Final Environmental Assessment

Kootenai River – City of Bonners Ferry Levee

Repair of Levees for City of Bonners Ferry
Boundary County, Idaho

August 2012

US Army Corps of Engineers®
Seattle District

Kootenai River City of Bonners Ferry
Repair of Levees
Final Environmental Assessment
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ABSTRACT:
The City of Bonners Ferry, Idaho ('City') requested funding from the U.S. Army Corps of Engineers (Corps) to repair and stabilize the portions of the Kootenai River in and near to the city, during a flood event in May and June 2011. The high flows during this event caused damage to the levees, and caused some structures to be flooded upstream of Bonners Ferry. The Corps responded with an emergency flood-fight, adding rock to one site on the right bank, and two sites on the left bank, all downstream of the Highway 2 and 95 bridge. Upstream of the City, on the left bank, a meander channel was plugged to stem the flooding of structures at that location (Appendix A, Figures 1 and 2). It was found after the water subsided that the levee had eroded and was in need of repair adjacent to the two flood-fight sections on the left bank downstream of the bridge. Thus, the Corps intends to repair the two levee sections in the summer of 2012. The project goal is to protect the City's infrastructure and the Kootenai River by protecting the levee and reducing the potential for future erosion.

In June and July 2012, another high water event led to an emergency repair on the left bank in the City of Bonners Ferry. The site of this repair coincides with one of the two sites scheduled for repair later in the summer of 2012. Work will still need to be accomplished on this site, as rock was placed only to the water line (approximately 1766' elevation); the scheduled repair requires rock placement down to approximately elevation 1143' (river bed elevation) to provide a solid foundation for the rock.

The project is not expected to constitute a major Federal action significantly affecting the quality of the human environment.

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http://www.nws.usace.army.mil/ers/envirdocs.html

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1. INTRODUCTION AND BACKGROUND

This Environmental Assessment (EA) is being prepared pursuant to Sec. 102(C) of the National Environmental Policy Act (NEPA) of 1969. It evaluates the potential environmental effects of the proposed repair of the City of Bonners Ferry levee section along the Kootenai River in Boundary County, Idaho. During May and June 2011, high flows caused some erosion of the levees, and caused some areas to be flooded. The Corps responded with an emergency flood-fight, adding rock to one site on the right bank, and two sites on the left bank, all downstream of the Highway 2 and 95 bridge. Upstream of the City, on the left bank, a meander channel was plugged to stem the flooding of structures at that location. After the water subsided it was found that levee adjacent to the two flood-fight levee sections on the left bank downstream of the bridge had eroded and the levee was in need of repair. Thus, the Corps intends to repair the two eroded levee sections in the summer of 2012. The project goal is to protect the City's infrastructure and the Kootenai River by protecting the levee and reducing the potential for future erosion.

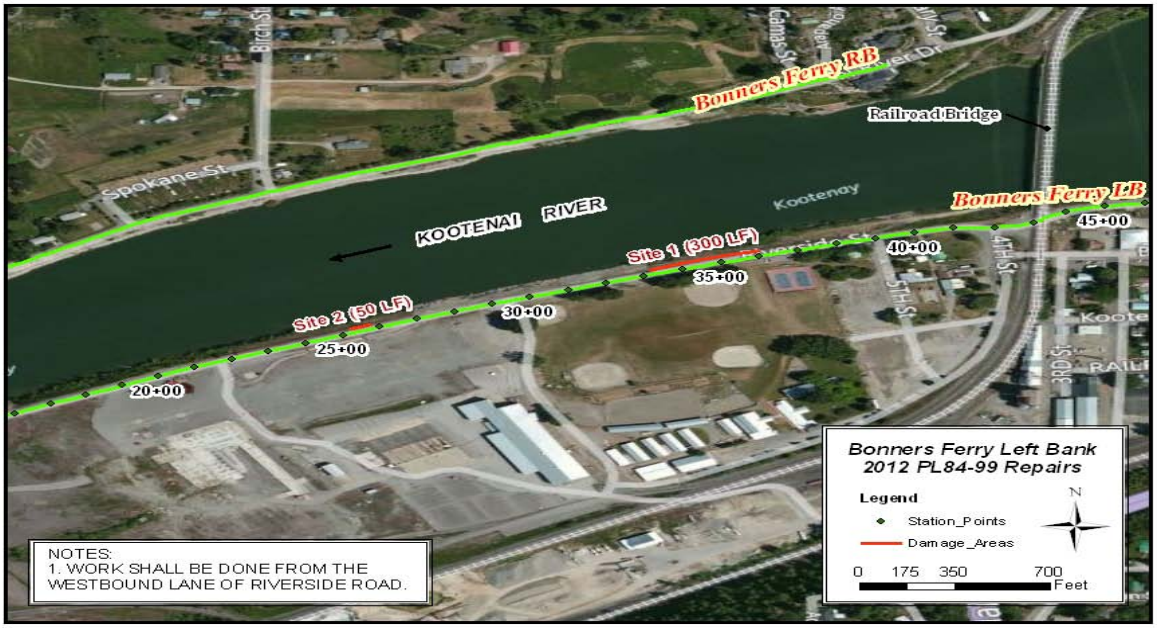
1.1. Location and Setting

The City of Bonners Ferry levee repair sites planned for the summer of 2012 are located on the left bank of the Kootenai River between the Highway 95 bridge and Ambush Rock, in Boundary County in the City of Bonners Ferry, Idaho (Figures 1 and 2). The emergency flood-fight work included rock placement along 1134 feet of levee and riverbank. The project repairs in 2012 will affect about 350 lineal feet of the left bank levees in Bonners Ferry.

The staging and construction equipment and vehicles will operate along the previously disturbed and mostly barren riverward side of the levees, though trucks carrying rock and other construction vehicles will drive along Riverside Street to access the construction sites. The scope of the project also includes one site on the right bank as well as a site further upstream of Bonners Ferry on the left bank which received emergency work in 2011.

Figure 1: Overview of Project area. Levees are shown in yellow. Emergency work locations done in May 2011 indicated by yellow pushpins.

Figure 2. Map of Levee Planned Repair and Emergency Repair Locations in 2012 (repair locations shown in red, levee centerline in green; emergency repair labeled as Site 2).



1.2. Project Background

Rapidly accumulating above average snowpack in late winter 2010 and early spring 2011 led to concerns about the potential of flooding on the Kootenai River for the period May - June 2011. During this period, the Kootenai basin was operating for flood risk. Due to favorable runoff conditions, the actual runoff pattern did not result in the anticipated flood peaks as high as anticipated. However, the flood risk management operation and high spring snowmelt resulted in six weeks duration of high river stages. The river did not reach flood stage of 1764.0 but did reach 1763.35 for seven consecutive days. Flood risk and on-going damages during the high water resulted in the Corps conducting emergency flood-fight work at three locations in 2011. Following subsidence of the high flows, the City and Corps found that the levee suffered two (2) rotational failures due to this long duration of damaging elevated river flows.

1.3. Project Need

Under current conditions, the levee offers approximately a 2-year level of protection to Riverside Street and the pipeline embedded into the top of the levee. The level of protection to the city infrastructure behind the levee is reduced to approximately a 20 -year flood, even in its repaired state, due to the instability and over-steepness of the levee. Note that the levee is high enough to protect from more than a 100-year flood, but the susceptibility to damage reduces that level to a 20-year flood.

1.4. Project Purpose

The project purpose is to restore the level of protection to Riverside Street and the pipeline to a 20-year level of protection.

1.5. Authority

The proposed levee repair is authorized by Public Law 84-99 (33 U.S. Code Section 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the condition and level of protection exhibited by the flood control work prior to the damaging event. The City of Bonners Ferry is the local sponsor.

2. ALTERNATIVES

2.1. No Federal Action

The No-Action alternative would not provide federal action, and would leave the levee in the damaged condition. The levee would remain in a damaged state until the County found additional resources and money to repair it at some future time. This alternative has a high potential for damage to occur to Riverside Street and the pipeline.

2.2. Preferred Alternative-Return levee to pre-flood condition

The preferred alternative will repair the levee to the pre-flood level of protection. The total repair length is approximately 350 LF of slope repair with two sites (50 ft and 300ft). Work will generally consist of re-grading the riverward slope and placing 36 inches of Class II riprap on the existing 1.5H:1V slope. .

2.3. Setback/Relocate Alternative

Several other designs were considered for the repair of the levee. First, an alternative to setback/relocate the levee was examined. This alternative was rejected for economic, environmental, and social reasons. The cost of relocating Riverside Street was significantly more expensive than the preferred alternative and this alternative would result in a much larger disturbance to the environment in physical size and duration. Setting the levee back would also disrupt businesses and reduce the size of the fairgrounds, impacting fairgoers and perhaps reducing their enjoyment of the fair.

2.4. Rock Groin Alternative

This alternative would construct a series of rock groins into the water and landward of the original footprint along the 300 foot eroded section. This alternative was rejected due to the increased project cost associated with the larger footprint and the unpredictable effects to local flow conditions.

3. DESCRIPTION OF PREFERRED ALTERNATIVE

3.1. Existing Condition

This non-federal levee maintained by the City of Bonner Ferry was constructed to provide flood control protection from periodic flooding from the Kootenai River in Boundary County, Idaho. The levee is approximately 8,000 feet long, varies in height depending on location, and is predominantly composed of natural river bank with some overburden material. The embankment material was classified as a silty sand with approximately 30 to 40 percent passing the number 200 sieve. This classification comes from grain size analysis from a two samples taken from the field. The levee does not have continuous armor erosion protection but does have periodic segments of slope protection placed during flood fights. There is no toe protection. The levee provides in excess of 100-year level of protection from flood inundation. The levee crown is a paved road, Riverside Street. The top width is approximately 33 ft. The riverward slope is currently 1.5H:1V.

3.2. Emergency Repairs in 2011

In May 2011 emergency actions were taken in four locations (see Figures 1, A-6, and A-7) as a result of an extended period of high water, all in the Bonners Ferry area. These actions were taken to stop ongoing erosion and scour of levees and overbank flooding. A total length of 1134 feet of flood fight work was done as generally described as following:

1) 623 linear feet (lf) of scour protection was placed along the left bank levee downstream of the City. This is on the levee segment we are planning to rehabilitate. Approximately 9,840 tons of riprap was placed along this reach of the levee.

2) 206 lf of scour protection was placed on the left bank near Ambush Point. Approximately 3,250 tons of riprap was placed along this reach of the levee.

3) 138 lf of scour protection was placed along the right bank at the upstream end of the City of Bonners Ferry right bank levee. Approximately 2,180 tons of riprap was placed along this reach of the levee.

4) 167 lf of scour protection was placed on the cutoff levee upstream of town on the left bank, in the Fodge Mill area. Approximately 1,462 tons of embankment material and approximately 500 tons of riprap were placed at the cutoff levee.

3.3. Emergency Repair in 2012

In June of 2012 heavy rainfall again forced spill and high release of water from Libby Dam for several weeks, resulting in river elevations over flood stage (1764') (river elevation reached a maximum of 1766.6') from 26 June through 9 July. Engineers determined that excessive scour at one site resulted in a full slope failure which required emergency repair to prevent further scour. The sour hole was approximately 15' in diameter and surrounded by vegetation, which required 50 LF of repair (in total 500 tons of Class IV riprap, 250 tons of 4x8 spall rock, and 100 tons of 1.25" minus) (see Figure A-8). A vegetated riverward bench exists upstream and downstream of the damage. The repair tied into these hard points. The location of the damage

coincides with Site 2, which is scheduled for repair in summer of 2012 (see Section 3.4), is shown in Figures 2 and A1. The excavator began grubbing the vegetation over 60 linear feet of levee face in preparation for placement of quarry spall and rock to file the scour hole and reinforce the levee. Vegetation and soil were side cast onto the levee to the left and right of work area. All work was well above OHWM (in fact, no rock was placed below the water level, which was at about 1766' at the time of the repair). The water level at the scour hole was approximately 18" deep. The grubbing portion of the work took approximately 45 minutes. During the grubbing an old water pipe was uncovered. The pipe may have been an old water intake line that ran to the former Riley Creek log yard across the road from the scour hole. The rock was unloaded on to the ground, then placed by the excavator.

3.4. Description of 2012 Repair

The repair will be accomplished in September, during a low-flow period of the Kootenai River. This will facilitate construction, as well as minimize in-water effects to water quality and fish and wildlife. September is the recommended work window of the U.S. Fish and Wildlife Service (USFWS) for the Kootenai River, as this period is a time when Kootenai River white sturgeon are at their least numerous in this reach of the river, and bull trout are unlikely to be present (Flory, USFWS, personal communication, 2012). This work window was also coordinated with the Idaho Department of Fish and Game (IDFG), which concurred that this time frame would be acceptable to help to reduce effects to native fish resources (Terra-Berns, IDFG, personal communication, 2012).

Site 1 is a 300 LF repair of an upper slope rotational failure. The riprap placed to help stabilize the slope will tie into a stable portion of slope with a riverward vegetated bench upstream and an existing armored slope downstream. Site 1 would require riprap armoring up to the elevation 1770, slightly above the 100-year-event water surface elevation. The upper 1/3 of the levee will be re-sloped to 2H:1V, but the lower portion will retain the existing 1.5H:1V slope (see Figure A-2 in Appendix A for the design drawing). The location of the damage is depicted in Figures 2 and A1.

Site 2 was partially repaired in an emergency action in 2012—see Section 3.3. The proposed plan for later in the summer of 2012 would be to remove the rock placed earlier in the year, re-construct the existing bench, and reslope the upper 1/3 of the levee to a 1.75H:1V slope, but retain the existing 1.5H:1V slope on the lower portion, with a 6'-8' wide level bench between the two gradients. The riprap from the emergency repair would be reused and placed below the bench down to the river level at the time of construction (approximately elevation 1743'). The horizontal top of the riprap just below the bench will be covered with a one-foot layer of quarry spalls, and a one-foot layer of topsoil over the spalls, effectively extending the bench another 3-4 feet (see Figure A3 in Appendix A for the design drawing).

The recommended alternative will seek to stabilize and armor the riverward slope and restore the levee to the pre-flood level of protection. The total repair length for the two sites is approximately 350 LF of slope repair with two sites (50 ft and 300ft). Dump trucks would deliver materials and an excavator or similar equipment would move the material into final place and compact the material. The riverward slope would include the installation of filter material below the armor rock that would create the riverward face. Material would be placed until the pre-flood protection and geometries are matched. Even though there is no toe, riprap will extend horizontally into the river approximately 8 to 9 feet to provide a stable base for the riprap on the

levee (but during the September work time-frame, the water would be about 6” to 12” in depth at the work locations, which minimizes the potential for direct effects to fish, which would avoid such shallow water). Work will generally consist of re-grading the riverward slope and placing 36 inches of Class II riprap on the lower slope (extending about 2/3 up the slope). A 2-foot thick quarry spalls blanket will be placed between the in-situ soil and the overlying riprap blanket. The voids in the riprap would be filled with 2-inch to 4-inch quarry spall filter cap approximately 1 foot in depth, and capped with a 1 foot layer of top soil over the quarry spalls. The combination of quarry spalls and top soil will cover the rock and fill all voids. All disturbed surfaces will be hydroseeded with native grasses, and willows will be planted at the top of the riprap (elevation 1770’) at both sites. The City of Bonners Ferry has agreed to water the willows during their first year of growth.

A major component of the design is to reduce the overburden on the top of the slope that would otherwise drive a slope stability failure. The re-work of the approximately 600 LF flood fight repair from 2011 will allow some of the excess material deposited there to be used on the other sites. This material is larger (Class IV) and would be used to create a stable foundation on which to build the remaining slope. The upper slope of Site 1 will be re-graded to achieve a minimum 2H:1V slope. Site 2 has a naturally shallower 1.75H:1V minimum slope (and the rock used in the 2012 emergency repair would be reused on site). The reconstruction of the natural bench terrace breaks up the slip plane sufficiently. Adding a high strength rock buttress to the bottom of the slope is expected to significantly bolster the stability at both sites.

Volumetric quantities were calculated based on approximate representative damage cross sections. The tonnage expected for each soil unit was calculated from the volumetric quantity by assuming typical material unit weights and adjusting for expected void ratio. A conversion factor between 1.5 and 1.75 tons/yd^3 was used for the material. The total weight of materials needed to complete each site is tabulated below.

Site	Length (ft)	Topsoil (tons)	2” – 4” Spalls (tons)	Riprap (tons)
Site 1	300	330	1800*	3500
Site 2	50	50	290	170
Total	**350**	**380**	**2090**	**2940****

*Quarry Spall fill for Site 1 void is only needed for 50 LF of slough.

**Salvaged riprap from the flood fight repair will reduce the total tons required by approximately 20 percent.

A 4” gas pipeline runs parallel along Riverside Street. The pipeline is assumed to be 3 feet riverward of the road and a depth of approximately 3 feet below the ground surface. Extreme care and a utility locate would be implemented when re-grading the upper slope to achieve a 2H:1V minimum slope.

3.5. Source of Materials

Armor material will be brought in from an approved and permitted quarry. Specific existing conditions for the location(s) where the fill material will be purchased are unknown as the

materials will be purchased from local, privately owned companies. The site(s) will be chosen through a contract bidding process prior to construction. However any borrow site, quarry, or gravel mine would be fully permitted by the state.

3.6. Staging and Stockpiling

All work would be performed from the west bound lane of Riverside Street. This street has steady vehicle traffic and will necessitate flaggers throughout the duration of construction. Storage and staging would occur at the project location and consist of temporary stockpiling of excess rock and equipment and vehicles. Excavated material would be staged for later use or moved off site for disposal.

3.7. Best Management Practices

The following steps would be taken as best management practices and offsetting measures to reduce and/or mitigate (minimize) the above adverse affects:

1) General

a. Timing of work will coincide with a low-flow period of the river (early September), minimizing water quality effects, as well as effects to threatened and endangered species, and other fish and wildlife.
b. Equipment that will be used near the water will be cleaned prior to construction.
c. Refueling will occur a minimum of 100 ft. away from the riverbank.
d. Construction equipment will be regularly checked for drips or leaks.
e. At least one fuel spill kit with absorbent pads will be onsite at all times.
f. Visual monitoring for sediment runoff into the river will be accomplished. In the event that significant sediment enters the river, work will be halted until the situation can be assessed and corrected.
g. After construction is complete, the repaired levee back slopes will be reseeded using a native grassland seed mix.
h. Willows will be planted at about elevation 1770’ to replace lost riparian vegetation.
i. Work will be restricted to an early September time frame to minimize impacts to aquatic resources, per USFWS recommendation.

2) **Sediment Control.**

a. Visual inspections will be made by the Construction Lead to ensure compliance.
b. Turbidity would be visually monitored throughout construction of the project.
c. Minimal in-water work is planned and turbidity is expected to be minor. However, if heavy rains during construction result in localized turbidity, construction would stop and the Environmental Coordinator would be notified for corrective actions.
d. BMPs for erosion control for the contingency of not having the hydroseed installed by 15 October include:

1. Install straw over dirt surfaces as necessary
2. Additional measures such as coir logs and plastic sheeting that could also be utilized as determined by field conditions.

3) **Biological Monitoring**

a. District Environmental and Cultural Resources Branch personnel will make regular visits to the site to assure that BMPs and other activities comply with environmental laws and regulations.

4) **Archaeological monitoring**

a. Periodic site visit by Corps archaeologist is not required **unless** inadvertent discoveries are made during construction.

b. All contractors on site will be briefed prior to construction on what to do if artifacts are discovered.

Finding of Artifacts

a. If artifacts are found anytime during excavation all construction will cease in that location. Any construction activities that may impact the artifacts will not occur until approved by the Project Manager.

b. If artifacts are found, the Project Manager will be notified and the Project Manager will notify all involved parties, including the Environmental Coordinator, who will notify Cultural Resources personnel and coordinate an appropriate response.

4. ISSUES FOR COMPARISON OF THE ALTERNATIVES

This section provides information on issues relevant to the decision process for selecting the preferred alternative and provides a comparative assessment of each alternative's effects to the environment. Factors for selecting the recommended plan include finding the plan that is the most cost effective and the least environmentally damaging. Neither the "no action" nor the preferred alternative would have any effect on recreation, hazardous, and toxic and radioactive waste.

4.1. Hydrology, Soils and Topography

Mountains in the subbasin are composed of folded, faulted, and metamorphosed blocks of Precambrian sedimentary rocks of the Belt Series and minor basaltic intrusions. Primary rock types are meta-sedimentary argillites, silts, and quartzites, which are hard and resistant to erosion (Miller et al 1999). Where exposed, they form steep canyon walls and confined stream reaches. The porous nature of the rock and glaciation and have profoundly influenced basin and channel morphology.

The Kootenai River character changes dramatically from a bedrock-controlled regime in Montana to a silt/clay regime near the city of Bonners Ferry, Idaho (TetraTech 2004). During the Pleistocene, continental glaciation overrode most of the Purcell Range north of the river, leaving a mosaic of glacially scoured mountainsides, glacial till, and lake deposits. Late in the glacial period, an ice dam blocked the outlet at West Arm of Kootenay Lake. The dam formed glacial Kootenay Lake, the waters of which backed all the way to present-day Libby, Montana. Glacial Kootenay Lake filled the valley with lacustrine sediments, which included fine silts and glacial gravels and boulders. The Kootenai River and lower tributary reaches in Idaho are actively reworking these lacustrine sediments today (TetraTech 2004). A terrace of lacustrine sediments on the east side of the valley is approximately 150 feet above the current floodplain and is a remnant of the ancestral valley floor. Tributary streams working through remnant deposits to meet the present base level of the mainstem and from the mainstem reworking existing floodplain and stream bank deposits continue to be a source of fine sediments. An extensive network of marshes, tributary side channels, and sloughs were formed by lowering of the level of Kootenay Lake, flooding, and the river reworking its floodplain. Some of these wetlands continued to be supported by groundwater recharge, springtime flooding, and channel meandering (Kootenai Tribe of Idaho and MFWP 2004). Much of this riverine topography, however, has been eliminated by diking and agricultural development, especially in the reach downstream of Bonners Ferry, Idaho.

4.1.1. No Action Alternative

Under the No Action Alternative, continued erosion on the banks of the Kootenai River and a higher risk of damage from flooding of the river would persist. In the worst case, the levee could fail, exposing portions of Bonners Ferry and other surrounding areas to flood waters. The current soil conditions and topography would not be impacted.

4.1.2. Preferred Alternative: Return Levee to Pre-flood Condition

Hydrologically, the repaired levee should return the area to its pre-flood river characteristics. The upper slopes of the riverward sides of Sites 1 and 2 would be re-graded to 1.75:1 and 1.5:1, respectively. The cross-sectional hydraulic capacity of the Kootenai River would remain approximately the same. It must be noted, however, that maintenance of flood control structures such as levees confines the river channel and prevents high flows from accessing the floodplains,

reducing groundwater recharge. Narrow, deeper channels have higher water velocity and bed shear stress, thus even small flood events may scour bed materials. At the same time, simplification of the channel, including elimination of access to off-channel areas. So, while overall project effects to hydrology, soils and topography would be insignificant relative to the Kootenai River system, such repair work continues the confinement of the river channel and the elimination of the floodplain functions of an unconfined river

Construction activities associated with the proposed project would result in approximately 1440 tons of spall material and 3040 tons of class II riprap being added to site 1, and 610 tons of spall material and 350 tons of class II riprap being added to site 2, though this would be offset by the removal of 680 tons of class IV riprap that was placed during the 2011 emergency repairs. This material would be placed on the riverward slope along approximately 350 feet of the levee. In addition, soils would be compacted in areas where heavy machinery would be operating.

4.2. Ecology/Vegetation

Bonners Ferry is located in one of the few flood plains of the Kootenai River. Today, diking and other preventive measures largely prevent flooding of Bonners Ferry and allow extensive farming in and around Bonners Ferry. Bonners Ferry is at the beginning of the Purcell Trench (Snyder and Minshall 1996). Prior to European-American settlement, the floodplain from Bonners Ferry to Creston was one of the largest and richest riparian forest and wetland complexes in the Pacific Northwest (Jamieson and Braatne 2001). The area at one time contained cottonwood stands and extensive seasonally flooded sedge meadows prior to its draining; protection from flooding by a system of ditches, pumps, and levees; and conversion to agriculture. In Boundary County, Idaho, about 68,000 acres, of which about 35,000 acres are on the Kootenai River floodplain (HDR 2003), are now used for crop production, and hay and pasture. The remainder of open agriculture land and pastureland is on high benches, which are cleared forestland (NRCS 2003). In the period between 1968 and 1991, some of these lands were converted from agricultural land back to wetlands and natural meadows as part of the Kootenai National Wildlife Refuge (KNWR). Areas within the City of Bonners Ferry are characterized as typical residential and commercial development with habitat for species that are adapted to coexistence with relatively high levels of human disturbance.

Most of the valley bottom in and around Bonners Ferry has been converted to crop production. The unfarmed floodplain areas in and around Bonners Ferry are characterized by ponderosa pine, Douglas-fir, black cottonwood, aspen, paper birch, willow, chokecherry, serviceberry, alder, dogwood, rose, and snowberry. In a few remaining wetlands, willows, alder, aspen, dogwood, cattails, meadow grasses, and sedges dominate. Developed areas within Bonners Ferry are primarily lawn with scattered planted trees, shrubs, or landscaping.

4.2.1. No Action Alternative

Vegetation at the project sites includes grasses, native and non-native wildflowers, and a few shrubs and small trees, including willows and alders. These would likely continue to remain, though with the potential of being swept away by high flows. At present, they provide some value to wildlife for forage and nesting, as well as minimal value to fish, through limited shading and organic input to the river.

4.2.2. Preferred Alternative: Return Levee to Pre-flood Condition

The proposed project would result in a minor, short-term disturbance to the site during construction and a loss of a few small trees and shrubs. Loss of function from impacts to shrubby habitat or grassland is assumed to last between three and seven years based on the typical natural seeding of local plants, and their relative growth rate to maturity. No significant effects to ecological health occurred in the 2011 emergency repairs, and none are expected during the planned repairs of 2012. The proposed project includes hydroseeding the construction sites following construction, as well as the planting of willows at about elevation 1770'. These will need to be regularly watered during the first growing season. In addition, willows, alders, and other local trees and shrubs are expected to naturally volunteer at the repair sites, though this process could take many years.

4.3. Fish

Fish species that are located within the Kootenai River are listed in Table 1, below.

Table 1. Fish species in the Kootenai River near Bonners Ferry, Idaho

Westslope cutthroat trout	*Oncorhynchus clarki lewisi*	Rainbow trout	*Oncorhynchus mykiss*
Bull trout	*Salvelinus confluentus*	Kokanee salmon	*Oncorhynchus nerka*
Mountain whitefish	*Prosopium williamsoni*	Burbot	*Lota lota*
Redside shiner	*Richardsonius balteatus*	Peamouth chub	*Mylocheilus caurinus*
Northern pikeminnow	*Ptychocheilus oregonensis*	Largescale sucker	*Catostomus macrocheilus*
Longnose sucker	*Catostomus catostomus*	Longnose dace	*Rhinichthys cataractae*
Torrent sculpin	*Cottus rhotheus*	Slimy sculpin	*Cottus cognatus*
White sturgeon	*Acipenser transmontanus*		

Of these species, the white sturgeon and bull trout are listed as endangered and threatened species, respectively, and are addressed in the biological evaluation prepared for this proposed project. The Kootenai Tribal sturgeon aquaculture facility is located a short distance downstream on the opposite bank across from the proposed project. This aquaculture facility produces sturgeon as part of a conservation aquaculture program pursuant to sturgeon recovery efforts. According to the Idaho Department of Fish and Game (IDFG) Westslope cutthroat trout, rainbow trout, and burbot are also sensitive to river disturbances. The following information on these species is excerpted from an IDFG letter dated May 14, 2012.

Westslope cutthroat trout utilize the Kootenai River as a migratory corridor between April and July.

The only population of burbot in Idaho inhabits the Kootenai River. Burbot fisheries in the Kootenai River (Idaho and British Columbia) once provided important sport fishing and subsistence opportunities. The burbot population is in severe decline, primarily due to habitat degradation caused by the 1972 installation of Libby Dam in Montana. Spawning season

typically occurs in the Kootenai River at extremely low temperatures from early January through February. Burbot larvae drift in the open water once they hatch. Burbot are active at night and feed in a variety of substrates including gravel, rubble, sand/silt, and mud.

Inland redband (rainbow) trout are native to the Kootenai River drainage and are present in the mainstem Kootenai River and above barriers in some tributaries. Genetics work indicate that pure strain redband populations are relatively rare and stocking of coastal strains of rainbow trout in Montana, Idaho, and BC for many decades have produced a naturalized wild population. The only known pure strain redband populations remaining in Idaho tributaries include populations from Deep Creek and Callahan Creek on the Montana border.

4.3.1. No Action Alternative

The no-action alternative may result in an increase in sediment input to the Kootenai River as a result of erosion of the banks. This would have minimal effects on fish, as the sediment input would be insignificant and discountable compared to natural background levels in the Kootenai River.

4.3.2. Preferred Alternative: Return Levee to Pre-flood Condition

Effects to fish, if any, would be temporary and occur primarily during construction through placement of rock into the river, creating noise, disturbance and turbidity. These disturbances are not expected to interfere with normal migration or movements of fish, and should not interfere with feeding activities. In the long-term the use of hardening material along the banks perpetuates the current condition and the pre-flood event condition that is not considered beneficial to most species of fish. However, the rock that would be placed below the ordinary high water mark may be beneficial to spawning sturgeon by providing a suitable substrate for egg attachment, though this likelihood is small. The retention of the levee in this reach will result in temporary loss of shrubs and small trees, though these are expected to re-establish naturally over time, and willows will be planted at each site, albeit well above flood stage. The vegetation that is currently present might provide scant shade during some periods of the day, but this would be insufficient to affect water temperature. Similarly, willows and other vegetation that may grow in the repair area would be insufficient to affect water temperature. Pools and riffles will not be affected by this work, especially in this reach which has primarily a hardened bed.

4.4. Wildlife

Since the area surrounding the levees is so highly developed and urbanized the most likely species found are raccoons, coyotes, squirrels and various songbirds. The riparian vegetation along these portions of the levees is essentially nonexistent consisting of a few willow shrubs found sporadically along the riverward side. There is insufficient habitat for larger species. Bald eagles merit special attention because they were once listed on the Federal list of Endangered and Threatened Wildlife and Plants, and are still protected under the Bald and Golden Eagle Protection Act. An active bald eagle nest is located 1000 feet east from the project area and within the action area. This nest was active between 2002 and 2006 (IDFG 2006), and in 2010 (Robinson, personal communication, 2012); its current status is unknown. Other active bald eagle nests are located 2.7 miles, 3.0 miles, and 3.8 miles from the project area and outside of the action area.

4.4.1. No Action Alternative

The levee at project area contains sparse riparian vegetation in the form of grasses, weeds, shrubs and a few small trees. The shrubs and trees might grow over time, though they would be susceptible to being washed away by high flows. Still, while the vegetation was present it would create improving habitat for wildlife as the trees and shrubs grew in size.

4.4.2. Preferred Alternative: Return Levee to Pre-flood Condition

Effects to wildlife, if any, would be temporary and occur primarily during construction. The use of hardening material along the banks perpetuates the current condition and the pre-flood event condition that is not considered beneficial to wildlife, though over time shrubs and trees are expected to reestablish along the levee face. Bald eagle breeding activities occur between January 1 and August 15. Wintering activities occur between October 31 and March 31. The project is proposed to be constructed between September 1 and October 31. Therefore, eagles associated with the nearby nest and any undocumented wintering eagles would be absent during construction and would not be affected by construction activities such as equipment operation, hauling, dumping, and rock placement. Coordination with the IDFG (2012) confirms that young of the year bald eagles will be fledged prior to construction, so the project would have no effect on nesting activity. Therefore, a permit under the BAGEPA is not required.

4.5. Threatened and Endangered Species

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration effects to federally listed and proposed threatened or endangered species.

Table 2 lists the threatened and endangered species that may occur in Boundary County. Of those species, the only species that likely inhabit the project area are the bull trout and Kootenai River white sturgeon. The effects of the federal action in regards to the ESA are analyzed in a separate Biological Evaluation (BE), which has been transmitted to the US Fish and Wildlife Service for its concurrence, and the species are therefore not addressed individually in this EA. The BE determined that the effects of last year's emergency work, combined with the planned repairs in summer of 2012, are not likely to adversely affect either bull trout or Kootenai River white sturgeon. The remainder of the species on the list are very unlikely to be near the repair sites and the project work would have no effect on these species. The BE also determined that the work would have no effect to woodland caribou, gray wolf, Canada lynx, grizzly bear, Spalding's catchfly, and water howellia.

Table 2. Threatened and Endangered Species that occur in the vicinity of Bonners Ferry, Idaho

Kootenai River white sturgeon	*Acipenser transmontanus*	Endangered
Woodland caribou	*Rangifer tarandus caribou*	Endangered
Gray wolf	*Canis lupus*	Threatened
Canada lynx	*Lynx canadensis*	Threatened
Bull trout	*Salvelinus confluentus*	Threatened
Grizzly bear	*Ursus arctos*	Threatened
Spalding's catchfly	*Silene spaldingii*	Threatened
Water howellia	*Howellia aquatilis*	Threatened

No Action Alternative
The no-action alternative may result in an increase in sediment from erosion of the banks, though the sediment input would be considered to be insignificant and discountable relative to the sediment load of the Kootenai River. Because the sturgeon benefit from turbid water (i.e., eggs are harder for predators to locate), the small amount of sediment that would be released to the river could be a small benefit to sturgeon.

Preferred Alternative: Return Levee to Pre-flood Condition
The ESA baseline environmental conditions in the Kootenai River include the levee system in place and functional. Therefore from the perspective of the ESA, repairs made to the levee will continue but will not change the baseline conditions. Furthermore, effects of the project, both last year's emergency repairs and this year's proposed repairs, would be insignificant and discountable in the riverine environment and would not likely adversely affect bull trout and sturgeon. The project is not likely to adversely affect designated critical habitat for these two species.

4.6. Cultural Resources

The Bonners Ferry levee system has not been archaeologically surveyed and prehistoric and/or historic archaeological sites such as portions of early Bonners Ferry may be present below the levee prism or in other areas that might be affected by construction-related ground disturbance. Within the lower portion of the Kootenai river basin, all natural levees tend to have prehistoric archaeological sites, and if the landform upon which the City levee is located was a natural levee, evidence of such sites may be present. Consultation with the Kootenai Tribe of Idaho and the Idaho State Historic Preservation Officer is ongoing.

4.6.1. No Action Alternative

No effects would result from the No-Action Alternative.

4.6.2. Preferred Alternative: Return Levee to Pre-flood Condition

No historic properties would be affected by the levee repair action. A letter from the State Historic Preservation Officer concurring with a finding of No Historic Properties is expected. The construction contract will contain a stop-work clause to notify the appropriate officials if evidence of cultural or human artifacts is unearthed.

4.7. Water Quality

The Federal Clean Water Act (CWA) requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the CWA, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife, while providing for recreation in and on the nation's waters whenever possible. Subsection 303(d) of the CWA establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards.

The Idaho Department of Environmental Quality under Section 303 (d) of the CWA lists the Kootenai River and tributaries as impaired for temperature between the Moyie River and the

Idaho/Canada border (IDEQ 2008). The Kootenai River supports cold water aquatic life habitat, sturgeon spawning, salmonid spawning, primary contact recreation, and drinking water supply.

Temperature is an issue in the Kootenai River between the project site and upstream to the confluence of the Moyie River, a tributary located approximately 8 miles upstream of the project site (Streamnet 2007). A 2006 IDEQ report explains:

> "An assessment of temperature data in 2002 indicates that all monitored streams in the Lower Kootenai and Moyie Subbasins exceed Idaho temperature criteria. In a situation where all streams, including un-disrupted streams, have numeric criteria exceedances, a special look at natural conditions must be taken into account. The Lower Kootenai and Moyie watersheds are located in the northern-most portion of Idaho at relatively low elevations. Throughout the state it has been demonstrated that water temperatures are most strongly affected by air temperatures, which directly relate to elevation."

Another reason why stream temperatures may rise is through the modification/removal of shading vegetation by forestry and agricultural practices (IDEQ 2006). Human-caused sediment delivery resulting in wider/shallower channels can also contribute to increased stream temperatures (IDEQ 2006). These are relevant factors in the Bonners Ferry area, though the low elevation is probably the primary reason for higher stream temperatures.

4.7.1. No Action Alternative

If the levee failed sediment inputs would increase dramatically. In addition, pollutants from streets and other infrastructure would freely enter the Kootenai River during high water events. There is a potential that trees and shrubs growing on the levee would grow to sufficient height and girth to provide some shading of the river, though it is unlikely that shading would affect water temperatures, unless the trees were dense and grew extensively for some distance along the river.

4.7.2. Preferred Alternative: Return Levee to Pre-flood Condition

Water quality is not anticipated to be significantly affected by construction activities. During construction there may be a temporary and localized water quality effect such as an increase in turbidity. Equipment would not enter the water and would remain on dry ground at all times. During construction, best management practices for equipment operation and storage and use of hazardous materials would be employed. Therefore, no leakage or spills of hazardous materials into the Kootenai River is anticipated to occur.

This work constitutes repair of an existing structure and would be performed by the Corps of Engineers, and is originally considered exempt from permitting requirements under the Clean Water Act, Nationwide Permit (NWP) 3. Since that time, the Corps determined that NWP 3 is not appropriate, but believes NWP 13 is sufficient to allow this work. The Corps contacted the Idaho Department of Environmental Quality to confirm that a Section 401 Water Quality Certification is not required. DEQ indicated in an email messaged dated 26 June, 2012 that NWP 13 provides for the subject work and the requirement for a water quality certification is waived (Bergquist, *personal communication, 2012).*

4.8. Air Quality and Noise

Air resources describe the existing concentrations of various pollutants and the climatic and meteorological conditions that influence the quality of the air. Precipitation, wind direction, wind speed, and atmospheric stability are factors that determine the extent of pollutant dispersion. EPA designates localities that exceed these maximum levels (National Ambient Air Quality Standards) as non-attainment areas.

Boundary County is currently an attainment area for all monitored air pollutants. There are no apparent operable point sources or fugitive sources of emissions that are classified as major point sources by regulatory agency compliance programs (Tier I or II operating permits).

The project site is near commercial businesses and Highways 95. These highways are major thoroughfares through Bonners Ferry and transport large numbers of vehicles that affect the overall air quality and noise within the immediate vicinity. Noise levels in Bonners Ferry are similar to other cities of the same size and amount of industrial activity.

4.8.1. No Action Alternative

No effects to air quality would result from the No-Action Alternative.

4.8.2. Preferred Alternative: Return Levee to Pre-flood Condition

During construction, there may be a temporary and localized reduction in air quality due to emissions from heavy machinery operating during fill placement, and grading. These emissions would not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Idaho's Clean Air Act implementation plan. Therefore, effects would be insignificant.

Ambient noise levels would increase slightly while construction equipment is operating. However, these effects would be temporary and localized. As a result, effects are anticipated to be insignificant.

4.9. Utilities and Public Services

The levee provides protection for the sewage treatment plant, residences, commercial properties, roads, and associated public infrastructure.

4.9.1. No Action Alternative

The No-Action Alternative could result in damages to residences, commercial properties, roads, and associated public infrastructure if the levee fails to hold high water. Riverside Street could be damaged, leading to disruption in traffic flow and hurting commercial activity at businesses located along the street. The fairgrounds could also be affected by the closure of Riverside Street. A 4" gas pipeline that is buried near the top of the levee could fail, temporarily cutting off supply of gas to businesses and residences, and endangering the public.

4.9.2. Preferred Alternative: Return Levee to Pre-flood Condition

Construction vehicles associated with this project may disrupt local traffic due to increased truck traffic merging, turning and traveling together with local traffic. Such a disruption would be temporary and highly localized, therefore effects would be insignificant. The preferred

alternative would provide continued protection to residences, commercial properties, roads, and associated public infrastructure including the 4” gas pipeline.

4.10. Land Use

Land use in the project area consists of developed residential and commercial areas, including industrial areas. Additional examples of land uses include the county fairgrounds and downtown Bonners Ferry.

4.10.1. No Action Alternative

The No-Action Alternative could disrupt some land uses and potentially destroy infrastructure (such as the 4” gas pipeline and Riverside Street) if the levee was to fail. If such was to occur an emergency would be declared and the levee repaired as an emergency action.

4.10.2. Preferred Alternative: Return Levee to Pre-flood Condition

The project would assure that current land uses would continue to remain in place.

4.11. Recreation

Year-round outdoor recreation, including backcountry hiking, hunting, fishing, skiing and snowmobiling, is a primary attraction for natives and visitors alike. Dozens of alpine lakes and streams dot the Selkirk Crest.

The Kootenai and Moyie rivers offer many choices of water activities; both are blue ribbon trout streams and the Moyie is renowned for whitewater rafting every spring. Self-guided rafting and canoeing on the Kootenai River and interpretive jet boat tours are also popular recreation activities.

4.11.1. No Action Alternative

The No-Action Alternative would have no effect on recreation.

4.11.2. Preferred Alternative: Return Levee to Pre-flood Condition

Effects to recreation values because of the levee repair are anticipated to be insignificant. Recreational resource and value uses would not change as a result of the project.

4.12. Hazardous, Toxic, and Radioactive Waste

There are no known disposal sites at the project locations that have any hazardous, toxic, or radioactive waste.

4.12.1. No Action Alternative

The No-Action Alternative would have no effect to hazardous, toxic, and radioactive waste.

4.12.2. Preferred Alternative: Return Levee to Pre-flood Condition

The project would not introduce new hazardous, toxic, or radioactive waste to the area.

4.13. Aesthetics

The City of Bonners Ferry levees are located on the Kootenai River and are also in the flood plain of that river. The views of the surrounding mountains and the Kootenai River highlight the aesthetic value of this community.

4.13.1. No Action Alternative

The No-Action Alternative would have no effect to aesthetics, other than the potential loss of trees and shrubs during high flows, or the potential breaching of a levee, which, beyond leaving an ugly scar in the levee, could damage buildings and the landscape behind the levee.

4.13.2. Preferred Alternative: Return Levee to Pre-flood Condition

Restoration of the constructed features of the project would not significantly affect the aesthetics of the site or the river. Vegetation that will need to be removed during the repair work will be replaced by a grass seed mixture, and through the planting of willows, and perhaps other native shrubs. There will be a temporal change in the appearance of the levee until the shrubs become as large as the plants that are currently in place.

5. UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with this project include:

(1) a temporary and localized increase in noise, which may temporarily disrupt wildlife in the area, and

(2) a temporary and localized disruption of local traffic by construction vehicles.

6. COORDINATION

The U.S. Fish and Wildlife Service (USFWS), Idaho Department of Fish and Game (IDFG), Idaho Department of Environmental Quality (IDEQ), and the Kootenai Tribe of Idaho were notified of the repair work. In addition, the Notice of Preparation for this EA was sent to elected officials and numerous stakeholders in the region, in part through the Kootenai Valley Resource Initiative distribution list.

The IDFG and Idaho Conservation League (ICL) provided comments. The letters are included in Appendix D of this EA. IDFG expressed concern over the potential for impacts to fish resources. The Corps will do all it can to minimize project effects to fish, including constructing during the low flow period (early September) and during the work window prescribed by the US Fish and Wildlife Service (USFWS). As the USFWS work window differs from the work window prescribed by the IDFG, coordination with IDFG biologists affirmed that construction in September is acceptable (Terra-Berns, personal communication, 2012). The ICL expressed concern about the potential project effects on Kootenai River white sturgeon and bull trout, and encouraged the Corps to consult with the US Fish and Wildlife Service regarding these species. The Corps initiated informal consultation with the USFWS in May, 2012, and received a concurrence letter from USFWS in June 2012. The determination of effect is that the project is not likely to adversely affect Kootenai River white sturgeon and bull trout. This determination was made in part based on the work being performed during the low flow work window prescribed by the USFWS, which coincides with a time when sturgeon and bull trout are least likely to be in the vicinity of the project area.

7. CUMULATIVE EFFECTS

Council on Environmental Quality (CEQ) regulations implementing NEPA require that the cumulative impacts of a proposed action be assessed (40 CFR Parts 1500-1508). A cumulative impact is an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place (40 CFR § 1508.7). CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant" (CEQ 1997). Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future federal actions would require additional NEPA and ESA evaluation at the time of their development.

Levees occur along much of the Bonners Ferry reach of the Kootenai River, and the floodplain has been developed for urban and agricultural uses. Long-term effects associated with constructing and repairing levee systems along the river have included loss of floodplain function; loss of riparian function, including streamside cover and nutrient input; scouring; loss of channel and streambank complexity; lower rates of large woody debris recruitment; and altered patterns of substrate formation. Combined with the effects of construction of Libby Dam above the project area levee construction, maintenance and repair have resulted in a reduction of the quality and quantity of habitat for resident fish.

Cumulative effects from local, short-term disturbances caused by the construction project (noise, emissions, etc.) would be minor and insignificant. The implementation of preferred alternative (approximately 350 linear feet of levee repair) would not result in significant cumulative effects to the region. There are no known plans to raise the levees to provide an increased level of flood protection. The levees would continue to be maintained at their current level. The Corps knows of no other actions that are reasonably certain to occur within the action area.

8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible and irretrievable commitment of resources is the use of materials, resources, or land during implementation of an alternative that makes these resources unavailable for other uses, given known technology and reasonable economics.

Industrial resources required during implementation of the selected alternative would include fossil fuels, construction-related materials, and labor and capital.

9. ENVIRONMENTAL COMPLIANCE

9.1. National Environmental Policy Act

Sections 1500.1(c), 1501.3, and 1508.9 of the Council on Environmental Quality regulations implementing the National Environmental Policy Act of 1969 (as amended) requires Federal agencies to "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" on actions authorized, funded, or carried out by the Federal government to assist agency officials in making decisions that are based on understanding of "environmental consequences, and take actions that protect, restore, and enhance the environment".

This EA has been prepared pursuant to NEPA guidelines. Impacts to the human environment as a result of the proposed project are anticipated to be less than significant. No comments were received during the 30-day comment period.

9.2. Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, Federally funded, constructed, permitted, or licensed projects must take into consideration impacts to Federally listed or proposed threatened or endangered species. The Corps concluded consultation in 2012 with the U.S. Fish and Wildlife Service in which the Service concurred with the Corps' determination that the proposed project is not likely to adversely affect Kootenai River white sturgeon and bull trout and their respective designated critical habitat, and would have no effect on woodland caribou, gray wolf, Canada lynx, grizzly bear, Spalding's catchfly, and water howellia. The USFWS concurred with the determinations in a letter of 17 July 2012.

9.3. Clean Water Act

A Section 401 Water Quality Certification is not required as Nationwide Permit (NWP) #13 is sufficient to allow this work. The Corps contacted the Idaho Department of Environmental Quality to confirm that NWP #13 is the appropriate NWP, and that the Corps meets the requirements to use this NWP. In their final certification of the 2012 NWPs Idaho DEQ denies certification for NWP #13 IF a pre-construction notification (PCN) is required for the work. A PCN is not required for this work, as the Corps determined the work would not result in significant effects to the environment, and if the District Engineer signs the Finding of No Significant Impact (FONSI), this signature removes the requirement for a PCN. DEQ indicated in an email messaged dated 26 June, 2012 that NWP #13 provides for the subject work and the Corps has met the requirement for use of NWP #13; therefore a water quality certification is not required (Bergquist, *personal communication, 2012).*

9.4. National Historic Preservation Act

The National Historic Preservation Act (NHPA, 16 USC 470) requires that the effects of proposed undertakings or actions on properties (such as archaeological sites, buildings, structures, or objects) included or eligible for the National Register of Historic Places must be considered. Historic Preservation Officers for affected States and Tribes and the Advisory Council on Historic Preservation must be afforded an opportunity to comment on the undertaking, and the agency must consult with affected Indian tribes.

9.5. Executive Order 12898, Environmental Justice

Executive Order 12898 directs every Federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations. The potentially affected community does include a minority and/or low-income population. Maintenance of this levee will not negatively affect property values in the area, or socially stigmatize local residents or businesses in any way. No interference with local Native American Nation's treaty rights will result from the proposed project; construction activities will be coordinated with local tribes and not physically interfere with fishing, or impact fishery resources. Based on this rationale, the Corps has determined the overall project benefits the local economy and has determined that no disproportional impacts will occur.

9.6. Executive Order 11990, Protection of Wetlands

This order directs Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. Fill material was not placed in any wetlands during the emergency work. No wetlands are located near the proposed 2012 work. Therefore, impacts to wetlands were avoided.

9.7. Executive Order 11988, Floodplain Management

Executive Order 11988 requires federal agencies to consider how their activities may encourage future development in floodplains. With repair of an existing levee no new or additional protection would be provided that would encourage additional development in the floodplain.

9.8. Executive Order 11990, Protection of Wetlands

This order directs Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.

Maintenance dredging and disposal activities will not alter the wetlands found in and adjacent to the upland disposal areas. A small amount of intertidal habitat will be affected at the upland disposal sites by the temporary placement of the pipeline over the marsh; however, the pipeline will be in place during the non-growing season and will expected to not damage plants. Plants will be expected to return to normal growth patterns as soon as the growing season commenced.

9.9. Treaty Rights

In the mid-1850s, the United States entered into treaties with nearly all of the Native American tribes in the territory that would become Washington State. These treaties guaranteed the signatory tribes the right to "take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory" [*U.S. v. Washington*, 384 F. Supp. 312 at 332 (WDWA 1974)]. In *U.S. v. Washington*, 384 F. Supp. 312 at 343 - 344, the court resolved that the Treaty tribes had the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds, as needed to provide them with a moderate standard of living (Fair Share). Over the years, the courts have held that this right comprehends certain subsidiary rights, such as access to their "usual and accustomed" fishing grounds. More than *de minimis* impacts to access to usual and accustomed fishing area violates this treaty right [*Northwest Sea Farms v. Wynn*, F.Supp. 931 F.Supp. 1515 at 1522 (WDWA1996)]. In *U.S. v. Washington*, 759 F.2d 1353 (9th Cir 1985) the court indicated that the obligation to prevent degradation of the fish habitat

would be determined on a case-by-case basis. The Ninth Circuit has held that this right also encompasses the right to take shellfish [*U.S. v. Washington*, 135 F.3d 618 (9th Cir 1998)].

The proposed project has been analyzed with respect to its effects on the treaty rights described above. The Corps has concluded the following:

(1) The work will not interfere with access to usual and accustomed fishing and gathering areas;

(2) The work will not cause the degradation of fish runs in usual and accustomed fishing grounds or with fishing activities or shellfish harvesting and habitat; and

(3) The work will not impair the Treaty tribes' ability to meet moderate living needs.

The Tulalip Indian Tribe was notified that the EA was available for review; the Tribe did not provide comments on the EA.

9.10. Clean Air Act

Section 176 of the Clean Air Act (CAA), 42 USC 7506(c), prohibits Federal agencies from approving any action that does not conform to an approved state or Federal implementation plan. Maintenance dredging and disposal activities where no new depths are required, disposal will be at an approved disposal site, and the activity will result in no emissions increase or an increase that is clearly *de minimis* are exempted from the conformity requirements [40 CFR 93.153 (c)(2)(ix)]. Emissions from construction activities would not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Idaho's Clean Air Act implementation plan. Ambient noise levels would increase slightly while construction equipment is operating. Air and noise effects would be temporary, localized, and insignificant.

10. CONCLUSION

Based on the above analysis, the levee repair would not be a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an environmental impact statement.

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Appendix A

Project Drawings and Photos

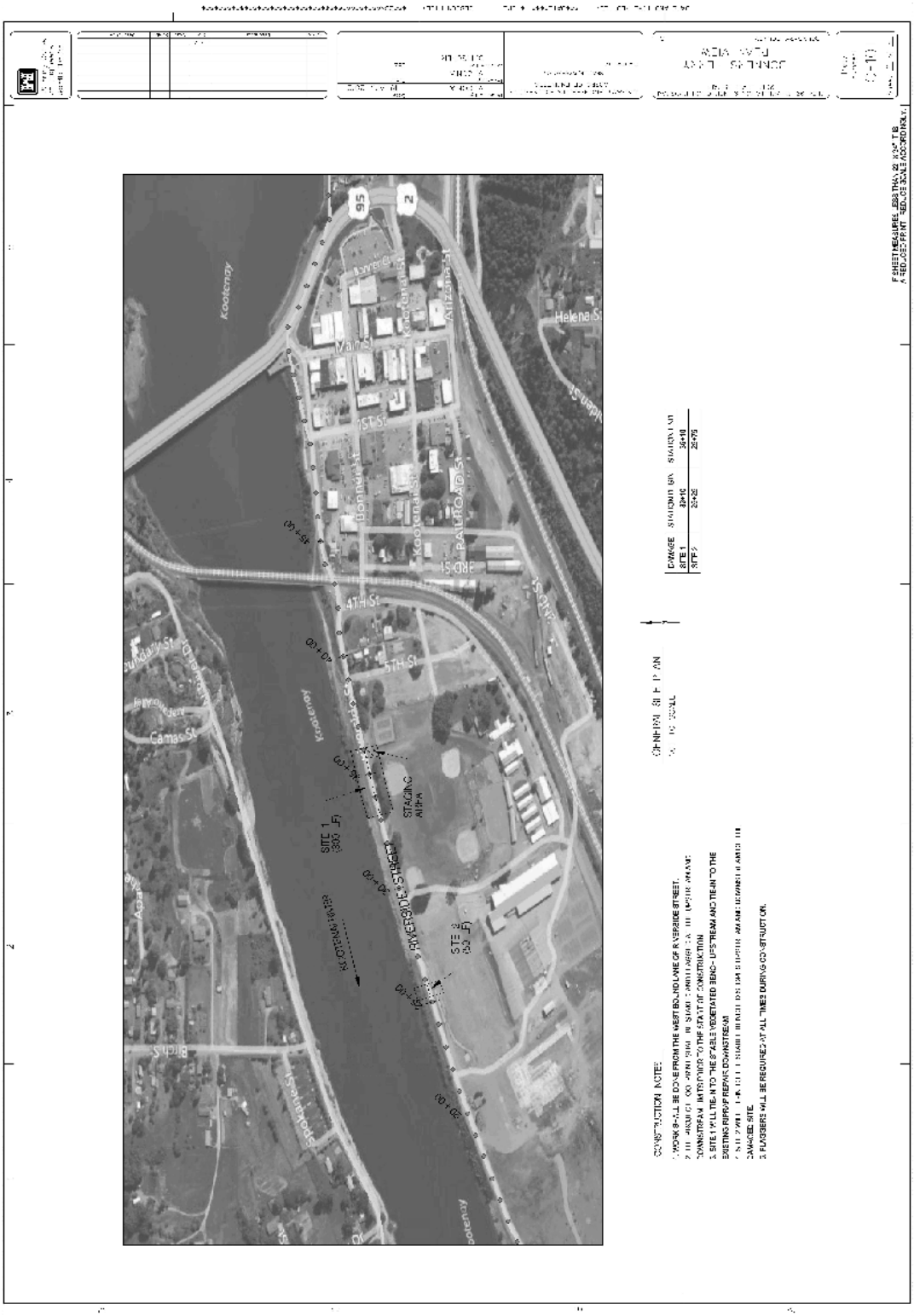

Figure A1—2012 Repair Site 1 and 2012 Emergency action (labeled as Site 2 on the photo), showing locations, stations, and staging areas.

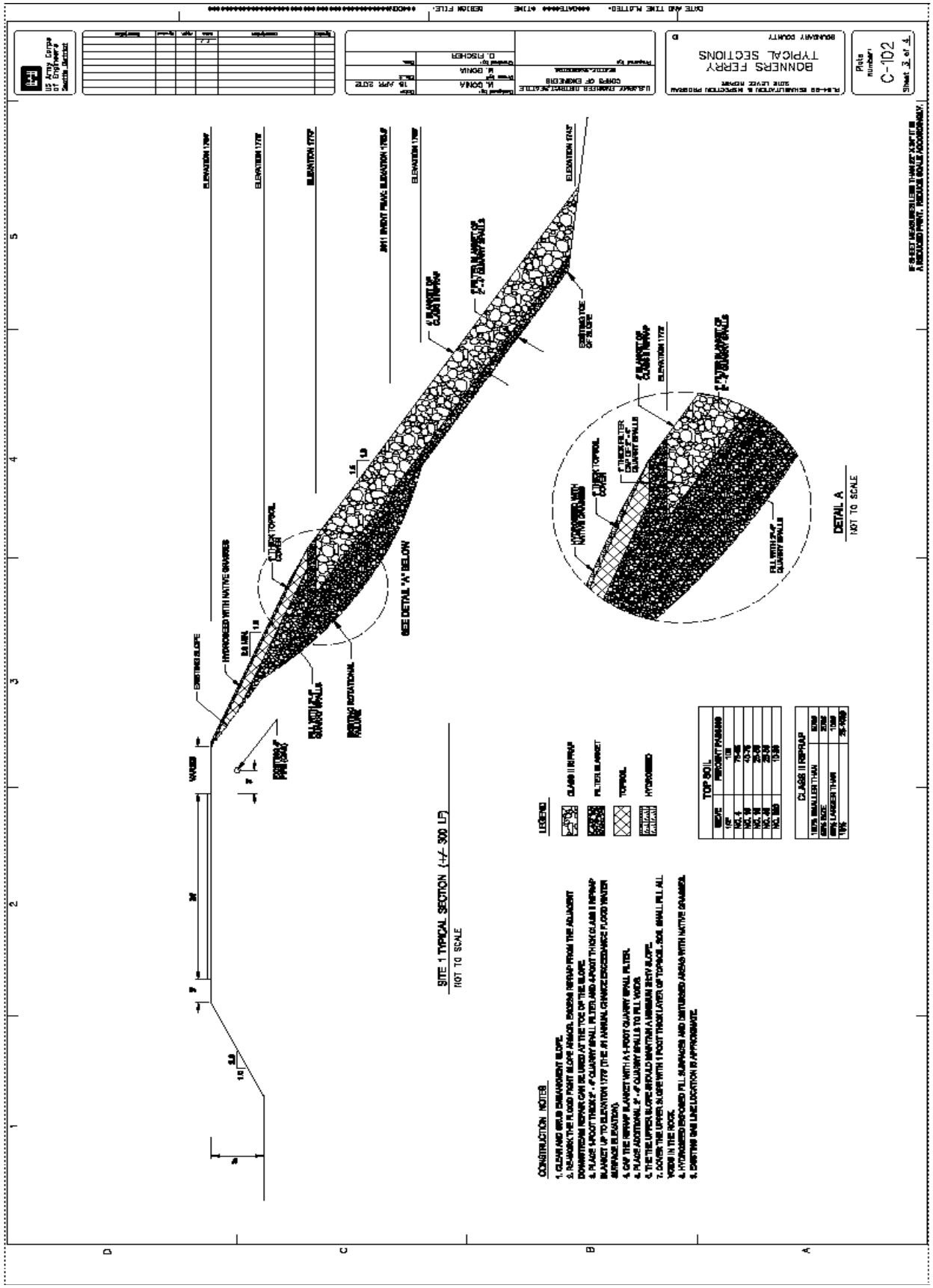

Figure A2—Site 1 cross-section.

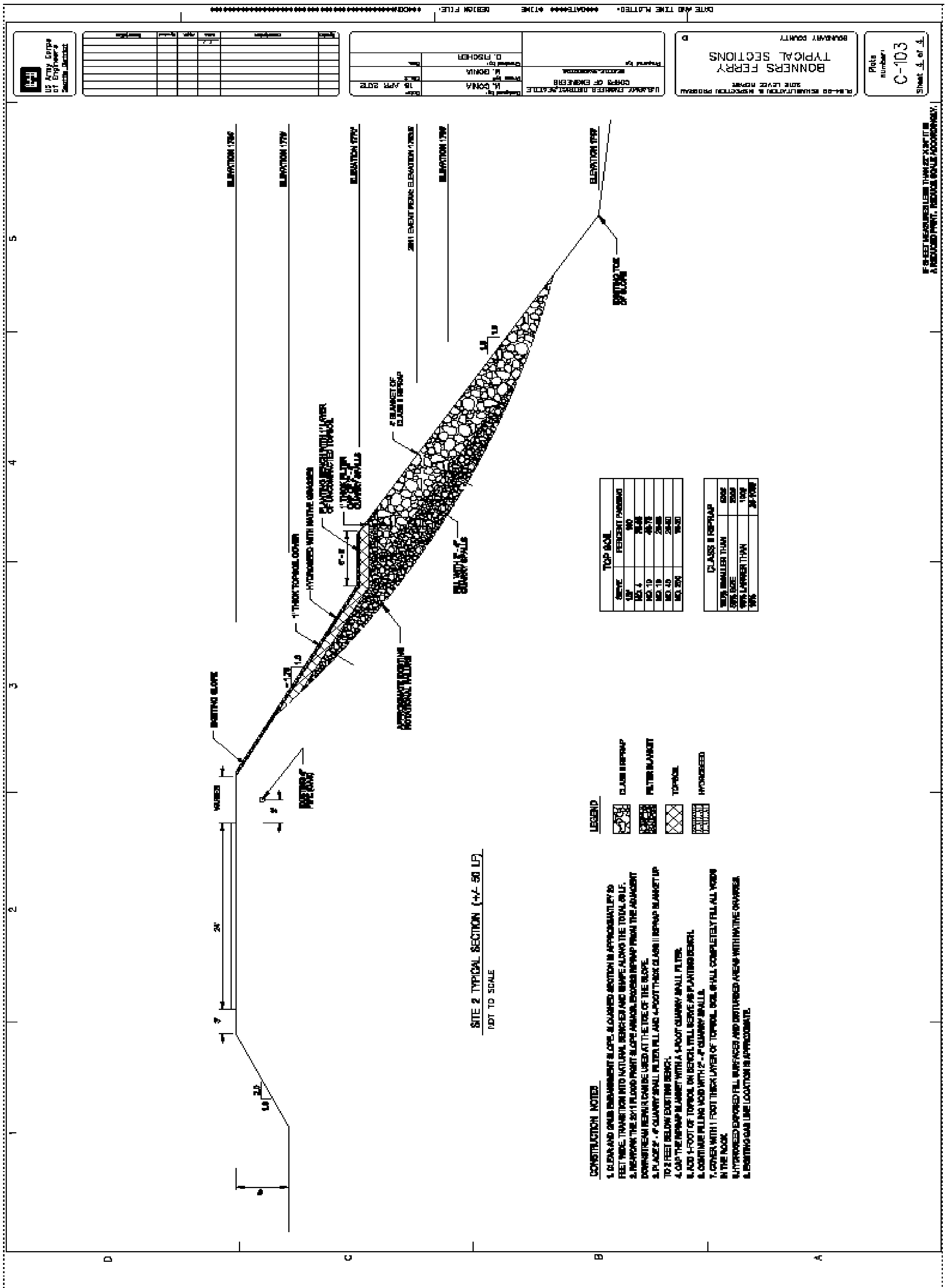

Figure A3—Site 2 cross-section.

Figure A4—Damage to Left Bank, Site 1

Figure A5—Damage to Left Bank, Site 2

Figure A6—Fodge Mill Emergency Work, 2011

Figure A7—Emergency Repair 2011

Figure A8—2012 Emergency Repair (Site 2)

Appendix B

SHPO Concurrence

[Not received as of 2 August 2012]

Appendix C

USFWS Concurrence

File

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Idaho Fish and Wildlife Office
Northern Idaho Field Office
11103 East Montgomery Drive
Spokane Valley, Washington 99206

July 17, 2012

Evan Lewis
Chief, Environmental and Cultural Resource Branch
Department of the Army
Seattle District, Corps of Engineers
Seattle, Washington 98124

Subject: Section 7 Consultation for the City of Bonners Ferry Levee Repair Project (FWS Ref: 01EIFW00-2012-I-0286; CONS 100-(a))

Dear Mr. Lewis:

This responds to your June 5, 2012, letter referencing the Biological Assessment (BA) for initiation of consultation for the City of Bonners Ferry Levee Repair Project (Project). Specifically, the U.S. Army Corps of Engineers (COE) is completing consultation for levee repair work that was conducted during an emergency flood event that occurred May and June 2011, and which is the subject of an emergency consultation initiated by the COE on May 21, 2011, under emergency consultation provisions of the Endangered Species Act Endangered Species Act of 1973, as amended (Act). Additionally, the COE is initiating consultation for levee repair work to be completed September 2012, which will take place on the Kootenai River in Boundary County at Township 62 North, Range 1 East, Section 28, Boise Meridian, Idaho. We understand that the COE is requesting initiation of consultation to address potential effects of Project implementation upon bull trout (*Salvelinus confluentus*) and its designated critical habitat, as well as Kootenai River white sturgeon (*Acipenser transmontanus*; white sturgeon) and its designated critical habitat. Your letter was received in our office June 11, 2012, and requested U.S. Fish and Wildlife Service (Service) concurrence with your determination of effect for bull trout, designated bull trout critical habitat, white sturgeon, and designated white sturgeon critical habitat.

Emergency Consultation

In late May 2011, emergency actions were taken in four locations as a result of an extended period of high water. Emergency actions were taken to stop ongoing erosion and scour of levees and overbank flooding. A total length of 1,134 feet of riverbank was stabilized. The following provides a brief description of the treatments applied to stabilize specific sections of riverbank:

- 623 linear feet (lf) of scour protection was placed along the left bank levee downstream of the City. Approximately 9,840 tons of riprap was placed along this reach of the levee.

- 206 lf of scour protection was placed on the left bank near Ambush Rock. Approximately 3,250 tons of riprap was placed along this reach of the levee.

- 138 lf of scour protection was placed along the right bank at the upstream end of the City of Bonners Ferry right bank levee. Approximately 2,180 tons of riprap was placed along this reach of the levee.

- 167 lf of scour protection was placed on the cutoff levee upstream of town on the left bank, in the Fudge Mill area. Approximately 1,462 tons of embankment material and approximately 500 tons of riprap were placed at the cutoff levee.

Proposed Action

As stated in the BA, the purpose of the proposed Project is to minimize riverbank erosion and subsequent sediment delivery to the Kootenai River by installing rock riprap and willow bundles. Proposed construction is expected to occur September 2012, and is anticipated to take approximately one week to complete.

The Project will include placement of rock riprap along the riverbank of the Kootenai River at two sites. The total length of the levee repair work is approximately 350 lf (site #1 requires 300 feet of repair and site #2 requires 50 feet). Excavation of a toe trench is not anticipated during Project implementation; however riprap will extend horizontally into the river approximately 8 to 9 feet to provide a base for the riprap. Work will also consist of riverbank shaping and placement of 48-inch rock riprap on the riverward slope. The voids in the riprap will be filled with 2-4 inch quarry spall filter cap approximately 1- foot in depth, and the horizontal top of the riprap on the levee will be capped with a 1-foot layer of top soil. An excavator working from the top of the riverbank will be used for Project implementation. All disturbed surfaces will by hydroseeded with native grasses and willows bundles will be planted.

Conclusion

Emergency Consultation

For the reasons described below (i.e. poor quality habitat, low densities of bull trout and sturgeon, etc.), the actions completed under emergency consultation are expected to have resulted in insignificant effects to bull trout, white sturgeon, and their designated critical habitat(s).

Proposed Action

Bull trout and white sturgeon are present in the Kootenai River and implementation of the proposed action has potential to result in short term increases in suspended sediment, noise and turbidity. Bull trout use this portion of the river primarily as a migration corridor to and from upstream spawning and rearing areas and are not expected to be in the area during work activities conducted in September. Additionally, white sturgeon are not expected to be present at the Project site during construction activities, as water flows in September typically produce shallow, warm river conditions near the riverbank. As such, we expect white sturgeon to seek out deeper and thus colder areas of the river away from the project site during Project implementation. Furthermore, the expected impacts of the proposed action is not likely to significantly affect bull trout and white sturgeon, as activities related to Project implementation will be conducted in an area that is considered to be relatively poor quality habitat (actively eroding banks, little riparian vegetation, low channel complexity, lack of cover, etc.) for both species. Also, this reach of the Kootenai River has a high density of infrastructure (highway bridge, railroad bridge, gas line, the city of Bonners Ferry), which contributes to an overall low density of bull trout and white sturgeon in this section of river. Additionally, Project implementation is not likely to significantly affect the ability of the Kootenai River to function biologically as migratory habitat for bull trout or spawning habitat for white sturgeon. As a result, due to the minimal amount of disturbance, timing of the proposed Project, and use

of conservation measures, potential short-term minor impacts to bull trout and white sturgeon and their designated critical habitat that may occur as a result of Project implementation are expected to be insignificant.

The BA states that best management practices specifically targeted to minimize sediment input into the river, and minimize the likelihood of leaks or spills from heavy equipment will be utilized. These include vegetating disturbed areas with native grass and planting willow bundles. Best management practices designed to minimize the likelihood of leaks or spills include refueling equipment at least 100 feet from the river; as well as other proven effective measures described in the BA.

We have reviewed the information provided and concur with your finding that the emergency action "affected, but did not adversely affect" bull trout and white sturgeon and their designated critical habitat. Furthermore, we also concur with your finding that the proposed Project "may affect, but is not likely to adversely affect" bull trout and white sturgeon and their designated critical habitat. Relative to the proposed action, concurrence by the Service is contingent upon implementation of the proposed Project as described in the BA.

This concludes informal consultation pursuant to section 7(a)(2) of the Act. This Project should be re-analyzed if new information reveals that effects of the actions may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; and/or if a new species is listed or critical habitat is designated that may be affected by the Project.

If you have further questions about this letter, or your responsibilities under the Act, please contact Jay Martini of my staff at the above address (telephone: 509-893-8002; fax: 509-891-6748).

Sincerely,

Ben Conard
Field Supervisor

cc:
IDFG, CdA (Corsi)

Appendix D

Public and Agency Comment Letters

Rec'd 5/22/12
#3

IDAHO DEPARTMENT OF FISH AND GAME
PANHANDLE REGION
2885 West Kathleen Avenue
Coeur d' Alene, Idaho 83815

C.L. "Butch" Otter/Governor
Virgil Moore/Director

May 14, 2012

Ken Brunner
US Army Corps of Engineers
Environmental & Cultural Resources Branch
P.O. Box 3755
Seattle, WA 98124-3755

Dear Mr. Brunner:

REFERENCE: CITY OF BONNERS FERRY – KOOTENAI RIVER LEVEE

We have reviewed your application to repair and restore the Kootenai River levees at Bonners Ferry, which received emergency repair actions in 2011, due to damage from high spring flows. The purpose of these comments is to assist the decision-making authority by providing technical information addressing potential effects on wildlife and wildlife habitat and how any adverse effects might be mitigated. It is not the purpose of Idaho Department of Fish and Game to support or oppose this proposal.

The Kootenai River has been ESA designated as Critical Habitat for bull trout (Threatened) and white sturgeon (Endangered) by the U.S. Fish and Wildlife Service. A Critical Habitat designation identifies geographic areas that contain features essential for the conservation of a threatened or endangered species and that may require special management or protection.

The Kootenai River population of white sturgeon is one of 18 land-locked populations of white sturgeon in the Pacific Northwest and is restricted to approximately 168 miles of the Kootenai River in Idaho, Montana and Kootenay Lake in British Columbia. This unique stock has been in decline since the mid-1960s and was listed under ESA as Endangered throughout its range in the United States and Canada in 1994. The Kootenai River white sturgeon is listed as "Critically Imperiled" by the state of Montana and "Endangered" by the state of Idaho.

The Kootenai River white sturgeon population is threatened by dam operations, flood control operations, water quality degradation and loss of habitat. Habitat alterations have changed the natural hydrology of the Kootenai River, which negatively influence sturgeon spawning, egg incubation, and rearing habitats. Kootenai River white sturgeon spawn between May and mid-July. The eggs and fry remain in the spawning gravel until the end of July.

Bull trout and native westslope cutthroat trout utilize the Kootenai River as a migration corridor between tributaries for spawning and juvenile rearing. Bull trout are sensitive to changes in riparian

habitat along steam courses. Westslope cutthroat trout migrate normally between the first part of April and the end of July. Bull trout typically migrate between mid-April and December.

The only population of burbot in Idaho inhabits the Kootenai River. Burbot fisheries in the Kootenai River (Idaho and British Columbia) once provided important sport fishing and subsistence opportunities. The burbot population is in severe decline, primarily due to habitat degradation caused by the 1972 installation of Libby Dam in Montana. Spawning season typically occurs in the Kootenai River at extremely low temperatures from early January through February. Burbot larvae drift in the open water once they hatch. Burbot are active at night and feed in a variety of substrates including gravel, rubble, sand/silt, and mud.

Inland redband (rainbow) trout are native to the Kootenai River drainage and are present in the mainstem Kootenai River and above barriers in some tributaries. Genetics work indicate that pure strain redband populations are relatively rare and stocking of coastal strains of rainbow trout in Montana, Idaho, and BC for many decades have produced a naturalized wild population. The only known pure strain redband populations remaining in Idaho tributaries include populations from Deep Creek and Callahan Creek on the Montana border.

Several research and restoration projects have been and are currently being conducted on the Kootenai River to benefit native species. Idaho Department of Fish and Game, The Kootenai Tribe of Idaho, and British Columbia (BC) Ministry of Environment continue to be active participants in recovery implementation and coordination activities to benefit Kootenai River white sturgeon. IDFG is currently working with the Kootenai Tribe to restore nutrient inputs to the river, which benefits native salmonid species. Additionally, IDFG is supporting the Tribes's habitat restoration projects in the river corridor above Bonners Ferry, which should provide substantial benefits for fish and other aquatic species.

The Kootenai River retains a substantial current throughout the year. Substantial run-off events are common in the Kootenai drainage, significantly increasing water levels and flows. Maintaining robust riparian habitat is critically important for water quality and a healthy aquatic habitat. Riparian vegetation has complex root systems that can withstand increased flows and slow bank erosion more effectively than stream banks that are sparsely vegetated. Additionally, the vegetation traps sediment, provides overhead cover that shades the stream and provides insects for food, and contributes large woody debris to the stream. Large woody debris in streams creates favorable fish habitat by forming pools, which can provide food, cover, and resting areas for fish, as well as help to store sediment and retain spawning gravels. Retention of all trees with roots near stream banks, as well as those trees that lean over stream channels is beneficial. Maintaining riparian buffers will protect tree species such as cedar, cottonwood and birch, as well as water quality, fish habitat, and habitat used by a wide variety of terrestrial and avian wildlife species.

Because tributary spawning habitat is a limiting factor for Kootenai River salmonids, measures to protect, enhance or restore habitat along the Kootenai River corridor (and particularly where side-channel habitat occurs) provides important benefits to the Kootenai River fishery.

If the project is permitted, we recommend the permit requirements for this site are designed to ensure that white sturgeon, burbot, native salmonids and other fish in the Kootenai River are adequately protected.

Where possible, we recommend retention and/or restoration of riparian vegetation riverward of the levee repairs. We also recommend measures to prevent entrainment of fine sediment into the river during construction. Conducting work during the mid-summer (August)low flow period can help to minimize the potential for negative impacts to fish.

Thank you for the opportunity to comment.

Sincerely,

Charles E. Corsi
Regional Supervisor

CEC:MTB
C: Sharon Kiefer, IDFG Boise
June Bergquist, DEQ Coeur d'Alene
Jim Brady, IDL Coeur d'Alene
USFWS, Spokane

COE Bonners Ferry Levee Rehab – Kootenai River

Response to IDFG letter dated 14 May 2012

The Corps acknowledges the importance of native fish resources in the Kootenai River. Based on this letter we have added text to Section 4.3 “Fish” to better describe these resources. We also added text to more thoroughly describe the potential effects of the project on fish resources. The Corps will do all it can to minimize project effects to fish, including constructing during the low flow period (early September) and during the work window prescribed by the US Fish and Wildlife Service (USFWS). As the USFWS work window differs from the work window prescribed by the IDFG, coordination with IDFG biologists affirmed that construction in September is acceptable (Terra-Berns, personal communication, 2012).

www.idahoconservation.org

Idaho Conservation League
PO Box 2308, Sandpoint, ID 83864
208.265.9565

May 16, 2012

Ken Brunner
Environmental Coordinator
Seattle District
US Army Corps of Engineers

RE: Notice of Preparation: Bonners Ferry Levee Rehabilitation

Dear Mr. Brunner,

I'm writing in response to the Notice of Preparation we received regarding the proposed levee rehabilitation work in Bonners Ferry.

Since 1973, the Idaho Conservation League has been Idaho's voice for clean water, clean air and wilderness—values that are the foundation for Idaho's extraordinary quality of life. The Idaho Conservation League works to protect these values through public education, outreach, advocacy and policy development. As Idaho's largest state-based conservation organization, we represent over 20,000 supporters, many of whom have a deep personal interest in protecting the water quality of our streams and rivers, and the fish that live there.

We understand that the U.S. Army Corps of Engineers is attempting to address a problem caused by past flooding events and prevent future scouring of the levee. Our primary concern is that the USACE takes measures to minimize impacts to endangered or threatened species that reside in the Kootenai River, namely bull trout and sturgeon. This may involve choosing a work window that does not coincide with spawning or other critical times in the species' life cycle. We request that the USACE confer with the U.S. Fish and Wildlife Service to determine the best time to do the necessary work and the methods to ensure it does not negatively impact the fisheries.

Thank you for the opportunity to comment. If you have any questions, feel free to contact me at (208) 265-9565.

Sincerely,

Susan Drumheller

Susan Drumheller
North Idaho Associate

Response to ICL letter dated 16 May 2012

The Corps initiated informal consultation with the USFWS in May, 2012, and received a concurrence letter from USFWS in June 2012. The determination of effect is that the project is not likely to adversely affect Kootenai River white sturgeon and bull trout. This determination was made in part based on the work being performed during the low flow work window prescribed by the USFWS, which coincides with a time when sturgeon and bull trout are least likely to be in the vicinity of the project area.