroy those plants below the drop structure.

3.6.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action there would be minor, less than significant effects to vegetation in the project area. No woody vegetation (i.e. trees and shrubs) are located in the project area and therefore would not be removed. The area was previously disturbed last year for the installation of the gabion mattress and woody vegetation has not re-established. The contractor would access the site using the construction access road previously used during last year's repairs. Some herbaceous vegetation would be removed within the area for rip rap installation.

3.7 Cultural Resources

3.7.1 Affected Environment

The area of potential effect (APE) for the proposed federal undertaking is the Nursery Street drop structure and the adjacent levees. The proposed rehabilitation project would involve repairing the drop structure to its pre-flood condition (w/resilience). The drop structure is over 50 years of age, but all of the repairs are taking place within elements replaced within the last 50 years. No original elements of the structure have the potential to be affected by the proposed repairs. Furthermore, sediments immediately up and downstream of the drop structure, that may be affected, consist of recently deposited gravels or reworked riprap. So again, reworking this material does not have the potential to affect historic/cultural resources. All of the levees are accessible by existing roads, including the maintained access roads located on the levees themselves. No new roads would be constructed for this project. Equipment staging areas would be located at existing borrow areas and on the roads that form the tops of the levees.

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1: No Action

Under the No Action Alternative there may be adverse effects on Historic/Cultural Resources in the project area. The Nursery Bridge drop structure is over 50 years old, and may be eligible for protection under current laws regarding historic structures. Under the No Action Alternative the Corps would not repair the Nursery Bridge drop structure, but would allow the structure to continue to function in its damaged state. Short-term effects would include additional erosion at the base of the spillway and below the end sill, while long-term effects could include the undermining and failure of the drop structure.

3.7.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action there is no potential to affect Historic/Cultural Resources in the project area. Because all of the proposed repairs are occurring within recent and re-deposited fill, and because all of the repairs are to non-historic elements of the structure, the project has no potential to affect historic/cultural resources.

3.8 Climate Change

3.8.1 Affected Environment

The proposed project area includes water, vegetation, fish and wildlife that could be affected by climate change. Rising air temperatures could respond to a rise in stream temperatures, and affect habitats and water levels. This would likely further reduce the quality and suitability of steelhead and bull trout critical habitat in the Walla Walla River, which are federally listed species.

Within the Pacific Northwest, east of the Cascades, the climate is trending towards more sunshine and drier conditions, creating a sharp contrast to the maritime climate of the western Pacific Northwest. Average annual precipitation occurs during the warm half of the year and is generally less than 20 inches, with some places receiving as little as seven inches. Annual and daily temperature ranges are considerably greater than west of the Cascades as well (Little et al., 2009).

Changes in temperature and precipitation will continue to decrease snow pack, and will affect stream flow and water quality throughout the Pacific Northwest region. Warmer temperatures will result in more winter precipitation falling as rain rather than snow throughout much of the Pacific Northwest, particularly in mid elevation basins where average winter temperatures are near freezing. The change will result in:

Less winter snow accumulation
Higher winter streamflows
Earlier spring snowmelt
Earlier peak spring streamflow and lower summer streamflows in rivers that depend on snowmelt (most rivers in the Pacific Northwest).

The decline of the regions snowpack is predicted to be greatest at low to middle elevations due to increase in air temperature and less precipitation falling as snow. The average decline in snowpack in the Cascade Mountain was about 25% of the last 40 to 70 years, with most of the decline due to the 2.5 degrees F increase in cool season air temperatures over that period. As a result, seasonal stream flow timing will likely shift significantly in sensitive watersheds (Littell et al., 2009).

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1: No Action

There would be no effects to climate change as a result of the No Action Alternative. Gradual climate change would continue in correlation with increasing CO2 emission worldwide.

However, climate change does have the capability to cause minor effects to the Nursery Bridge Drop Structure. With the potential existing for a change in weather patterns (more rain and less snow in the winter) increased maintenance would be required, instead of no action. There is a higher risk of structure failure and resultant flooding if no maintenance occurs and the region receives more rain in the future as climate change models are predicting.

3.8.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

There would be extremely negligible effects on climate change as a result of implementing the proposed action. Diesel fuel and gasoline consumption by heavy machinery and trucks required for the proposed action is a part of world-wide cumulative contributions to change in climate by way of increases in greenhouse gas emission. Given the minuscule contribution of CO2 emissions resulting from the proposed action to overall global emissions, effects are considered to be insignificant.

Climate change could affect the Nursery Bridge Drop Structure since climate change models in the Pacific Northwest are predicting warmer, wetter winters and dryer summers. This prediction may result in more frequent high-water events thereby increasing the need for maintenance and repair. Maintenance and repair would continue as routine operation and maintenance to ensure that the drop structure inspections maintains functionality and integrity remain uncompromised.

3.9 Soils

3.9.1 Affected Environment

An extensive deposit of silty clay known as the Palouse Formation covers much of the uplands. Recent alluvium, consisting of clay, silt, sand, and gravel deposited by present-day rivers and streams is common in river valleys and flood plains (U.S. Department of Agriculture, 1988).

A deep deposit of loess (windblown silt and fine sand) covers much of the subbasin that is used for agricultural purposes. Loess is highly erodible, yielding sediment, particularly in the middle and lower reaches of the main stem Walla Walla River (U.S. Army Corps of Engineers, 1997).

Specific soils near the project site include Freewater very cobbly loam, Freewater-urban land complex, Oliphant silt loam, riverwash, and less than 4 percent Yakima silt loam (Figure 8). Soils in the project footprint are 100 percent riverwash.

Figure 3-3. Map of the Soils in the Project Area.

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1: No Action

Under the No Action Alternative there may be significant negative impacts to soils in the project area. The continued operation of the damaged drop structure would have minor effects on the soils immediately below the drop structure as additional water flows continue to erode soils at the site. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and soils both up- and downstream from the drop structure. Almost all of these soils would be in channel riverwash, or soil material transported and deposited by the river.

3.9.2.2 Alternative 2: Installation of Rip Rap along the Gabion Mattress (Proposed Action)

Under the Proposed Action there would be minor, less than significant short-term effects on soils in the project area. Long-term effects would be positive. Excavation of the site to prepare for the installation of rip rap on the gabion/Shotcrete structure to approximately 60 feet beyond the previous year's rip rap installation. This will enable the rip rap to "tie in" to the Walla Walla

Basin Watershed Council's restoration effort. The new rip rap will stabilize the gabion mattress and would reduce erosion and minimize soil loss.

3.10 Cumulative Effects

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing the Act require federal agencies to consider the cumulative effects of their actions. Cumulative effects are defined as effects "on the environment which result from incremental impact of an action when added to other past, present and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time" (40 CFR § 1508.7).

The primary goal of a cumulative effects analysis is to determine the magnitude and significance of the environmental consequences of the proposed action in the context of the cumulative effects of other past, present, and reasonably foreseeable future actions.

3.10.1 Resources Considered

The Corps used the technical analysis conducted in this EA to identify and focus on cumulative effects that are "truly meaningful" in terms of local and regional importance. While the EA addresses the effects of alternatives on the range of resources representative of the human and natural environment, not all of those resources need to be included in the cumulative effects analysis – just those that are relevant to the decision to be made on the proposed action. The Corps has identified the following resources that are notable for their importance to the area and potential for cumulative effects. Those resources are:

Aesthetics;
Threatened and Endangered Fish

Resources are discussed in terms of their cumulative effect boundary (spatial and temporal), the historic condition and impacts to the resources, present condition and impacts to the resources, reasonably foreseeable future actions that may affect the resources, and the effects to the resource by the various installation of rip rap on the gabion mattress when added to other past, present, and future actions.

This section evaluates the cumulative effects of actions that could potentially affect the same environmental resources as those discussed earlier in this EA. The scope of this analysis extends beyond the Milton-Freewater Flood Control Works Rehabilitation Project to other areas that sustain the resources of concern. A resource may be differentially impacted in both time and space. The implication of those impacts depends on the characteristics of the resource, the magnitude and scale of the project's impacts, and the environmental setting (EPA 1999).

3.10.2 Geographic and Temporal Scope of Cumulative Effects Analysis

Guidance for setting appropriate boundaries for a cumulative effects analysis is available from CEQ (1997) and EPA (1999). Generally, the scope of cumulative effects analysis should be broader than the scope of analysis used in assessing direct or indirect effects. "Geographic boundaries and time periods used in cumulative impact analysis should be based on all resources of concern and all of the actions that may contribute, along with the project effects, to cumulative impacts" (EPA 1999). The analysis should delineate appropriate geographic areas including natural ecological boundaries, whenever possible, and should evaluate the time period of the project's effects.

Discussed below are the past, present, and reasonably foreseeable future actions that were considered for the cumulative effects analysis, the effects of the actions on the resources assessed, and a summary of the cumulative effects of the alternatives. Table 3-2 summarizes the geographic and temporal boundaries used in this cumulative effects analysis.

Table 3-2: Geographic and Temporal Boundaries of Cumulative Effects Area

Resource	Geographic Boundary	Temporal Boundary
Aesthetics	Walla Walla River Watershed 500 feet upstream and downstream of the Nursery Bridge Drop Structure	70 years
Threatened and Endangered Fish		

The geographic boundary for the cumulative effects analysis for aesthetics, and threatened and endangered fish includes actions taking place in the Walla Walla River watershed. The timeframe of 70 years was identified based on an approximate construction start of the Milton-Freewater Flood Control Works Project in 1945. A timeframe of five years into the future has been considered. Only actions that are reasonably foreseeable are included. To be reasonably foreseeable, there must be a strong indication that an action/event will occur or be conducted.

3.10.3 Past, Present, and Reasonably Foreseeable Future Actions and Implications for Resources

The following sections present summaries of past, present, and reasonably foreseeable future actions considered in this cumulative effects analysis, and the effects of those actions on the resources considered.

3.10.3.1 Past Actions

Historically, the Walla Walla River was a free flowing river that experienced seasonal fluctuations in flow. High spring runoffs that were driven by winter snow accumulation, followed by relatively low flows in the summer and fall. The resources assessed have experienced various impacts since the mid-1900s. Actions such as construction and operations

of dams and associated levee systems, flood control projects, agricultural development, road building, logging, mining operations, development of cities, and fish harvest, installation of fish passages have all contributed to the current state of the resources in the area. These actions have negatively and positively affected the resources.

Alterations of the hydrology of the Walla Walla River Basin began in the late 1800s as water withdrawals to support agricultural production and community development commenced (Nielson 1950). Water within the basin is now considered to be over allocated and reductions in stream flow have adversely impacted aquatic resources. These impacts include dewatering sections of the Walla Walla River, disrupted sediment transport, and elevated summer water temperatures (Mendel et al. 2007).

The Milton-Freewater levee system was constructed between 1945 and 1952 to protect the town of Milton-Freewater from flood risk. As part of the levee system, the Nursery Bridge drop structure was constructed in 1952. In 1966, the Corps added a fish ladder for fish passage on the west shore of the drop structure. However, changes in river flows shifted from the west shore to the east shore; essentially leaving the fish ladder dry. In 2001, a new fish ladder was constructed on the east shore.

In 2010, the drop structure sustained damage from flood flows to the concrete face and the protective riprap below the end sill. The dam was refaced and the riprap replaced. Flood flows during April 2013 again damaged the toe of the drop structure and displaced the riprap from the end sill.

In 2012, the project was returned to eligible status with the acceptance of a maintenance plan under the System Wide Improvement Framework (SWIF) constructed under the Rehabilitation and Inspection Program (RIP).

In 2014, the gabion mattress and the drop structure steel armor plate were constructed under the RIP.

Under Public Law 84-99 authority was given to the Corps to provide emergency response/disaster assistance; including rehabilitation of flood control works (FCW) threatened or destroyed by flood. To be eligible, levees must be part of the Corps Rehabilitation and Inspection Program. This program provides for inspections of FCWs and the rehabilitation of damaged FCWs. The Nursery Bridge drop structure is eligible under this authority for emergency assistance from the Corps. On May 14, 2015, the flood control district requested assistance from the Corps to repair the drop structure. This proposed action is in response to that request.

3.10.3.2 Effects of Past Actions on Resources

Aesthetics

The Walla Walla River watershed within 500 feet of the Nursery Bridge Drop Structure is generally thought to have low aesthetic quality due to its lack of riparian buffer along this stretch of river. Most of the vegetation along the levees has been removed to allow access and inspections necessary for flood fighting activities. Upstream of the Nursery Bridge Drop Structure, beyond the levees, adjacent property owners have maintained a mature forested riparian system. Downstream of the Nursery Bridge Drop Structure consists of unvegetated shorelines and rip rap along the levees. The Corps channel has undergone frequent straightening which makes this system appear more ditch like than a riparian system.

Threatened and Endangered Fish

Spring Chinook salmon, summer steelhead, and bull trout were historically abundant in the Walla Walla River. Spring Chinook annual returns were reduced dramatically following the construction of Nine Mile Dam on the Walla Walla River in 1905 (Nielsen 1950). The last significant spring Chinook salmon run was in 1925, and by the 1950s the run was extirpated. Summer steelhead and bull trout still survive in the drainage, but numbers are well below historical levels (NMFS 2009, USFWS 2002). Factors that led to these reductions continue to exert substantial influence on anadromous fish abundance and production. These factors include: habitat loss, grazing, irrigation diversions, reduced stream flows, impaired passage, embedded stream substrates, degraded water quality, and altered channel morphology (NMFS 2005). Despite efforts to increase numbers of listed fish they remain low. During the 2013 migration season only 503 adult steelhead were counted at the Nursery Bridge fish ladders.

Recent efforts to restore these fish populations include summer instream flows and the installation of grade control structures to provide access to fish passage facilities. In 2000, irrigation districts in Oregon maintained an instream flow of 13 cubic feet per second (cfs) at Nursery Bridge. This instream flow was increased to 18 cfs in 2001, and then to 25 cfs in 2002. In 2003 and 2004, the minimum flow increased to 27 cfs through June 30th, and then decreased to 25 cfs for the remainder of the year. This additional water had an immediate effect by considerably reducing the historic dewatered area below the Nursery Bridge structure. These summer instream flows are expected to continue in the future.

The Walla Walla River is currently listed as impaired by the Oregon Department of Environmental Quality for low dissolved oxygen. However, water temperature likely represents the most critical physiological barrier to salmonids, particularly for passage and rearing (Mendel et al., 2000).

Potential effects on aquatic resources (including T&E species) associated with the proposed action are not expected to result in significant impacts to the human environment, even when considered/added to other past, present and reasonable foreseeable future actions.

3.10.3.3 Present Actions

Present actions include inspections, operation, and routine maintenance of the Milton-Freewater flood control project. For 2016, the gabion mattress would be covered with rip rap to provide stabilization to the gabion mattress as well as for the restoration effort downstream. The proposed action would have some minor temporary, negative effects from construction activities, as previously described.

The Corps met with the Walla Walla Basin Watershed Council, Oregon Department of Fish and Wildlife (ODFW) and the Umatilla Indian Reservation (CTUIR) on January 28, 2016 to discuss the Corps repair design, fish handling and exclusion, and collect input on tying the design to previous and ongoing roughened channel work. These agencies indicated that no other construction is planned for this year.

3.10.3.4 Effects of Present Actions on Resources

Aesthetics

The present actions generally have no effect on aesthetics of the area. The viewshed has not significantly changed since the time of construction of the drop structure in 1952. There are no changes to the viewshed proposed with this action.

Threatened and Endangered Fish

The Walla Walla Watershed Association is currently restoring the stretch of the Walla Walla River downstream of the Nursery Street Bridge. This includes some improvements to fish passage for steelhead and bull trout. The rip rap along the gabion mattress would provide a more natural substrate for fish habitat.

Impacts to threatened and endangered fish associated with this year's repair (2016) would be considered temporary in nature and would be associated with the construction activities.

3.10.3.5 Reasonably Foreseeable Future Actions

Future actions in the immediate area of the proposed repair of the Nursery Bridge Drop structure include continuing operation and maintenance of the Milton-Freewater Flood Control Project. No further construction or phases are anticipated, except on an as needed basis, when the structure needs repair.

Future projects that may affect the action area include: Birch Creek Road Bridge Replacement, Walla Walla Basin Watershed Council's stream restoration efforts downstream of the drop structure; and the CTUIR's spring Chinook salmon hatchery construction project near Milton-Freewater, Oregon.

In FY 16 the Corps will conduct an Appraisal under Section 216 of the *River and Harbor and Flood Control Act of 1970*. The purpose of the Appraisal is to determine if there are changed environmental or economic conditions on the project that warrant additional study. If the Appraisal recommends additional study the Corps could conduct a comprehensive analysis of the river reach if funded by Congress and if a viable non-federal sponsor is willing to cost share the effort.

The Oregon Department of Transportation plans to replace the Birch Creek Road Bridge in 2017. This would involve demolishing the old bridge and construction of a new bridge in an improved alignment along Birch Creek Road. This project would modify the existing levees by construction of new abutments for the new bridge. The existing bridge abutments would remain in place.

The Walla Walla Basin Watershed Council would continue to improve fish passage as their funding allows. The Walla Walla Watershed Association's goal is to improve fish passage and habitat along the 3,000 linear feet of the Walla Walla River. Other opportunities may be sought to improve the channel at or above the drop structure as funding and interest allows.

CTUIR's Walla Walla Basin Spring Chinook Hatchery would be located along the South Fork of the Walla Walla River near Milton-Freewater, upstream of the Nursery Bridge Dam. CTUIR would further need to coordinate with the Corps for any modifications to the Nursery Bridge Dam fish passage.

3.10.3.6 Effects of Reasonably Foreseeable Future Actions on Resources

Aesthetics

Future effects to aesthetics within the Walla Walla River Watershed is very difficult to predict, since much of the riparian system is on private lands, upstream of the Nursery Drop structure. However, there are special interest groups that are attempting to restore the riparian habitat and stream sinuosity within the Walla Walla River watershed.

The Walla Walla Basin Watershed Council is currently restoring approximately 3,000 linear feet of stream channel downstream of the Nursery Bridge Drop Structure. This plan includes creating a natural meandering channel, friction elements, and some vegetation plantings along this stream reach to address headcutting and sediment transport challenges as well as enhance protected fish habitat. The restoration plan would need to complement Corps levee and flood structure operations and maintenance procedures.

Some woody vegetation would naturally regrow on the rip rap and shoreline (i.e. willows) outside of the gabion mattress and maintenance areas for the levees and drop structure.

Upstream of the Nursery Bridge Drop Structure will be expected to remain woody vegetation along the riparian system.

Threatened and Endangered Fish

The Corps' operation and maintenance activities would temporarily impact ESA-listed fish species during construction activities; however, after construction ceases, the fish population is expected to return to normal.

There are continued efforts to provide a permanent solution that will lessen the need for annual repair to the drop structure, however, that effort is currently in the planning stages and will be a comprehensive study.

The Corps will continue to provide fish passage at the Nursery Bridge Drop structure in the future.

3.10.4 Summary of Cumulative Effects of Past, Present, and Reasonably Foreseeable Future Actions on Resources

The proposed action would have some minor temporary, negative effects from construction activities, as previously described.

The Walla Walla River Watershed Council plans to improve the aesthetics and fish passage along the downstream reach of the Walla Walla River, within 3,000 linear feet of the Nursery Bridge Fish Passage. Currently this plan is in conceptual design.

Steelhead and bull trout would continue to be negatively affected within the Walla Walla River watershed during temporary repair construction activities. The Corps would continue to minimize impacts through working in dry conditions during the agency approved work window and coordinating with USFWS and NMFS prior to initiating repair activities.

Currently, the Corps' efforts regarding the Nursery Bridge Drop structure are to maintain the structure. The Corps has initiated a Section 216 appraisal of this stream reach to evaluate any change in conditions that may warrant an improvement to the Nursery Bridge Drop Structure. However, any design improvements to the Nursery Bridge Structure would be performed through a secured sponsored relationship with the Corps. Until the Section 216 appraisal is completed the Corps is unaware of any needed improvements to the design. Currently, the Corps has not secured a sponsor.

SECTION 4 - COMPLIANCE WITH APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

Section 4 identifies the legal, policy, and regulatory requirements that could affect each proposed alternative. The implications for each requirement are discussed with respect to the proposed project. Summaries of compliance and coordination activities for each of the laws, policies, or regulation are also provided.

4.1 National Environmental Policy Act

As required by NEPA and subsequent implementing regulations promulgated by the Council on Environmental Quality, this EA was prepared in order to determine whether the proposed action constitutes a "…major Federal action significantly affecting the quality of the human environment…" and whether an EIS is required. This EA documents the evaluation and consideration of potential environmental effects associated with the proposed action.

The Corps prepared this EA and will circulate it to other state and federal agencies and the public for review and comment. The Corps identified no impacts significantly affecting the quality of the human environment prior to distribution of the EA. If no such impacts are identified during the public review process, compliance with NEPA would be achieved upon the signing of a Finding of no Significant Impact (FONSI). However, if such impacts are identified during the public review, an EIS would be required. Completion of an EIS and the signing of a Record of Decision would then achieve compliance with NEPA.

4.2 Endangered Species Act

The Endangered Species Act (ESA) established a national program for the conservation of threatened and endangered fish, wildlife and plants and the habitat upon which they depend. Section 7(a) (2) of the ESA requires Federal agencies to consult with the USFWS and NMFS, as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats. Section 7(c) of the ESA and the Federal regulations on endangered species coordination (50 CFR §402.12) require that Federal agencies prepare biological assessments of the potential effects of major actions on listed species and critical habitat.

In compliance with Section 7 of the Endangered Species Act, the Corps will initiate formal consultation with NMFS on the potential effects to ESA-listed anadromous fish species and with USFWS on potential effects to bull trout and steelhead with the Corps submission of a Biological Assessment (BA). The Corps has determined the proposed action "may affect and is likely to adversely affect" mid-Columbia River steelhead and Columbia Basin bull trout and may also affect their designated critical habitat. The Corps has notified the NMFS and USFWS of the project and has discussed measures to minimize fish impacts that would be implemented by the Corps. These measures include:

1) A stormwater pollution prevention plan would be developed and approved prior to implementation of construction activities. Erosion control measures such as silt fencing would be of sufficient quantity and properly installed prior to any ground disturbing activities and would remain in place until final stabilization is completed.
2) The work area would be segregated from the river and dewatered to reduce downstream turbidity spikes.
3) Fish would be excluded from the diverted channel and dewatered work area with seine nets and electrofishing as necessary.
4) Special measures would be taken to prevent chemicals, fuels, oils, and greases, etcetera, from entering surface water, land, and substrate soils.
5) Fueling and lubrication of equipment and motor vehicles would be conducted in an approved manner that affords the maximum protection against spills. A portable containment berm would be used when fueling equipment and motor vehicles.
6) Fuel dispensing or storage tanks would be double walled, otherwise would utilize a full containment Tanker Fueling berm or overnight containment berm.
7) Emergency Spill Response Kit must be available onsite. Kits would include product to absorb or encapsulate up to 25 gallons of hydrocarbons (oils, coolants solvents). Spill absorbent mats would be in the immediate vicinity of all equipment performing work.
8) All hydraulically operated equipment would be required to use nontoxic vegetable-based or other biodegradable, acceptable hydraulic fluid substitute rather than petroleum-based hydraulic oil.
9) Land resources within project boundaries, but outside the limits of permanent work, would be preserved in their present condition or be restored after completion of construction. No trees would be removed from the levees or below the OWHM during this work.
10) Construction activities would take steps to minimize interference with or disturbance to fish and wildlife. Proposed construction activities are scheduled to occur within the in-water work window to avoid high flow, fish and fish habitat disturbance to the greatest extent possible.
11) A qualified biologist would conduct a migratory bird nesting survey onsite prior to beginning work and lead any fish removal and exclusion efforts.

Fish salvage would be conducted by the ODFW, CTUIR, and AP, as described in Section 2.2.2.2 above (Water Diversion). This water diversion, and fish salvage, would occur at least one month prior to project implementation. Fish passage data reveals a dramatic drop in fish numbers in early summer as water discharge drops and water temperatures rise. Consequently, the Corps believes additional fish salvage, after construction begins, would not be necessary. Any additional fish salvage must be conducted by a qualified biologist with experience in salvage of ESA listed fish, and salvage must be occur when water temperatures are lowest (i.e. early morning).

In addition, a simple construction plan (Plan) must be completed and submitted to the USFWS. The Plan will delineate the location of fish bypass channels, equipment access routes, staging areas, and temporary bridges. The plan will also determine if the location of the fish bypass channel will need to be shifted at any time during the in-water work period, and if so, how that work will be coordinated to minimize impacts to fish. This plan must be completed and

submitted to the USFWS before initiation of the drop structure repairs. Planning information will be provided to the services as soon as it is available. The Plan, when finalized, will be incorporated into the BA as an attachment and provided to the Services.

4.3 National Historic Preservation Act

The NHPA of 1966 as amended directs federal agencies to assume responsibility for all cultural resources under their jurisdiction. Section 106 of NHPA requires agencies to consider the potential effect of their actions on properties that are listed, or are eligible for listing, on the National Register of Historic Places. The NHPA implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, requires that the federal agency consult with the State Historic Preservation Office (SHPO), Tribes and interested parties to ensure that all historic properties are adequately identified, evaluated and considered in planning for proposed undertakings.

In accordance with Section 106 of the NHPA, the Corps has reviewed the project description and determined that the proposed activities will have no effect on Cultural or Historic Resources. The Nursery Bridge drop structure was originally built in 1952, the Oregon SHPO declared the structure as not eligible on June 2, 2014 (SHPO Case No. 14-0703). The proposed rehabilitation effort is set to occur completely within the confines of the structure, and with no new ground disturbance. Therefore, the project has no potential to affect historic or cultural resources.

4.4 Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act addresses the discovery, identification, treatment, and repatriation of Native American and Native Hawaiian human remains and cultural items (i.e., associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony).

Although not expected, in the event of an inadvertent discovery during construction, work would immediately halt, and the appropriate parties would be contacted. The entire channel within the project area was disturbed during construction, and the discovery of human remains with this proposed action is extremely unlikely.

4.5 Clean Water Act

The Federal Water Pollution Control Act (33 U.S.C. §1251 et seq., as amended) is more commonly referred to as the Clean Water Act. This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the United States. The act was established to restore and maintain the chemical, physical, and biological integrity of the Nation's waters and sets goals to eliminate discharges of pollutants into navigable water, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The act has been amended numerous times and given a number of titles and codifications.

Section 402 of the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) program, pertains to discharge of pollutants. No pollutants would be discharged into waters of the U.S. by activities proposed in this EA.

Section 402 of the Clean Water Act also regulates ground disturbance that could potentially cause stormwater run-off into waters of the U.S. The footprint of the project area is smaller than one acre and therefore, below the threshold limits for requiring notification to the Environmental Protection Agency.

Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the United States.

The project meets the requirements of Nationwide Permit 3, which reads, in part, "The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized."

Section 401 of the federal Clean Water Act requires that any federal activity that may result in a discharge to waters of the United States must first receive a water quality certification from the state in which the activity will occur. Nationwide Permit 3 is certified by the state of Oregon subject to all applicable NWP general conditions. These include visual turbidity monitoring, stormwater discharge pollution prevention, and protection of natural resources.

4.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712, as amended) prohibits the taking of and commerce in migratory birds (live or dead), any parts of migratory birds, their feathers, or nests. Take is defined in the MBTA to include by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof.

A wide variety of species listed under the MBTA occur on Corps managed lands within the proposed action area. The project area may attract a number of migratory nesting birds. The proposed work would not involve cutting trees or shrubs including the access road. No nest trees or nestlings would be disturbed by the proposed action. There would be no take of migratory birds and this action would not conflict with the purposes of the MBTA. No further coordination is necessary.

4.7 Watershed Protection and Floodplain Management Act

The purpose of the Watershed Protection and Flood Prevention Act is to protect watersheds from erosion, floodwater, and sediment damages. The Act provides assistance programs to local

organizations for the protection of watersheds, including flood control. The proposed project is in compliance with the Act.

The actions proposed in this project would not affect upstream watersheds or the designed levels of flood protection provided by Milton-Freewater Floodwater Control District.

4.8 Executive Order 11988, Floodplain Management

This Executive Order outlines the responsibilities of federal agencies in the role of floodplain management. Each agency must evaluate the potential effects of actions on floodplains and avoid undertaking actions that directly or indirectly induce development in the floodplain or adversely affect natural floodplain values. Alternatives considered for this project would maintain designed levels of flood damage reduction, and would not further alter the floodplain.

4.9 Executive Order 11990, Protection of Wetlands

This order directs federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. Section 2 of this order states that, in furtherance of the NEPA, agencies shall avoid undertaking or assisting in new construction located in wetlands unless there is no practicable alternative. No wetlands will be impacted by the proposed project.

SECTION 5 - COORDINATION, CONSULTATION, AND PUBLIC INVOLVEMENT

5.1 Agency Consultation

5.1.1 Endangered Species Act

The Corps is consulting with the USFWS and NMFS for potential effects to ESA-listed species. The Corps is working with the USFWS and NMFS to complete ESA formal consultation in a timely manner to meet a July 2016 proposed construction start.

5.2 Public Involvement

This EA would be made available to potentially interested members of the public and local, state, and federal agencies for a 30-day review and comment period from March 17 to April 17, 2016. Upon conclusion of the review period, the Corps will consider comments received and move forward in the NEPA process with a Finding of No Significant Impact (FONSI) if applicable, or on to the preparation of an Environmental Impact Statement if deemed necessary.

SECTION 6 - REFERENCES

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