Rehabilitation of Flood Control Works, Klocke Levee

Kittitas County, Washington

FINDING OF NO SIGNIFICANT IMPACT

1. Background.

Klocke levee is a Non-Federal Levee on the Yakima River that provides flood protection to the agricultural properties, public utilities, and transportation infrastructure in Kittitas County, Washington. Flooding on the Yakima River in November and December, 2015 damaged approximately 100 linear feet of the Klocke Levee.

Prior to the 2015 flood, the levee provided a 50-year level of protection. In its present damaged condition, Klocke Levee is estimated to provide only a 5-year level of protection.

2. Proposed Action.

The Seattle District, U.S. Army Corps of Engineers (Corps) has determined that the preferred alternative is the Repair-in-Kind Alternative. The action to be constructed will be as described in Section 2.3 of the accompanying Environmental Assessment (EA). Those actions are briefly summarized as follows:

a. All repairs to the levee will be within the footprint the levee occupied before flood damage. All levee repairs will be confined to the riverward slope of the levee and the adjacent riverbed.

b. Repairs will remove armor material from the levee slope and toe, restore slope profile to approximately 2H:1V, and restore protection with 3 feet (ft.) of Class IV riprap over 1 foot of quarry spalls. A launchable toe will be restored to 10-foot widths with layers of Class IV riprap over 1 foot of quarry spalls. The launchable toe will be 5 ft. high. A willow lift will be constructed on the riverward levee slope of the repair site, just above ordinary high water level. All repairs will be constructed to transition smoothly into adjoining sections of the levee.

c. Existing access roads and a previously disturbed staging area will be used to support the action and as a disposal site for any excess material.

d. The project is planned and designed to avoid and minimize project impacts to the maximum extent feasible. All levee work will be confined to the pre-damage levee footprint. All access will be over existing roads and trails, and all staging will be in previously developed or disturbed uplands. All in-water activity will occur in October to reduce impacts to fish. A Storm Water Pollution Protection Plan will be implemented and monitored to protect the Yakima River from construction sediment and turbidity. Habitat measures developed in coordination with United States Fish and Wildlife

Service (USFWS) and National Marine Fisheries Service (NMFS) will be implemented to protect Endangered Species Act (ESA) listed species. The following additional specific mitigation measures will be implemented:

- Vegetation removal will be limited to the riverward face of the repair site and will be minimized to the extent possible.
- Off-site plantings will be planted to replace removed shrubs and trees at a 1.5:1 ratio.
- Construction sites will be marked to limit vegetation removal to minimize the area disturbed and to avoid impacts to surrounding vegetation.
- To the extent feasible, in-water placement of spalls and riprap will begin at the upstream limit of each repair site so that the placed rock will lessen downstream scouring.
- Equipment used near the water will be cleaned prior to construction; biodegradable hydraulic fluids will be used in machinery at the sites; refueling will be no closer to the water than the back side of the levees; construction equipment will be checked regularly for drips or leaks; at least one fuel spill kit with absorbent pads will be onsite at all times, and construction personnel will be properly trained in its use; and drive trains of equipment will not operate in the water.

3. Impacts Summary.

Pursuant to the National Environmental Policy Act (NEPA) the Corps prepared an EA. The EA evaluates the predicted environmental impacts associated with the proposed action and whether that action would cause significant impacts to the quality of the human environment, as briefly summarized below.

a. The Corps does not issue permits for its own civil works activities. Nevertheless, the Corps has accepted responsibility for substantive compliance of its civil works projects with Section 404 of the Clean Water Act (CWA), as well as the obligation to seek water quality certification under Section 401. After examining the proposed repairs, the Corps concluded that the proposed repairs are not subject to regulation under Sections 401 and 404 of the CWA. The exemption from the requirement to evaluate the effects of discharges of fill material into waters of the United States under 33 USC 1344(f)(1)(B) applies because all riverward work at the repair sites will be conducted on a currently serviceable structure (i.e., the levee) within the pre-damaged levee footprint, and the character, scope, and size of the resulting structure will not change as compared to the original fill design. Therefore, the proposed repairs do not require a 404 (b)(1) evaluation or Section 401 Water Quality Certification.

b. The Corps has determined that the project is not located within the coastal zone and will therefore not require a Coastal Zone Management Consistency Determination.

c. The Corps consulted with the Washington SHPO and the Confederated Tribe and Bands of the Yakima Nation as required by the National Historic Preservation Act

(NHPA). The Corps notified the tribes on 16 November 2016, asked them to identify any concerns, and sought information about properties of religious or cultural significance that might be affected by the project. The tribes did not comment on the undertaking. There are no properties listed in the National Register of Historic Places (NRHP) or the Washington State Historic Site Register in the project vicinity, and no NRHP-eligible historic properties in the area of potential effect (APE) of either levee. The Corps has made a determination of *"no historic properties affected"* for the Repair in Kind Alternative, and has determined that no construction monitoring for cultural resources will be required. The Corps notified the SHPO of our finding of No Historic Properties Affected on 21 February 2017. The SHPO agreed with our determination.

d. A Biological Assessment (BA) documenting the effects of the proposed repairs on listed species under the ESA has been prepared. This BA was submitted to the USFWS and NMFS. USFWS concurred with the Corps determination of "may affect, not likely to adversely affect" bull trout and its critical habitat. NMFS indicated non-concurrence with the Corps determination of "may affect, not likely to adversely affect" steelhead and provided a Biological Opinion outlining project impacts and Reasonable and Prudent Measures (RPMs) for steelhead and Essential Fish Habitat Conservation Recommendations under the Magnuson-Stevens Fishery Conservation and Management Act.

e. Unavoidable adverse effects associated with this project include: (1) temporary and localized increases in noise, activity, and emissions which may affect fish and wildlife in the area, (2) temporary and localized disruption of local traffic by construction activity and vehicles, (3) irretrievable commitment of fuels and other materials for repairs, (4) removal of vegetation from the levee repair area, and (5) degradation of riparian and aquatic habitat. Measures are included in the project design to address impacts to fisheries and other resources. Implementation of avoidance and minimization measures and measures outlined in the Biological Opinion from NMFS will limit the impact of the overall project.

4. Conclusion.

I find that the proposed action will not result in significant adverse environmental impacts and complies with all applicable laws, regulations, and agency consultations, including the CWA, ESA, NHPA, and NEPA, as well as applicable Executive Orders.

Based on the analysis described above and provided in more detail in the accompanying EA, the 2017 Rehabilitation of the Klocke Levee is not a major Federal action significantly affecting the quality of the human environment, and therefore, does not require preparation of an environmental impact statement.

11 Jul 17
DATE

JOHN G. BUCK
Colonel, Corps of Engineers
Commanding

ENVIRONMENTAL ASSESSMENT

REHABILITATION OF FLOOD CONTROL WORKS
KLOCKE LEVEE,
KITTITAS COUNTY, WASHINGTON

Prepared by:
U.S. Army Corps of Engineers
Seattle District

July 2017

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APE	area of potential effect
BMP	Best Management Practice
BNSF	Burlington Northern-Santa Fe
BOD	biochemical oxygen demand
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DAHP	Department of Archaeology and Historic Preservation
dbh	diameter at breast height
DPS	distinct population segment
EA	environmental assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
LOP	level of protection
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
SIP	State Implementation Plan
USFWS	United States Fish and Wildlife Service
WDE	Washington Department of Ecology
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area
YBFWRB	Yakima Basin Fish and Wildlife Recovery Board

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1 INTRODUCTION

The U.S. Army Corps of Engineers (Corps), in cooperation with Kittitas County, is proposing to repair damage to the Klocke Levee on the Yakima River near the City of Ellensburg, Washington.

The levee is approximately 3,800 feet long and is part of a two-segment system that includes the City Well Levee. The Burlington Northern-Santa Fe (BNSF) rail embankment, which divides Klocke Levee from City Well Levee, defines the north end of the repair area.

The levee was damaged during flood events in November and December 2015. The larger event on December 10, 2015 reached a peak flow of 13,500 cubic feet per second with a stage height of 35.73 feet (gage height) on the Yakima River at Umtanum, Washington (USGS Gage 12484500). Flows exceeded the established National Weather Service flood stage of 35.5 feet for about 9 hours and corresponded to approximately a 5-year average return period (20% Annual Exceedance Probability).

The proposed action had included repairs to an additional site on the Schaake Levee located upstream of Ellensburg between river miles 152 and 153. However, Kittitas County withdrew its repair request for this site. This environmental assessment (EA) will only discuss the Klocke Levee.

This EA is being prepared pursuant to Section 102(C) of the National Environmental Policy Act (NEPA) to cover the proposed repair work. The repair work is planned for October 2017.

1.1 Project Location and Site Description

The proposed action is in Kittitas County, Washington on the Yakima River (Figure 1). The Klocke Levee is located on the left bank between BNSF's Yakima River Bridge No. 3 embankment to the water intake for the Cascade Irrigation District (river miles 160 to 161), about 7 miles north of Ellensburg. It is in Township 18 North, Range 17 East, Sections 12 and 13; and Township 18 North, Range 18 East, Section 18 (Figure 2). State Route 10 runs parallel to the Yakima River and Interstate 90 crosses the river about a mile to the south of the project location. The proposed Federal Action would repair 100 lineal feet of the riverward slope at the upstream end of the Klocke Levee.

The Klocke Levee is approximately 3 to 6 feet high on the landward side and predominantly composed of silty, sandy gravel with Class III to IV riprap on the riverward slope. Riverward slopes are at 2H:1V, while landward slopes are at 2.5-3.5H:1V. The levee crest is 12 to 24 feet wide and surfaced with gravel.

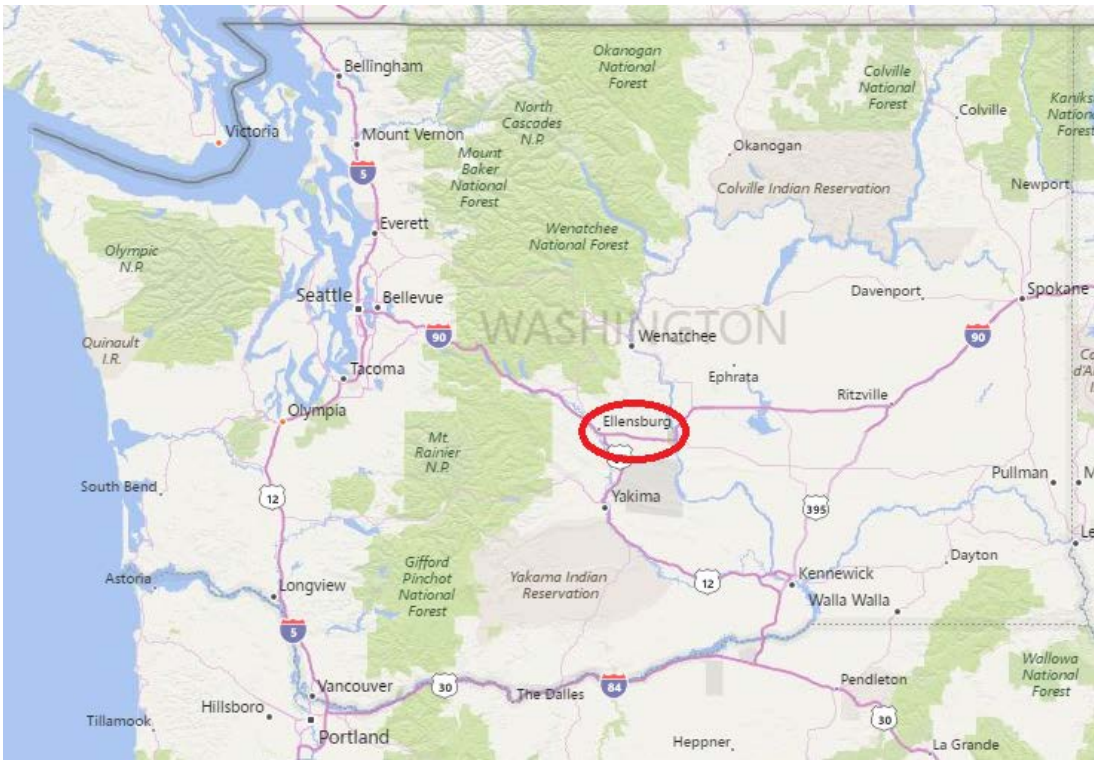

Figure 1. Vicinity Map. The Klocke Levee is located at 47.0588451,-120.6505641

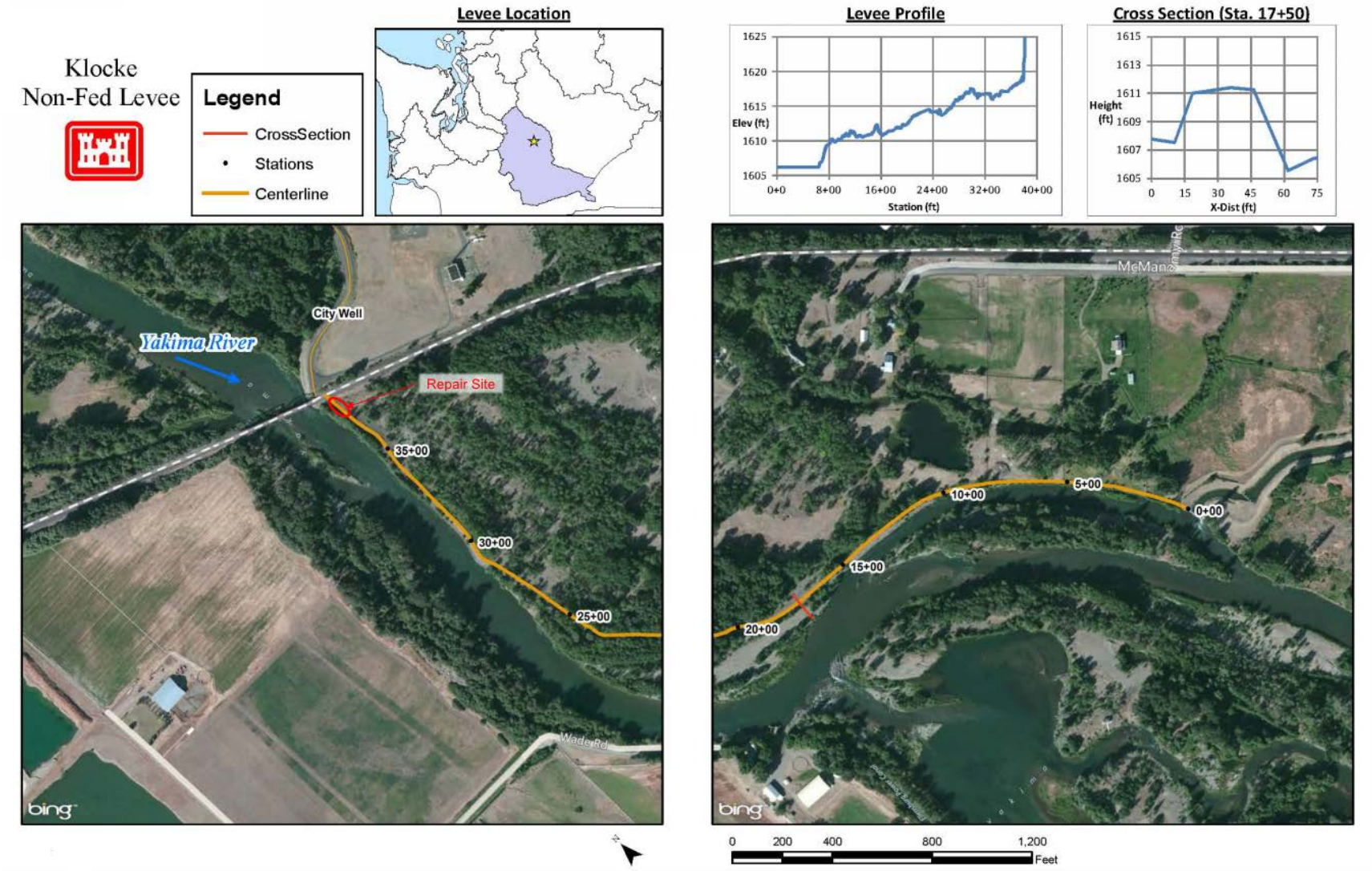

Figure 2. Aerial imagery of Klocke Levee repair site and downstream reach of Yakima River.

1.2 Authority

The proposed levee repairs are authorized by Public Law 84-99 (33 U.S. Code Section 701n). The Corps' rehabilitation and restoration work under this authority is limited to the repair of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the condition and level of protection exhibited by the flood control works prior to the damaging event. The County of Kittitas is the non-federal sponsor for the proposed action. Local interests constructed the levee prior to 1948 to protect residential and agricultural properties and public infrastructure, and the levee has been modified and repaired repeatedly.

1.3 Project Purpose and Need

The purpose of the proposed project is to repair the damaged sections of the Klocke Levee to restore the pre-flood level of protection to people and property. The action is needed because 2015 flood events scoured riprap from the riverward toe and slope armor along approximately 100 linear feet of the levee. In several locations filter or backing material and embankment soil are exposed. Figure 3 shows the damaged location. Representative photographs showing damage to the levee are in Appendix A.

The levee as constructed provides a 50-year level of protection (LOP) from flooding to public infrastructure, including a railroad trestle bridge, a City of Ellensburg water well, and a private residence and farmland. In its damaged condition the level of protection provided by the Klocke Levee is estimated at 5 years. The proposed action would restore adequate, reliable flood protection to the same 50-year level of protection that the levee provided prior to the 2015 flood event.

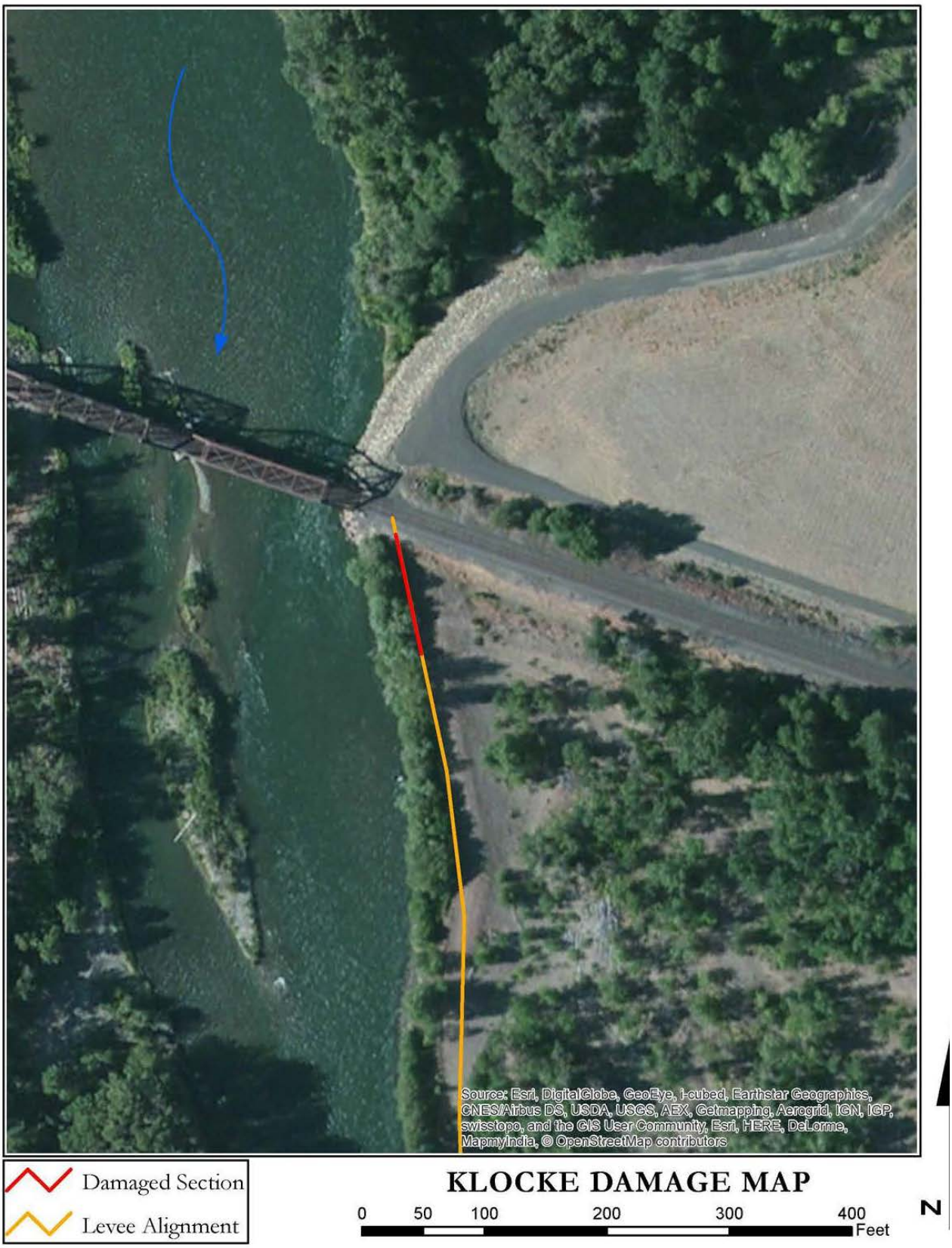

Figure 3. Damaged 100 foot long section of the Klocke Levee, Yakima River

2 ALTERNATIVES CONSIDERED

2.1 No Action Alternative

Under this alternative, the Corps would not provide assistance to Kittitas County to repair the levee. In lieu of federal assistance through the Corps, Kittitas County, the City of Ellensburg, or some other entity could undertake the repairs. If one or more of those entities did not conduct repairs, then the levee would remain in a damaged condition until the next flood event. During any flood event threatening the integrity of the levee system, the Corps and other federal and non-federal agencies would likely act under emergency authorities to preserve the levee systems and maintain protection of the people and property protected by the levee. Emergency actions, however, would be temporary, less certain of success, potentially more expensive, and less protective of environmental and cultural resources.

The No Action Alternative is not recommended because it would risk failure of the levee system and for the reasons listed above. While the No Action Alternative is not recommended, it does serve as a base condition for evaluation of other alternatives.

2.2 Non-Structural Alternative

This alternative would relocate all existing structures, utilities, and other infrastructure from the areas protected by the levee. The costs and the timeframe for implementation associated with this alternative make it impractical in the immediate future. Accordingly, the non-structural alternative was eliminated from further consideration; however, this alternative has been used in the past and could be an effective approach to flood control in future actions.

2.3 Repair In Kind Alternative (Recommended Plan)

The preferred alternative is the Repair in Kind Alternative. After considering all factors, including economic justification, environmental acceptability, and cost, this alternative was determined to be the best alternative to repair the levee with available time and resources.

The Corps would rehabilitate the Klocke Levee to provide 50-year LOP. The damaged area that would be repaired is identified in Figure 3. The repair would correct damages to the riverward slope of 100 linear feet. All repairs would be in the footprint the levee occupied before flood damage. All levee repairs would be confined to the riverward slope of the levee and the adjacent riverbed. This is the preferred alternative.

Typical levee repairs begin with site preparation, preparation of access routes, and preparation of the levee prism to receive new prism material. Storage and staging would occur near the project locations as shown in the Plan Set in Appendix B, and would consist of temporary stockpiling and storage of excess rock, supplies, equipment, and vehicles. Access would be via Highway 10 to McManamy Road to the drivable levee crest at the repair site. Staging would be in the field adjacent to the levee (Appendix A). Vegetation in the repair location would be removed to the extent necessary to perform the work. The riverward slope at the Klocke Levee site is heavily vegetated (see project photos in Appendix A), and several trees would be removed to accomplish the repairs. Site limits would be clearly marked using stakes and flagging to minimize vegetation disturbance.

Erosion during the flood events displaced armor rock at the levee toes and scoured into the banks. Material from the levee sloughed into the scoured areas and, in some areas, floodwater deposited gravel, sand, and finer bedload material into the scoured areas as flows diminished. That deposited material would be removed early in the construction process, and the riverward face of the levee

would be graded to establish levee slope profiles at a slope ratio of approximately 2 horizontal to 1 vertical (2H:1V). Excavation and grading of the levee face would be conducted to a depth that accommodates the filter material and armor protection within the pre-flood profile of the levee. Material excavated at the repair sites would be reused in the repair or taken offsite to a commercial disposal facility.

Slopes at the scoured areas would be armored with 3 feet of Class IV riprap over a 1-foot thick layer of quarry spalls (2- to 4-inch-diameter quarried stone) to restore the levee to its pre-existing slope. A 5-foot high launchable toe would be restored to 10-foot widths with layers of Class IV riprap over 1 foot of quarry spalls. A launchable toe is a thicker layer of riprap, placed at the toe of slope protection, which is intended to drop or "launch" riprap into scoured areas as the river erodes beneath the toe. Launchable toes require less in-water work than conventional trenching for toe placement and are more adaptive to erosion events. Toe work would require work in the water. Rock would be placed individually, as opposed to dumped. Material would be placed until the pre-flood level of protection and geometries are matched, typically using the upstream and downstream undamaged areas as guides. Design drawings for the repair are located in the Plan Set in Appendix B.

One lift of willow stakes would be installed on the riverward face, 1 foot above the ordinary high water level. Each willow lift would consist of an 8-inch layer of soil with live 3- to 4-foot-long willow stakes planted perpendicular to the levee face. The willow stakes would be centered in the soil layer. Coyote (*Salix exigua*), Sitka (*Salix sitchensis*), and/or Hooker's willow (*Salix hookeriana*) cuttings (in that order of preference) would be used. Approximately 80% of the length of each stake would be embedded in the topsoil.

Following construction, all disturbed areas would be hydroseeded with native grasses, and the levee crown would be returned to the pre-repair condition. Areas on the crown disturbed by construction activities would be topped with up to 6 inches of crushed stone to repair any rutting or damage.

All in-water work would be completed during October. Work adjacent to the water, but above the ordinary high waterline, may continue into November. Construction at Klocke is expected to take approximately 2 weeks.

2.4 Mitigation Measures

Mitigation for effects of the proposed action is evaluated as part of the NEPA process. Mitigation can take any of the following forms:

- Avoiding effects altogether by not taking a certain action or parts of an action.
- Minimizing effects by limiting the degree or magnitude of the action and its implementation.
- Rectifying effects by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating effects over time by preservation and maintenance actions during the life of the action.
- Compensating for effects by replacing or providing substitute resources or environments.

The project was planned and designed to avoid and minimize project impacts to the maximum extent feasible. The levee repair would occur within the pre-damaged levee footprint. The following minimization measures, in addition to those described in Section 2.3, would be implemented to minimize impacts:

- All work would be restricted to areas of existing and functional flood control structures and to previously disturbed upland areas for staging.
- Only clean material would be placed on the riverward side of the levee. Riprap would be individually placed to limit turbidity and excessive rock placement; and quarry spalls would be placed in small quantities from the bucket of an excavator.
- Vegetation removal would be limited to the minimum extent required to complete the repair.
- The construction site would be marked to limit vegetation removal, minimize the area disturbed, and avoid impacts to surrounding vegetation.
- No temporary fill or permanent impacts to wetlands would occur.
- One lift of native willow stakes would be planted near ordinary high water along the levee repair. When harvesting or purchasing willow cuttings, the contractor would select healthy, live wood that is reasonably straight and is at least 2 years old. The top 2-to-3 inches of the stakes would be dipped in latex paint immediately after they are cut so that the stakes do not dry out. All cuttings would be soaked in water for a minimum of 24 hours and not longer than 7 days before planting.
- All in-water work would be completed during October to limit or avoid impacts to sensitive aquatic species.
- In-water placement of quarry spalls and riprap would begin at the upstream extent and continue in the downstream direction.
- Biodegradable hydraulic fluids would be used in machinery operating near the water.
- Refueling of machinery would occur no closer to the water than the backside of the levee.
- Construction equipment would be checked regularly for drips or leaks.

- At least one fuel spill kit with absorbent pads would be onsite at all times, and construction personnel would be properly trained in its use.
- Drive trains of equipment would not operate in the water.
- A fueling and spill recovery plan would be developed prior to construction. The plan would include specific BMPs to prevent any spills and to prepare to react quickly should an incident occur. A Stormwater Pollution Prevention Plan would also be developed to identify potential sources and reduce pollutants in stormwater discharges from the construction site.
- Continuous visual water quality monitoring would be conducted during construction, with measurements taken when a plume is noted. Work would be halted in the event of exceeding maximum turbidity standards in the mixing zone until a cause is determined, and if necessary, corrected.
- Mitigation planting of a 1.5:1 ratio for all shrubs and trees removed during the repair would be planted adjacent to the river. Further details concerning mitigation plantings are located in Section 3.2.2.

3 ENVIRONMENTAL RESOURCES OF CONCERN

3.1 Hydrology, Topography, and Soils

The Yakima River is in the 6,100-square-mile Yakima Subbasin, which is bounded by the Cascade Mountains to the west, the Wenatchee Mountains to the north, the Columbia River to the east, and the Simcoe Mountains and Horse Heaven Hills to the south. Elevations exceed 8,000 feet in the Cascades on the western edge and plummet to 340 feet at the confluence of the Yakima and Columbia Rivers.

Precipitation is highly variable across the Yakima basin, ranging from approximately 8 inches per year in the eastern portion, to over 128 inches per year along the western border near the crest of the Cascade Mountains (USFWS 2002). Virtually all of the streams in the subbasin originate at higher elevations where annual precipitation is 30 inches or more. Total runoff from the basin averages approximately 3.4 million acre-feet per year (YSFWPB 2004).

The Yakima River is influenced by multiple dams that impact fish migration, river habitat, and river hydrology. There are five major storage reservoirs in the Yakima River basin; three are located in the Upper Yakima Basin (Keechelus, Kachess, and Cle Elum), and two are located in the upper Naches River (Bumping and Rimrock) (USFWS 2002). These reservoirs, combined with numerous irrigation diversion dams, have severely altered the natural hydrograph of the entire basin, including the Yakima River. The proximity of the river to multiple highways, interstates, and railroads has impacted meander potential, riparian habitat, and river banks throughout the length of the river. The riverbanks in the action area have been reinforced with levees and shoreline armoring, including riprap.

The Cascade Mountains occupy roughly the western third of the Yakima Subbasin, while the Columbia Plateau extends from the Cascade foothills to the eastern border of the subbasin (YSFWPB 2004). The City of Ellensburg and the Klocke Levee are in the foothills region where soils are predominantly sand, gravel, and silt resulting from large volumes of glacial outwash into the alluvial basins.

The project area is in Water Resource Inventory Area (WRIA) 39, which includes the Upper Yakima River watershed from the headwaters to the confluence of the Naches River. About 1,600 feet upstream of the project is a diversion dam that serves as the inlet for Town Ditch, a 24-mile canal providing irrigation to over 10,000 acres of agricultural land and augmenting the City of Ellensburg's water supply. Because of numerous flood control structures and dams upstream, the Klocke Levee is in a confined reach of the Yakima River. This reach includes a mix of wooded floodplains and terraces, irrigated hay fields, and other agriculture, as well as nearby light residential areas and other open space. Soils are primarily gravelly sandy loam (NRCS 2016).

3.1.1 No Action Alternative

The No Action Alternative would allow continued levee damage and attendant potential for flood damage. Soil conditions and topography would not be affected. In the event of a levee breach during a flood event, the river channel could migrate, changing the hydrology in the immediate area of the breach and throughout the affected reach of the river. The No Action Alternative could lead to emergency flood fight measures during flood events, which could entail in-water construction and further modification of local hydrology. Flood fight measures would also be temporary, less certain of success, potentially more expensive, and less protective of environmental and cultural resources.

3.1.2 Repair in Kind Alternative

Under the Repair in Kind Alternative, restoration of the levee and the toe at the damaged section would minimize further erosion of the riverbank. Levee contours and degree of encroachment into the streambed would mirror pre-flood conditions.

Construction activities may result in soil compaction where heavy machinery operates. For the most part, areas to be affected by the Repair in Kind Alternative are significantly disturbed and already have compacted soils from previous levee construction.

The Repair in Kind Alternative would maintain local topographic, hydrologic, and soil conditions over the longer term. Direct effects would be minor and local. Overall project effects to hydrology, soils, and topography would be insignificant.

3.2 Vegetation and Wetlands

Vegetation across the Upper Yakima Subbasin is a mixture of forest, grassland (shrub/steppe), and croplands. The Yakima River in the project area traverses areas of agricultural land and other low-density land uses with riparian habitat along the river and adjoining streams. Vegetation on the levee is managed to maintain levee safety and inspectability.

Agricultural and open lands and riparian vegetation bound much of the river in and near the project area. The shoreline vegetation in the project area is well established and composed of trees and shrubs that provide shade at the river's edge and nutrient input along the banks. The riverward side of the Klocke Levee repair site has a 20-foot-wide slope vegetated with alder and brushy willow and rose (see project photos, Appendix A). Most the vegetated cover comes from shrubs and a clump of five alders; the largest has a diameter at breast height (dbh) of 14 inches, and most are less than 5 inches dbh. There is a gravel road on top of the levee, and the landward side of the levee near the project site contains open woodland that has been grazed. The levee system continues upstream of the railroad bridge. Farther upstream is a mature forested wetland associated with a river side-channel.

Site visits in March 2016 and queries of the National Wetlands Inventory database show that there are no wetlands at the project site or in other areas that would be affected by project activities.

3.2.1 No Action Alternative

Under the No-Action Alternative, no construction activity would occur and vegetation on the levee would not be affected. Vegetation at the project site would continue to be managed under the non-federal sponsor's levee maintenance program to maintain continued eligibility for Corps rehabilitation assistance. The No Action Alternative could lead to emergency repairs during flood fighting or even levee failure and extensive flooding. Emergency repairs or levee failure could lead to substantially more damage to vegetation than the proposed action.

3.2.2 Repair in Kind Alternative

Construction of the proposed Repair in Kind Alternative would remove mature willows, alders, several other trees and understory vegetation along 100 feet of the riparian zone in the project area. Grass and other plants also would be disturbed by equipment using the levee crest for access. Construction limits would be clearly marked to protect vegetation on either side of the project area. Willow lifts would be planted just above ordinary high water along the entire 100-foot length of the repair. Grass would be re-established on topsoil and any disturbed ground as soon as practicable after construction.

Riparian vegetation is important for recruitment of large woody debris in the river, shading, cover, food, complexity of shoreline, nutrient input, and as perching and nesting habitat for birds. Construction of the Repair in Kind Alternative would reduce vegetation height, density, and function as riparian habitat along a relatively limited section of the levee. Those effects would gradually diminish over several years as vegetation re-establishes in the riprap areas and returns to pre-construction conditions. As the levee becomes re-vegetated, it would regain ecological functions, contributing to the food web, adding habitat complexity, and contributing organic material to the river. Incorporating willow lifts would hasten re-vegetation. Shading and other functions, however, would be limited by trimming and clearing associated with levee maintenance that is conducted by Kittitas County.

The Repair in Kind Alternative would remove no more than 3 percent of the vegetative cover riverward slope of the Klocke Levee. This includes five trees.

Aside from the willow lifts incorporated into the repairs, other mitigation planting would occur. Through consultation with the National Marine Fisheries Service (NMFS), the Corps agreed to replace shrubs and trees removed during the proposed repair at a 1.5:1 ratio. NMFS agreed that a 1.5:1 ratio for plantings was sufficient and that the plantings could be located offsite, but in an area that aids in riparian restoration or enhancement of the Yakima River.

The same mitigation is being conducted for the Yakima right and left bank levee repairs by the Corps in the City of Yakima. The number of trees and estimated number of shrubs necessary to plant as mitigation for the Klocke repair have been added to the number that will be planted as mitigation for the Yakima right and left bank levee repairs.

These plantings would be placed in riparian areas along the Yakima River. The Corps requested assistance from Yakima County to identify suitable sites and in planting the vegetation. Through an exchange of written correspondence, the County agreed to plant the vegetation and identified potential sites for these plantings. The Corps reviewed the sites and identified two mitigation

alternatives. They included the Sarg Hubbard site, a gravel bar downstream of the Terrace Heights Bridge, and the Mercer Parcels upstream of the Washington SR-24 Bridge near W. Birchfield Road (Figure 4). Both sites are within the riparian zone and would provide shading and other habitat benefits to the river.

The Corps is responsible for purchasing and delivering the plantings. The Corps provided estimated numbers of plantings and species to the County that reviewed and agreed they were appropriate. Shrub and tree species include black cottonwood (*Populus balsamifera*), coyote willow, golden currant (*Ribes aureum*), red osier dogwood (*Cornus sericea*), Nootka rose (*Rosa nutkana*), pacific ninebark (*Physocarpus capitatus*), and serviceberry (*Amelanchier alnifolia*). The Corps will work with the County to ensure successful plantings by providing oversight and site selection assistance. Site selection, such as those identified in Figure 4, will likely be located in places not subject to O&M Manual's or other vegetation management practices that would result in future trimming, cutting, or removal of the plantings. However, if this is not possible, the plantings would be completed in accordance with Corps vegetation standards ETL-1110-2-583.

Figure 4. Potential riparian mitigation sites identified by Yakima County.

Taking into account riparian mitigation plantings, overall project effects on vegetation would be temporary. If current maintenance by the local sponsor continues as it has in the past, sites are expected to be recolonized by native vegetation.

3.3 Habitat and Wildlife

Resident salmonids native to the Yakima River Basin include kokanee (*Oncorhynchus nerka*), cutthroat trout (*O. clarkia*), bull trout (*Salvelinus confluentus*), mountain whitefish (*Prosopium williamsoni*), steelhead (*O. mykiss*), Chinook salmon (*O. tshawytscha*), and coho salmon (*O. kisutch*). The general distribution of salmonids in the Yakima River is as follows:

- Kokanee are limited to lakes and would not be in the project area.
- Cutthroat trout were historically present, but populations are reduced from historic levels, and are generally restricted to upper tributary streams (USBR 1999). Cutthroat are not expected to be in the project area.
- Bull trout are present in streams above the city of Yakima, and a study by the Washington Department of Fish and Wildlife (WDFW 2004) indicates presence of a fluvial stock in the mainstem Yakima River. The river adjacent to the levee is designated as critical habitat for bull trout.
- Mountain whitefish are distributed throughout much of the Yakima River basin (USBR 1999).
- The Yakima River in the project vicinity is documented as being used for rearing, migrating, and for spawning by summer steelhead of the Middle Columbia River Distinct Population Segment (DPS) (WDFW 2016). The reach of the Yakima River in the project action area is part of designated critical habitat for steelhead.
- Middle Columbia River spring run and upper Columbia summer/fall run Chinook salmon rear in the mainstem Yakima River in the project vicinity (WDFW 2016). The Washington Department of Fish and Wildlife Priority Habitats and Species Database shows spring Chinook salmon spawning near the Klocke repair site.
- Coho salmon have been documented in rearing habitat within the project reach (WDFW 2016).

A number of other native, resident fishes also occur in the basin, including a variety of minnows, suckers, and sculpins. Mountain sucker (*Catostomus platyrhynchus*), a state candidate species, has been observed within approximately 8 miles downstream of the project area.

Introduced fish species are now common throughout the interior Columbia River Basin. USBR (1999) and the Yakima Basin Fish and Wildlife Recovery Board (YBFWRB 2016) reported a number of other native and introduced fish species, including: brook trout (*S. fontinalis*), brown trout (*Salmo trutta*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), pumpkinseed (*Lepomis gibbosus*), bluegill (*L. macrochirus*), black crappie (*Pomoxis nigromaculatus*), carp (Family: Cyprinidae), black bullhead (*Ameiurus melas*), yellow perch (*Perca flavescens*), brown bullhead (*A. nebulosus*), channel catfish (*Ictalurus punctatus*), mosquitofish (*Gambusia affinis*), walleye (*Sander vitreus*), daces (*Leuciscus leuciscus*), sculpins (Family: Cottoidae), suckers (*Catostomus* sp.), and whitefish (Family: Salmonidae).

The area surrounding the project site is largely agricultural land, which may offer habitat for a variety of wildlife. In the project repair areas, small rodents, skunks, raccoons, coyotes, and other wildlife are likely to be occasionally present in the project vicinity.

Washington Birder (2016) lists 318 bird species in Kittitas County. A variety of passerines, raptors, water birds, swallows, and others may use the Yakima River and the riparian habitat

associated with it for nesting, feeding, and other life requirements. Birds may use brushy habitat on levees in the project area for nesting, and ground nesting species could nest on bare ground along the crest and on landward slopes of the levee.

Bald eagles (*Haliaeetus leucocephalus*) are found in Kittitas County. While not specifically known to nest in the vicinity, bald eagles could be present during the non-breeding season. The WDFW (2016) Priority Habitats and Species Database maps this section of the Yakima River floodplain as a bald eagle winter concentration area. Although bald eagles were delisted under the ESA on June 28, 2007, they continue to be protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. These Acts require some measures to continue to prevent bald eagle "take" resulting from human activities.

3.3.1 No Action Alternative

The No Action alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee with associated severe turbidity and potential pollution impacts to the river. A flood fight would likely be undertaken to prevent a breach and could require in-water work during periods when migratory salmonids could be present in the Yakima River near the emergency action site. Emergency actions would entail more in-water work and could have greater impact on fish and wildlife than a scheduled repair action.

3.3.2 Repair in Kind Alternative

The Repair in Kind Alternative can be expected to maintain existing river flows and would not affect channel or side channel characteristics. The action would not block fish passage or reduce flows available to support fish. The repairs would simplify areas of bank undercutting and bank complexity at levee toes resulting from erosion and would reduce fish habitat quality at those sites. Effects of bank simplification would be minor and local, but long term. Construction-related (short-term) noise, vibration, and human activity can be expected to temporarily displace fish from habitat, but timing restrictions would help prevent substantial effects to many species of fish during important life history periods. Effects on mid-Columbia steelhead and bull trout are further discussed in Section 3.4. Effects of noise, vibration, and human activity would be transitory and minor.

Potential project-induced effects to water quality, including temperature, dissolved oxygen, and turbidity are addressed in Section 3.6. Activities in and near the water may elevate turbidity and suspended solids levels downstream and may affect ability of sight-feeding fish to locate prey. Very heavy silt loading, at much greater levels than would be produced by the repairs, can have adverse physiological effects to most fish. Sediment suspension, turbidity, and biochemical oxygen demand (BOD) from the levee repair would be of low intensity, local, and temporary. Effects to fish are expected to be local and temporary. Timing restrictions would prevent substantial effects on fish related to changes in water quality during important life history periods. Vegetation removal can be expected to have minor effects to water quality parameters (see above and Section 3.6), to reduce organic input to the system, and to reduce substrate and feeding habitat for insects that might be prey for fishes. Those effects are expected to be local and temporary.

The action is not expected to introduce changes that would increase predation, encourage immigration or propagation of warmwater or invasive aquatic species, or disturb more than very minor areas of spawning or other important fish habitat. Confining construction to October is

expected to protect fish during vulnerable spawning, developing, and juvenile stages. Overall project effects to fish are expected to be local and temporary.

The Repair in Kind alternative would likely displace mammals during construction, but no substantial short or long term effects are expected. Vegetation removal would locally reduce forage and cover for riparian mammals and other wildlife. Confining work to the existing levee footprint and staging and access routing in developed areas would minimize potential for impacts to mammals, birds, reptiles, and amphibians. Project impacts to wildlife are expected to be minor, localized, and of short duration.

Vegetation clearing and ground disturbing activities would be conducted outside the nesting period identified by USFWS to protect migratory birds. Birds that nest in brushy riparian habitat would be not find suitable habitat in the repair areas until woody vegetation re-establishes. Roosting and feeding birds could be displaced by construction activities, and habitat value of a relatively small length of potential feeding and perching vegetation would be temporarily diminished. Project effects on birds would be minor, localized, and temporary.

3.4 Threatened and Endangered Species

In accordance with Section 7(a)(2) of the ESA, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Of the threatened and endangered species that may occur in Kittitas County (Table 1), two threatened species may occur in the project vicinity.

Table 1. ESA protected species potentially occurring in the project vicinity

Species	Listing Status	Critical Habitat
Middle Columbia River Steelhead DPS *Oncorhynchus mykiss*	Threatened	Designated
Columbia DPS Bull Trout *Salvelinus confluentus*	Threatened	Designated
Canada Lynx Lynx canadensis	Threatened	Designated
Gray Wolf Canis lupus	Endangered	Not Designated
North American Wolverine Gulo gulo luscus	Proposed Threatened	Designated Not in project area
Marbled Murrelet Brachyramphus marmoratus	Threatened	Designated Not in project area
Yellow-billed Cuckoo Coccyzus americanus	Threatened	Designated Not in project area

Canada lynx, gray wolf, North American wolverine, marbled murrelet, and yellow-billed cuckoo are listed species that may occur in Kittitas County, but are unlikely to occur in the action area and thus would not be affected by the proposed actions. This is due to their sensitivities to human encroachment, lack of suitable habitat, or because their presence is so transitory that any temporal effects to these species from construction activities would not be perceived as unusual, cause disruption of behavior or lead to measurable reductions in their prey base.

The Middle Columbia River DPS of steelhead was listed as a threatened species on March 25, 1999, and the threatened status was reaffirmed on January 5, 2006 (NMFS 2006). The Middle Columbia River DPS of steelhead include Yakima summer steelhead, which were classified as depressed in 2002 by WDFW (2008). In the Yakima River, they generally run from November through April and spawn between March and May in tributaries. The Yakima River in the project vicinity is documented as being used for rearing, migrating, and for spawning by steelhead (WDFW 2016a, StreamNet 2016). Juveniles rear in the mainstem of the Yakima River year-round, and are therefore expected to be rearing in the project area during construction.

Columbia DPS bull trout have rarely been found in the mainstem Yakima River in recent decades. There is no spawning or rearing habitat in or near the project area as bull trout spawn in smaller, colder tributary streams well upstream of the project area. However, based on the available data from WDFW (2016), the Biological Assessment prepared for the project assumed for purposes of analysis that bull trout are present in the project vicinity (Corps 2016). Bull trout may migrate through the project area. Summer temperatures may preclude their presence in the area due to high water temperatures in the Yakima River during that season. Water temperatures during October may exceed the upper temperature limits for bull trout at times, but are generally lower. USFWS identified no concerns with a construction period in October (see Section 7.1.5).

3.4.1 No Action Alternative

The No Action alternative would leave the levee vulnerable to continued damage and breaching, leading to events that could have greater impacts on threatened aquatic species than the proposed repair. The No Action alternative may result in continued erosion of the bank, especially in a flood event. A breach would result in inundation behind the levee with associated severe turbidity and potential pollution impacts to the river. A flood fight would likely be undertaken to prevent a breach and could require in-water work during periods when listed fish species could be present in the Yakima River near the project site. This alternative would have greater potential to impact fish, including listed fish species, than a scheduled repair action.

3.4.2 Repair in Kind Alternative

The Corps sent a Biological Assessment of the impacts of the proposed repairs to NMFS and USFWS on November 1, 2016, requesting informal consultation. In a letter dated November 17, 2016, USFWS concurred with the Corps determination that the proposed work was not likely to adversely affect bull trout or its critical habitat. NMFS chose to batch consultation of the Klocke repair with that of the proposed repairs at the Yakima Right and Left Bank Levees, and they initiated formal consultation. Draft Reasonable and Prudent Measures (RPMs) were provided to the Corps by NMFS on April 19, 2017. On May 24, 2017, NMFS provided a Biological Opinion containing RPMs similar to the draft RPMs. See Section 7.1.6 for further information. The Biological Opinion covers repairs to the Klocke Levee and the Yakima River Right and Left Bank Levees.

The Repair in Place Alternative would have effects on listed fish are consistent with the effects discussed in Section 3.3.2 above. Construction activities would have restricted, temporary, and localized impacts on fish habitat primarily from turbidity and vibrations resulting from operation of construction equipment and rock placement. BMPs would be employed during the construction process to minimize the impact to fish and their habitat. Mitigation measures, as discussed above in Section 2.4 and 3.2.2, would be included in the project to offset impacted functions.

The repairs would affect the riverward slope and include in-water work along approximately 3 percent of the Klocke Levee. The levee itself represents a relatively small portion of this reach of the Yakima River (3,800 linear feet for Klocke Levee). An armored shoreline would continue to exist and vegetation removed from the damaged area.

The Yakima River in the project vicinity is documented as being used for rearing, migrating, and for spawning by steelhead (WDFW 2016a, StreamNet 2016). Juveniles rear in the mainstem of the Yakima River year-round, and therefore would be expected to rear in the project area during construction. However, the fish are expected to leave the project site while in-water work is occurring and vegetation would gradually reestablish through willow plantings and natural recruitment.

Construction-related (short-term) effects of the proposed repairs on mid-Columbia steelhead would include noise, vibration, and minor localized turbidity increases. Any of these effects might result in dispersal of juveniles that may be present rearing in the affected area along the shoreline and possible delay of upstream migrating adults. Disturbance from vibration could occur from delivery and dumping of rock on land as it is staged for construction and as a result of placement of rock in the water. In-water construction noise would be minimal with no pile driving or excavating occurring, and placement rather than dumping of rock in the water, but it is possible that vibrations below the hearing range of salmonids would still be perceived and might elicit a startle response. Vibratory disturbance from movement of heavy equipment could cause any fish in the area to move away from the construction zone. As analyzed in the Biological Assessment, the Corps anticipates that effects of increased turbidity would be insignificant (Corps 2016). If rain occurs during construction, it is possible that soil would be washed into the river; however, BMPs would be employed for erosion control. Minor impacts to riparian vegetation would occur, which could decrease organic inputs to the river and decrease shading; however, effects on vegetation and the associated effects on fish, including mid-Columbia steelhead, would be temporary and would be mitigated by BMPs, the planting of a willow lift and mitigation plantings required by the NMFS Biological Opinion, and natural vegetation recruitment over time.

Bull trout are presumed to be present in the Yakima River, but in-water work would be during early October when bull trout are not expected to be present near the repair sites due to high water temperatures. They do not spawn in the Yakima River mainstem. Habitat effects would be minor and potential effects minimized by mitigation and BMP's.

3.5 Cultural Resources

The Corps has coordinated its environmental review of impacts on cultural resources for NEPA with its responsibilities to take into account effects on historic properties as required by Section 106 of the National Historic Preservation Act (NHPA). The Corps has determined and documented the area of potential effect (APE) for both direct and indirect effects, as required at 36 C.F.R § 800.4 of the regulations implementing Section 106. The APE includes the length of

the levee repair and all staging and access areas, totaling 3.53 acres. The Washington State Historic Preservation Officer (SHPO) agreed with the determination of the APE on November 8, 2016.

The Corps completed a records search and literature review of information on file at the Washington State Department of Archaeology and Historic Preservation. Information in the Washington Information System for Architectural and Archaeological Records Data online database indicated that no buildings or structures 45 years or older or archaeological sites eligible for listing in the National Register of Historic Places (NRHP) have been identified within the proposed levee repair area.

A cultural resource survey was conducted on September 22, 2016, in the area of potential effect (APE) for the Klocke Levee. The APE included the levee repair area, the staging area, and the access road. Two new resources were identified and documented during the survey: 45KT3967 and the Klocke levee (Property ID 706885). Isolated find 45KT3967 consists of a partial base of a milkglass Pond's Cold Cream bottle dating between 1880 and 1960. The Klocke Levee was also recorded in the APE, however it has been subject to a number of flood events and repairs, which are considered normal and routine in nature. These actions have led to a clear loss of integrity through severe erosion, as well as changes of prism design and structural material. Based on this information, the Corps has determined the Klocke Levee segment not eligible for listing on the NRHP. The Corps notified the SHPO of the finding of No Historic Properties Affected for the proposed federal action on February 21, 2017. The SHPO agreed with this determination on February 27, 2017.

3.5.1 No-Action Alternative

Under this alternative, the Corps would not repair the levee, and the threat of future levee failures would increase. Future flooding events or the emergency actions taken for flood fighting could result in the erosion or destruction of cultural resources within the Yakima River floodplain protected by the levee.

3.5.2 Repair in Kind Alternative

Based on cultural resources identified in the survey for this project, there are no NRHP-eligible historic properties in the APE of the project. The Corps has made a determination of No historic properties affected for the Repair in Kind Alternative and has determined that no construction monitoring for cultural resources would be required.

3.6 Water Quality

Water quality samples collected from the Yakima River at least occasionally exceeded criteria for temperature, pH, and dissolved oxygen, and is on the Clean Water Act (CWA) Section 303(d) list for those parameters (WDE 2016a). Upper Yakima River (WRIA 39) uses (Table 2) have been designated by the Washington Department of Ecology (WDE 2016b).

Water temperature is an important water quality parameter affecting salmonids. During summer and occasionally late spring, water temperatures in the upper Yakima River sometimes exceed the 21^{o}C criterion established by WDE to protect juvenile and adult anadromous salmonids. Reduction in streamside shading may be one of many factors that adversely influence water temperatures in the Yakima River (Bartholow 1989).

Table 2. Designated aquatic uses for Yakima River mouth to River Mile 185.6.

Aquatic life	Spawning/Rearing
Recreation	Primary Contact
Water Supply	Domestic
	Industrial
	Agricultural
	Stock
Miscellaneous	Wildlife Habitat
	Harvesting
	Commerce/Navigation
	Boating
	Aesthetics

3.6.1 No Action Alternative

Under this alternative, the unrepaired levee could sustain further damage, which could lead to flood fighting measures and fill placement during high water. This would increase sediment and turbidity in the river, which may be a minor concern during a flood event. Levee failure, if flood fighting was unsuccessful, could allow floodwater to collect debris, sediment, and pollutants that could be transported back into the river with substantial impacts to water quality and potential for sediment contamination.

3.6.2 Repair in Kind Alternative

Vegetation clearing would decrease shading and increase exposure of bare rock to the sun, which could lead to local in-water temperature increases. Vegetation and several trees would be removed to complete the repairs, however, vegetation clearing would be kept to the minimum required to complete the repairs. One lift of native willow stakes would be placed in the riverward face of the levee just above ordinary high water to hasten re-vegetation and minimize impacts of vegetation removal. Natural recruitment of native vegetation is also expected over time, including red alder and willows.

Levee excavation and placement of rock in the water would not affect pH and would not be expected to introduce pesticides or other pollutants into the water. In-water activities may elevate turbidity levels downstream temporarily. Suspension of sediments can increase BOD, and reduce dissolved oxygen levels in the water.

Construction methodology, BMP's, and mitigation measures would limit potential for effects on water quality. Overall, effects on water temperature, turbidity, suspended solids, and BOD are expected to be local and temporary. No long-term impacts are expected.

3.7 Air Quality and Noise

The Clean Air Act, administered by the U.S. Environmental Protection Agency (EPA), sets National Ambient Air Quality Standards (NAAQS) for several criteria pollutants, including ozone, lead, carbon monoxide, nitrogen oxides, sulfur dioxide, and particle pollutants with diameters less than 10 microns (PM2.5 and PM10). Areas that persistently exceed the standards are designated as non-attainment areas. The project area is not in a non-attainment area. Kittitas County has generally good air quality year round (EPA 2016). In 2016, Ellensburg air quality was rated as "good" 99.12 percent of the year to date with only PM2.5 particulates occasionally rated as moderate or unhealthy (Homefacts 2016).

Ambient noise levels in the project area are quiet to moderate. Traffic on State Route 10, occasional aircraft, and adjacent agricultural and residential activities contribute to sound levels at the site. The BNSF Railroad crosses the Yakima River at the upper end of Klocke Levee, contributing to higher noise levels at times.

3.7.1 No Action Alternative

The No-Action Alternative would have no direct effect on air quality or noise. Emergency actions may be required to protect lives and property in the event of a flood. These actions would likely have similar air emissions and noise effects as the Repair In Kind Alternative. Effects to air quality and noise would be temporary and within the range of intensity of noise produced by on-going activities in the area.

3.7.2 Repair in Kind Alternative

The proposed repair would be conducted as funding becomes available and conditions allow. Construction vehicles and heavy equipment used during the proposed construction temporarily and locally increase gasoline and diesel exhaust discharge. The small area of construction and the short duration of the work would limit impacts to air quality.

This alternative would constitute routine repairs of existing facilities. Emissions generated by the construction activity would be minor and short-term. Any increase in direct emissions of a criteria pollutant or its precursors clearly would be exempted by 40 Code of Federal Regulations (CFR) Section 93.153(c)(2)(iv) from the conformity determination requirements. Unquantifiable but minor exacerbation of effects of carbon dioxide emissions on global climate change would be anticipated.

Noise would increase during construction, and the effects of construction noise would be consistent with somewhat higher than typical background noises in the area. Construction would be during daylight hours. Localized noise and vibrations from movement of heavy equipment at the levee and placement of rock in the water could have temporary impacts to fish, including ESA-listed fish species. Effects of noise on fish are discussed in Sections 3.3 and 3.4 of this EA and in the Biological Assessment (Corps 2016). Noise impacts to humans and other terrestrial receptors would be temporary and would produce no more than minor local impacts.

3.8 Utilities, Public Services, and Recreation

The Klocke Levee system provides protection for public and private utilities and transportation corridors along with farmlands. There is a City of Ellensburg well located within 1,000 feet northeast of the repair site. The levee does not serve any designated public purpose for recreation, but recreational users may access it occasionally. Segments of the Yakima River are popular for water-based recreation, including boating and fishing.

3.8.1 No Action Alternative

If flood fights were effective, the No Action Alternative would have little impact to utilities, public services, and recreation. If flood fights were not implemented in time or are not sufficient, a breach in the levee could cause impacts to these resources.

3.8.2 Repair in Kind Alternative

Implementation of the Repair in Kind Alternative would provide longer-term flood risk reduction to public infrastructure and utilities within the protected area of the levee. During construction activities, vehicles and equipment could disrupt local traffic due to merging, turning, and

traveling together. Access to Klocke would be via Highway 10 to McManamy Road to the drivable levee crest at the repair site. The increase in traffic associated with the repairs would be localized and of short duration, with no long-term impacts. Site preparation, construction, and cleanup activities would be conducted with consideration for the railroad right-of-way. Impacts to any informal recreation that occurs near the sites would be short term and minor.

3.9 Land Use

Figures 2 and 3 provide an aerial view of land use in the project area. The project site is located in Kittitas County. The 2016 population of Kittitas County is just over 43,000 (U.S. Census Bureau 2016). Of that, almost half the population lives in unincorporated areas of the county, and just over half live in incorporated cities or towns, with Ellensburg representing the largest city (WOFM 2016). Klocke Levee is in unincorporated Kittitas County approximately 1 mile southeast of the town of Thorpe. More than half of Kittitas County, mostly at higher elevations, is forest lands, while approximately 30 percent is pasture or unimproved grazing land. Less than 2 percent of the county is in urban development (Kittitas County 2016). Land use near the levee is a mix of wooded floodplains and terraces, irrigated hay fields, and other agriculture, as well as other open space and nearby light residential areas and transportation infrastructure, with the upstream end of the Klocke Levee immediately adjacent to the BNSF Railroad right-of-way.

3.9.1 No Action Alternative

As designed the Klocke Levee protects existing land uses from a 50-year flood event. In its damaged state, the levee is estimated to provide protection from a 5-year event. Under the No Action alternative, the current damaged state of the levee would continue, with a diminished level of flood protection and a higher risk of flood damage and subsequent potential changes in zoning, permitted construction, and other functions related to land use behind the levee. Potential impacts could be negative and significant.

3.9.2 Repair in Kind Alternative

The Repair in Kind Alternative would cause minor, temporary interruptions to road traffic and would temporarily preclude other uses of the staging area. The repairs would serve to maintain current level of protection provided by the levee and to allow current existing land uses to continue. Repair activities at the Klocke Levee site would be conducted so work would not interfere with the BNSF Railroad operations. No significant or long-term impacts to land use would be expected.

4 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with the Repair in Kind alternative would be: (1) temporary and localized increases in noise, activity, and emissions which may affect fish and wildlife in the area, (2) temporary and localized disruption of local traffic by construction activity and vehicles, (3) irretrievable commitment of fuels and other materials for repairs, and (4) removal of vegetation from the levee repair area. Impacts would be short-term. Those unavoidable impacts are considered less than significant. Mitigation would be included in the project design to address potential impacts to natural and cultural resources.

5 CUMULATIVE EFFECTS

Cumulative effects include effects resulting from future federal, State, tribal, local, or private actions that are reasonably foreseeable to occur in the project area.

The Yakima River has been substantially modified in the last 150 years. Dams, levees, irrigation projects, and other water extraction and flood control projects have confined the river, impacted water quality, and reduced flows. Riparian habitat has been lost, side channel and other floodplain features have been cut-off, salmonid populations have steeply declined, and some fish populations have disappeared. The Klocke Levee contributes to those impacts. Elliot, et al (2014) identified extensive river planform changes that resulted from construction of a nearby levee, the Schaake Levee, and other nearby flood control measures.

Rehabilitation of the levee, as addressed in this EA, would be one of many repairs that serve to maintain the *status quo*. It would not expand or add to the existing levee systems and other water control measures on the Yakima River basin, nor would it contribute to any long-term effects of those existing water control measures.

Kittitas County continues to maintain the Klocke Levee and other levee systems and conducts periodic repairs and vegetation maintenance. That continued maintenance and the minor repairs would also maintain the *status quo,* and would not be expected to add further impacts.

The scope of larger levee rehabilitation projects, which could be conducted by the Corps and county as partners, cannot be predicted with enough certainty to be treated as reasonably foreseeable actions. The scope and effects of those actions, however, would likely be similar to those of the present action, with similarly minor contributions to cumulative effects.

Future projects in the Yakima River basin are likely to include or be driven by habitat mitigation and enhancement features. The U.S. Bureau of Reclamation, in partnership with the WDE and other partners, developed measures that would restore and enhance habitat in the river basin (USBR 2011). The integrated plan identified measures that would substantially modify the Yakima River and its tributaries. Those measures would include actions to:

- Improve fish passage
- Implement structural and operational changes at dams, canals, and other water control features
- Increase surface water and groundwater storage capacity
- Protect and enhance habitat

Plans for specific actions are being developed concurrently with other community planning. Two recent sets of plans in Kittitas County address potential projects in the next few years. The Yakima River Corridor Plan (Yakima County 2015) identifies a number of smaller habitat improvement and flood control actions that have been considered and that may be implemented. The Yakima Basin Fish and Wildlife Recovery Board (YBFWRB 2015) identified 26 Kittitas County projects that are being considered for the Yakima and its tributaries. Plans for the Yakima River in Kittitas County include a proposal to set back the Schaake Levee to restore floodplain habitat and riverine functions. The recommended Repair in Kind Alternative would not affect implementation of any future restoration or enhancement project in the Yakima River basin.

The Klocke Levee repairs, as addressed in this EA, would maintain but not add to losses in the active floodplain. When evaluated in the context of past, present, and reasonably foreseeable future actions, the proposed project would not result in significant cumulative effects when considered in conjunction with other past and present actions, and future proposals.

6 COORDINATION

The following agencies and entities have been contacted in the environmental coordination of this project:

- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- Confederated Bands and Tribes of the Yakama Nation
- Washington Department of Ecology (WDE)
- Washington Department of Fish and Wildlife (WDFW)
- U.S. Bureau of Reclamation (USBR)
- Washington State Historic Preservation Officer (SHPO)
- Washington State Department of Archaeology and Historic Preservation (DAHP)
- Kittitas County

A Notice of Preparation for the proposed rehabilitation of the levee (PM-ER-16-11) was issued on October 12, 2016.

7 ENVIRONMENTAL COMPLIANCE

7.1 Federal Statutes

7.1.1 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) prohibits the taking, possession, or commerce of bald and golden eagles, except under certain circumstances. Amendments in 1972 added penalties for violations of the Act or related regulations.

No take of bald or golden eagles is likely through any of the actions discussed in this EA. No mature trees that provide nesting or roosting habitat would be removed. There is no known nesting in the project vicinity. Eagles in the area are expected to be acclimated to human presence and noise due to the surrounding land uses and vicinity to a developed community, and as such, the construction is not expected to disrupt eagles in the area.

7.1.2 Clean Air Act

The Clean Air Act requires states to develop plans, called State Implementation Plans (SIP), for eliminating or reducing the severity and number of violations of NAAQS while achieving expeditious attainment of the NAAQS. The Act also requires federal actions to conform to the appropriate SIP. An action that conforms to a SIP is defined as an action that would not: (1) cause or contribute to any new violation of any standard in any area; (2) increase the frequency or severity of any existing violation of any standard in any area; or (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The Corps has determined that emissions associated with the project would not exceed the EPAs *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Washington's Clean Air Act implementation plan. The project constitutes routine facility repair, generating an increase in emissions that is clearly *de minimis*, thus a conformity determination is not required, pursuant to 40 CFR 93.153 (c)(2)(iv).

7.1.3 Federal Water Pollution Control Act

The Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA). The CWA 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 CWA was established to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment. The many sections of the CWA address different types of discharges into waters of the United States. Three sections of the CWA could be pertinent to the proposed action: Section 401 covers water quality standards and evaluation of the effects discharges would have on those standards, Section 402 addresses stormwater runoff from disturbed areas, and Section 404 addresses discharge of fill. Requirements of those three CWA sections are summarized here in relation to the proposed action:

> **Sections 404 and 401:** CWA regulations exempt some activities from Section 404 and 401 permit requirements. Among the exemptions is 33 USC 1344(F)(1)(B), which provides that discharge of material "for the purpose of maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, and bridge abutments or approaches, and transportation structures" is exempt from regulation as fill. The Klocke Levee repair qualifies for exemption from Section 404 and 401 requirements.
>
> **Section 402:** Stormwater runoff from ground disturbed during the levee rehabilitation could carry sediment into the river. This is addressed by CWA Section 402, which is administered by WDE in Washington. State regulations require that operators must seek coverage under the Construction Stormwater General Permit (CSWGP) for clearing, grading, or excavation of one or more acres (WDE 2016c). The CSWGP usually requires a Stormwater Pollution Prevention Plan (SWPPP) as a permit condition. Certain activities are exempt from coverage under the CSWGP, including: "routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility," provided that "the WDE does not reasonably expect the action to cause a violation of water quality". Repairs to the Klocke Levee total less than an acre in size and are exempt from Section 402 and the need for a CSWGP.

7.1.4 Coastal Zone Management Act

Under the Coastal Zone Management Act of 1972 (16 USCA 1451-1465), Sec. 307(c)(1)(A), "[e]ach Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."

The Corps has determined that the proposed rehabilitation activities are not in a coastal management zone and would not affect resources in any federally recognized coastal management zone.

7.1.5 Endangered Species Act

The Endangered Species Act (16 U.S.C. 1531-1544), amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants and the habitat upon which they depend. Section 7(a) of the ESA requires that federal agencies consult with USFWS and NMFS, as appropriate, to ensure that proposed actions are not likely to jeopardize the continued existence of endangered or threatened species or to adversely modify or destroy designated critical habitats.

On November 1, 2016, the Corps submitted a Biological Assessment documenting the effects of the proposed repair on listed species to the Services requesting informal consultation. On October 19, 2016, the Corps received a letter from USFWS concurring with the Corps determination (Appendix C; Table 3). USFWS also indicated that construction in October, rather than the typical summer fish window, would not alter the consultation's determination. NMFS indicated that it did not concur with the Corps determination, and it initiated formal consultation. NMFS completed formal consultation on May 24, 2017, with its transmittal of a Biological Opinion outlining impacts to listed species and critical habitat (Appendix C; Table 3). This Biological Opinion covered repairs to the Klocke Levee and the Yakima River Right and Left Bank Levees.

Table 3. Section 7 ESA Consultation Effect Determinations

Species	Document	Effects Determination	Critical Habitat Determination
Middle Columbia River Steelhead DPS	NMFS Biological Opinion (24 May 2017)	Likely to Adversely Affect	Likely to Adversely Affect
Columbia DPS Bull Trout	USFWS Concurrence Letter (17 November 2016)	Not Likely to Adversely Affect	Not Likely to Adversely Affect

NMFS provided reasonable and prudent measures (RPMs) in the Biological Opinion. The Biological Opinion outlines three RPMs to minimize take of listed species:

1. Minimizing the extent of construction activities.
2. Minimizing effects on forage.
3. Monitoring the project to ensure that the conservation measures are meeting the objective of minimizing take and that the amount or extent of take is not exceeded.

The terms and conditions provided in the Biological Opinion are listed below and in Appendix C. The Corps has reviewed the below terms and conditions and will implement them during the Klocke and the Yakima Levee right and left bank repairs.

1. The Following terms and conditions implement RPM 1:
    a. Do not exceed an in-water construction footprint of 86,570 sq. ft.
        i. Note: this is for the Klocke and Yakima levee repairs combined.
2. The following terms and conditions implement RPM 2:

a. When grubbing out native trees, leave rootwads attached whenever feasible.

b. Plant native shrubs and trees at 1.5:1 for each tree and shrub that is removed to complete construction. These plantings can be offsite. Work with Yakima and Kittitas counties to find locations where plantings will aid in riparian restoration or enhancement on the Yakima River.

c. Plant the willow lifts (which will be planted at the repair sites as part of the proposed action) as close to the water line as possible.

d. Ensure maximum survival of all plantings

e. Do not exceed a vegetation disturbance and removal of footprint of 89,430 sq. ft.

3. The following terms and conditions implement RPM 3:

    a. Within 90 days following the completion of the proposed construction project, the Corps shall report all monitoring items to include, at a minimum, the following:

        i. Project identification including project name and Corps point of contact.

        ii. Construction details, including construction start and end date, total area of in-water construction footprint and riparian area disturbance, turbidity monitoring results, fish rescue results, as-built plans, and a description of any elements of the project that were constructed differently than during consultation.

Note: these terms and conditions are for both the Klocke repair described in this document and the Yakima right and left bank levee repairs.

7.1.6 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with NMFS on all actions or proposed actions that are permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Section 3(10) of the Magnuson-Stevens Act defines EFH as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Though primarily focused on marine species, anadromous fishes like the Pacific salmon have EFH that can occupy freshwater habitats critical to their life cycle. According to the Pacific Fishery Management Council (PFMC), the Yakima River is identified as EFH for Coho and Chinook salmon (1999). Coho and Chinook are present in the project reach of the Yakima River (WDFW 2016).

Effects of the proposed work on EFH would result from placement of rock below the OHWM at the repair sites and temporary impacts to riparian vegetation along the shoreline at the repair sites. The project would not alter the channel configuration or flows, and impacts to shoreline habitat would be localized. Based on the critical habitat analysis in Section 3.4 of this EA, the Corps concludes that the proposed project would not adversely affect EFH for Federally managed fisheries in Washington waters. This determination is based on the limited scope and duration of the construction and the temporary and minor nature of project impacts.

A Biological Assessment that also addresses effects of the Repair in Kind Alternative on EFH was submitted to NMFS on November 1, 2016. The Biological Opinion from NMFS contained evaluated impacts to EFH and determined that the proposed repair does have adverse effect on EFH for Pacific Coast Salmon and provided EFH Conservation Recommendations. These

recommendations resemble the Terms and Conditions for RPMs 1 and 2 outlined above. By implementing the Terms and Conditions for RPMs 1 and 2, the recommendations for EFH would be implemented. See Appendix C for pages from the Biological Opinion concerning EFH.

7.1.7 National Environmental Policy Act

NEPA (42 U.S.C. 4321 et seq.) requires that Federal agencies consider the environmental effects of their actions. This EA, prepared pursuant to NEPA Sec. 102(C), evaluates the environmental effects of the proposed Klocke Levee repair. In accordance with NEPA, Federal projects are required to disclose potential environmental impacts and solicit public comment. The Corps published a Notice of Preparation for the Rehabilitation of the Klocke and Schaake Levees on October 12, 2016 with an expiration date of November 10, 2016. WDFW and the USBR provided comments to the Corps during the public notice period. Subsequently, the local sponsor withdrew its request for PL84-99 assistance for the Schaake Levee repairs. Appendix D contains the comments and responses.

Effects on the quality of the human environment as a result of the proposed project are anticipated to be less than significant. The EA has incorporated any necessary and applicable modifications to the scope and/or nature of the project, any effects to the human environment resulting from these modifications, the procedures and practices used to implement the project, and/or the type and extent of compensatory mitigation associated with the project. Accompanying this EA is a Finding of No Significant Impact.

7.1.8 National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires that a federally assisted or federally permitted project account for the potential effects on sites, districts, buildings, structures, or objects that are included in or eligible for inclusion in the National Register of Historic Places. The entire project area has been surveyed, and a finding of No Historic Properties Affected was submitted to the Washington SHPO in a letter dated February 1, 2017. The SHPO agreed with the Corps' determination on February 27, 2017.

7.2 Executive Orders

7.2.1 Executive Order 11990, Protection of Wetlands

Executive Order 11990 encourages Federal agencies to take actions to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. No wetlands exist within the proposed construction area. The proposed project is consistent with this order.

7.2.2 Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations

Executive Order 12898, dated February 11, 1994, requires Federal agencies to consider and address environmental justice by identifying and assessing whether agency actions may have disproportionately high and adverse human health or environmental effects on minority or low income populations. Disproportionately high and adverse effects are those effects that are predominately borne by minority and/or low income populations and are appreciably more severe or greater in magnitude than the effects on non-minority or non-low income populations.

The project does not involve siting a facility that would discharge pollutants or contaminants, so no human health effects would occur. The proposed action would not have a disproportionate adverse impact on low-income or minority populations since the preferred alternatives would

restore pre-existing levels of flood protection to the floodplain. Therefore, the project complies with this order.

7.2.3 Executive Order 11988, Floodplain Management

Executive Order 11988 requires Federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

By Corps policy (Engineering Regulation 500-1-1), the provisions of EO 11988 are normally not applicable to the repair of flood control works to the pre-disaster condition, as the repair actions do not directly affect either the modification or occupan78cy of floodplains, and do not directly or indirectly impact floodplain development. The proposed project does not constitute a major rehabilitation project, require extensive engineering and design, or significantly change the project footprint, and therefore is not required to be evaluated for its impact on the floodplain.

8 CONCLUSION

Based on the above analysis, Rehabilitation of the Klocke Levee is not 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
PHOTOS OF THE DAMAGED LEVEE

Project Photos, Klocke Levee

Photo 1: Klocke Levee - Looking downstream at damaged levee from the railroad bridge. Damage is hidden by vegetation, making inspection difficult.

Photo 2: City Well Levee Segment - (photo taken from railroad bridge facing upstream of repair area).

APPENDIX B
PROJECT PLAN AND DESIGN INFORMATION

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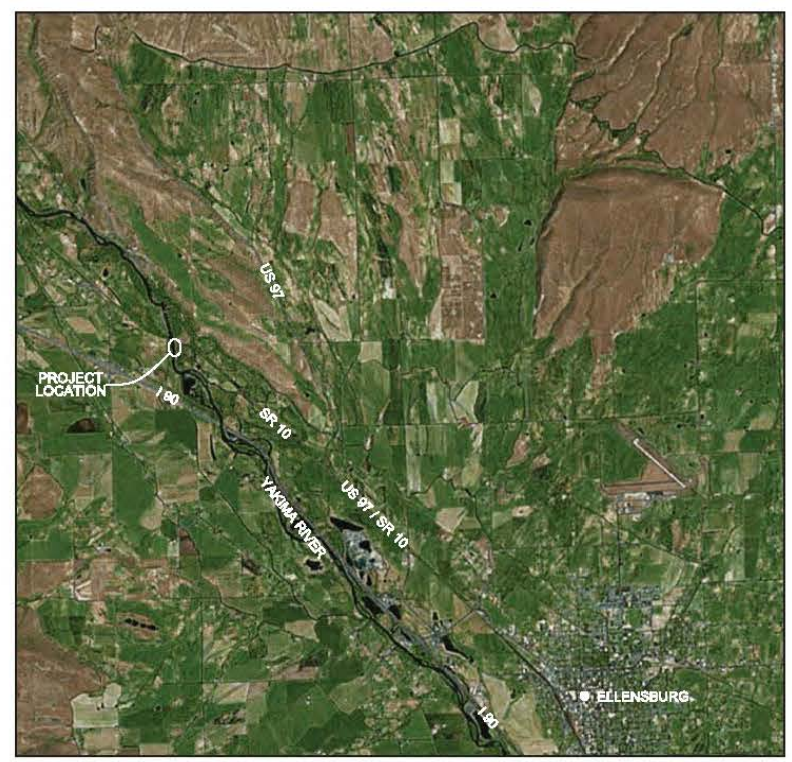
Seattle District

FY16 LEVEE REHABILITATION
YAKIMA RIVER
KLOCKE LEVEE YAK-04-16

KITTITAS COUNTY WA

VICINITY MAP
NOT TO SCALE



PROJECT LOCATION MAP

PLATE NO.	TITLE
GENERAL	
G-001	TITLE, VICINITY MAP, PROJECT MAP, AND INDEX
CIVIL	
C-100	SITE ACCESS PLAN
C-101	PLAN AND SECTION

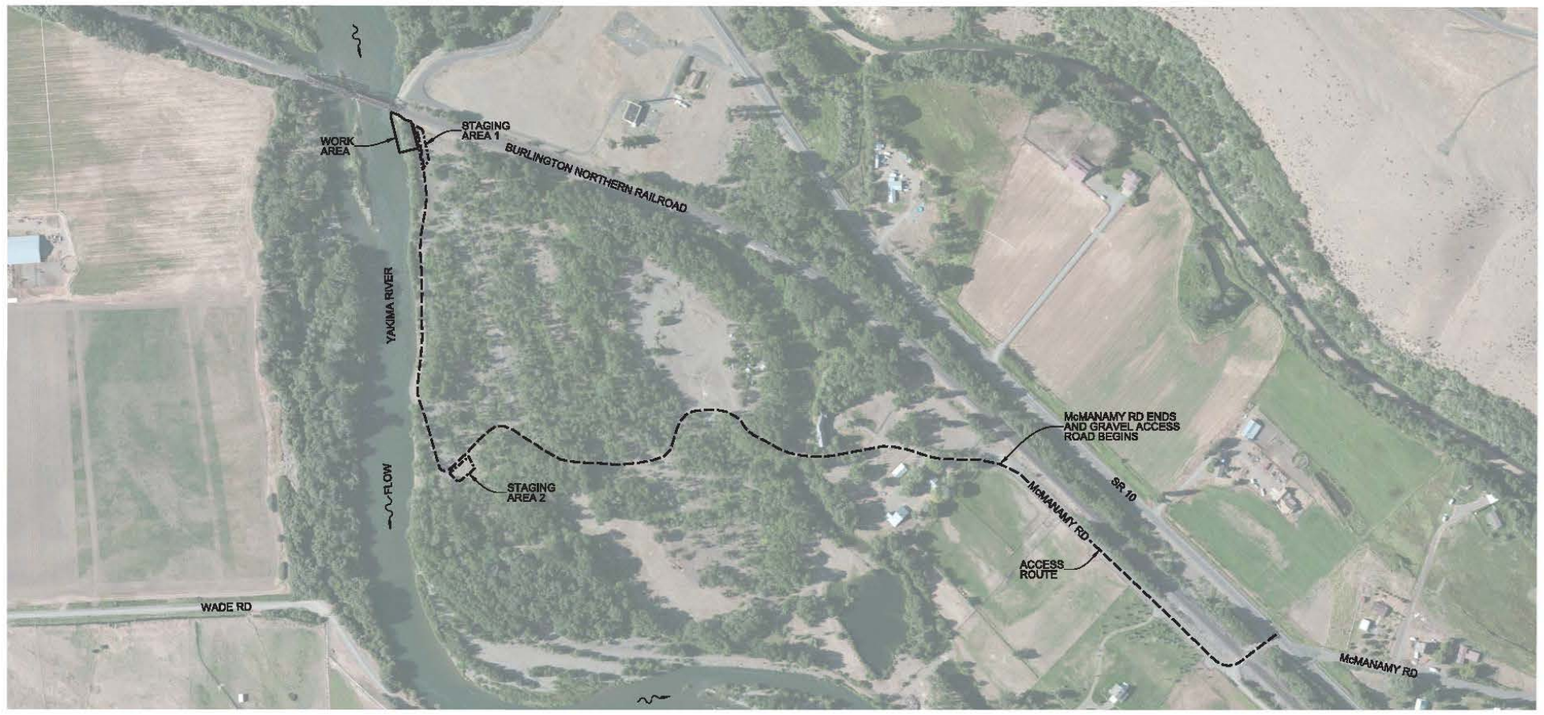
PN YAK-04-16 FY16

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
SEATTLE, WASHINGTON

FY16 LEVEE REHABILITATION
YAKIMA RIVER, KITTITAS COUNTY, WA
KLOCKE LEVEE
YAK-04-16

TITLE, VICINITY MAP, PROJECT MAP, AND INDEX

SHEET IDENTIFICATION
G-001



LEGEND:

- WORK AREA
- STAGING AREA
- ACCESS ROUTE

N

1 KLOCKE LEVEE SITE ACCESS PLAN

SCALE 1" = 200'

0 200' 400'

NOTES:

1. ACCESS TO SITE FROM STATE ROUTE 10 VIA MCMANAMY ROAD TO LEVEE ACCESS ROAD.
2. SEE TABLE 1 FOR VOLUME OF CSBC ESTIMATED TO REPAIR 3,400 LF OF ACCESS ROAD.

TABLE 1. EARTHWORK QUANTITIES FOR ACCESS ROAD REPAIR

MATERIAL	VOLUME (CY)
CSBC	470

IF SHEET MEASURES LESS THAN 22"X34" IT IS A REDUCED PRINT. REDUCE SCALE ACCORDINGLY.

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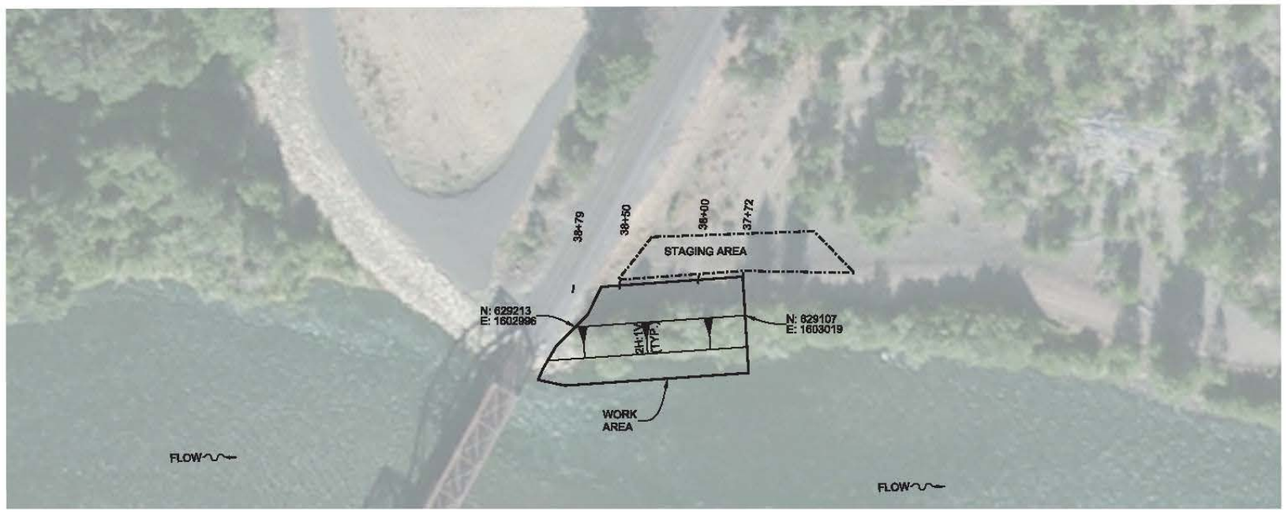
SEATTLE DISTRICT
SEATTLE, WASHINGTON

DESIGNED NAME | DRAWN BY | SUBMITTED NAME | Sheet Date | File Name | CHK BY | Issue Date | FILE NUMBER

PVID LEVEE REHAB STATION
YAKIMA RIVER, KITTITAS COUNTY, WA
KLOCKE LEVEE
YAK-04-16

SITE ACCESS PLAN

Sheet number:
C-100
Sheet 2 of 3



LEGEND:

WORK AREA

STAGING AREA

NOTES:

1. HORIZONTAL DATUM IS WASHINGTON STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD 83.
2. VERTICAL DATUM BASED ON NAVD 1988.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
4. QUARRY SPALLS SHALL CONFORM TO GRADATION IN TABLE 1.
5. CLASS IV RIPRAP SHALL CONFORM TO GRADATION IN TABLE 2. STONE SHALL BE HARD, SOUND, AND DURABLE MATERIAL FREE FROM SEAMS, CRACKS, AND OTHER DEFECTS TENDING TO LEAD TO PREMATURE WEATHERING.
6. EXISTING RIPRAP MAY BE SALVAGED FOR USE IN THIS PROJECT. SALVAGED STONE MUST BE COMPETENT AND FREE OF CRACKING AND WEATHERING PER SPECIFICATION.
7. CRUSHED SURFACING BASE COURSE (CSBC) SHALL CONFORM TO WSDOT SPEC 9-03.9(3). THE REQUIRED GRADATION IS SHOWN IN TABLE 3.
8. TOPSOIL SHALL CONSIST OF A 75/25 MIXTURE OF ENGINEERED SOIL AND ORGANIC COMPOST. ENGINEERED SOIL SHALL CONFORM TO GRADATION IN TABLE 4 AND SHALL BE FREE OF ROOTS, CHEMICALS, GARBAGE, AND DEBRIS.

TABLE 1. QUARRY SPALL GRADATION

100% SMALLER THAN	4"
100% LARGER THAN	2"

TABLE 2. CLASS IV RIPRAP GRADATION

100% SMALLER THAN	1,000 LB (24"-36")
50% SIZE	400 LB (18"-24")
90% LARGER THAN	200 LB (14"-20")
10% RANGE	25-200 LB (7"-15")

TABLE 3. CSBC GRADATION

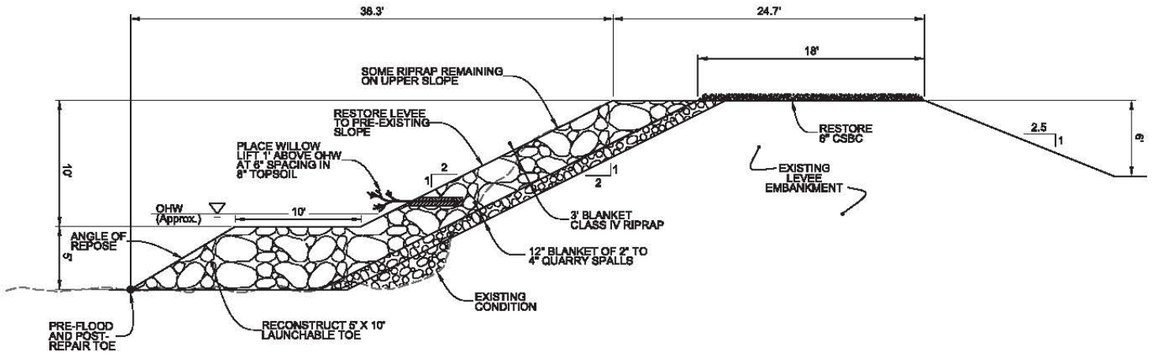
SIEVE SIZE	% PASSING BY WEIGHT
1.25"	100
1"	90-100
5/8"	50-80
NO. 4	25-45
NO. 40	3-18
NO. 200	7.5 MAX

TABLE 4. ENGINEERED TOPSOIL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
1/2"	100
NO. 4	75-100
NO. 10	40-75
NO. 16	25-55
NO. 40	25-50
NO. 200	10-20

TABLE 5. EARTHWORK QUANTITIES

MATERIAL	VOL (CY)
CLASS IV RIPRAP	480
QUARRY SPALLS	180
CSBC	30
TOPSOIL	20



REPAIR STEPS

1. EXCAVATE SLOUGHED MATERIAL FROM TOE OF SLOPE. REMOVE EXISTING RIPRAP AND RETAIN AS PRACTICABLE.
2. REPAIR TOE SCOUR USING 2" TO 4" QUARRY SPALLS.
3. RECONSTRUCT LAUNCHABLE TOE TO PRE-DAMAGE CONDITION USING CLASS IV RIPRAP.
4. PLACE 12" BLANKET OF 2" TO 4" QUARRY SPALLS AGAINST SLOPE.
5. PLACE 3' BLANKET OF CLASS IV RIPRAP OVER SPALLS.
6. INCORPORATE WILLOW LIFT 1' ABOVE OHW AT 6" SPACING. REFER TO CONSTRUCTION MANAGEMENT PLAN FOR RECOMMENDED HARVESTING AND PLANTING PRACTICES.
7. TRANSITION UPSTREAM AND DOWNSTREAM ENDS OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPE.
8. RESTORE 6" CSBC ON LEVEE CREST.
9. HYDROSEED ALL EXPOSED OR DISTURBED SOIL. HYDROSEED MIX SHALL CONSIST OF NATIVE GRASS SPECIES AND MULCH.

IF SHEET MEASURES LESS THAN 22"x34" IT IS A REDUCED PRINT. REDUCE SCALE ACCORDINGLY.

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FY'16 LEVEE REHABILITATION
YAKIMA RIVER, KITTITAS COUNTY, WA
KLOCKE LEVEE
YAK-04-16

SITE PLAN AND SECTION

Sheet number:
C-101

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APPENDIX C
USFWS CONCURRENCE LETTER
AND
NMFS BIOLOGICAL OPINION EXCERPTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, Washington 98801-8122

November 17, 2016

In Reply Refer To:
USFWS Reference: 01EWFW00-2017-I-0150
Hydrologic Unit Code: 17-03-00-01-03

Evan R. Lewis
Chief, Environmental and Cultural Resources Branch
Department of the Army
Corps of Engineers, Seattle District
P.O. Box 3755
Seattle, Washington 98124-3755

Dear Mr. Lewis:

This responds to your request for informal consultation for proposed repairs to the Schaake and Klocke Levees (Project) as authorized by Public Law 84-99. Your cover letter and Biological Assessment (BA) were received on November 3, 2016, in the U.S. Fish and Wildlife Service's (Service) Central Washington Field Office.

The information provided by the Department of the Army, Corps of Engineers (COE), has been determined to be sufficient to complete consultation. The COE has requested Service concurrence with the determination of "may affect, not likely to adversely affect" the bull trout *(Salvelinus confluentus)* and its designated critical habitat in accordance with section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*). Effects to other listed or proposed species, or their habitats, are not anticipated to occur.

Project Description

Schaake and Klocke Levees are flood control structures owned and maintained by Kittitas County, near the City of Ellensburg, in Kittitas County, Washington. Klocke Levee is upstream of the city of Ellensburg between river mile 160 and 161, and the Schaake Levee is located between river mile 152 and 153 at the south end of the city of Ellensburg. The Project proposes to reconstruct approximately 100 linear feet of the Klocke Levee and 500 linear feet of the Schaake Levee, that were damaged in November and December 2015 flood events, to their pre-damage levels of protection.

Construction to occur in October. See email below from USFWS indicating agreement with change.

The damaged levee prisms will be prepared by removing vegetation in the repair locations, excavating sloughed levee material above the water level, and re-grading the riverward face of the levee to achieve a 2H:1V slope without increasing the overall profile of the levees. Riverward slopes will be filled and armored with three feet of Class IV rirap over one foot of quarry spalls. Launchable toes at both levees will be restored to ten foot widths with layers of Class IV riprap over one foot of quarry spalls. Toe work at each site will require an excavator working from the bank placing rock individually until the pre-flood level of protection and geometries match the upstream and downsream undamaged profiles. The launchable toe will be five feet high at Klocke Levee and four feet high at Schaake Levee. A driveable surface will be restored along the levee crest at both repair sites. Access routes to the construction sites are located on existing asphalt and gravel roads and staging areas are in fields adjacent to the levees. Material excavated at the repair sites will be reused in repairs, placed in a small disposal site adjacent to access roads, or taken offsite to a commerdial disposal facility. Willow stakes will be installed on the riverward face, just above the ordinary high water level at both levees. All in-water work will be completed during the approved in-water work window of August 1 to August 31 in 2017 to minimize effects to the aquatic environment. Work above the ordinary high water mark would occur following completion of the in-water work.

Several conservation measures are proposed to minimize adverse project effects to water quality including: 1) utilizing only clean material in the riverside of the levee and individually placing riprap 2) regularly checking equipment for leaks, 3) refueling away from the Yakima River, 4) developing a Fuel and Spill Recover Plan prior to construction which includes spill kits available on site, and 5) turbidity sampling to monitor water quality during construction.

Bull Trout Status

All populations in the Columbia River Distinct Population Segment (DPS) were listed as threatened under the Endangered Species Act (ESA) in June of 1998 (63 FR 31647), followed by a coterminous United States listing in 1999 (64 FR 58910).

The bull trout is threatened by the combined effects of habitat degradation, fragmentation and alterations associated with: dewatering, road construction and maintenance, mining, and grazing; the blockage of migratory corridors by dams or other diversion structures; poor water quality; incidental angler harvest; entrainment (a process by which aquatic organisms are pulled through a diversion or other device); and introduced non-native species (64 FR 58910).

The habitat conservation needs of the bull trout are generally expressed as the "four Cs": cold, clean, complex, and connected habitat. Cold stream temperatures, clean water quality that is relatively free of sediment and contaminants, complex channel characteristics (including abundant large wood and undercut banks), and large patches of such habitat that are well connected by unobstructed migratory pathways are all needed to promote conservation of bull trout at multiple scales ranging from the coterminous United States to local populations.

The 2015 recovery plan (USFWS 2015) established four recovery actions for each of the six recovery units; (1) protect, restore, and maintain suitable habitat conditions for bull trout that promote diverse life history strategies and conserve genetic diversity; (2) minimize demographic

threats to bull trout by restoring connectivity of populations where appropriated to promote diverse life-history strategies and conserve genetic diversity; (3) prevent and reduce negative effects of non-native fishes and other non-native taxa on bull trout; and (4) work with partners to conduct research and monitoring to implement and evaluate bull trout recovery activities, consistent with an adaptive management approach using feedback from implemented, site-specific recovery actions.

Status of Bull Trout in the Action Area

The Yakima River Core Area supports 17 local bull trout populations. The Project is located upstream of the resident Ahtanum local population and fluvial populations in the Naches River system. Local populations upstream of the Project are fluvial and assigned to spawning tributaries to three upper Yakima storage reservoirs operated by the Bureau of Reclamation (BOR). There are no passage facilities on these storage reservoirs, and as a result there are few bull trout in the mainstem Yakima River below them. Bull trout that are entrained through the storage dams seldom venture outside of the pools below the dams because they cannot pass upstream to their natal populations and the pools provide abundant forage and cool water (Mizell and Anderson 2015). Bull trout originating from outside the subbasin migrate into the Yakima River on rare occasions.

Project Effects

Some increase in turbidity in the immediate area is expected during construction. Increased solar radiation from riprap and the removal of vegetation may increase local warming at the repair sites, until vegetation reestablishes and returns the pre-construction habitat function.

There is an extremely low likelihood of bull trout presence in the Project area when in-water work is proposed due to summer water temperatures that exceed 15^{0} C. Therefore, increases in sediment and noise disturbance during construction activities are expected to result in discountable effects to bull trout. However, if bull trout are exposed to indirect habitat effects, we anticipate the effects will be insignificant due to the small scale and temporary nature of these habitat effects.

The effects of the proposed action on designated bull trout critical habitat are evaluated in terms of physical and biological features comprised of primary constituent elements (PCE's). The Project will likely result in temporary, local reductions in the food base (PCE 3) associated with the removal of riparian vegetation which could reduce the number of invertebrates in the area. In terms of temperature (PCE 5), there may be a slight increase in water temperature but this impact is expected to be very local and minute in scale and not extend past the riprap placement. Temporary and localized reductions in water quality (PCE 8) are anticipated from the construction activities discussed above. The Service believes that these effects will be insignificant as the existing habitat within the Project area provides a low level of suitability and may only be seasonally occupied by relatively few bull trout. Effects to the remaining PCE's are not anticipated to occur as a result of the proposed Project.

Conclusion

The Project BA describes effects that are likely to occur, but are deemed by the COE to be

discountable or insignificant. The Service agrees that implementation of the Project will result in discountable or insignificant effects to individuals and the habitats of the species analyzed above. Therefore, the Service concurs with your determinations of "may affect, not likely to adversely affect" for bull trout and its designated critical habitat based on the information provided in the BA. Our concurrence is based on the Project being implemented as described in the BA.

This concludes informal consultation pursuant to the regulations implementing the Act, 50 C.F.R. § 402.13. This Project should be reanalyzed if new information reveals effects of the action that may affect listed or proposed species or designated or proposed 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 a listed or proposed species or designated or proposed 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 this Project.

Thank you for your assistance in the conservation of listed species. If you have questions or comments regarding this letter or your responsibilities under the Act, please contact Cindy Raekes at the Central Washington Field Office in Wenatchee at (509) 665-3508, extension 2009, or via e-mail at cynthia_raekes@fws.gov.

Sincerely,

for Carolyn Scafe.

Eric V. Rickerson, State Supervisor
Washington Fish and Wildlife Office

Cc: Zachary M. Wilson, COE, (zachary.m.wilson@usace.army.mil)
Jody Walters, NMFS, (jody.walters@noaa.gov)

Literature Cited

Mizell, M. and E. Anderson. 2015. An investigation into the migratory behavior habitat use and genetic composition of fluvial and resident bull trout)Salvelinus confluentus) in the Yakima River basin. Washington Department of Fish and Wildlife, Yakima, Washington. 111 pp.

U.S. Fish and Wildlife Service. 2015. Recovery plan for the coterminous United States population of bull trout *(Salvelinus confluenlus).* Portland, Oregon. xii + 179 pages.

USFWS Approves October Work

Wilson, Zachary M CIV USARMY CENWS (US)

From: Raekes, Cynthia <cynthia_raekes@fws.gov>
Sent: Friday, March 31, 2017 10:05 AM
To: Wilson, Zachary M CIV USARMY CENWS (US)
Subject: [Non-DoD Source] Re: Klocke Levee Repair

Zach,

The proposed change in implementing the Klocke Repairs will not trigger reinitiation of consultation for the bull trout or its critical habitat. Habitat effects will remain the same. We recommend early October for in-water work to avoid additive construction related sediment effects that could arise from inclement fall weather. Because the project is small in scale and construction effects will be temporary, the effect to bull trout and its critical habitat would be insignificant.

Thank you for your continued coordination.

Cindy

Cindy Raekes, Fish and Wildlife Biologist
USFWS - Central Washington Field Office
215 Melody Lane, Suite 103
Wenatchee, WA 98801-8122
509.665.3508 x2009

On Wed, Mar 29, 2017 at 2:32 PM, Wilson, Zachary M CIV USARMY CENWS (US) <Zachary.M.Wilson@usace.army.mil> wrote:

Cindy,

This email summarizes the voice message I left you.

Klocke - Currently work on the Klocke levee is proposed for August. If work were to be changed to October would that be a large enough change that consultation would have to be reinitiated? Would the USFWS alter its concurrence?

Yakima - Should have answers for your questions sent out soon.

Zachary Wilson
Environmental and Cultural Resources Branch
CENWS-EN-ER
P.O. Box 3755
Seattle, WA 98124-3755
(206)-316-3896
zachary.m.wilson@usace.army.mil

Pages from the NMFS Biological Opinion concerning:
RPMs, Terms and Conditions, and EFH Conservation Recommendations

habitat modification or degradation that actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering (50 CFR 222.102). "Incidental take" is defined by regulation as takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the federal agency or applicant (50 CFR 402.02). Section 7(b)(4) and section 7(o)(2) provide that taking that is incidental to an otherwise lawful agency action is not considered to be prohibited taking under the ESA if that action is performed in compliance with the terms and conditions of this ITS.

2.9.1 Amount or Extent of Take

In the Opinion, NMFS determined that incidental take of MCR steelhead is reasonably certain to occur due to exposure to mechanical injury and to a reduced forage base. Only the juvenile (young-of-year and yearling) life stages will be adversely affected. We estimate that 38 juvenile steelhead will be caught by electrofishing and 2 of those fish will be injured or killed. Construction activities will injure or kill an additional 61 juvenile steelhead.

Because of additional uncertainty in estimating the number of individuals that will be affected by reduced forage, we will use a habitat surrogate to account for this take. The extent of habitat change to which juvenile steelhead will be exposed is readily discernible and presents a reliable measure of the extent of take that can be monitored and tracked. Therefore, when the specific number of individuals "harmed" cannot be predicted, NMFS quantifies the extent of take based on the extent of habitat modified (June 3, 1986, 51 FR 19926 at 19954).

The estimated extent of habitat affected by construction activities represents the extent of take exempted in this ITS. The amount of take will increase as the area disturbed by construction activities increases. Therefore, the extent of take is best identified by the total area the COE is proposing to excavate and fill (86,570 sq. ft., or 4,800 feet of shoreline), and the total area of riparian vegetation removal (89,430 sq. ft.); the effects of which have been analyzed in this Opinion. The COE shall reinitiate consultation if their in-water construction footprint (i.e. the area where riprap is placed and where any benthic disturbance occurs) exceeds 86,570 sq. ft. or if the total area of riparian vegetation removal exceeds 89,430 sq. ft.

2.9.2 Effect of the Take

In the Opinion, NMFS determined that the amount or extent of anticipated take, coupled with other effects of the proposed action, is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

RPMs

2.9.3 Reasonable and Prudent Measures

"Reasonable and prudent measures" are nondiscretionary measures that are necessary or appropriate to minimize the impact of the amount or extent of incidental take (50 CFR 402.02).

Full application of conservation measures included as part of the proposed action, together with use of the RPMs and terms and conditions described below, are necessary and appropriate to

minimize the likelihood of incidental take of MCR steelhead due to completion of the proposed action.

The COE shall minimize incidental take by:

1. Minimizing the extent of construction activities.
2. Minimizing effects on forage.
3. Monitoring the project to ensure that the conservation measures are meeting the objective of minimizing take and that the amount or extent of take is not exceeded.

Terms and Conditions

2.9.4 Terms and Conditions

The terms and conditions described below are non-discretionary, and the BPA or any applicant must comply with them in order to implement the RPMs (50 CFR 402.14). The BPA or any applicant has a continuing duty to monitor the impacts of incidental take and must report the progress of the action and its impact on the species as specified in this ITS (50 CFR 402.14). If the entity to whom a term and condition is directed does not comply with the following terms and conditions, protective coverage for the proposed action would likely lapse.

1. The following terms and conditions implement RPM 1:
    a. Do not exceed an in-water construction footprint of 86,570 sq. ft.

2. The following terms and conditions implement RPM 2:
    a. When grubbing out native trees, leave rootwads attached whenever feasible.
    b. Plant native shrubs and trees at 1.5:1 for each tree and shrub that is removed to complete construction. These plantings can be offsite. Work with Yakima and Kittitas counties to find locations where these plantings will aid in riparian restoration or enhancement on the Yakima River.
    c. Plant the willow lifts (which will be planted at the repair sites as part of the proposed action) as close to the water line as possible (e.g., using the existing vegetation line on the levee as a guide).
    d. Ensure maximum survival of all plantings (for example, by making sure all plant roots reach the summer water table and are in contact with soil during planting).
    e. Do not exceed a vegetation disturbance and removal footprint of 89,430 sq. ft.

3. The following terms and conditions implement RPM 3:
    a. Within 90 days following the completion of the proposed construction project, the Corps shall report all monitoring items to include, at a minimum, the following:
        i. Project identification
            1. Project name: Yakima Authorized Federal Levee Repairs and Klocke Levee Repair; NMFS Tracking Numbers: WCR-2016-5868; WCR-2016-5869.
            2. COE contact person.
        ii. Construction details
            1. Starting and ending dates for work completed for construction
            2. Total area (sq. ft.) of in-water construction footprint

3. Total area (sq. ft.) of riparian area disturbance (i.e. water-ward face of the levee)
4. Results of turbidity monitoring
5. Results of fish salvage activities
6. As-built plans
7. A description of any elements of the project that were constructed differently than depicted in the BA, associated addendums and communications, or this Opinion

b. If take is exceeded, contact NMFS promptly to determine a course of action.
c. All reports will be sent to National Marine Fisheries Service, Washington State Habitat Office, Attention Jody Walters, 304 South Water Street, Suite 201, Ellensburg, Washington 98926. NOTICE: To follow inactive projects and, if necessary, withdraw the Opinion for an incomplete project, the COE shall provide an annual report even if no actual work was completed in a particular year.

2.10 Reinitiation of Consultation

This concludes formal consultation for the Yakima Authorized Federal Levee Repairs Project.

As 50 CFR 402.16 states, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) the amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion, (3) the agency action is subsequently modified in a manner that causes an effect on the listed species or critical habitat that was not considered in this Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action.

3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. The MSA (section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH.

This analysis is based, in part, on the EFH assessment provided by the COE and descriptions of EFH for Pacific Coast salmon contained in the fishery management plans developed by the PFMC and approved by the Secretary of Commerce (PFMC 2014).

3.1 Essential Fish Habitat Affected by the Project

The proposed project action area includes EFH for Chinook salmon (*O. tshawytscha*) and coho salmon (*O. kisutch*) (PFMC 2014). Habitat areas of particular concern within the action area include complex channel and floodplain habitat, and spawning habitat (PFMC 2014).

3.2 Adverse Effects on Essential Fish Habitat

Based on information provided in the BA, associated addendums and communications, and the analysis of effects presented in the ESA portion of this document, NMFS concludes that the proposed action will adversely affect EFH designated for Chinook and coho salmon. The levee repairs will perpetuate the existing poor shoreline conditions and impaired substrate function, and continue to limit channel migration and floodplain function. The repairs will also cause a reduction in forage production lasting about one year.

Specifically, NMFS has determined that the action will adversely affect EFH as follows:

1. Removal of riparian vegetation will decrease cover and allochthonous input (potential forage), especially at Site 3.
2. In-water excavation will disturb, displace, and kill aquatic invertebrates (forage).
3. The new riprap will cover some existing benthic production and, at least initially, will provide a less suitable substrate for future aquatic insect production (forage).
4. Old levee fill (over 32,000 yd^3) will remain in the river and continue to impair substrate function (e.g., by filling in pools, covering potential spawning habitat, and preventing biological productivity that would typically occur in the interstitial spaces of the native substrate).
5. The levee repairs will perpetuate the restriction of normal river processes such as channel migration and floodplain access, preventing side channel formation, erosion of natural banks, and large wood recruitment. Results of these processes provide quality habitat in the form of spawning substrates, cover, and forage.

EFH Conservation Recommendations

3.3 Essential Fish Habitat Conservation Recommendations

We provide the following conservation recommendations:

1. Do not exceed an in-water construction footprint of 86,570 sq. ft.
2. When grubbing out native trees, leave rootwads attached whenever feasible.
3. Plant native shrubs and trees at 1.5:1 for each tree and shrub that is removed to complete construction. These plantings can be offsite. Work with Yakima and Kittitas counties to find locations where these plantings will aid in riparian restoration or enhancement on the Yakima River.

4. Plant the willow lifts (which will be planted at the repair sites as part of the proposed action) as close to the water line as possible (e.g., using the existing vegetation line on the levee as a guide).
5. Ensure maximum survival of all plantings (for example, by making sure all plant roots reach the summer water table and are in contact with soil during planting).
6. Do not exceed a vegetation disturbance and removal footprint of 89,430 sq. ft.

Fully implementing these EFH conservation recommendations would protect, by avoiding or minimizing the adverse effects described in section 3.2, above, approximately 176,000 sq. ft. (4 acres) of designated EFH for Pacific Coast salmon.

3.4 Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the federal agency must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the federal agency have agreed to use alternative time frames for the federal agency response. The response must include a description of measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects (50 CFR 600.920(k)(1)).

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget (OMB), NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.5 Supplemental Consultation

The COE must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations (50 CFR 600.920(l)).

4. DATA QUALITY ACT DOCUMENTATION AND PRE-DISSEMINATION REVIEW

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the Opinion addresses these DQA components, documents compliance with the DQA, and certifies that this Opinion has undergone pre-dissemination review.

APPENDIX D
NOP COMMENTS AND RESPONSES

State of Washington
Department of Fish and Wildlife

1701 South 24th Avenue • Yakima, Washington 98902-5720 • (509) 575-2740 FAX (509) 575-2474

November 10, 2016

Zach Wilson
US Army Corps of Engineers, Seattle District
Environmental and Cultural Resources Branch
PO Box 3755
Seattle, WA 98124-3755

SUBJECT: NEPA, Notice of Preparation PM-ER-16-12, WDFW Comments Regarding Proposed Rehabilitation of Flood Control Works, Klocke and Schaake Levees, Kittitas County Washington

Dear Mr. Wilson,

The Washington Department of Fish and Wildlife (WDFW) has reviewed the above referenced National Environmental Policy Act (NEPA) document dated October 12, 2016 regarding rehabilitation of the Klocke and Schaake Levees, and we offer the following comments and information. As the projects progress, additional comments may follow.

General Comments on Proposal

Levee structures and the activities perpetuating their service lives have long term adverse effects to riverine processes and the fish and wildlife dependent on these habitat forming processes. The elimination of connected, functioning floodplain areas, instream complexity and sinuosity, and normative riparian corridors cause permanent degradation of salmonid habitat, because juvenile and refuge fish habitats have been reduced or eliminated by levees. Levees severely impact the functions of stream-adjacent vegetation that is normally present. Vegetation grows only fair to poor on levee surfaces, because they are resistant to rooting and tend to be overly drained. Riparian vegetation provides cover for fish and a food source in the form of insects. The potential recruitment of woody debris that is lost to the river and lack of channel roughness further degrade leveed streams.

Both the Klocke and Schaake Levees are located in areas where Mid-Columbia Steelhead (ESA listed as threatened), Spring Chinook Salmon, and coho salmon spawning occurs. The Yakima River at these locations is also listed as critical habitat for bull trout, another federally threatened species on the Endangered Species List. Other native fish such as mountain suckers, resident trout, and lamprey are common in the project reaches as well. Perpetuating these levee structures in their existing alignment will continue to degrade habitat and negatively affect lamprey, bull trout, steelhead, and salmon populations that collectively, we are working to recover.

Further, the Yakima Basin Integrated Plan (YBIP) is advancing comprehensive improvements to floodplain connectivity, side channel connectivity, juvenile salmonid rearing production potential, stream flow, temperature, fish passage, riparian vegetation, the recruitment of wood and structural habitat in the Yakima River Basin. The YBIP is a consortium of the Yakama Nation, irrigation interests, environmental organizations, and federal, state, county and city governments. The YBIP's goals are to protect, mitigate, and enhance fish and wildlife habitat; provide increased operational flexibility to manage instream flows to meet ecological objectives; and improve the reliability of the water supply for irrigation, municipal supply and domestic uses. The potential and already-realized benefits from cumulatively very-large expenditures from these and other programs, which are aimed toward improving fish habitat throughout the Yakima Basin, will be impaired by the Corps' preferred alternative of levee rehabilitation (versus setback or design improvement). We adamantly support levee setbacks, with appropriately sized and engineered features, as the comprehensive action for the Corps to take.

Klocke Levee

Currently, the Klocke levee provides flood protection to several acres of mapped floodway with riparian forests and few, if any, structures nearby. This is a prime location for a levee setback proposal. Access and staging of material to repair the small section of damaged levee seem excessive given the lack of structures nearby to protect. A setback levee at this location would reduce maintenance costs and allow for floodplain connectivity while maintaining flood protection for existing structures.

At least two spring chinook salmon redds were flagged at the repair site in 2016. This section of levee has relatively robust riparian shrubs helping to stabilize and maintain the current level of protection. Construction of a launchable toe at this location will negatively impact the existing conditions that include native riparian vegetation on the levee and landward as well as the hydraulics that are supporting salmonid spawning habitat. Considerable mitigation measures should be applied for the loss of riverine function, riparian habitat destruction, and impacts to steelhead, chinook, and coho spawning habitat with the rehabilitation of the Klocke Levee.

WDFW welcomes the opportunity to work with the Corps on temporary protection measures at the site of erosion while setback levee alternatives are further developed.

Schaake Levee

The Schaake Levee is located on the US Bureau of Reclamation (BOR) property that was specifically purchased for floodplain restoration. Designs for a setback levee, side channel establishment, and floodplain reconnection are underway for a large scale restoration project. Rehabilitation of the Schaake Levee at this location with a launchable toe is contrary to the collective efforts to restore floodplain connectivity at this very location.

We strongly urge the Corps to use the funding set aside for rehabilitation of the Schaake Levee to help implement the restoration efforts the BOR is leading with support from many agencies, including WDFW. Alternatively, protection measures could be applied to ensure the City's Wastewater Treatment Plant is protected that will be consistent with the overall goals for restoration on the Schaake Property or implement more temporary protection measures at the levee that incorporate bioengineering and roughness elements until the larger setback levee project can occur.

It is our determination that the proposed actions underestimate the adverse impacts to fish and wildlife posed by perpetuating the subject levees, and inadequately addresses continued environmental harm from the continued legacy of the problematic flood-protection technology. WDFW encourages the Corps to meet with us and other fish and wildlife agencies to better address fish, wildlife, and habitat concerns prior to moving forward with the

existing alternatives. If the Corps moves forward with the current proposal, WDFW recommends completing an Environmental Impact Statement that more fully considers the short and long term impacts to fish and wildlife and riverine function.

Thank you for the opportunity to provide these comments. If you have any questions, please contact me at (509) 962-3421.

Sincerely,

Jennifer Nelson
Fish and Wildlife Biologist
Jennifer.Nelson@dfw.wa.gov

Ecc: Jody Walters, NOAA Fisheries
Jeff Krupka, USFWS
Scott Nicolai, Yakama Nation
Jeanne Demorest, BOR
Mark Cook, Kittitas County
Perry Harvester, WDFW

The Corps thanks the Washington Department of Fish and Wildlife for its comments on the proposed levee repair. The purpose of the PL 84-99 program is to repair levee structures as quickly as possible to restore flood protection in order to ensure life safety and property protection.

The PL 84-99 Program repairs flood damage to existing eligible levees to the pre-flood level of protection. The program is not intended to make improvements, but is intended to protect life and property in the quickest and most economically justified manner. Setbacks or improvements can be evaluated through other Corps' programs. If a Non-Federal Sponsor, including the Washington Department of Fish and Wildlife, is interested in a setback or levee improvements there are other programs available through the Corps to conduct aquatic habitat ecosystem restoration (Continuing Authorities Program [CAP] Section 206), modify existing Corps' structures, operations, or implementation of measures (CAP Section 1135), or investigate and construct local flood control projects by construction or improvement of flood control works (CAP Section 205). This is not an exhaustive list and other programs are available. Please call the Corps office at (855) 828-7015, email NWSCivilWorks@usace.army.mil, or visit online at http://www.nws.usace.army.mil/Missions/Civil-Works/Programs-and-Projects/.

The Klocke levee provides flood risk reduction to farmlands and the City of Ellensburg water wells. The total value of the structures protected by the levee is $4.1 million. The estimated benefit/cost ratio to restore the flood risk reduction to the area is 11:1. The Corps also verified that the proposed action does not benefit or subsidize single entities. The entire repair proposed to the Klocke levee is 100 feet long. A setback would be much longer and likely require some, if not all, of the proposed repair section to remain and protect the railroad and bridge abutment. The Corps is willing to work with interested parties to design or construct a setback at this location under those programs and authorities allowing the Corps to conduct such work.

The site does contain robust vegetation, and so the Corps has included replacement plantings along the repair site. The Corps also plans to place all woody material removed from the site along the repaired levee toe or in the river so that it can provide habitat function. The Corps has completed consultation with the U.S. Fish and Wildlife (USFWS) and the National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act. USFWS agreed with the Corps that the project would result in discountable or insignificant effects to individuals and the habitats of bull trout. USFWS concurred with the Corps determination of "may affect, not likely to adversely affect" bull trout and its designated critical habitat. NMFS provided a Biological Opinion with Reasonable and Prudent Measures to mitigate and reduce impacts to steelhead and its critical habitat. Conservation measures for the levee repair include willow plantings along the repair length to offset the loss of vegetation resulting from construction. Additionally, shrubs and trees removed by the repair would be replaced at a 1.5:1 ratio offsite in riparian locations. The Non-Federal Sponsor will likely continue maintenance and monitoring of the levees similar to past practice.

The Corps was proposing to repair the Schaake Levee to its pre-flood damaged condition for flood protection. However, the Non-Federal Sponsor has withdrawn its repair request at that site and is investigating alternate proposals. The Corps has no plans to conduct repairs at the site at this time.

The Corps has determined that an Environmental Assessment is appropriate for the proposed repairs and that an Environmental Impact Statement is not required.

United States Department of the Interior

BUREAU OF RECLAMATION
Pacific Northwest Region
Columbia-Cascades Area Office
1917 Marsh Road
Yakima, WA 98901-2058

IN REPLY REFER TO:

NOV 9 2016

CCA-5708
PRJ-3.00

Mr. Zachary M Wilson
Environmental and Cultural Resources Branch
CENWS-EN-ER
P.O. Box 3755
Seattle, WA 98124-3755

Subject: Notice of Preparation for Repairs to the Schaake and Klocke Levees

Dear Mr. Wilson,

This letter is in response to the U.S. Army Corps of Engineers (Corps) Notice of Preparation (NOP) for repairs to the Schaake and Klocke levees dated October 12, 2016. The Bureau of Reclamation has the following comments on the Schaake levee related to the NOP.

Observations

1. In Figure 2 of the NOP the Schaake levee is shown to tie into the embankment of Umptanum Road. Observations on the ground indicate that this levee does not exist as a formal structure north of approximately station 60+00. From approximately Station 60+00 to 70+00 the high ground being identified as a levee is no more than spoils, removed from the Schaake property some 15 years ago, pushed up against the southern property line between stations 60+00 and 70+00. Observations in the field seem to indicate that the spoils removed from the Schaake property were staged at this location (private property) and were used, in part, to increase the ground elevation along the southern border of the property.

2. Observations on the ground indicate that the Jensen levee does not extend as far south as is indicated in Figure 2.

3. Access point names at the bottom of page 2 are not correct (although the blue dashed line shown in Figure 6 of the NOP is correct). There is no access to the Schaake levee on Reclamation property via Anderson Road or Tjossem Road. Access to the Schaake levee is through the gate at the north end of Reclamation property off Umptanum Rd. From the east, access to the Schaake levee and Reclamation property can be gained through the City of Ellensburg's wastewater treatment plant off Canyon Road. It should be noted that the small bridge across Wilson Creek limits access to light vehicle traffic. Heavy equipment will have to access the Schaake levee through the gate at the north end of

Reclamation property off Umptanum Rd. For access to Reclamation property please contact:

Ms. Jeanne K. Demorest, CCA-5708
Schaake Habitat Improvement Project Manager
1917 Marsh Road
Yakima, WA 98901-2058
jdemorest@usbr.wa.gov
509-575-5848, extension 287

Comments

The Corps appears to have done a thorough job of considering any and all conflicts regarding environmental, cultural, and Tribal interests, as indicated in the NOP. However, a similar effort does not appear to have been put forth on the design of the portion of the Schaake levee to be repaired. The Corps identifies that the Schaake levee failed during a flood event with a return period of approximately 5 years (20 percent annual exceedance probability). Considering the frequency at which this type of flooding occurs, the repair design should include elements to prevent levee damage in the future. Based on inspection reports by the former County Engineer, this levee has failed in the past.

The following comments are submitted for your consideration:

1. We recommend that the levee alignment follow a path similar to what is shown in Figure 1 (green line). This setback is approximately 70 feet at the greatest setback distance, whereas the Corps design indicated a 20 ft. setback. This alignment will alleviate the constriction at this location in the river (this can be seen in Figure 1). Our recommended alignment will create a channel top width similar to that downstream of the repaired portion of the levee. This action will reduce the erosive forces against the levee and the riverbed. The damage along this section of the Schaake levee is likely due, in part, to the excessive scour at the toe of the levee. Reclamation acknowledges and accepts that some loss of real estate will occur as a result of this suggested setback.

2. We recommend a flatter side slope than the Corps has indicated in the NOP. Decreasing the riverward side slope to 3H:1V or 4H:1V will also reduce the erosive forces on the levee and the river bed. These gentler slopes are consistent with the Corps' guidance for rip-rapped slopes in rivers with a heavy wood/debris load, which the Yakima River has. As the owner of the protected property, Reclamation acknowledges and accepts that some loss of real estate will occur as a result of lower side slopes.

3. Based on past failures of this levee, we recommend a thicker blanket of rip-rap than what is being proposed by the Corps in the NOP. This would increase the resilience of the levee and is consistent with the Corps' guidance to increase the thickness of the rip-rap blanket where debris impacts are expected. It is also consistent with Corps guidance to increase the thickness of a rip-rap blanket when it is commonly inundated.

4. The drawing in Figure 8 of the NOP indicates that the same size rip-rap will be used as has been used in the past. The hydraulic conditions at this location, as indicated by failure at a 20 percent AEP, warrant an increased size of rip-rap to resist erosion at high energy flows.

Reclamation has prepared a 30 percent design for the Schaake restoration plan which shows the portion of the Schaake levee that the Corps intends to repair, and a segment upstream of the levee beyond the Tjossem ditch headworks, to remain following construction of the setback levee. We feel it is important that this segment of the Schaake levee remain in working order to protect the Tjossem ditch headworks and prevent channel migration. Reclamation has provided copies of the 30 percent Basis of Design Report to the Corps Seattle office (Ms. Cathy Desjardin).

Reclamation has provided this information to Kittitas County and will provide the County with an appropriate easement to accommodate this work.
Reclamation is willing to provide survey data and/or hydraulic modeling results that were completed for the 30 percent design at this location. Please contact Mr. Rob Hilldale, for this data or similar information.

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Reclamation appreciates your consideration of these comments. Please provide written responses to these comments prior to finalizing your design.

Sincerely,

Wendy Christensen
YRBWEP Manager

cc: Mr. Mark Cook, Director
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Following the NOP, the local sponsor withdrew its request for PL84-99 assistance for the Schaake Levee repairs. Since the BLM comments pertain exclusively to Schaake Levee, which is no longer within the scope of the proposed action, the Corps will not provide topic-specific responses.