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Seattle District

DRAFT ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT NOTICE OF AVAILABILITY

U.S. Army Corps of Engineers
Tyler Tran
4735 E. Marginal Way S.
Bldg. 1202
Seattle, WA 98134-2388

Public Notice Date: June 5, 2024
Expiration Date: July 5, 2024
Reference: GRN-02-20
Name: Horseshoe Bend Levee Rehabilitation Project

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Seattle District (USACE) has prepared, pursuant to the National Environmental Policy Act (NEPA), a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for the proposed levee rehabilitation work at the Horseshoe Bend Levee within Kent city limits, King County, Washington. Rehabilitation work is intended to address damage caused by flooding in early February 2020 on the Green River. The purpose of this notice is to solicit comments from interested persons, groups, and agencies on USACE's proposed action under NEPA.

COMMENT AND REVIEW PERIOD

USACE invites submission of comments on the environmental impact of the proposed action. Comments will be considered in determining whether it would be in the public interest to proceed with the proposed project. USACE will consider all submissions received before the expiration date of this notice. The nature or scope of the proposal may be changed upon consideration of the comments received. If significant effects on the quality of the human environment are identified and cannot be mitigated for, USACE would initiate an Environmental Impact Statement (EIS) and afford all the appropriate public participation opportunities attendant to an EIS.

PUBLIC HEARING

Any person may request within the comment period specified in this notice, that a public hearing be held to consider this proposal. Requests for a public hearing must clearly set forth the following: the interest that may be affected, the way the interest may be affected by this activity, and the reason for holding a public hearing regarding this activity.

COMMENT SUBMISSION

Submit comments to this office, Attn: Tyler Tran, 4735 E. Marginal Way S. Bldg. 1202, Seattle, WA, 98314-2388, no later than 30 days after the posting of this notice to ensure consideration. Comments not received within the comment period are deemed unexhausted and therefore forfeited.

In addition to sending comments via mail to the above address, comments may be e-mailed to tyler.t.tran@usace.army.mil. This Notice and the Draft EA/FONSI can be found online at the link below.

Project Name: Horseshoe Bend Levee Rehabilitation Project

http://www.nws.usace.army.mil/Missions/Environmental/Environmental-Documents/

Posting Date: June 5, 2024 End of Comment Period: July 5, 2024

DRAFT ENVIRONMENTAL ASSESSMENT

HORSESHOE BEND LEVEE REHABILITATION PROJECT

KING COUNTY, WASHINGTON

June 2024

Seattle District
Corps of Engineers

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Acronyms and Abbreviations

Term	Meaning
ACE	Annual Chance Exceedance
APE	Area of potential effects
BA	Biological Assessment
BMP	Best Management Practices
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulation
cfs	Cubic Feet per Second
CWA	Clean Water Act
CY	cubic yards
CZMA	Coastal Zone Management Act
DAHP	Washington State Department of Archeology and Historic Preservation
dB	Decibels
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Endangered Species Act
FR	Federal Regulation
FONSI	Finding of No Significant Impacts
H:V	Horizontal to Vertical ratio, measured in feet
HP	Horsepower
LAA	Likely to Adversely Affect
LOP	Level of Protection

Term	Meaning
LPP	Locally Preferred Plan
LWM	Large Woody Material
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
PL	Public Law
PSE	Puget Sound Energy
RM	River Mile
SHPO	State Historic Preservation Officer
SMA	Shoreline Management Act
Sq ft	Square Feet
SRKW	Southern Resident Killer Whale
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	Unites States Fish and Wildlife Service
WAC	Washington Administrative Code

1 PROPOSAL FOR FEDERAL ACTION

The U.S. Army Corps of Engineers, Seattle District (USACE), prepared this Environmental Assessment (EA) in accordance with (1) the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. § 4321 et seq.), (2) regulations of the Council on Environmental Quality (CEQ) for implementing the procedural provisions of NEPA (40 C.F.R. pts. 1500-1508), and (3) USACE procedures for implementing NEPA (33 C.F.R. 230; https://www.ecfr.gov/current/title-33/chapter-II/part-230). Pursuant to Section 102(C) of NEPA, this assessment evaluates the environmental consequences of the proposed Horseshoe Bend Levee Rehabilitation project.

1.1 BACKGROUND

The Horseshoe Bend Levee is a flood risk reduction project that is approximately 10,000 feet long and extends from river mile (RM) 24.3 to 26.1 near the city of Kent, King County, Washington. This portion of the Green River levee system was federally constructed in 1996 after King County (the non-Federal sponsor) requested Federal assistance under Section 205 of the Flood Control Act of 1948. King County is responsible for the operation and maintenance of the levee.

There are no as-built drawings of the original levee. However, a levee inspection conducted in 1996 concluded that the levee is comprised of earthen embankment material with a three-foot armor rock blanket (Class II, approximately 9 to 20 inches thick, to Class IV, approximately 11 to 29 inches thick) on the riverward side. The Levee is approximately six feet tall and ranges from 10 to 15 feet wide at the crown. The landward side slopes of the levee are typically 2H:1V (Horizontal to Vertical ratio) and the riverward side slopes are typically 1H:1V to 2H:1V (PIR 2020).

Additional inspection reports dated 2018 and 2019 show a dense stand of Himalayan blackberry (*Rubus armeniacus*) and knotweed (*Fallopia* spp. (4 different spp.)), on the levee slope. There are a handful of trees and shrubs on the riverward face of the levee, however, most of the trees and shrubs are located landward of the levee as a part of a previous mitigation site by the city of Kent.

The entire Horseshoe Bend levee encloses about 75 percent of a large, meandering bend with approximately 68 parcels of mixed residential and commercial structures. The levee protects important infrastructure, including residential homes, commercial buildings, active rail lines, and the city of Kent’s municipal court. Photos of the existing Horseshoe Bend are listed in Appendix A.

After construction of the Levee in 1996, the city of Kent constructed a setback levee behind a small portion of the downstream end Horseshoe Bend Levee. As part of the proposed Federal rehabilitation of the Horseshoe Bend Levee, USACE proposes to tie the Horseshoe Bend Levee into the city of Kent’s set-back levee, which would have the effect of reconnecting a portion of the floodplain in the Green River. USACE evaluated the Kent set-back levee and determined

that it provides at least the same level of flood control protection as provided by the Horseshoe Bend Levee before it was damaged (USACE 2024a).

1.2 DAMAGING FLOOD EVENT

In February 2020, an atmospheric river event brought copious amounts of rain to Washington, as well as warmer temperatures that increased snowmelt runoff. These conditions caused flooding across Washington. Meteorologists estimated 3-day rainfall values at more than 10 inches in the North Cascades and up to 20 inches in areas near Mount Rainier.

Howard A. Hanson Dam is a Federal multiple purpose project operated by USACE that regulates flows in the Green River in a manner consistent with its congressional authorization. This dam exists at RM 64.5. The dam regulates peak discharge rates up to 12,000 cfs at the U.S. Geological Survey Auburn gage (USGS 12113000), which is located approximately 6.9 miles upstream of the damaged levee. The flood stage at this gage is recognized as 9,000 cfs by the National Weather Service. While the Rapid Assessment identified a damaging event on 30 January 2020, inspection of data from the Auburn gage revealed two events above flood stage later in February 2020 as seen in Figure 1 and Figure 2. The first event occurred on February 6 for 13 hours and the second occurred from February 7-11 for a duration of 93.5 hours. The second event recorded a maximum flow of 11,400 cfs and a stage reading of 64.3 feet, which corresponds to approximately a ten-year average return period (10 percent Annual Chance Exceedance [ACE]) based on Bulletin 17C analysis (PIR 2020).

The high flow caused damage to the downstream section of the Levee (between RM 24.4 and 24.6). Cracks developed on the riverward shoulder of the levee crown and extended roughly 100 feet near Station 8+00 (PIR 2020). The cracks were 1 to 2 inches wide, with vertical offset of up to 3 inches. No obvious toe bulge or other surface distress was observed in the riverward slope, but the slope was heavily vegetated which hindered a thorough inspection. Rock armoring at the levee toe appeared to be intact.

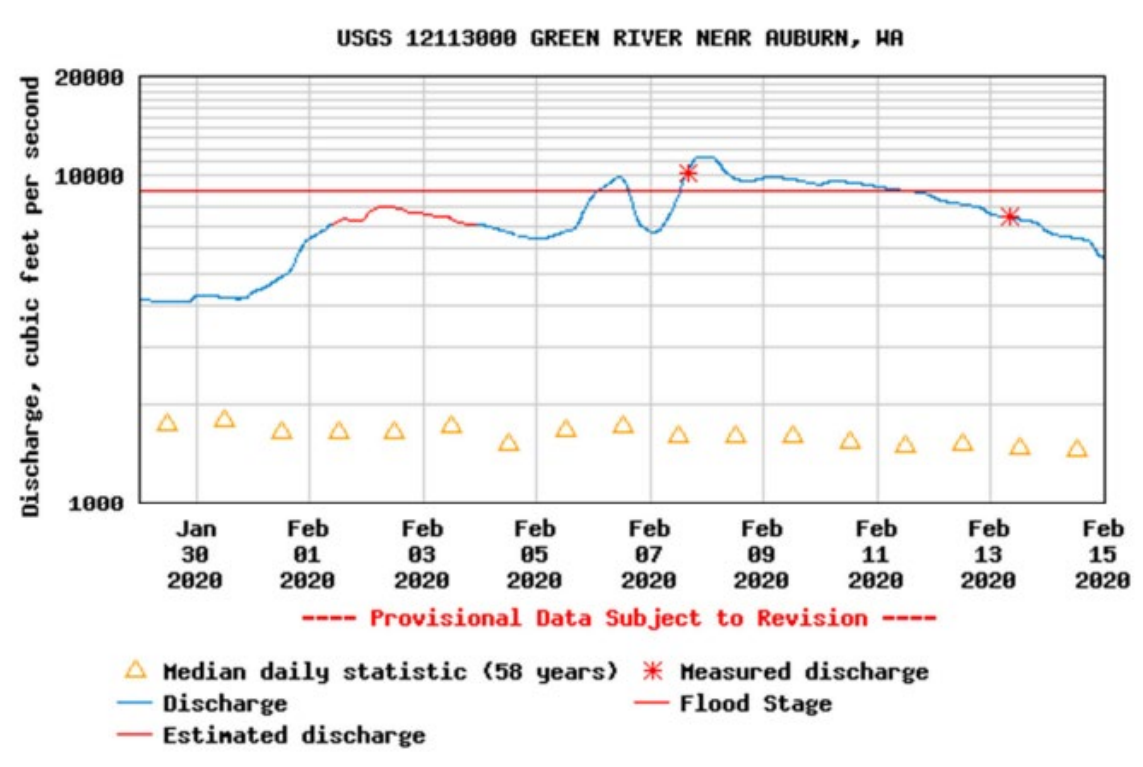

Figure 1. Flow Hydrograph at Auburn Gage 12113000.

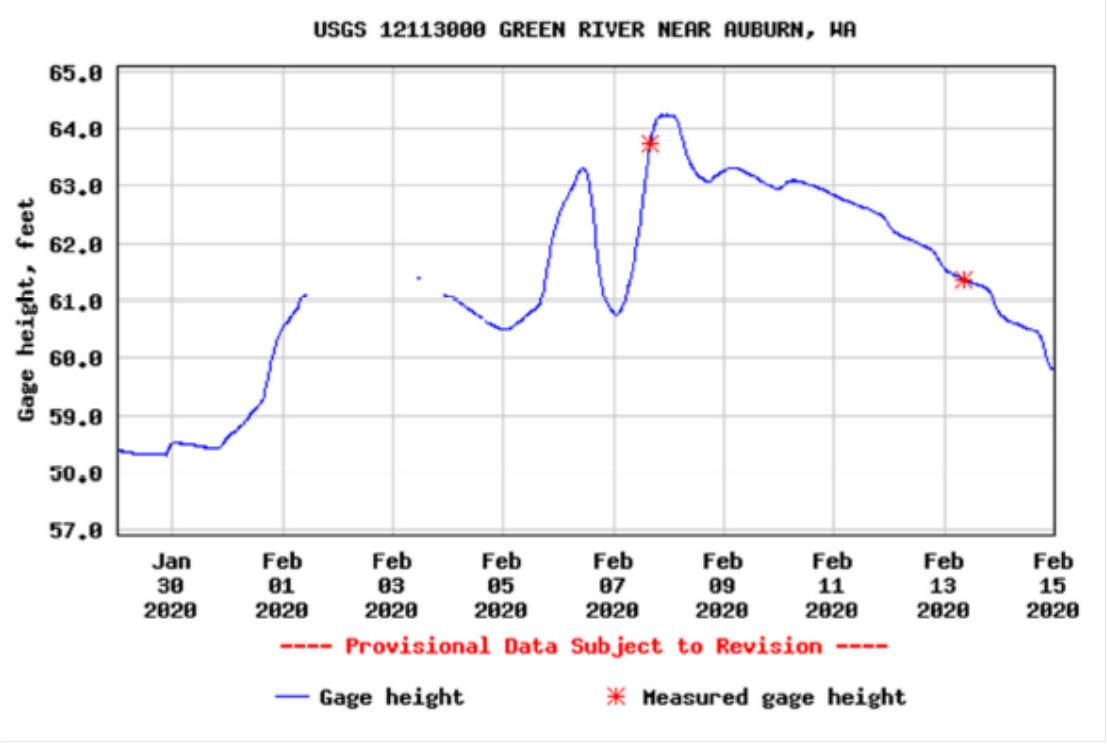

Figure 2. Stage Hydrograph at Auburn Gage 12113000.

1.3 AUTHORITY

The proposed Federal rehabilitation of the Horseshoe Bend Levee are authorized by Public Law (PL) 84-99 (33 U.S.C. § 701n(a)(1)). PL 84-99 provides USACE with the authority for "the repair or restoration of any flood control work threatened or destroyed by flood, including the strengthening, raising, extending, realigning, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control and subject to the condition that the Chief of Engineers may include modifications to the structure or project, or in implementation of nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-Federal sponsor."

USACE's repair work under PL 84-99 is limited to the rehabilitation of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the level of protection (LOP) exhibited by the flood control work prior to the damaging event (33 U.S.C. § 701n(a)(1)). King County requested assistance to rehabilitate the levee in 2020 following a flooding event in February 2020 (King County 2020). Further details of the flood event are described in Section 1.2.

1.4 PROJECT LOCATION

The rehabilitation site for the Horseshoe Bend Levee is located between RM 24.4 and 24.6 near 26003 80th Ave S., Kent, Washington (Figure 3). In 2011, the city of Kent built a setback levee behind the Horseshoe Bend Levee (Figure 3). The proposed rehabilitation to the Horseshoe Bend Levee is to construct a 474-foot-long ring dike around a Puget Sound Energy (PSE) facility located between the Horseshoe Bend Levee and the city of Kent levee. The ring dike would tie into the city of Kent set-back levee at both ends, enabling further reconnection within the floodplain (Attachment B). The access road on the east end of the ring dike will also be relocated to allow PSE to access their facility. USACE proposes to remove the crown of the old, damaged part of the Horseshoe Bend Levee to use as a mitigation site for vegetation plantings and as a staging area before planting vegetation (Section 2.5, Attachment B). In the project area, the total levee crown is 1,015 feet long. removed area will be approximately 960 feet long by 25 feet wide because some portions of the levee crown will not be removed.

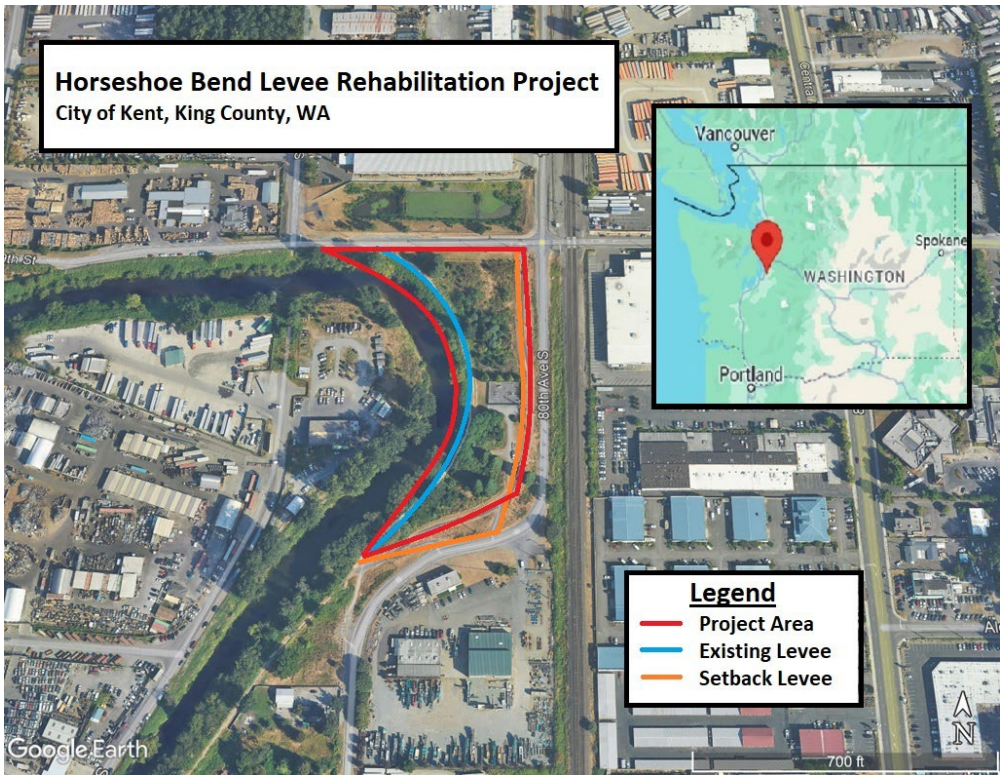

Figure 3. Project Area Map of the Horseshoe Bend Levee, city of Kent, King County, Washington.

1.5 PURPOSE AND NEED

The purpose of the project is to restore flood protection to the pre-existing 150-year LOP. The levee was damaged by flooding in February 2020 and no longer provides the designated LOP. The reduced LOP increases the risk of damage to improved property and human safety.

USACE and King County propose rehabilitating the Horseshoe Bend Levee to the pre-damaged LOP (150-year LOP, 0.7 percent ACE). In its damaged state, the levee provides a 3-year flood LOP (33 percent ACE) (PIR 2020). The levee in its damaged condition is susceptible to further damage and breaching events during future floods (PIR 2020). Restoring the levee is essential to protecting lives, property, and critical infrastructure.

If the Horseshoe Bend Levee were to be overtopped or breached, the PSE facility is the only structure at immediate risk (PIR 2020). USACE has determined that the PSE facility is a critical infrastructure because it supports seven schools, two hospitals, five nursing homes, and one fire station. Rehabilitation of the levee is needed to restore the authorized flood protection.

2 PROPOSED ACTION AND ALTERNATIVES

USACE conducted a preliminary evaluation of the alternatives for fulfilling the purpose of restoring LOP. Viable alternatives must restore reliable flood protection to the LOP prior to the damaging event, must be environmentally acceptable, and should address the identified flood risk by being capable of completing construction prior to the next flood season. The Preferred Alternative is the lowest-cost alternative that restores the LOP while fulfilling all legal, technical, and environmental requirements.

2.1 ALTERNATIVE 1: NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the Horseshoe Bend Levee would remain in its damaged condition which provides a 33% ACE (3-year). This alternative would not meet the project purpose because the pre-existing LOP would not be restored and the levee would likely be further damaged in future flood events and could fail, which would increase the risk to human safety and improved property (residential and industrial). During any flood event that threatens the integrity of the levee system, response actions may be taken by local, state, or, upon request, Federal agencies such as USACE preserve the levee system and, to the extent possible, maintain protection of safety and property behind the levee. Emergency response to address an active flood event would address the emergency nature of the threat at that time and would not be focused on identifying a durable or long-term solution. This reasonably could lead to further and additional impacts through successive multiple future flood events. This approach could potentially cost more and would likely be less protective of environmental and cultural resources, given that there would be less time to identify specific avoidance and minimization measures for work at this site. A response would also take time to activate and execute, so there is some risk that an emergency response would not prevent levee failure, such as overtopping or breaching.

The No-Action Alternative is not recommended because it would not address the persistent risk to human safety and improved property so long as the levee remains in its damaged state, which increases the likelihood of damages or breaching of the levee. It does not meet the project purpose and need, nor is it acceptable to the non-Federal sponsor. While the No-Action Alternative is not recommended, it is carried forward for further evaluation to serve as a base condition for evaluation of other alternatives.

2.2 ALTERNATIVE 2: NON-STRUCTURAL ALTERNATIVE

This alternative consists of floodplain management strategies generally involving changes in land use offered by other Federal and State programs. Such strategies would include zoning, easements, flood warning, floodplain evacuation, and flood insurance. Nonstructural strategies also involve acquisition, relocation, elevating, and flood proofing existing structures. A non-structural plan could lessen the environmental impact by restoring parts of the floodplain, enhancing habitat for some species, while still reducing flooding impacts.

The cost and time needed to implement this alternative make it impractical to implement before the next flood season. The PSE facility would need to be relocated under this alternative, requiring extensive coordination between King County, USACE, and PSE. Furthermore, the non-Federal sponsor has not asked to participate in executing a Non-Structural Alternative and must request implementation of a Non-Structural alternative per Public Law 84-99 and its implementing regulations. Therefore, this alternative is not carried forward for detailed consideration.

2.3 Alternative 3: Repair-In-Kind with Critical Failure Adjustments

The Repair-in-Kind Alternative would reconstruct the riverward slope compacted by removing the displaced wedge of failed material and restoring the slope with suitable embankment material. The levee toe would need to be reconstructed using Class III riprap (rocks 10 to 27 inches in diameter) buried within the pre-damage footprint, riprap armoring would need to be placed along the slope, and the upper eight feet of the riverward slope would be levee material. The levee's existing landward toe would be set back roughly 8 feet to accommodate the new geometry. The total construction length, including transitions, would be 200 feet.

It was determined that a typical Repair-in-Kind levee rehabilitation would have a high chance of critically failing due the currently over-steepened bank design (PIR 2020). Therefore, the longevity of the rehabilitation is uncertain and additional critical failure adjustments are needed to make the Repair-in-Kind Alternative feasible. The project would require in-water construction which may have adverse effects on fish species listed under the Endangered Species Act (ESA). Due to these factors, this alternative is not carried forward for detailed consideration.

2.4 Alternative 4: Setback Levee and Ring Dike Tie-In (Preferred Alternative)

This alternative involves a setback to reduce steepness in the riverward slope of the Horseshoe Bend levee at the rehabilitation site, while also preserving the PSE facility that is located between the Horseshoe Bend Levee and the city of Kent levee. This cost-effective and durable option involves building a ring dike to protect the existing PSE gas facility, which is designated as critical infrastructure. Therefore, the realignment of the Horseshoe Bend levee with the existing city of Kent's setback levee is the preferred alternative (USACE 2024b, USACE 2024c).

This alternative would involve constructing a ring dike around the PSE facility. The ring dike would consist of a soil embankment that is approximately 4 feet tall with a 10-feet wide crown and side slopes of 2H:1V. The new soil embankment would need to be approximately 440 feet long to encircle the pump station with smooth transitions to tie into the existing city of Kent setback levee. The ring dike would be setback from the original Horseshoe Bend levee at a 2H:1V slope projected from the pre-damage toe at its nearest point to the Green River. Rearrangement of the existing levee material could reduce the riverside slope and potentially provide materials to construct the ring dike if the material is suitable. If unsuitable, earthen embankment materials will be imported as needed. The slope would be armored using a 2.5 feet thick blanket of Class III riprap (10 to 27 inches in diameter rock) and will be covered with a

0.5-foot-thick blanket of topsoil to reduce heat transfer. The Preferred Alternative would leave a portion of South 259th Street at the north end of the project area vulnerable to flooding once every 100 years (King County 2024a, FEMA 2024, Figure 3). However, King County plans to build a berm in 2024 or 2025 to address this weak point in the levee system (King County 2024a, USACE 2024b, USACE 2024c). Although S. 259th Street is expected to flood once every 100 years, the additional plantings would help to minimize this potential. King County, the non-Federal sponsor, requested modifications to the Horseshoe Bend Levee Rehabilitation Project as part of a locally preferred plan (LPP) on November 30, 2023. King County requested a design that removes the crown of the existing Horseshoe Bend Levee, constructs a ring dike around the PSE gas facility connecting to the city of Kent's setback levee, builds a berm to protect S. 259th Street, relocates a new access driveway to the PSE facility, and restores the habitat around the existing levee outside of the ring dike by laying back the riverward slope of the existing Horseshoe Bend Levee, and extensively planting the area.

Several elements of the LPP required lengthy investigation and design work that would have delayed the work for another year (USACE 2024b, USACE 2024c). There is an urgent need to restore flood protection prior to the next flood season due to the nature of the critical infrastructure serviced by this levee. Therefore, the LPP is not carried forward for detailed consideration (USACE 2024b, USACE 2024c).

The approach outlined above is considered the most acceptable for financial, flood control, and safety reasons and is acceptable to King County, the non-Federal sponsor (USACE 2024b, USACE 2024c).

2.4.1 Detailed Levee Rehabilitation Description

The proposed Federal action consists of constructing a ring dike around the PSE facility and connecting it to the city of Kent's setback levee. The ring dike will be at the same crown elevation as the city of Kent levee.

Additionally, USACE plans to remove the crown from the old, damaged Horseshoe Bend levee. USACE plans to plant the remaining portion of the Horseshoe Bend levee with native vegetation. The plantings are meant to replace and add to the existing vegetation. The total project footprint is less than 1 acre (Table 2-1). Offset and Minimization Measures (Section 2.5) and Best Management Practices (BMPs) (Section 2.6) will be utilized to minimize environmental impacts (USACE 2024b). Equipment and materials needed for construction will be staged on top of the removed levee crown (Table 2-2, Table 2-3). The project design plans are in Appendix B.

USACE will begin the construction work by removing vegetation and the levee crown from the damaged section of Horseshoe Bend levee between station 7+20 and 7+80 (Appendix B). A flat terrace will be created at the site of the current levee crown with graders, bulldozers, and excavators (Table 2). Approximately the top 5 feet of the levee crown will be removed. The removed levee crown may be used as earthen embankment for construction of the ring dike if the material is suitable. If the material cannot be used, USACE will properly dispose of it offsite. The resulting footprint will be approximately 25 feet wide by 960 feet long (Table 2-1). The total

length available for planting is approximately 856 feet and thus the area for planting is approximately 0.49 acres. Once the ring dike is complete, a 2-foot-thick layer of topsoil will be placed on top of the removed levee crown, arborist chips will be placed over the topsoil, and plants will be installed.

Once the levee crown is removed, USACE will construct the ring dike around the PSE facility and connect it with the city of Kent's setback levee (USACE 2024b, USACE 2024c). Approximately 23 trees will be removed along with interspersed shrubs inside the ring dike footprint. The ring dike will be constructed and tied into the setback levee using an excavator to move earthen embankment material. The levee material will be sourced from either the removed levee crown or imported via dump truck. The embankment material will consist of soil mixed and the existing bank material on the levee crown will be used if suitable. Class III riprap is 10 to 27 inches in diameter. Topsoil will be composed of a 95:5 mix of mineral to organic soil. A 3-feet-thick Class III riprap (10 to 27 inches in diameter) blanket will be placed on the riverward side of the ring dike with an excavator to cover the earthen embankment. Additionally, there will be a buried toe for the ring dike which will still be above the ordinary high-water mark (OHWM) (Appendix B). The ring dike will be hydroseeded at the end of construction to prevent invasive species from colonizing and to control topsoil erosion. The result will be a levee with a 2H:1V slope and approximately nine feet tall relative to the removed levee crown.

A 125-foot access driveway will be relocated behind the ring dike to allow access to the PSE facility. The access driveway will be made of gravel (Table 2-3) using a bulldozer, grader, and dump truck (Table 2-2). All materials and equipment will be staged within the project footprint including the area within the levee crown and ring dike. The total project footprint is less than 1 acre (Table 2-1).

2.4.1.1 Construction Sequence

Construction and use of heavy equipment will occur in an 8-week period between August 1 and October 30, 2024. Construction generally consists of the following major components described below. USACE does not know specific locations where the fill material will be purchased, but USACE will purchase the materials consistent with Federal procurement procedures prior to construction. The source of material will be limited to a borrow site, quarry, or gravel mine permitted by the state.

2.4.1.2 Site Preparation

The first component of construction includes the preparation of the access routes and the existing prism for material removal. The project limits will be clearly marked using stakes and flagging, and the rehabilitation area will be cleared and grubbed as necessary. Invasive vegetation, including Japanese knotweed and Himalayan blackberry has already been removed at the beginning of this year by King County and the city of Kent. Vegetation within the project footprint will need to be removed, including a stand of 23 trees consisting of Douglas fir, big leaf maple, and alder ranging from approximately 2 to 3 feet in diameter at breast height. Shrubs are

interspersed between the trees. Staging activities will consist of temporarily stockpiling rock, supplies, equipment, and vehicles. Refer to Appendix B for storage and staging locations.

2.4.1.3 Removal of Levee Crown

USACE will remove the levee crown and use remnant riprap and embankment material for the ring dike construction as practicable. An excavator, grader, and bulldozer will be used to remove the levee crown (Table 2-2). The removed crown will be used as a staging area for the construction of the ring dike.

2.4.1.4 Construction of Levee Rehabilitation Work

Construction will only take place on land above OHWM (i.e., no in-water work) and will start at one end of the ring dike and continue to the other side of the PSE facility. First, the embankment material will be placed followed by a 2.5-foot blanket of rip rap and 0.5-foot blanket of topsoil on top (USACE 2024b, USACE 2024c). Estimated materials and quantities are summarized in

. The construction will adhere to the Construction Design Plans, Offset and Minimization Measures Plan (Section 2.5), and the BMPs (Section 2.6).

2.4.1.5 Complete Construction

Upon completion of all construction activities, areas disturbed by ring dike construction, staging activities, or relocation of an access driveway will be re-seeded with native grasses. The planting area will have arborist chips around the plantings to avoid recruitment of invasive plant species.

Design plans will be reviewed post-construction. The rehabilitation site would be examined after the rehabilitation is completed. If design plans and rehabilitation work are different from described in the environmental documentation or what is depicted in the plans, then the differences will be recorded and described (Table 2-3).

Table 2-1. The area (acres) of each project element including key components of the project action as well as the total project footprint.

Action	Area (in acres)	Length of Complete Structure (in feet)
Staging and Removal of Levee Crown	0.606	960
Ring Dike Construction	0.355	474
Access Driveway	0.057	125
Large Woody Material Placement	0.03	N/A
Planting Area	0.49	856
Overlapping Area of Old Levee and New Ring Dike	Less than 0.072	110
Total Disturbed Area	0.976	N/A

Table 2-2. Anticipated equipment utilized in the proposed 2024 rehabilitation work.

Equipment	Equipment Notes	Number	Location	Activities	General Description
Bulldozer	Blade length 12 feet	1	Throughout the rehabilitation footprint	Manipulates materials. Move and place rock, vegetation, and other materials	Move and place material
Grader	Similar to 12H, min hp 140, min lbs, 30,000, min blade length 12 ft	1	Throughout the rehabilitation footprint	Driveway grading, blade levels dirt or grave for roads	Driveway construction
Excavator	Track-mounted hydraulic excavator w/hydraulic thumb, similar to 300 series, min hp 200, min lbs 70,000, min reach 30 ft	2	Throughout the rehabilitation footprint	Workhorse of the rehabilitation. Manipulates materials. Move and place rock, vegetation, and other materials.	Move and place material
Vibratory Compactor		1	Levee top	Compact fill material	Compact material
Water Truck	Holds up to 3,000 gal	1	Haul route Existing roads	Wets road surface to control dust	Dust control
Dump Truck	10-12 CY Solo Dump truck, haul up to Class V riprap	Dependent on delivery	Haul route Existing roads	Transport of materials to and from the project	Material transport

Table 2-3. Estimated materials and quantities for the proposed 2024 rehabilitation.

Material	Quantity	Location	Use
Embankment Material (cubic yards [CY])	1,990	Levee profile, landward and riverward of the levee centerline	Levee structure
Class III Riprap (CY)	407	Levee slope	Levee armor
Gravel (CY)	86	Levee crown and access driveway	Access driveway
Topsoil (CY)	2,065	On top of the removed levee crown	Topsoil for vegetation plantings
Trees	150	On top of the removed levee crown	Riparian habitat
Shrubs	330	On top of the removed levee crown	Riparian habitat
Arborist Chips (CY)	41	On top of the removed levee crown	To reduce recruitment of invasive species
Native hydroseed mix (lbs)	1,110	Ring dike and access driveway	Erosion and invasive species control

2.5 Offset and Minimization Measures

There are five major components of the Offset and Minimization Measures Plan: removal of invasive species, removal of levee crown, vegetation plantings, placement of large woody material (LWM) above the OHWM, and a maintenance, monitoring, and adaptive management plan (USACE 2024b, USACE 2024c). Details of each are outlined below.

2.5.1 Removal of Invasive Species

Himalayan blackberry has been removed by King County within the project footprint and the city of Kent has removed all Knotweed within the project area. All methods used for removing

invasive species was done according to operations and maintenance requirements for the project (USACE 2024d).

2.5.2 Removal of Levee Crown

The top of the old levee will be excavated, bulldozed, and graded to increase floodplain area and to prevent water pooling behind the levee during high flow events. We will remove the top 5 feet of the existing levee crown, the graded surface will be broken up using an excavator, and an additional 2 feet of topsoil will be added on top (mineral: organic, 95:5 mix) to provide a suitable substrate for plantings. This will create a bench 25 feet wide by 960 feet long that will be planted with vegetation.

2.5.3 Vegetation Plantings

A total of 23 trees from a previous city of Kent mitigation project will be removed for the construction of the ring dike. A total of 138 trees will be planted to offset this impact. This ratio was negotiated by King County with the city of Kent to address impacts to the mitigation site. The USACE has adopted the previously negotiated ratio. Native trees and shrubs that are typical of Puget Sound lowland floodplains will be interplanted according to the spacing requirements outlined in Table 2-4 and

Table 2-5.

- Vegetation planting will be located on the removed levee crown. The approximate area for suitable vegetation planting will be 25 feet wide by 856 feet long, or 0.49 acres.
- Erosion control measures will be taken if necessary.
- Mulch (arborist chips) will be added to limit recruitment of invasive species, retain moisture, provide a long-term source of nutrients, and decrease soil erosion.
- Soil amendments – at least 2 feet deep of topsoil (mineral: organic, 95:5 mix) will replace material below the grade of the removed crown to help establish vegetation.
- Plants will be installed at the end of fall or winter to limit the plants' exposure to dry periods and watered if necessary.

Table 2-4. Tree species that will be planted.

Common Name	Species Name	Quantity
Bigleaf Maple	*Acer macrophyllum*	28
Sitka Spruce	*Picea sitchensis*	27
Black Cottonwood	*Populus trichocarpa*	28
W. Red Cedar	*Thuja plicata*	27
Willow, Pacific	*Salix lucida*	28

Table 2-5. Shrub species that will be planted.

Common Name	Species Name	Quantity
Red-osier Dogwood	*Cornus stolonifera*	66
Indian Plum	*Oemleria cerasiformis*	66
Pacific Ninebark	*Physocarpus capitatus*	66
Salmonberry	*Rubus spectabilis*	66
Black twinberry	*Lonicera involuncrata*	66

2.5.4 Placement of Large Woody Material

The 23 trees that will be removed to construct the ring dike will be placed above the OHWM on the riverward slope of the old levee. The LWM will be positioned to stay within the Green River system and could provide structural habitat during flood events.

2.5.5 Maintenance, Monitoring, and Adaptive Management Plan

USACE would conduct monitoring and adaptive management of plantings, including replacement and maintenance, for the first year. USACE would re-plant if there is less than 80 percent survival during the first year. Adaptive management strategies would be developed with the goal of improving the rate of survivability if this threshold is not met. USACE would evaluate why the plantings failed and plan the best path forward for successful replacement, within existing agency funding and authority. Additionally, USACE would engage with the non-Federal sponsor to assist in identifying alternate planting practices for successful replanting. These may include planting different species, changing the configuration of the planting location within the site's footprint, or adding pest control or exclusion devices. If replacement occurs as a result of not meeting the 80 percent survival rate in the first year, USACE would monitor the plantings for an additional year. After this second year, any further vegetation plantings on the site would be the responsibility of the non-federal sponsor as part of their ongoing operation and maintenance responsibility for the levee.

2.6 Best Management Practices (BMPs)

To minimize environmental impacts during construction activities, USACE will incorporate the following BMPs into the action:

1. USACE will conduct a pre-construction meeting to look at existing conditions and to fine-tune any possible BMPs or environmental requirements.
2. At least one USACE biologist and geotechnical engineer will be available via phone during construction work hours. USACE biologists may visit the construction site and

provide periodic updates to the Services on the construction. USACE biologists may schedule a visit to construction sites with the Services. The geotechnical engineer may also visit the construction site. The Project Manager and Construction Manager will coordinate all visits.

3. Vegetation removal will be limited to the areas identified on the project plans.
4. All plantings (trees and shrubs) will be watered at the time of installation and will be planted during late fall or winter to limit the plants' exposure to dry periods and watered if necessary.
5. All disturbed soils with topsoil will be hydroseeded with a locally sourced, native seed mix, and arborist chips will be added to prevent the spread of invasive species. The seed mix will include *Agrostis alba* or *A.oregonensis* (20 percent by weight), *Festuca rubra* (70 percent by weight), and *Trifolium repens* (10 percent by weight). Noxious weeds will be disposed of separately from other organic materials at an approved off-site location and according to the Offset and Minimization Measures Plan (Section 2.5 Appendix B).
6. Temporary erosion control will be installed for all phases of the work. As construction advances, installation of silt fencing or similar site appropriate erosion control measure will occur along the full length of disturbed area of the project site. Additional erosion control measures will be used as needed to prevent the discharge or accumulation of sediment into the water, wetlands, adjacent swales, catch basins, storm drains, and offsite. Accumulation of sediment will be monitored in adjacent swales or storm drains daily and clear accumulation to ensure continued service throughout construction.
7. LWM generated will be salvaged and placed above OHWM (31.7 feet) with rootwads facing the river where it can continue to provide habitat function. This includes any tree trunks and large shrubs. The woody material may be placed after a section of the ring dike is completed or after the entire rehabilitation.
8. Work will be conducted during daylight hours.
9. No in-water work shall occur.
10. Work will be restricted to the areas shown in the project footprint (Appendix B).
11. The construction site boundaries will be clearly marked to avoid or minimize disturbance of riparian vegetation, wetlands, and other sensitive sites.
12. No equipment or material will be used in the water. All work will take place above the OHWM (31.7 feet).
13. Refueling will occur on the landward side of the city of Kent's setback levee.
14. At least one fuel spill kit with absorbent pads will always be onsite.
15. All work with heavy equipment will be conducted between August 1 and October 30 so that stormwater runoff is limited.

16. All construction materials will be free of contaminants such as oils and excessive sediment.
17. Construction equipment will be regularly checked for drips or leaks. Any leak will be fixed promptly, or the equipment will be removed from the project site.
18. Rock placement will occur only within the project footprint.
19. All trash and unauthorized fill will be removed from the project and staging area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper and disposed of properly after work is completed.
20. Access to the rehabilitation site would be from existing roads, ramps, paths, public rights-of-way, etc., if available. Storage and staging will occur where indicated on the project plans, and will consist of temporary stockpiling of excess rock, embankment materials, supplies, equipment, and vehicles.

3 ALTERNATIVES COMPARISON

This section provides information on the existing conditions of resources within the project area and issues relevant to the decision process for selecting the preferred alternative. Existing conditions are the physical, chemical, biological, and socioeconomic characteristics of the project area. Factors for selecting the preferred alternative include considering which of the alternatives would be the least costly, environmentally acceptable, consistent with engineering practices, and meet the purpose and need of the project. 6 identifies the resources evaluated for detailed analysis with a rationale for inclusion or exclusion. Resources were excluded from detailed analysis if they were not potentially affected by the alternatives or had no material bearing on the decision-making process.

Table 3-1. List of resources considered for detailed effects analysis and rationale for inclusion or exclusion.

Resource	Included in Detailed Anlalysis (Yes/No)	Rationale
Land Use, Utilities, and Infrastructure	Yes	The PSE facility is currently vulnerable to flooding. The proposed action would temporarily impact land use, utilities, and infrastructure during construction. Analysis is required to investigate what land use, utilities, and infrastructure may be impacted.
Water Resources and Water Quality	Yes	The proposed action may affect water quality through vegetation removal and stormwater runoff. Analysis is required to establish present water quality conditions and to determine the extent of any potential effects.
Vegetation and Wetlands	Yes	Shoreline vegetation is within the project footprint and a wetland delineation was conducted with no wetlands identified near the project site. Since vegetation is being removed, an analysis is required to investigate potential effects.
Threatened and Endangered Species	Yes	The proposed action may affect protected species in the project area. Analysis is required to determine what species are present and the extent of potential effects.
Fish and Wildlife	Yes	Same rationale as above.
Air Quality and Noise	Yes	The proposed action involves construction equipment that generate exhaust and noise. Analysis is required to investigate what air quality and noise conditions there are and to determine the extent of any potential effects.
Cultural Resources	Yes	Analysis is required to investigate cultural resources and to determine the extent of any potential effects.
Environmental Justice	Yes	Analysis is required to investigate impacts to marginalized communities and to determine the extent of any potential effects.

Resource	Included in Detailed Anlalysis (Yes/No)	Rationale
Recreation	Yes	Analysis is required to investigate recreational activities in the area and to determine the extent of any potential effects.
Hazardous, Toxic, and Radiological Waste	No	The project area does not have contaminants within any areas that would drain into our out of the project area. The closest Superfund site is approximately 15 miles away. There are 2 Model Toxics Control Act Sites nearby, but they are located on the opposite side of the river and behind the flood protection wall and setback levee and won't be disrupted by construction. This resource would not be carried forward for evaluation.
Navigation	No	Rehabilitation of the levee would not affect navigation. This resource would not be carried forward for evaluation.

3.1 Land Use, Utilities, and Infrastructure

3.1.1 Existing Conditions Pre-Flood (2020)

There are many commercial, residential, and public infrastructure facilities located behind the Horseshoe Bend Levee (Figure 3). Approximately 68 parcels of mixed public and commercial structures are present, including a railroad, the city of Kent's Municipal Court, and the PSE facility. The PSE facility is a transfer station that provides natural gas to many essential facilities such as schools, hospitals, nursing homes, and a fire station (PIR 2020).

3.1.2 No Action

Implementation of the No-Action Alternative would not be expected to result in any land use changes, but utilities and public infrastructure are at risk to floods. The PSE facility and approximately 500 feet of the roadway along S. 259th St. will remain vulnerable to flooding. Under the No Action Alternative, the levee would not be rehabilitated. If flooding occurs due to breaches in weak sections of the levee, the PSE facility and public roadway will need emergency flood fight efforts. King County has plans to build a berm to protect the public roadway, but in the meantime the County will place super sacks to protect the roadway from flooding (King County 2024c). The PSE facility will also require flood fighting efforts and those efforts could have more environmental impacts than a scheduled rehabilitation because

emergency flood response often includes unmitigable impacts to vegetation, fish and wildlife, and water quality. Additionally, the existing Horseshoe Bend Levee will most likely fail in the event of a flood and would likely require in-water work to re-slope the levee. Under the No-Action Alternative, emergency flood fight efforts will be needed but the effects on land use, utilities, and infrastructure would be negligible under those circumstances only because King County plans to preempt any impacts with super sacks.

3.1.3 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

Under this Preferred Alternative, approximately 500 feet of the levee system along S. 259th St remains vulnerable to floods. Based on USACE and King County hydraulic analysis, the road will be vulnerable during a 100-year flood (King County 2024a, FEMA 2024, USACE 2024b, USACE 2024c, Figure 3). King County plans on building a permanent berm to protect this small piece of the roadway. Before the berm is built, the County plans to use super sacks to prevent any potential flooding. Should flood waters reach the roadway, the impacts of the flooding would be contained to the road because there is an existing flood wall located on the north end of S. 259th St. which protects the local commercial buildings (King County 2024a, USACE 2024b, USACE 2024c).

No flood fighting efforts will be needed under this alternative to protect the PSE facility compared to the No-Action Alternative (Section Detailed Levee Rehabilitation Description. Flood fight efforts have greater environmental impacts compared to a scheduled rehabilitation because fill will likely need to be placed at this location during high river flows and could transport sediment and pollutants downriver.

Overall, there would be minor and temporary impacts to land use, utilities, and infrastructure. Land use in the project area would not change but may be disrupted temporarily from construction activities and equipment. USACE conducted a utility location survey and concluded that there are no utilities located within the project footprint except the PSE facility. There is a storm drain located landward of the ring dike and will not be affected by the proposed rehabilitation work. Construction-related traffic may cause temporary increases to, and disruption of, local traffic. Flaggers and signs would be used, as needed, to direct traffic safely around the construction site. Existing infrastructure would not be altered to prevent its intended purpose and use. Damaged utilities and infrastructure would be repaired as necessary.

3.2 Water Resources and Water Quality

3.2.1 Existing Conditions Pre-Flood (2020)

The Green River flows for over 93 miles beginning at the crest of the Cascade Mountains and ending as it empties into Elliott Bay (Herrera 2005, Kerwin and Nelson 2000). Howard A. Hanson Dam exists 63 miles above the river mouth and the Tacoma Headworks Diversion Dam exists 3 miles downstream of the Howard A. Hanson Dam and provides drinking water for the city of Tacoma. Historically, the White, Green, and Cedar Rivers flowed into the Duwamish River and drained an area of over 1,024,000 acres (Kerwin and Nelson 2000). Major

anthropogenic alterations of the Green-Duwamish watershed have taken place over the last century resulting in many alterations to the drainage area (King County 2024d). The Green River as it exists today still experiences increases in impervious surfaces, low river flows during summer and fall.

Additionally, the proposed levee rehabilitation work is along a section of the Green River that is listed on the Environmental Protection Agency's (EPA) 303(d) list of impaired water bodies for water temperature (Category 4A, WDOE 2011) and dissolved oxygen (Category 2). A total maximum daily load has been developed for temperature. The Washington Administrative Code (WAC 173-201A-200), Table 200(1)(C) lists water body uses for this reach as salmonid spawning, rearing, and migration, and has a maximum temperature criterion set as 16°C (63.5°F). Water temperature and dissolved oxygen have been identified as impairments during core summer months (WDOE 2011).

3.2.2 No Action

Under this alternative, the damaged levee could sustain further damage, which may lead to flood fighting measures and fill placement during future high-water events. This would increase sediment and turbidity in the river, which may be a minor concern during a flood event. Levee failure could allow floodwater to transport debris and sediment from industrial work and public roadways. This would likely impact water quality due to the addition of pollutants and contaminants to the river. Adjacent areas include public roadways, commercial buildings, and the PSE facility, which provides gas to critical infrastructure.

3.2.3 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

The proposed construction could cause short-term, temporary adverse impacts to water temperature. These impacts are expected to be insignificant because the 0.18 acres of trees only provide shade to a small area of the river for approximately a couple hours a day. Current vegetation at the site does not significantly impact the river's temperature because the levee slope faces east to west and there are only a few trees that are tall enough to provide shade in the morning. The cooler riparian microclimate maintained by this clump of trees will be reduced until the new vegetation plantings are fully established. Trees and vegetation will be replanted closer to the river at a 6:1 ratio. To the extent it will have a measurable impact on water temperature, the replanting will likely benefit water temperatures by increasing shade along the river once the trees reach maturity (approximately 10 to 15 years). In general, long term positive impacts could occur after the trees establish, because tree coverage would be closer to the river and the replanting area would expand by approximately 0.31 acres.

Overall, USACE does not expect long term negative effects to water quality because the project is not likely to discernibly change river temperatures. Other water quality parameters such as turbidity should not be affected because there is no in-water work.

3.3 VEGETATION AND WETLANDS

3.3.1 EXISTING CONDITIONS PRE-FLOOD (2020)

3.3.1.1 WETLANDS

USACE conducted a wetlands delineation survey on January 26, 2024, which concluded that there are no federal wetlands on site (King County 2024e). Additionally, King County also conducted a wetland survey on April 18, 2024, and did not identify any wetlands on site (King County 2024e). The USACE has disclosed our investigations of wetlands to the Washington Department of Ecology in our Coastal Zone Management Act (CZMA) consistency determination, and we are currently waiting to receive their response.

3.3.1.2 VEGETATION

The vegetation at the Horseshoe Bend Levee is predominantly made up of Douglas fir, big leaf maple, and alder with various shrubs interplanted. There were trees planted around the PSE facility in 2009. Additional trees and shrubs were planted within the project footprint as a mitigation site for the city of Kent In 2012. Therefore, the age of this vegetation is approximately 10 to 15 years old. The city of Kent and King County removed invasive species (blackberry and knotweed) at the beginning of 2024. The invasive species are predominantly in non-forested areas. Shoreline conditions in this reach of the Green River are heavily modified and almost no intact riparian buffer exists in the reach (Kleinschmidt Associates 2023).

3.3.2 NO ACTION ALTERNATIVE

The Horseshoe Bend Levee, in its damaged state, has a high likelihood of failing during a 3-year flood (PIR 2020). This means that the levee in its current state is susceptible to breeching even in low-impact flood events. Flood fighting would be required more often to protect public roadways and the PSE facility. Construction to repair the Horseshoe Bend levee during a flood event is difficult and is completed rapidly without the benefit of advanced planning to avoid and minimize environmental impacts. Vegetation would be removed or buried as needed under flood construction conditions. Federal assistance, if requested to supplement local response during a flood fight event, involves the provision of either technical or direct assistance primarily to stabilize an area, and does not address long-term habitat restoration or vegetation replanting. If the levee fails, inundation and possible channel migration could alter and erode vegetation communities in the affected areas.

3.3.3 SETBACK LEVEE AND RING DIKE TIE-IN ALTERNATIVE (PREFERRED ALTERNATIVE)

3.3.3.1 WETLANDS

King County and USACE has determined that there are no federal wetlands on site (King County 2024e). Questions were raised initially whether the area on the northeastern end of the site may qualify as a state-protected wetland due to the presence of some plants like reed canary grass. However, further investigations concluded that both soils and hydrology did not

produce wetland characteristics of wetlands regulated by Washington State (King County 2024e).

3.3.3.2 VEGETATION

The proposed construction will have short term negative impacts on vegetation. USACE will need to remove 23 trees to construct the ring dike. Removing the trees would likely decrease the amount of shading on the river in the morning. The vegetation is approximately 100 to 250 feet above the river, and the trees are approximately 20-30 feet tall. Shrubs ranging from 3 feet to 20 feet in height are interspersed within the trees.

USACE anticipates temporary negative impacts due to vegetation removal until mitigation plants become established. The trees that USACE will remove to construct the ring dike were planted approximately 10 to 15 years ago. USACE expects a similar timeframe for the new vegetation to reach the same level of maturity and function.

To reduce the impact of tree and shrub removal, trees will be replaced at a 6:1 ratio to address temporal loss of vegetation with interplanted shrubs using seasonally available native plants (Section 2.5). The planting location will be increased to approximately 0.49 acres and plantings will begin closer to the river (approximately 30 feet above the river instead of 100 feet). Long term negative effects are expected to be negligible since the removed vegetation is on an east to west facing slope, the trees will be re-planted at a higher ratio closer to the river, and invasive species have been removed from the site.

3.4 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA), Federally funded, constructed, permitted, or licensed projects must take into consideration impacts to Federally-listed and proposed threatened or endangered species. The species listed in Table 3-2are protected under the ESA and may occur in the project area. The following sections briefly summarize relevant information about the protected species, current knowledge on the presence, and use of the project and action areas by these species. ESA consultation assesses how the proposed project may affect the species, concluding with a determination of effect. See Section 8.6 for details about ESA compliance.

Table 3-2. ESA-listed species and designated or proposed critical habitat potentially found in the action area.

Species (Common Name and Scientific Name)	Federal Listing	Critical Habitat in Action Area	Potential Occurrence (Likely, Unlikely, or Absent)
Chinook Salmon (*Oncorhynchus tshawytscha*)	Threatened Critical Habitat Designated	Yes	Likely
Steelhead (*Oncorhynchus mykiss*)	Threatened Critical Habitat Designated	Yes	Likely
Bull Trout (*Salvelinus confluentus*)	Threatened Critical Habitat Designated	Yes	Likely
Killer Whale (*Orcinus orca*)	Endangered Critical Habitat Designated	No	Absent
North American Wolverine (*Gulo gulo luscus*)	Threatened Critical Habitat Designated	No	Unlikely
Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened Critical Habitat Designated	No	Unlikely
Yellow-Billed Cuckoo (*Coccyzus americanus*)	Threatened Critical Habitat Designated	No	Unlikely
Northwestern Pond Turtle (*Actinemys marmorata*)	Proposed Threatened No Critical Habitat Designated	No	Unlikely

3.4.1 EXISTING CONDITIONS PRE-FLOOD (2020)

3.4.1.1 CHINOOK SALMON

The Puget Sound Chinook salmon was listed as threatened on March 24, 1999, and revised on June 28, 2005. (NMFS 1999, NMFS 2005a). The Green River has been designated as critical habitat for Chinook salmon (NMFS 1999, NMFS 2005a).

Chinook salmon are most often found in large streams or rivers, and many stocks spawn far inland. Chinook salmon are considered main channel spawners, although they will use smaller

channels and streams with sufficient flow. Due to their large size, Chinook salmon can spawn in larger substrate (up to 14 cm) than most other salmon species (Anchor Environmental, L.L.C. 2003).

Adult Chinook salmon migrate upstream in the Green River to spawn during summer and fall. Juvenile Chinook salmon outmigration occurs from winter through early summer.

3.4.1.2 STEELHEAD TROUT

The Puget Sound steelhead was listed in 2007 (NMFS 2007). Critical habitat is designated for steelhead on this section of the Green River (81 FR 9251) adjacent to the Horseshoe Bend Levee rehabilitation site (Table 3-2).

The Green River supports both winter and summer populations of Puget Sound steelhead. However, the winter stock includes an early run Chambers Creek hatchery derived population and a later run natural population. The latter natural run population is the ESA-listed population. The summer stock is entirely hatchery supported.

In the Green River, adults for the ESA-listed winter population typically enter freshwater between November and May (Hard et al. 2007). Spawning begins in March and continues into June with the peak of spawning typically in April. Juveniles are present in the river year-round (Table 3-2). They typically hatch in the spring and early summer. The majority remain in the river for two years and in the ocean for two years (Hard et al. 2007, Pautzke and Meigs, 1940). Outmigration timing generally peaks in April or May (Seiler et al. 2004). In recent years, significantly fewer steelhead have returned to Puget Sound. The current run is less than 5 to 10 percent of its historical size, and productivity continues to decline (Hard et al. 2015, NMFS 2016).

3.4.1.3 BULL TROUT

The Puget Sound bull trout (*Salvelinus confluentus*) was listed as threatened on November 1, 1999 (USFWS 1999). Final critical habitat for Puget Sound bull trout was designated in 2004 (69 FR 59995) and revised in 2010 (75 FR 2270) and includes all reaches of the Green River within the action area. Bull Trout have more specific habitat requirements than most other salmonids (Rieman and McIntyre 1993). Habitat components that particularly influence their distribution and abundance include water temperature, cover, channel form and stability, spawning and rearing substrate conditions, and migratory corridors (Fraley and Shepard 1989, Goetz 1989, Watson and Hillman 1997).

Although historical accounts indicate a much greater use of the Green River watershed by bull trout in the past prior to the diversion of the White and Cedar rivers out of the basin, current use appears to be very limited (USFWS 2004, Table 3-2). Today, low numbers of bull trout appear to use the Green River primarily for foraging and potentially overwintering. Occasional sightings or catches are reported.

3.4.1.4 SOUTHERN RESIDENT KILLER WHALE

Southern Resident Killer Whales (*Orcinus orca*, SRKWs) were listed as endangered on February 16, 2006 (NMFS 2005b). Their customary range is thought to be primarily within Puget Sound, and through and within the Georgia and Johnstone Straits. Critical habitat was originally designated for the SRKW in 2005 (NMFS 2006) and revised in 2021 (NMFS 2021). The Green River is not designated as SRKW critical habitat, but critical habitat is designated in the Puget Sound.

SRKWs do not use the Green River and even though SRKWs do not directly occupy the shallow waters of the river, they show a strong preference for Chinook salmon (primarily Fraser River Chinook salmon) (NMFS 2008). The survival of these whales has been shown to positively correlate with Chinook salmon abundance (Ford et al. 2010). SRKWs likely include Chinook salmon from the Green River basin in their diet.

3.4.2 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 and could potentially strand ESA-listed fish when flood levels decrease. Additionally, associated turbidity and potential pollution impacts to the river are likely during an event where the levee fails.

During a flood, an emergency flood fight could occur to prevent a levee breach. Such action could require in-water work that could affect Chinook, steelhead, and bull trout. Emergency actions could have greater impact on aquatic dependent ESA-listed species habitat than a scheduled rehabilitation action. Flood fight actions that remove vegetation and disturb the river would have negative impacts, the severity of which is determined by timing, location, and extent which cannot be accurately predicted. Emergency actions will continue until the levee is rehabilitated whereas, for a planned rehabilitation construction would be intermittent. If flood fights are unsuccessful and the levee fails, inundation of the PSE's facility would occur along with potential releases of contamination from the roadway and industrial runoff to the Green River. SRKWs do not use the Green River and are indirectly effect by impacts to Chinook salmon.

3.4.3 SETBACK LEVEE AND RING DIKE TIE-IN ALTERNATIVE (PREFERRED ALTERNATIVE)

3.4.3.1 CHINOOK, STEELHEAD, AND BULL TROUT

The proposed 8-week construction window (August 1, 2024 to October 30, 2024) coincides with the presence of salmonids in the Green River. Migrating Chinook will be present in the river during the construction window as well as juvenile steelhead. Bull trout could be present at the end of the construction window since the Green River is classified as foraging and overwinter habitat for bull trout (USFWS 2010).

Based on the preceding effects analysis along with the Offset and Minimization Measures, the USACE has concluded the project may affect, but is not likely to adversely affect Chinook, steelhead, and bull trout. The project may affect and is likely to adversely affect critical habitat for Chinook salmon, steelhead, and bull trout in the action area. The primary effects are summarized below:

- There will be no in-water work and construction noises are well below fish harassment thresholds. Especially because construction will be intermittent and will only occur periodically during daylight hours. Chinook and steelhead may also migrate and forage on the opposite bank of the construction activities.
- The work will occur for approximately 8 weeks in summer between August 1, 2024 and October 30, 2024 when flows are generally at their lowest and water temperatures at their highest.
- The project location is within the known range of Chinook salmon, steelhead, and bull trout.
- Juvenile steelhead and Chinook salmon are likely to be present in the action area when work is occurring.
- Impacts to habitat include vegetation removal which will have short-term, minimal impacts to shade potential and will be offset by the Offset and Minimization Measures Plan. As a result of this action, approximately 2.1 acres of floodplain will be accessible during future flood events.
- The addition of LWM above the OHWM will provide physical structure to the new flood refuge habitat.
- Maintaining the levee and flood protection prevents levee breaches that could cause an influx of materials detrimental to the health of aquatic species and habitat.
- Proposed action impacts to bull trout are discountable as their presence is expected to be rare during the rehabilitation work and no in-water work will occur.

3.4.3.2 Southern Resident Killer Whale

SRKWs do not enter the Green River and so are not directly impacted by the flood fight activities. There is potential for indirect impacts via impacts to their prey, which include Chinook and chum salmon. Since vegetation removal will be minimal and new trees will be planted at a higher ratio closer to the OHWM, the effect of this project on SRKW is insignificant.

3.5 Fish and Wildlife

3.5.1 Existing Conditions Pre-Flood (2020)

More than 30 fish species have been documented in the Green/Duwamish River. The salmonid species include both resident and anadromous stocks. The anadromous salmonid runs include Chinook, coho, chum, and pink salmon and steelhead. Most of the salmonid spawning occurs

upstream of RM 25 which is 0.4 miles upstream from our project location (Kondolf and Wolman 1993). Limited spawning occurs downstream of this point because spawning gravels (1/4 to 3 inch in diameter rock) are limited (Kondolf and Wolman 1993). Small numbers of sea-run cutthroat trout may also use the Green River. Resident fish populations may include rainbow trout, cutthroat trout, and mountain whitefish. Other native fish species include lamprey, minnows, sculpins, and suckers (Kerwin and Nelson, 2000).

Upland habitat in this area is limited as most of the area consists of industrial and residential roads and buildings. In the immediate project area, there are approximately 2.3 acres of vegetated area behind the old levee that is likely home to birds, small mammals, and amphibians.

3.5.2 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 and could potentially strand fish behind the levee when flood levels decrease. Additionally, associated turbidity and potential pollution impacts to the river are likely during an event where the levee fails.

During a flood, an emergency flood fight could occur to prevent a levee breach. Such activities would likely cause fish and wildlife to leave the area. Emergency actions would entail more in-water work and vegetation clearing that would have greater impact on fish and wildlife than a scheduled rehabilitation action. Emergency actions will continue until the levee is rehabilitated whereas, on a planned rehabilitation, construction will be intermittent. The exact effect on fish and wildlife associated with emergency flood actions is difficult to quantify or predict.

3.5.3 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

Rehabilitation work under this alternative would cause short-term impacts to fish and wildlife during the period of construction. The potential for flood fight impacts would be low relative to the No-Action Alternative. Impacts to fish would be similar to those described in Section 3.4. The primary impacts would be a temporary increase in noise, vibration, and human activity caused by heavy equipment use. These impacts may temporarily alter the behavior of fish and wildlife during construction. The fish could migrate and forage on the opposite bank which has slower water velocities and wildlife would be able to use the habitat at night, when construction activities cease. Effects to fish and wildlife due to this alternative are expected to be temporary and localized. Removal of vegetation and the consequent reduction in the shade over the Green River will be offset with new plantings that would provide more shade than the previous plantings after they have been established in 10 to 15 years. This would reduce some shade over the river in the morning while vegetation matures. However, because shading is already limited in this area, the 10 to 15 year timespan is not likely to make a discernable change to water temperatures and fish habitat. Additionally, the removed trees will be placed above the OHWM to allow the LWM to return back to the river system.

3.6 AIR QUALITY AND NOISE

3.6.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The Environmental Protection Agency's (EPA) Clean Air Act sets National Ambient Air Quality Standards (NAAQS) to regulate harmful pollutants (42 U.S.C. § 7403). NAAQS are set for six common air pollutants: ozone, carbon monoxide, nitrogen dioxide, particulate matter (solid and liquid particles suspended in the air), sulfur dioxide, and lead. Areas that persistently exceed the standards are designated as nonattainment areas. King County is not currently classified as a nonattainment area and air quality is regulated by the Puget Sound Clean Air Agency (Ecology 2024). The EPA sets *de minimis* thresholds for pollutants in nonattainment areas (40 C.F.R. § 93.153). Once a nonattainment area has attained and maintained NAAQS, they may be redesignated as "maintenance areas". According to the Washington Department of Ecology (Ecology), all areas of Washington, except a small area in Whatcom County, currently meet air quality standards (Ecology 2024). No air quality exceedances exist in King County within the project area.

The project site and its surroundings have been developed, with myriad activities contributing to ambient noise levels. Human-related existing noise sources at the project site include traffic, construction, internal combustion engines, and commercial activities.

3.6.2 NO ACTION ALTERNATIVE

This 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 less air emissions and a shorter duration of noise generated compared to the Preferred Alternative because the Preferred Alternative has more construction components to it (PIR 2020). The difference between the two actions would depend on the scope of the emergency action. 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. Effects of ambient air quality and noise would be negligible.

3.6.3 SETBACK LEVEE AND RING DIKE TIE-IN ALTERNATIVE (PREFERRED ALTERNATIVE)

3.6.3.1 AIR QUALITY

Impacts to air quality for the proposed rehabilitation work are *de minimis* under Federal, state, and county emissions thresholds (40 C.F.R. § 93.153). Construction equipment used during the proposed levee rehabilitation work would temporarily and locally generate increased diesel exhaust fumes. However, the small area of construction and the short duration of the work would limit the impact to air quality.

USACE conducted calculations for expected greenhouse gas emissions for the project using conservative estimates for equipment horsepower (175 HP instead of 120 HP), average fleet year (2015), and maximum equipment run time (each piece of equipment runs 100% of the time using California's South Coast Air Quality Management District calculator (AQMD 2024). According to the EPA, a typical passenger vehicle emits 4.6 tons of CO_2 per year and the

estimated total CO_2 emissions from this project equals the emissions of 44 typical passenger vehicles (EPA 2024a). The context of these emissions generated from this Preferred Alternative are negligible (.00005% of the total CO_2 emissions) compared to the total CO_2 emissions in the United States (EPA 2023, Table 3-3).

Table 3-3. Comparison of conservative estimate of pollutant emissions for the Horseshoe Bend Levee Rehabilitation Project to EPA and Washington State de minimis, insignificant, and exemption levels and Puget Sound Clean Air Agency's thresholds for registration and emissions reporting.

Pollutant	EPA's de minimis Threshold (tons/yr)	WA State's Exemption Emissions Threshold (tons/yr)	Estimated Project Emissions (tons/yr)
Carbon monoxide (CO)	100	5	0.65
Nitrogen oxide (NOx)	100	2	1.18
Ozone	50	2	0.16
PM (total)	-	1.25	0.05
Sulfur dioxide (SO_2)	100	2	.002

3.6.3.2 NOISE

Construction-related noise will be generated out of the water during excavation and rock placement could interrupt foraging and migration behavior of fish, people, and deter wildlife from utilizing the project area. Noise levels are unlikely to negatively affect fish, people, or wildlife since the noise level is approximately 120 dB, which is 60 dB lower than the threshold for fish harassment (NMFS 2008). Additionally, if fish, people, or wildlife are startled by the noise, they

will only be temporarily displaced since the construction noise will be intermittent, and construction will only occur during daylight hours.

The National Marine Fisheries Service (NMFS) fish injury thresholds for both continuous and pulsed sound are 183 dB for cumulative sound and 206 dB for peak sound (NMFS 2008). The construction noise from this proposed action will be approximately 85 to 88 dB and does not exceed fish injury thresholds (USDOT 2006). Popper et al. (2014) and Reine and Dickerson (2012) both indicate there is no direct evidence for fish mortality or mortal injury from continuous sound at the levels that the construction equipment will create in the proposed action.

3.7 CULTURAL RESOURCES

Cultural resources can include prehistoric (i.e., pre-contact), protohistoric (i.e., contact), and historic (i.e., post-contact) sites, structures, districts, or any other physical evidence of human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious, or other applicable reasons. Depending on their condition and use, such resources can provide insight into living conditions of previous civilizations or retain cultural and religious significance to contemporary groups, referred to as Traditional Cultural Properties.

NEPA instructs Federal agencies to assess the probable impacts of their actions on the human environment, defined as the natural and physical environment and the relationship of people with that environment (40 C.F.R. § 1508.1). Similarly, under 36 C.F.R. § 800, the implementing regulations of the National Historic Preservation Act (NHPA) of 1966 (as amended in 2000), Federal agencies must take into consideration the potential effect of an undertaking on historic properties, which refers to cultural resources listed in or eligible for inclusion in the National Register of Historic Places (NRHP).

As stipulated in 36 C.F.R. § 800.8, Section 106 can be coordinated with the requirements of NEPA. Preparation of this EA can be sufficient to fulfill the required determination of effects for Section 106 compliance. Section 106 requires Federal agencies to afford the Advisory Council on Historic Preservation and other interested parties a reasonable opportunity to

3.7.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The Horseshoe Bend Levee was originally constructed in the 1960’s by local interests and federally updated in 1996 as authorized by the Capital Authorities Program Section 205 of the 1948 Flood Control Act. Since the levee is more than 50 approximately years old, they may be potential historic property as per the National Historic Preservation Act. A USACE archaeologist has reviewed online records using the Washington Information System for Architectural and Archaeological Resources Database to identify any previously conducted inventories and recorded historic properties. The review indicated that there were three previous cultural resources studies within the proposed project area (Kelly 2008, Haney and Sneddon 2011, Kanaby 2022). The 2008 field inventory was associated with a levee rehabilitation project, which covered a portion of the area of potential effects (APE). The project was undertaken to identify any properties that could be eligible for listing on the NRHP. The survey included visual inspections for historic built environment resources and an inspection of all exposed ground

surfaces. Kelly (2008) did not report the presence of any historic properties within the project area. In 2011, a second archaeological inventory of the APE for a levee rehabilitation project reported the completion of a pedestrian transect survey and shovel probes (Haney and Sneddon 2011). A total of 22 shovel probes were placed within the APE during the 2011 field survey that was conducted as part of the city of Kent's setback levee project. All shovel probes were negative (Haney and Sneddon 2011). That survey, which included the entire current APE, reported no cultural resources present within the APE (Haney and Sneddon 2011) (Appendix C). In 2021, during an emergency levee rehabilitation, the levee was surveyed, and no cultural resources were present (Kanaby 2022).

According to the prior inventory reports and historic aerials, most of the area within the APE has seen a large amount of disturbance (Haney and Sneddon 2011). Prior to 2010, the area within the APE contained a multitude of buildings, structures, and paved parking lots.

In 2021, the levee was determined not eligible (Project# 2021-11-07879) with concurrence from the Washington State Department of Archeology and Historic Preservation (DAHP) (Kanaby 2022). Other than the levee, there are no known cultural resources and no historic properties eligible for listing on the NRHP.

3.7.2 No Action

The No-Action Alternative would have no impact on cultural resources within the APE. Under this alternative, the USACE would not repair the levee, and the threat of future levee failures would increase. As the no action would not be considered an undertaking, as defined in 36 CFR 800, this alternative would be considered to have no potential to effect cultural resources. The This alternative would result in continued degradation of the levees through natural processes. It is likely that at an unknown time the levees would fail causing irreparable damage to the structure potentially causing an adverse effect to historic structures behind the levee that are potentially eligible for inclusion on the NRHP.

3.7.3 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

Under this alternative, the Horseshoe Bend Levee would be graded and a ring dike will be constructed to-aligned with the city of Kent's setback levee. This action would avoid adverse effects to historic properties and unevaluated cultural resources. Based on the literature review and a records search, cultural resource survey, and coordination with DAHP and the contacted Tribes, USACE determined that the proposed rehabilitation would have no adverse effect to historic properties within the APE that are listed in or determined eligible for listing in the NRHP. DAHP has concurred with USACE's determinations that the levee was determined not eligible (Appendix C). Effects on cultural resources would be negligible.

3.8 Environmental Justice in Minority Populations and Low-Income Populations

Executive Orders (EOs):

1. **EO 12898:** Environmental Justice in Minority Populations and Low-Income Populations,
2. **EO 14008:** Tackling the Climate Crisis,
3. **EO 13985 & 14091**: Advancing Racial Equity and Support for Underserved Communities Through the Federal Government
4. **EO 14096**: Revitalizing Our Nation's Commitment to Environmental Justice for All

"Environmental Justice" is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income regarding the development, implementation, and enforcement of environmental laws, regulations, and policies, with no group bearing a disproportionate burden of environmental harms and risks. Environmental justice (EJ) and disproportionate impacts to disadvantaged communities shall be considered throughout the Civil Works programs and in all phases of project planning and decision-making, consistent with the goals and objectives of various Administration policies.

EO 12898 directs Federal agencies to take the appropriate steps to identify and address any disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority and low-income populations. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, and Pacific Islander. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. EO 14008 updates EO 12898 and has expanded Federal agencies' responsibilities for assessing environmental justice consequences of their actions. EO 13985, EO 14091, and EO 14096 charge the Federal Government with advancing equity for all, including communities that have long been underserved, and addressing systemic racism in our Nation's policies and programs.

3.8.1 Analysis Methods

USACE analyzed demographic data to assess the approximate locations and potential concerns of low-income and minority populations in the community of concern. The analysis relied on the EPA's EJScreen tool and the White House CEQ Climate and Economic Justice Screening Tool (EPA 2024b, CEQ 2024).

EJScreen is EPA's environmental justice mapping and screening tool that provides a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators. Using the tool, USACE analysts chose a geographic area on the EJScreen map. The tool then synthesized demographic socioeconomic and environmental information for that area to express them in the context of 13 indicators or indexes. The environmental justice indexes are exposure to toxic air pollutants including particulate matter, ozone, and lead, proximity to

superfund sites, hazardous waste, and wastewater discharge. Demographic indexes are the percentages of the population that are people of color, low income, unemployed, with limited English speakers, less than a high school education and population under 5 or over 64. Vulnerability to flood, wildfire, and sea level rise due to climate change and lack of health, housing, transportation, and food services are also analyzed. The environmental justice index uses the concept of "excess risk" by looking at how far above the national average the block group's demographics are. USACE analysts applied the EJScreen assessment of the 13 indicators within an affected radius around the project area of approximately 5 miles. USACE compared indicators for the project area to those in the city of Kent and Washington State. EPA considers a project to be in an area of potential environmental justice concern when an EJScreen analysis for the impacted area shows one or more of the 13 environmental justice indexes at or above the 80th percentile in the nation and/or state. The area consisting of the rehabilitation and 5-mile buffer, and the city of Kent are not over the 80th percentile for any of the environmental justice indexes (Appendix D).

The CEQ's Climate and Economic Justice Screen Tool is a geospatial mapping tool used to identify disadvantaged communities that face burdens. The tool has an interactive map and uses datasets that are indicators of burdens. Communities are considered disadvantaged if they are in a census tract that meets the threshold for at least one of the tool's categories of burden and corresponding economic indicator or are on the lands of a federally recognized Tribe. USACE researched this additional information from the CEQ tool to ensure it rigorously investigated the existence of environmental justice communities or issues of concern.

3.8.2 Analysis Results

Detailed data generated from the EJScreen report can be found in Appendix D and online at the following link: https://www.epa.gov/ejscreen.

From the EJScreen research, USACE found that the aggregate minority population is estimated at 57 percent in the affected area, 32 percent in the State of Washington, and 39 percent for the United States (EPA 2024a, Appendix D). The city of Kent has an estimated aggregate minority population of 59 percent, which is greater than that of the population within 5 miles of the project area (EPA 2024b, Appendix D).

The aggregate low-income population percentage within 5 miles of the project area and city of Kent is above the state average but below the country average. The aggregate low-income population is estimated at 28 percent within 5 miles of the project area, 24 percent in the State of Washington, and 31 percent for the United States (EPA 2024a, Appendix D). The aggregate low-income population is estimated at 28 percent in the city of Kent (EPA 2024c, Appendix D).

The percentage within 5 miles of the project area and the city of Kent does not exceed 50 percent. Therefore, affected area is not considered to have a high concentration of low-income persons based on CEQ criteria.

The area around the project is above the 50th percentile for members of the population who are unemployed, limited English speakers, less than a high school education, and those over the age of 64.

Detailed information from the CEQ tool can be found at the following URL: https://screeningtool.geoplatform.gov/en/.

Using the CEQ's Climate and Economic Justice Screening Tools, USACE found the project site is located within a disadvantaged track (CEQ 2024). However, the project site is below the 90th percentile for expected population loss from natural hazards and projected flood risk within 30 years (CEQ 2024).

3.8.3 Existing Conditions Pre-flood (2020)

The EJ analyses conducted above concluded that the project area is located within a disadvantaged track with higher than state and country averages of minority populations and unemployment rates. Additionally, the project area also experiences greater concentrations of diesel particulate matter, respiratory air toxics, traffic proximity, superfund proximity, hazardous waste proximity, and underground storage tanks compared to state and country averages (EPA 2024a, EPA 2024b) Therefore, this area are experience low income and impaired air quality.

3.8.4 No Action

In its undamaged condition, the Horseshoe Bend Levee provides a 150-year LOP to the city of Kent. In the damaged condition, the levee presently provides an approximate 3-year LOP. The levee would likely be further damaged in future flood events and could fail, which would endanger the PSE facility which provides gas to schools, nursing homes, hospitals, and a fire station. Even though there will be some construction-related emissions in an air quality disadvantaged community, flood protection would protect human lives and critical infrastructure. If no action is taken, the minority and low-income populations identified in the EJ analyses would remain disadvantaged and unprotected from floods.

3.8.5 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

The Preferred Alternative does not involve a facility siting decision and would not disproportionately affect minority or low-income populations nor have any adverse human health impacts. The area exceeds the 80th percentile for three of the EJ indexes. The project would not cause long-term increases to any of the 13 EJ indexes. USACE anticipates only minor and temporary increases related to construction equipment emissions. EJ indexes unrelated to emissions would remain unaffected (e.g., Superfund proximity, wastewater discharge indicator, etc.). The project maintains flood protection for the affected area. If the Preferred Alternative is not implemented, communities would experience greater flood risk. No interaction with other projects would result in any such disproportionate impacts. USACE expects no cumulative impact to EJ because of interaction between the proposed levee rehabilitation work and other past, present, and reasonably foreseeable projects.

USACE contacted Tribal governments that are also EJ communities in the project area and informed them of the proposed action. The proposed action would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate based on race, color, or national origin, nor would it have a disproportionate effect on minority or low-income communities.

Because the Horseshoe Bend Levee protects the area from flooding of the Green River, the area of analysis for environmental justice purposes also includes the floodplain for these rivers. The Preferred Alternative, which rehabilitates the levee to its pre-damage LOP, would provide a universal benefit to persons, including disadvantaged minority, low-income, and Tribal communities, residing in the floodplain. Thus, there are no disproportionate adverse impacts imposed on those communities, as compared with the larger reference population, through rehabilitation of the levee.

3.9 Recreation

3.9.1 Existing Conditions Pre-flood (2020)

There are several recreation sites near the Horseshoe Bend Levee. Foster Park and Riverview Park are approximately 1,750 feet downriver. Both parks have green spaces with seating, picnic areas, dog-walking areas, bird watching, bicycling, access to swimming, and access to fishing. Additionally, the Green River Trail runs through these parks and connects them to the Horseshoe Bend Levee. The trail is located on top of the existing levee crown.

3.9.2 No Action

Under this alternative, if flooding occurs due to breaches in weak sections of the levee, recreational use and access behind the levee could be interrupted or damaged. Depending on the severity of flooding, emergency flood fight efforts may occur to protect lives and property. These activities and local efforts to maintain the levees are expected to be sufficient to maintain existing recreation. Effects on recreation would be negligible.

3.9.3 Setback Levee and Ring Dike Tie-In Alternative (Preferred Alternative)

Under this alternative, a temporary disruption would occur to recreational use at the Horseshoe Bend Levee due to construction traffic. Since the crown will be removed for this proposed action, the city of Kent relocated the trail near their setback levee upland. To ensure public safety, access to the rehabilitation site would be prohibited during construction. New trees will be planted to replace vegetation removed for the construction of the ring dike. New trees and shrubs will be replanted on the removed levee crown and will take approximately 10-15 years to reestablish. Vegetation removal could negatively affect bird watching, but that effect will be temporary. Access to the Green River Trail may be intermittent during rehabilitation work since there will be vehicle traffic for construction. But no long-term negative impacts to recreation are expected.

4 MITIGATION

Under NEPA "mitigation means measures that avoid, minimize, or compensate for effects caused by a proposed action or alternatives as described in an environmental document or record of decision and that have a nexus to those effects. While NEPA requires consideration of mitigation, it does not mandate the form or adoption of any mitigation. Mitigation includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments." 40 C.F.R. § 1508.1 (s).

Measures to minimize and rectify the loss of riparian habitat from the preferred alternative are described in Section 2.5 These measures include removal of invasive species, plantings, and placement of LWM above the OHWM. Maintenance monitoring and adaptive management would be implemented to ensure success of these measures (Section 2.5.5). Although there is a 10–15-year time lag for tree plantings to establish, the other measures would immediately rehabilitate or restore functionality due to, project impacts to aquatic and terrestrial species and their habitat. The planted vegetation would replace riparian habitat removed by the construction work.

5 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with the preferred alternative would be (1) temporary and localized increases in noise, activity, and emissions from construction equipment, 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 rehabilitation work; (4) removal of vegetation from within the proposed construction areas in the riparian zone; and (5) flood protection vulnerability in the levee system along S. 259th St. The vegetation that will need to be removed for the ring dike construction was planted in 2009 and 2012 as a part of a mitigation plan. Therefore, vegetation removal will have a 10-15-year impact due to the length of time needed for vegetation to regrow to a similar size. Vegetation loss and the time lag for vegetation to reestablish will be mitigated by re-planting at a higher ratio (Section 2.5.3).

6 CUMULATIVE EFFECTS

The CEQ regulations implementing NEPA defines cumulative effects as effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from actions with individually minor but collectively significant actions taking place over a period of time (40 C.F.R. §1508.1(g)(3)).

The Green River Basin has been substantially modified in the last 150 years and includes only 32 percent of its original watershed area due to the diversion of the White and Cedar Rivers in the 1900s. The Tacoma Diversion Dam was built in 1911 and the Howard Hanson Dam was built in the 1960s without any fish passage facilities. There are also many levees, irrigation projects and other water extraction and control projects have and will continue to have negative impacts on the river. These structures have confined the river, impacted water quality, and altered flows. Approximately 98% of historic intertidal marsh and flats have been replaced with commercial and industrial development (Muckleshoot 2020). Thus, riparian vegetation and habitat has been lost, side channel and other floodplain features have been cut-off, and salmonid populations have steeply declined.

King County is planning to build a berm along S. 259th St. to protect the roadway from flooding in 2024 or 2025 (King County 2024c) and there are an additional nine flood control projects contemporaneously planned for the Green/Duwamish River (Table 6-1). USACE is managing three of these projects: Horseshoe Bend, Tukwila (Gaco), and Desimone levees. King County and the city of Kent partner and manage the remaining projects. King County developed a flood management plan with three guiding principles of the planning effort: laying the groundwork for achieving multi-benefit outcomes, promoting climate resilience, and ensuring that flood risk reduction activities are developed and implemented with a focus on equity and social justice (King County 2024b). Additionally, King County plans to raise all the levees in the lower Green River to a 500-year LOP.

As the local non-Federal sponsor, King County continues to make periodic rehabilitation work and maintain vegetation along the levees. Future flooding on the Green River and its tributaries is likely to result in periodic rehabilitation actions. Sponsors may seek Federal assistance with rehabilitation or emergency responses. If USACE determines that the damages are eligible for assistance under the Public Law 84-99 Levee Rehabilitation Program, then additional rehabilitation work would take place.

To maintain existing land use development, future activities along the Green River will cause similar impacts to those from the 2024 Horseshoe Bend Levee Rehabilitation project. The proposed project will contribute to maintaining the current channelized state of the river, and protect existing investment in a community with agriculture, industrial, and residential development. When evaluated in the context of past, present, reasonably foreseeable future actions, the proposed project would not result in significant incremental effects and does not

appreciably alter the existing pattern of land use development and cumulative effects within the Snohomish River.

Table 6-1. List of flood reduction projects in the Green/Duwamish basin including project name, location, type of project, year of construction, and the responsible agency.

Project Name	Location	Type of Project	Year of Construction	Agency
Horseshoe Bend	Right Bank - RM 24.4 to RM 24.6	Partial Setback Levee	2024	USACE
Tukwila (Gaco)	Left Bank - RM to RM	Repair-in-kind + Flood Wall	2024	USACE
Desimone	Right Bank - RM 14.6 - RM 15.45	New Flood Wall	2025	USACE
Kent Airport	Left Bank - RM 24	Repair-in-kind Levee	2024	King County
Fort Dent	Right Bank - RM 11.2	Repair-in-kind + Sloping	2025	King County
Gunter	Left Bank - RM 15.9 to RM 16.8	New Flood Facility	2027	King County
Milwaukee	Right Bank - RM 24.06 to 24.24	Setback Levee	Unknown at this time	city of Kent
Signature Pointe	Right Bank - RM 22.1 to RM 23.19	Increase LOP	Unknown at this time	city of Kent
Black River Pump Station	Black River - RM 11	Rehabilitation/update pump station	On going	King County

7 Coordination

The following agencies and entities have been involved with the environmental coordination of the proposed project:

- King County
- City of Kent
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service
- Washington State Dept. of Ecology
- Washington State Department of Archeology & Historic Preservation (DAHP)
- Muckleshoot Indian Tribe
- Snoqualmie Indian Tribe
- Suquamish Indian Tribe
- Confederated Tribes and Bands of the Yakama Nation

USACE is releasing this draft EA and Draft Finding of No Significant Impacts (FONSI) for the proposed project for a 30-day public review and comment period. Details of the comment period are provided in the public notice.

8 ENVIRONMENTAL COMPLIANCE

This EA is being prepared pursuant to Sec. 102(C) of the NEPA and includes compliance with other laws, regulations, and Executive Orders as discussed below.

8.1 American Indian Religious Freedom Act

The American Indian Religious Freedom Act of 1978 (42 U.S.C. 1996) establishes protection and preservation of Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. Courts have interpreted the Act to mean that public officials must consider Native Americans' interests before undertaking actions that might impact their religious practices, including impact on sacred sites.

No alternative is expected to have any effect upon Native Americans' rights of freedom of belief, expression, and exercise of traditional religions. There are no known cultural resources or sacred sites at the project location.

8.2 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. A

USACE biologist did not observe any eagle nests at the project site during a site visit during the alternatives formulation phase. Additionally, as recommended by the U.S. Fish and Fish and Wildlife Service (USFWS), the biologist examined iNaturalist, which did not show any eagle nests in the project vicinity (iNaturalist 2024). The preferred alternative is not expected to cause take of either bald or golden eagles since there are no known nests near the project site.

8.3 Clean Air Act of 1972

The Clean Air Act as Amended (42 U.S.C. § 7401 et seq.) prohibits Federal agencies from approving any action that does not conform to an approved State or Federal implementation plan. The operation of heavy equipment, removal and placement of rock, and the operation of vehicles during construction would result in increased vehicle emissions and a slight increase in fugitive dust. These effects would be localized and temporary. The project area is not part of a non-attainment area (Ecology 2024). USACE has determined that the combination of emissions of the proposed rehabilitation work constitutes a routine facility rehabilitation generating an increase in emissions that is clearly *de minimis*, and thus a conformity determination is not required, pursuant to 40 C.F.R. 93.153 (c)(2)(iv).

8.4 Clean Water Act – 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). This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the U.S. 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.

This EA evaluates possible impacts to water quality, primarily with respect to water temperature. The proposed levee rehabilitation work does not require work in the active channel since all construction activities will take place above the OHWM (Appendix B). BMPs, including restrictions on fueling and prevention of fluid leaks from construction equipment, would be employed to minimize and avoid discharge of pollutants into the river (BMP #13, BMP #14, Section 2.6).

Three sections of the CWA are pertinent to the proposed action: Section 401 covers water quality and evaluation of the effects a discharge would have on water quality standards; Section 402 addresses non-point discharges including, but not limited to, stormwater runoff from construction sites; and Section 404 addresses discharge of fill into Waters of the U.S. Requirements of those three CWA sections are briefly discussed below.

8.4.1 Section 404 and 401

USACE is responsible for administration of Section 404 of the CWA. USACE does not issue Section 404 permits to itself for its own civil works activities, but USACE accepts responsibility for the compliance of its civil works projects with Sections 404 under the CWA for jurisdictional

activity. Pursuant to CWA Section 404(f)(1)(B), "[T]he discharge of dredged or fill 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 not prohibited by or otherwise subject to regulation under this section…" Pursuant to 33 U.S.C. 323.4(a)(2), the implementing definition of "maintenance" includes "emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design. Emergency reconstruction must occur within a reasonable period of time after damage occurs in order to qualify for this exemption."

The proposed levee rehabilitation work does not require placing fill below the OHWM and inside wetlands since all work will be above the OHWM and there are no jurisdictional wetlands under the CWA at the site (Section 8.4.

Therefore, the project is not subject to regulation under Section 404 of the CWA. The proposed project does not include fill requiring consideration under Section 404. Since the project does not result in any jurisdictional discharge into waters of the U.S., Section 401 Water Quality Certification is not required.

8.4.2 Section 402

Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. Proposed rehabilitation work to the Horseshoe Bend Levees do not exceed 1 acre of ground disturbance (Table 2-1, Section 2.4, Appendix B).

8.5 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 as amended (16 U.S.C. §1451-1464) requires Federal agencies to conduct activities in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved State Coastal Zone Management (CZM) Program, which includes certain state laws. USACE has determined that this project is substantively consistent with the enforceable polices of state of Washington, including the Washington Clean Air Act, Water Pollution Control Act, and the Shoreline Management Act (SMA). The SMA is locally implemented through the King County and city of Kent Shoreline Master Programs. USACE sent a CZMA Consistency Determination to Ecology requesting concurrence that the proposed rehabilitation work is consistent to the maximum extent practicable with the enforceable policies of the approved CZM Program on April 5, 2024. (Appendix D).

8.6 Endangered Species Act

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration

impacts to federally listed or proposed threatened or endangered species and their critical habitats.

USACE evaluated potential effects to endangered species in a Biological Assessment (BA) that was sent to the USFWS and NMFS on February 15, 2024. The BA contained an evaluation of effects of the proposed project on ESA-listed species and their critical habitat (Table 3-2). In the BA, USACE provided determinations for ESA-listed species and their critical habitat (Table 8-1). Due to their sensitivities to human encroachment, lack of suitable habitat, or because their presence is so transitory that any temporal affects to these species from construction activities would not be perceived as unusual, cause disruption of behavior or lead to measurable reduction in their prey base. USACE determined the project would adversely affect Chinook salmon, steelhead, and bull trout (Table 8-1).

Table 8-1. Summary of effects determinations for ESA-listed species and designated critical habitat. Determinations include No Effect, Not likely to Adversely Affect (NLAA), and May Effect, and is Likely to Adversely Affect (LAA).

Species	Species Effect Determination	Critical Habitat Determination
Chinook Salmon (*Oncorhynchus tshawytscha*)	NLAA	LAA
Steelhead (*Oncorhynchus mykiss*)	NLAA	LAA
Bull Trout (*Salvelinus confluentus*)	NLAA	LAA
Killer whale (*Orcinus orca*)	No Effect	No Effect
North American Wolverine (*Gulo gulo luscus*)	No Effect	No Effect
Marbled murrelet (*Brachyramphus marmoratus*)	No Effect	No Effect
Yellow-Billed Cuckoo (*Coccyzus americanus*)	No Effect	No Effect
Northwestern Pond Turtle (*Actinemys marmorata*)	No Effect	No Effect

USACE requested emergency consultation with the USFWS and NMFS under Section 7 of the ESA on February 15, 2024, according to regulations for interagency cooperation found at 50 C.F.R. § 402.5. On February 15, 2024, the NMFS acknowledged receipt of the request and assigned a tracking number (WCRO-2024-00297). On February 20, 2024, the USFWS acknowledged the project (2024-0016142).

Due to the urgent nature of completing temporary emergency actions during an ongoing flood event, USACE may proceed with construction prior to completion of the consultation with the Services pursuant to the "emergency circumstances" provisions of the ESA consultation regulation and may complete ESA consultation after the fact rather than delaying the urgent work to complete ESA consultation before construction begins. The applicable regulation is set out at 50 C.F.R. § 402.05 (a) and (b) and provides as follows:

a) Where emergency circumstances mandate the need to consult in an expedited manner, consultation may be conducted informally through alternative procedures that the Director determines to be consistent with the requirements of Section 7(a)-(d) of the Act. This provision applies to situations involving acts of God, disasters, casualties, national defense, or security emergencies, etc.
b) Formal consultation shall be initiated as soon as practicable after the emergency is under control. The Federal agency shall submit information on the nature of the emergency action(s), the justification for expedited consultation, and the impacts to endangered or threatened species and their habitats. The Service will evaluate such information and issue a biological opinion including the information and recommendations given during emergency consultation.

To facilitate conclusion of consultation prior to the necessary date to commence construction, in submitting its BA USACE has also requested expedited consultation pursuant to 50 C.F.R. § 402.14(l).

Though consultation is not complete, USACE has reached an agency determination of species/habitat effect, based on the best factual and technical information available at the time of decision, and following preliminary coordination with the Services.

USACE commits to fully funding and performing all Reasonable and Prudent Alternatives necessary to avoid the likelihood of jeopardy to listed species or destruction or adverse modification of designated critical habitat, as well as reasonable and prudent measures/terms and conditions necessary and appropriate to minimize the impact of Incidental Take.

This EA would be reevaluated after consultation is complete. If necessary, the EA would be supplemented with necessary and applicable corresponding modifications to the scope and/or nature of the project, the procedures and practices used to implement the project, and/or the type and extent of compensatory mitigation associated with the project, and the associated FONSI will be reassessed.

8.7 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Fishery Conservation and Management Act, (16 U.S.C. § 1801 et. seq.), as amended by the Sustainable Fisheries Act of 1996 (P.L. 104-267) requires Federal agencies to consult with NMFS regarding actions that may adversely affect essential fish habitat (EFH) for Pacific coast groundfish, coastal pelagic species, and Pacific salmon. The Act defined EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is the habitat (waters and substrate) required to support a sustainable fishery and a managed species' contribution to a healthy ecosystem. Waters include aquatic areas and their associated physical, chemical, and biological properties used by fish. Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities. The Green River is designated as EFH for Chinook, coho, and pink salmon and functions as a migration corridor, spawning habitat for adults, and rearing habitat for juveniles (Table 8-2).

USACE determined that the proposed action may adversely affect EFH designated for Chinook, coho and pink salmon (Table 8-2). Effects of the proposed work on EFH would be essentially identical to those discussed above for species in Section 5 and Section 8.6. There could be temporary impacts during construction to include increased noise, vibration, and removal of vegetation. There will be a period where the re-planted vegetation will need to mature to re-establish its ecological functions. The project results in a setback levee which allows for flood refuge habitat when flows reach about a 100-year flood.

Table 8-2. Essential fish habitat species and their life history stages that in the project area.

Scientific Name	Common Name	Adult	Juvenile	Larvae	Egg
Oncorhynchus tshawytscha	Chinook salmon	X	X		
Oncorhynchus kisutch	Coho Salmon	X	X		
Oncorhynchus gorbuscha	Pink Salmon	X	X		

USACE outlined these effects from the rehabilitation work in a sent to the NMFS on February 15, 2024, requesting formal consultation. Consultation with the NMFS and the USFWS is ongoing.

8.8 MIGRATORY BIRD TREATY ACT OF 1918 AND EXECUTIVE ORDER 13186, RESPONSIBILITIES OF FEDERAL AGENCIES TO PROTECT MIGRATORY BIRDS

The Migratory Bird Treaty Act (16 U.S.C. § 703-712) protects more than 800 bird species and their habitat and commits the U.S. to take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations. EO 13186 directs Federal agencies to evaluate the effects of their actions on

migratory birds, with emphasis on species of concern, and inform USFWS of potential negative effects to migratory birds.

Birds inhabit the riparian area of the Green River all year, and the proposed work may overlap with some nesting seasons. Nesting seasons vary by species; however, the majority of local bird species nest between February through July (ESCP 2016). USACE must complete the proposed heavy equipment work between August 1, 2024, and October 30, 2024, and anticipates requiring 20 days for construction. Construction activity will only be limited to daylight hours and will be intermittent (Section 2.6). A site investigation was conducted on November 8, 2023, by a USACE biologist and no nests were observed in the project area.

Work is proposed after the prime nesting season (April to mid-June) to comply with the in-water work window (July 1 to August 31). Trees that may provide nesting to migratory birds would be removed. Plantings to offset tree removal would provide good nesting habitat as the plantings mature. Implementation of the Preferred Alternative would not have any direct, affirmative, or purposeful negative effect to migratory birds. There would be no adverse effect on habitat and the project would only have minimal and temporary incidental effects to a small number of individual birds that may be present in the project area. No permit application for “take” of migratory birds is required.

8.9 National Environmental Policy Act

The NEPA (42 U.S.C. § 4321 et seq.) commits Federal agencies to considering, documenting, and publicly disclosing the environmental effects of their actions. It requires that an Environmental Impact Statement (EIS) be included when a recommendation or report on proposals for legislation and other major Federal actions significantly affects the quality of the human environment. Major Federal actions determined not likely to have significant effects on the quality of the human environment may be evaluated through an EA.

This draft EA evaluates the environmental effects requiring NEPA compliance with the proposed 2024 Horseshoe Bend Levee Rehabilitation Project.

8.9.1 NEPA / Proposed Action

The prospective Federal action is the proposed rehabilitation of the Horseshoe Bend Levee as discussed in the body of this draft EA. This draft EA has been prepared pursuant to NEPA. Effects on the quality of the human environment as a result of the proposed levee rehabilitation are anticipated to be less than significant. A draft FONSI has also been prepared and is being circulated for public comment (Appendix G).

8.9.2 NEPA Summary

This draft EA/FONSI is available for public review and comment. USACE invites submission of comments on the environmental impact of the proposed action. USACE would consider all submissions received during the comment period. The nature or scope of the proposal may be changed upon consideration of the comments received and this EA updated. If significant

effects on the quality of the human environment are identified and cannot be mitigated for, USACE would initiate an EIS and afford all the appropriate public participation opportunities attendant to an EIS.

8.10 Comments and responses will be included in Appendix G of the final EA. National Historic Preservation Act of 1966

Section 106 of the NHPA (16 U.S.C. § 470) requires that Federal agencies evaluate the effects of Federal undertakings on historical, archeological, and cultural resources and afford the Advisory Council on Historic Preservation opportunities to comment on the proposed undertaking if there is an adverse effect to an eligible Historic Property.

As described in Section 3.7, the Horseshoe Bend Levee Rehabilitation Project will not adversely affect historic properties. USACE determined and documented the APE for both direct and indirect effects, as required at 36 C.F.R § 800.4 and determined there would be no historic properties affected by the projects. The Washington State Historic Preservation Officer (SHPO) has concurred with the APEs and USACE's findings. Concurrence letters from SHPO are in Appendix C.

8.11 Native American Tribal Treaty Rights & Tribal Consultation under EO 13175, Consultation and Coordination with Indian Tribal Governments

The United States has a unique, legally affirmed Nation-to-Nation relationship with American Indians and Alaska Native Tribal Nations, which is recognized under the Constitution of the United States, treaties, statutes, EOs, and court decisions. The United States recognizes the right of Tribal Governments to self-govern and supports Tribal sovereignty and self-determination. The United States also has a unique trust relationship with and responsibility to protect and support Tribal Nations.

Between 1778 and 1871, the United States entered into about 400 treaties with various Indian nations on a government-to-government basis. Under the United States Constitution, treaties are accorded precedence equal to Federal law. Treaty rights are binding on all Federal and state agencies, and take precedence over State constitutions, laws, and judicial decisions. Treaty terms, and the rights arising from them, cannot be rescinded, or cancelled without explicit and specific evidence of Congressional intent – indicating that Congress was aware of the conflict between its intended action on the one hand and Indian treaty rights on the other, and chose to resolve the conflict by abrogating the treaty. A right enumerated in a treaty ratified by the Senate may only be superseded by a subsequent act of Congress.

USACE has a trust policy to consult with, and consider views of, Federally recognized American Indian Tribes when proposing an action that may have the potential to significantly affect tribal rights, resources and lands. See Department of Defense Instruction 4710.02, Section 3, Subject: DOD Interactions with Federally Recognized Tribes (September 24, 2018). USACE

discharges that duty by notifying, consulting with, and meaningfully considering tribal concerns that are raised through this consultation process.

In the 1850s, in exchange for the cession of their ancestral lands, numerous Tribes in the Pacific Northwest entered treaties with the United States to secure for themselves, amongst other considerations, the preservation of fishing rights in the ceded areas. These treaties were negotiated and signed by the then-Governor of the Washington Territory, Isaac I. Stevens, and are collectively known as the "Stevens Treaties."

In 1974, many (but not all) of the Stevens Treaties signatory Tribes' "usual and accustomed grounds" within Puget Sound were delineated in a Federal court adjudication, *United States v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974). The Stevens treaties reserved the signatory Tribes' right to "take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory." *Id.* at 332. Federal case law has recognized that the signatory Tribes also reserved the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds (Fair Share). Over the years, the courts have held that this right also comprehends certain subsidiary rights, such as access to their "usual and accustomed" fishing grounds. *See Nw. Sea Farms v. U.S. Army Corps of Eng'rs*, 931 F. Supp 1515 (W.D. Wash. 1996).

USACE has evaluated impacts to fish and wildlife in this project and sent letters to the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, Suquamish Indian Tribe, and the Confederated Tribes and Bands of the Yakama Nation requesting comments on the proposed project and providing the opportunity to conduct a site visit. USACE received a response letter from the Muckleshoot Indian Tribe on February 21, 2024, accepting the offer to conduct a site visit. The site visit occurred on February 27, 2024. Written comments from the Muckleshoot Tribe were received on January 17, 2024, requesting more information about the levee rehabilitation project. USACE response was provided on February 9, 2024, providing that requested information to the Tribe. A subsequent email was sent to USACE by the Muckleshoot Indian Tribe on March 22, 2024, providing comments and feedback on design features of the levee rehabilitation project, and on April 24, 2024, USACE responded to those comments on the design. The response was acknowledged on the same day.

8.12 EXECUTIVE ORDER 11988 FLOODPLAIN MANAGEMENT

EO 11988 requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The proposed project will rehabilitate an existing levee that will incorporate the city of Kent's setback levee which provides at least the same LOP as the existing Horseshoe Bend Levee. Tying in the Horseshoe Bend Levee with the setback levee will increase the floodplain access for aquatic species during high river flow events by 2.1 acres. Setback levees are consistent with Executive Order 11988 (Dahl et al. 2017).

8.13 EXECUTIVE ORDER 11990 PROTECTION OF WETLANDS

EO 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. There are no wetlands located within the project area (Figure 3, Appendix B)

9 SUMMARY OF ASSESSMENT

The No-Action Alternative (Alternative 1) does not meet the project's purpose and need. The Preferred Alternative (Alternative 5) fulfills the project's purpose and need by restoring the LOP to the degree practicable in a more resilient and stable way than their pre-damaged condition. Based on the analysis above, the proposed Horseshoe Bend Levee Rehabilitation Project would not constitute a major Federal action significantly affecting the quality of the human environment, and therefore does not require preparation of an EIS.

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11 APPENDICES

(A) Site Photographs

(B) Design Plans

(C) Cultural Resources Coordination

(D) Environmental Justice Analysis

(E) Coastal Zone Management Act Coordination

(F) Endangered Species Act Coordination

(G) Public Comments

APPENDIX A – SITE PHOTOGRAPHS (NOV. 8, 2023)

Photo A-1. Horseshoe Bend Levee from the north end of the levee crown, looking upriver along the Green River, Kent, WA.

Photo A-2 Horseshoe Bend Levee from the middle of the levee crown (looking downriver toward the location of Photo A-1).

Photo A-3. Vegetation on the riverward slope of the Horseshoe Bend Levee. The photo was taken in the middle of the levee crown.

Photo A-4. The Puget Sound Energy facility that the ring dike will be built around. Photo was taken facing landward from the middle of the levee crown.

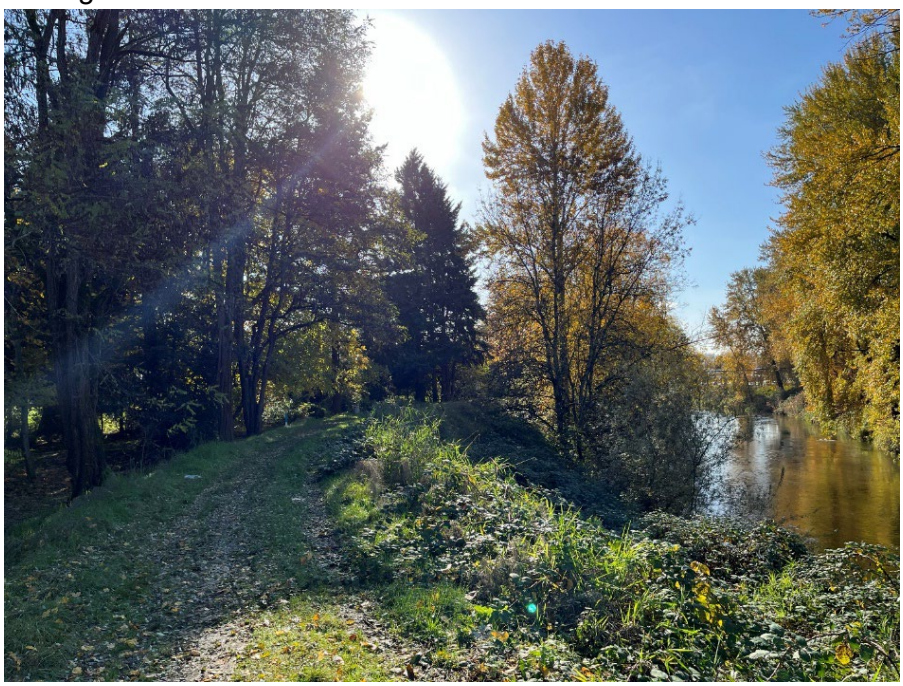


Photo A-5. The southern portion of the existing levee crown. Photo was taken from the middle of the levee facing south (upriver).

Photo A-6. The ring dike construction will avoid removing these mature redwood trees located southeast of the Puget Sound Energy facility.

Photo A-7. Vegetation on the north end of the Puget Sound Energy facility that will need to be removed for the construction of the ring dike.

Photo A-8. Invasive species located on the riverward slope of the Horseshoe Bend levee. This photo was taken from the middle of the levee crown and facing north (downstream).

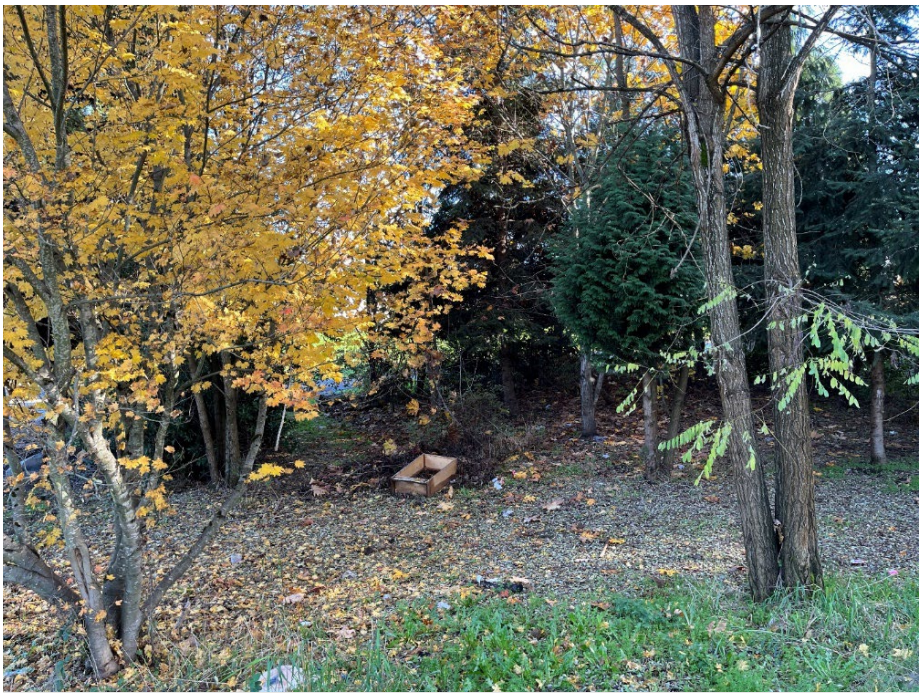


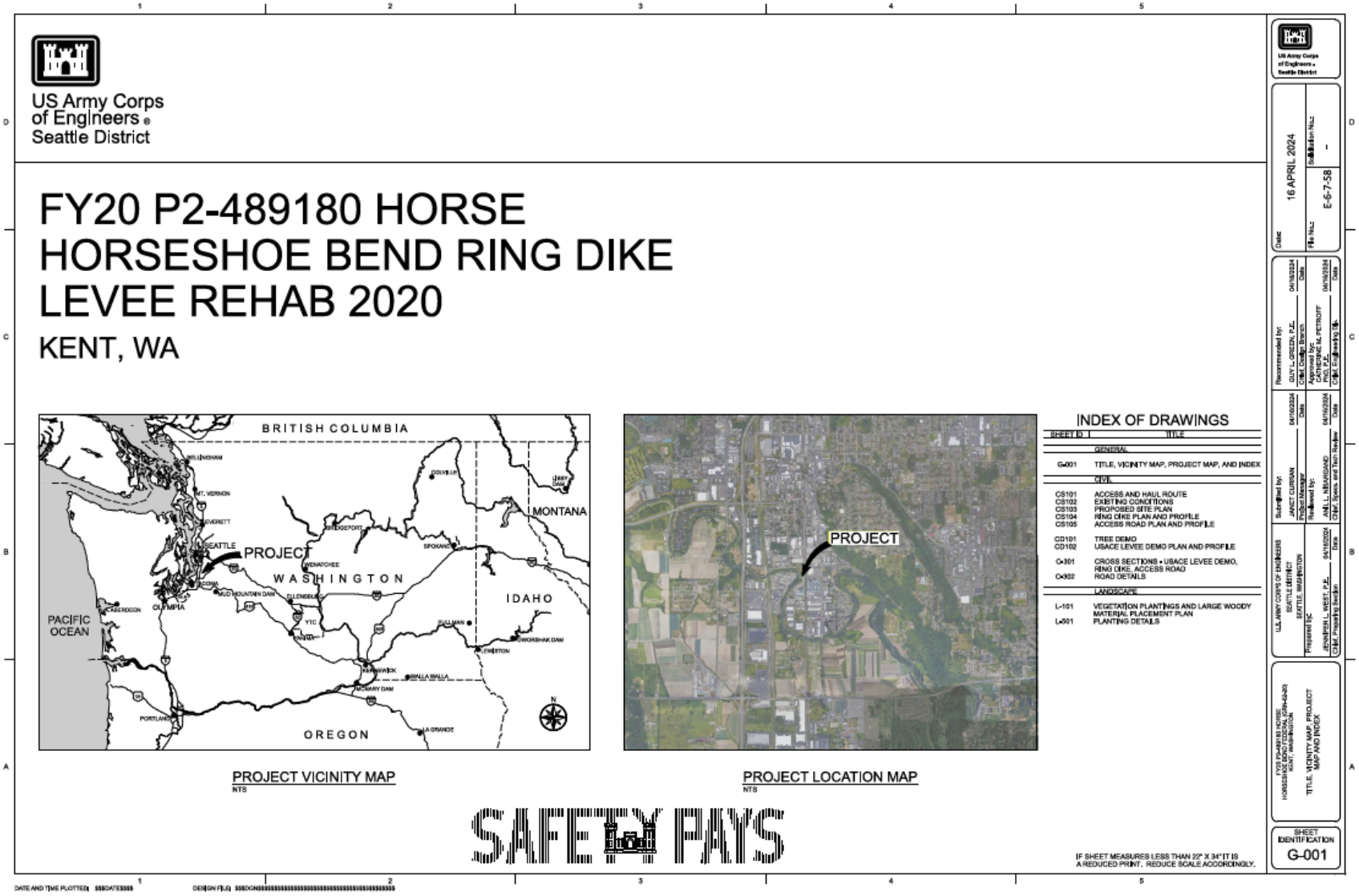
Photo A-9. Vegetation on the southern end of the Puget Sound Energy facility that will need to be partially removed for the construction of the ring dike. This photo was taken from the middle of the levee crown and faces east (landward from the levee crown).

Photo A-10. This photo highlights the existing conditions of the Horseshoe Bend Levee and the steepness of the riverward levee slope. The photo was taken at the riverbank, facing north (upriver).

Photo A-11. This photo highlights the existing conditions of the Horseshoe Bend Levee and the steepness of the riverward levee slope. The photo was taken near the riverbank facing north (downriver).

Photo A-12. This photo highlights the existing vegetation of the Horseshoe Bend Levee and the steepness of the riverward levee slope.

APPENDIX B – DESIGN PLANS



A1 ACCESS AND HAUL ROUTE

GENERAL NOTES:

1. PROJECT ACCESS: FROM HWY 516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST. THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST. ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST, AND FROM S 251ST ST .
2. HORIZONTAL CONTROL BASED ON WASHINGTON STATE PLANE COORDINATE SYSTEM NORTH ZONE, NAD83.
3. VERTICAL CONTROL BASED ON NAVD88.
4. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
5. NO WORK TO OCCUR WITHIN THE POSSIBLE WETLAND.
6. ALL WORK ACTIVITIES AND STAGING SHALL BE LIMITED TO THE CONSTRUCTION FOOTPRINT.
7. ALL WORK ACTIVITY AREAS AND STAGING AREAS WILL BE COVERED IN TOPSOIL, HYDROSEEDED, AND MATCH THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ALL DISTURBED AREAS AND TOPSOIL WILL BE HYDROSEEDED.
8. NO HYDROSEED WILL BE PLACE ON ARBORIST CHIPS.
9. PROTECT SEQUOIA AND OTHER TREES WITHIN THE DRIPLINE OF THE TREES.
10. TREES CUT DURING DEMOLITION SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED ALONG THE FACE OF THE EXISTING USACE FEDERAL LEVEE WITH THE ROOT WADS LYING TOWARDS THE RIVER. TREES WILL NOT BE PLACED BELOW OHWM. SEE SHEET L#101 FORE MORE DETAIL.

US Army Corps of Engineers®

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

ACCESS AND HAUL ROUTE

SHEET ID
CS101

100% DESIGN SUBMITTAL

A1 EXISTING CONDITIONS

GENERAL NOTES:

1. PROJECT ACCESS: FROM WA-516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST, THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST, ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST, AND FROM S 261ST ST ,
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US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

Designed by:	
Drawn by:	
Checked by:	
Approved by:	
Date:	
Project Manager:	
Project Engineer:	
Contract No.:	
Title:	

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

1729 PUMP STATION
HORSESHOE BEND FEDERAL LEVEE (RM 64.6)
KENT, WASHINGTON

EXISTING CONDITIONS

SHEET ID
CS102

100% DESIGN SUBMITTAL


GENERAL NOTES:
1. PROJECT ACCESS: FROM WA-516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST, THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST, ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST. AND FROM S 261ST ST.
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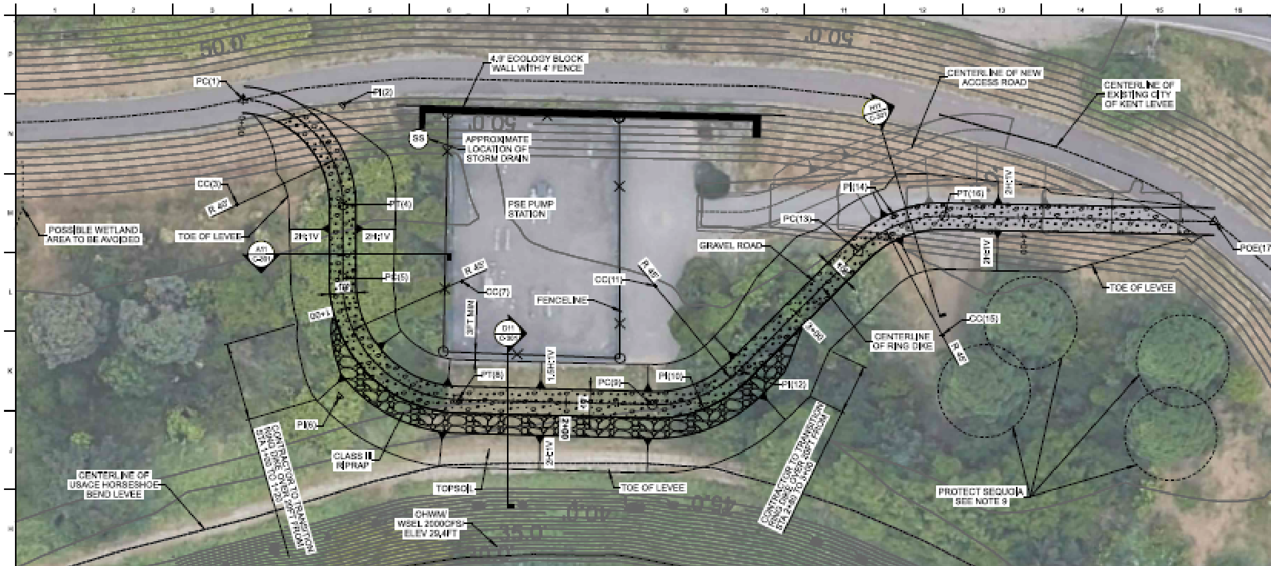
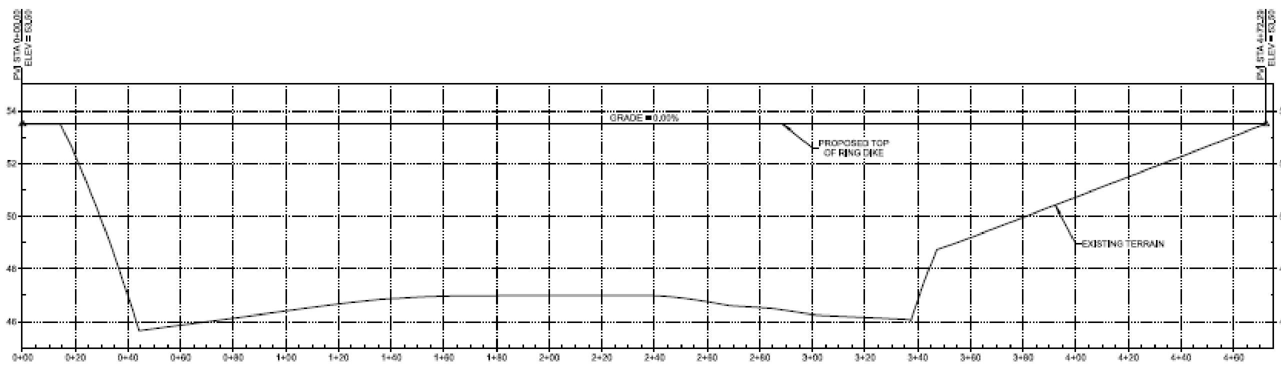
BURLINGTON NORTHERN RAILROAD
S 259TH ST
1ST AVE S
80TH AVE S
4.5' ECOLOGY BLOCK WALL WITH 4" FENCE
CENTERLINE OF NEW ACCESS ROAD
EXISTING GRAVEL ACCESS ROAD TO PUMP STATION
STAGING AREA SEE NOTE 6
ACCESS ROUTE TO SITE
APPROXIMATE LOCATION OF STORM DRAIN
FENCELINE
PSE PUMP STATION
ACCESS ROUTE TO SITE
CLEARING LIMITS/ PROJECT LIMITS
CENTERLINE OF HORSESHOE BEND RING DIKE
POSSIBLE WETLAND AREA TO BE AVOIDED
STAGING AREA SEE NOTE 6
CENTERLINE OF CITY OF KENT LEVEE
S 261ST ST
CENTERLINE OF DEMOLISHED USACE HORSESHOE BEND LEVEE
S 259TH ST
OHWM/ WSEL 2000CFS ELEV 29.4FT
FLOW
GREEN RIVER
ACCESS ROUTE TO SITE
79TH AVE S
ACCESS ROUTE TO SITE
A1 PROPOSED SITE PLAN
US Army Corps of Engineers
U.S. ARMY CORPS OF ENGINEERS SEATTLE DISTRICT SEATTLE, WASHINGTON
PROPOSED SITE PLAN
SHEET ID
CS103
100% DESIGN SUBMITTAL



G1 HORSESHOE BEND RING DIKE - PLAN VIEW

1" = 20'



A1 HORSESHOE BEND RING DIKE - PROFILE VIEW

H: 1" = 20'
V: 1" = 2'

GENERAL NOTES:

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SHEET SPECIFIC NOTES:

11. THE RING DIKE WILL ALSO BE GRADED AT THE BASE TO MAINTAIN POSITIVE DRAINAGE TOWARD THE RIVER AT THE BASE OF THE RING DIKE.

RING DIKE HORIZONTAL CONTROL POINTS

	Station	Northing	Easting
Element: Circular			
PC (1)	0.000	137834.118	1293485.495
PI (2)	37.908	137796.264	1293483.460
CC (3)		137836.264	1293455.552
PT (4)	60.684	137796.264	1293455.552
Radius:	40.000		
Element: Linear			
PT (4)	60.684	137796.264	1293455.552
PC (5)	88.319	137796.264	1293427.917
Tangential Direction:		N90.000°W	
Tangential Length: 27.635			
Element: Circular			
PC (5)	88.319	137796.264	1293427.917
PI (6)	133.319	137797.490	1293382.934
CC (7)		137751.281	1293426.692
PT (8)	159.005	137752.507	1293381.709
Radius:	45.000		
Element: Linear			
PT (8)	159.005	137752.507	1293381.709
PC (9)	232.820	137678.719	1293379.699
Tangential Direction:		S1.560°W	
Tangential Length: 73.815			
Element: Circular			
PC (9)	232.820	137678.719	1293379.699
PI (10)	252.182	137659.365	1293379.171
CC (11)		137677.494	1293424.682
PT (12)	269.388	137645.674	1293392.862
Radius:	45.000		
Element: Linear			
PT (12)	269.388	137645.674	1293392.862
PC (13)	333.352	137600.445	1293438.091
Tangential Direction:		S45.000°E	
Tangential Length: 63.964			
Element: Circular			
PC (13)	333.352	137600.445	1293438.091
PI (14)	352.625	137586.887	1293451.649
CC (15)		137568.625	1293406.272
PT (16)	369.602	137567.718	1293451.262
Radius:	45.000		
Element: Linear			
PT (16)	369.602	137567.718	1293451.262
POE (17)	472.290	137465.051	1293449.193
Tangential Direction:		S1.155°W	
Tangential Length: 102.688			

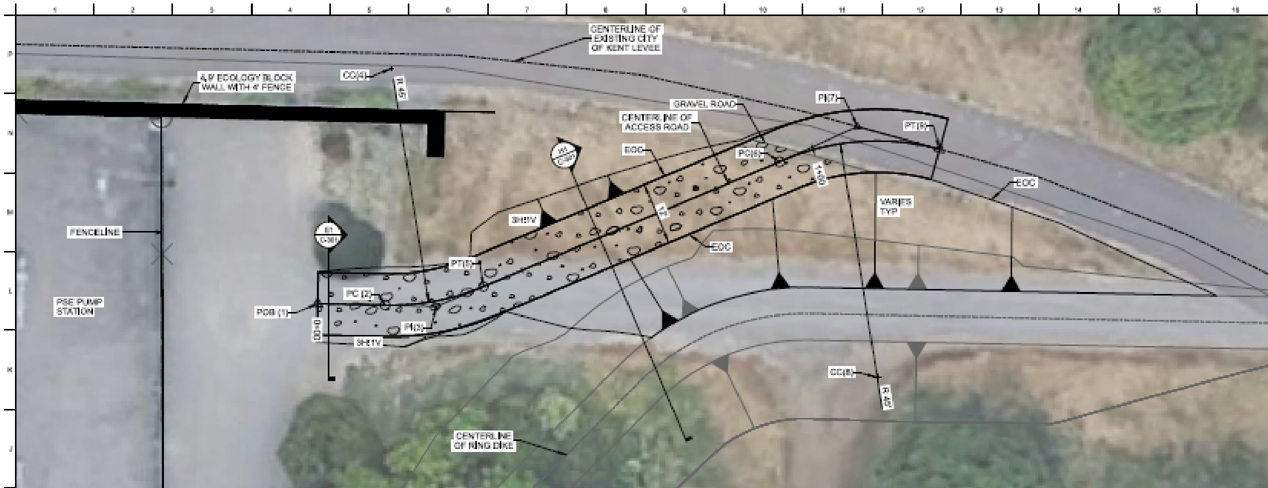
US Army Corps of Engineers

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

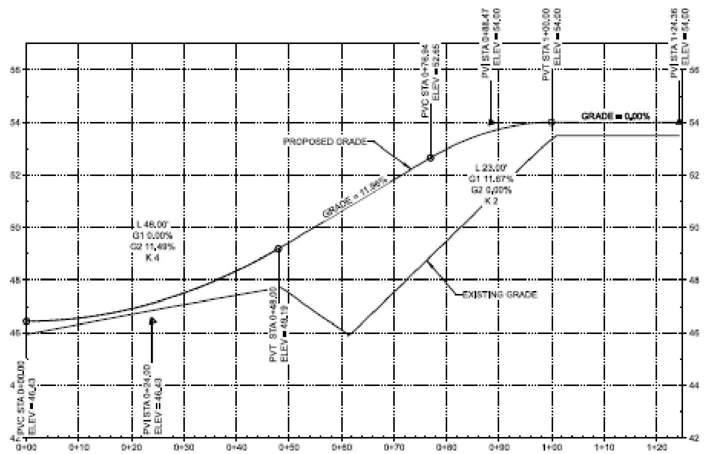
HORSESHOE BEND RING DIKE PLAN AND PROFILE

SHEET ID
CS104

100% DESIGN SUBMITTAL



A1 PSE PUMP STATION ACCESS ROAD - PLAN VIEW



A1 PSE PUMP STATION ACCESS ROAD - PROFILE VIEW

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1. PROJECT ACCESS: FROM WA-516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST, THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST, ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST, AND FROM S 261ST ST .
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8. NO HYDROSEED WILL BE PLACE ON ARBORIST CHIPS.
9. PROTECT SEQUOIA AND OTHER TREES WITHIN THE DRIPLINE OF THE TREES.
10. TREES CUT DURING DEMOLITION SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED ALONG THE FACE OF THE EXISTING USACE FEDERAL LEVEE WITH THE ROOT WADS LYING TOWARDS THE RIVER, TREES WILL NOT BE PLACED BELOW OHWM. SEE SHEET L-101 FORE MORE DETAIL.

ACCESS ROAD HORIZONTAL CONTROL POINTS

		Station	Northing	Easting
Element: Linear				
POB	(1)	0.000	137661.635	1293453.154
PC	(2)	12.845	137648.693	1293452.895
Tangential Direction:			S1.155°W	
Tangential Length:			12.845	
Element: Circular				
PC	(2)	12.845	137648.693	1293452.895
PI	(3)	22.586	137638.955	1293452.624
CC	(4)		137647.442	1293497.878
PT	(5)	32.031	137629.978	1293456.405
Radius:		45.000		
Element: Linear				
PT	(5)	32.031	137629.978	1293456.405
PC	(6)	93.193	137573.610	1293480.141
Tangential Direction:			S22.836°E	
Tangential Length:			61.162	
Element: Circular				
PC	(6)	93.193	137573.610	1293480.141
PI	(7)	109.433	137558.816	1293486.840
CC	(8)		137555.047	1293439.148
PT	(9)	124.364	137543.153	1293482.548
Radius:		45.000		

ACCESS ROAD VERTICAL CONTROL POINTS

	STATION	ELEVATION
Element: Symmetrical Parabola		
PVC	0.000	46.432
PVI	24.000	46.434
PVT	48.000	49.192
Length:	48.000	
Element: Linear		
PVT	48.000	49.192
PVC	76.940	52.653
Element: Symmetrical Parabola		
PVC	76.940	52.653
PVI	88.470	53.998
PVT	100.000	53.998
Length:	23.000	
Element: Linear		
PVT	100.000	53.998
POE	124.364	54.000

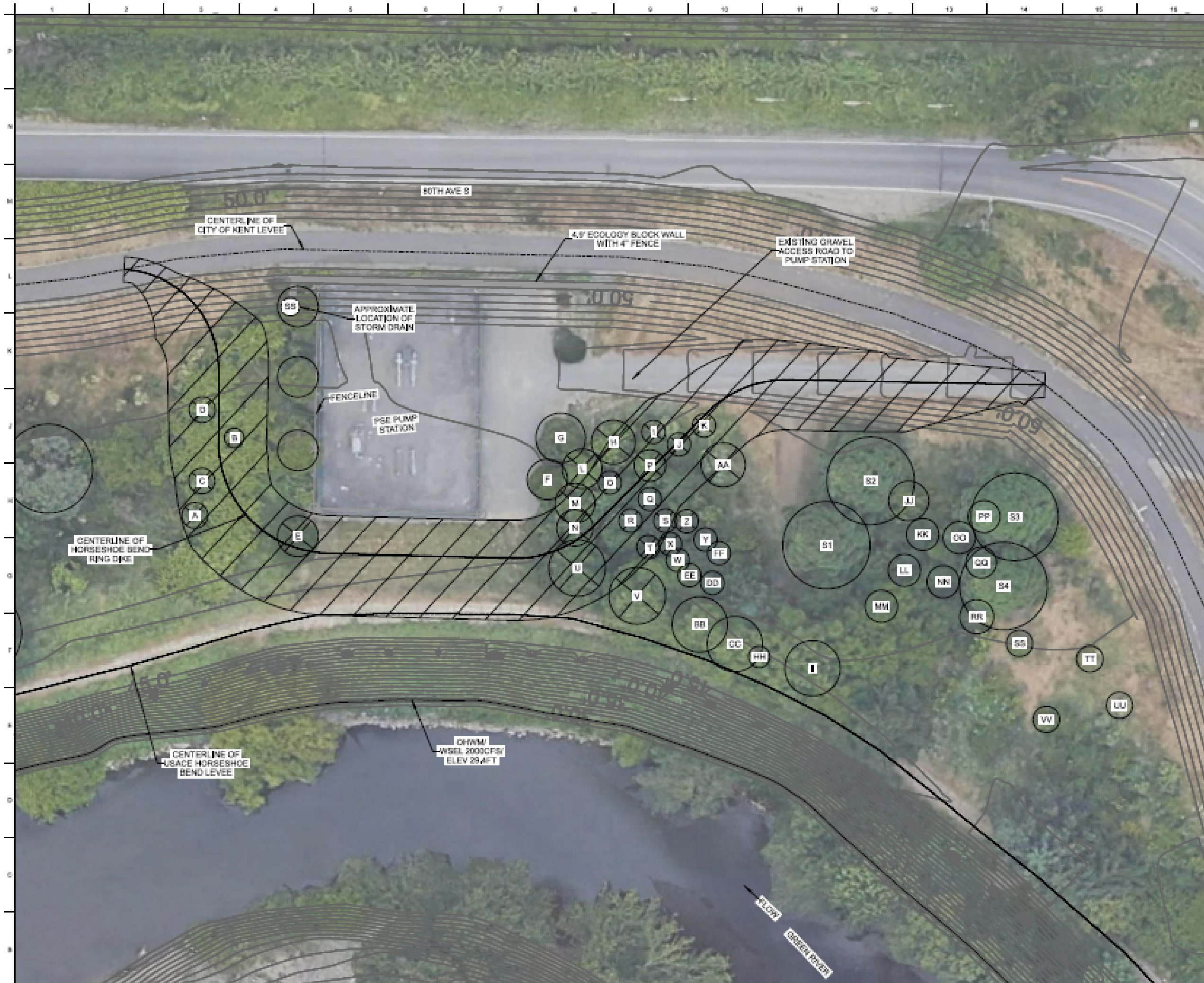
US Army Corps of Engineers

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

PSE PUMP STATION
ACCESS ROAD PLAN AND PROFILE

SHEET ID
CS105

100% DESIGN SUBMITTAL



A1 TREE DEMOLITION

GENERAL NOTES:

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LEGEND

EXTENTS OF RING DIKE / DEMO AREA OF TREES TO BE REMOVED SEE NOTE 10

GRAVEL

FENCE

CENTERLINE

TREE DRIPLINE

DEMOLISHED TREE

LIST OF TREES

TREE	DIA (ft)	DEMOLISHED	TREE	DIA (ft)	DEMOLISHED
A	0.51	YES	AA	0.67	YES
B	0.60	YES	BB	1.88	
C	0.29	YES	CC	1.62	
D	0.51	YES	DD	0.54	
E	2.77	YES	EE	0.60	
F	2.16		FF	0.67	
G	1.78		GG	0.41	
H	0.48	YES	HH	2.39	
I	0.70	YES	II	2.55	
J	0.64	YES	JJ	0.64	
K	0.60	YES	KK	0.45	
L	0.73	YES	LL	0.35	
M	0.76	YES	MM	0.29	
N	0.80	YES	NN	0.48	
O	0.80	YES	OO	0.38	
P	0.67	YES	PP	0.41	
Q	0.73	YES	QQ	0.48	
R	0.38	YES	RR	0.54	
S	0.76	YES	SS	0.48	
T	1.40	YES	TT	0.45	
U	1.59	YES	UU	0.64	
V	2.58	YES	VV	0.35	
W	0.51		S1	7.96	
X	0.29	YES	S2	6.14	
Y	0.67		S3	5.22	
Z	0.54	YES	S4	5.60	

TOTAL DEMOLISHED TREES : 23*

*CONSERVATIVE ESTIMATE OF TREES TO BE DEMOLISHED

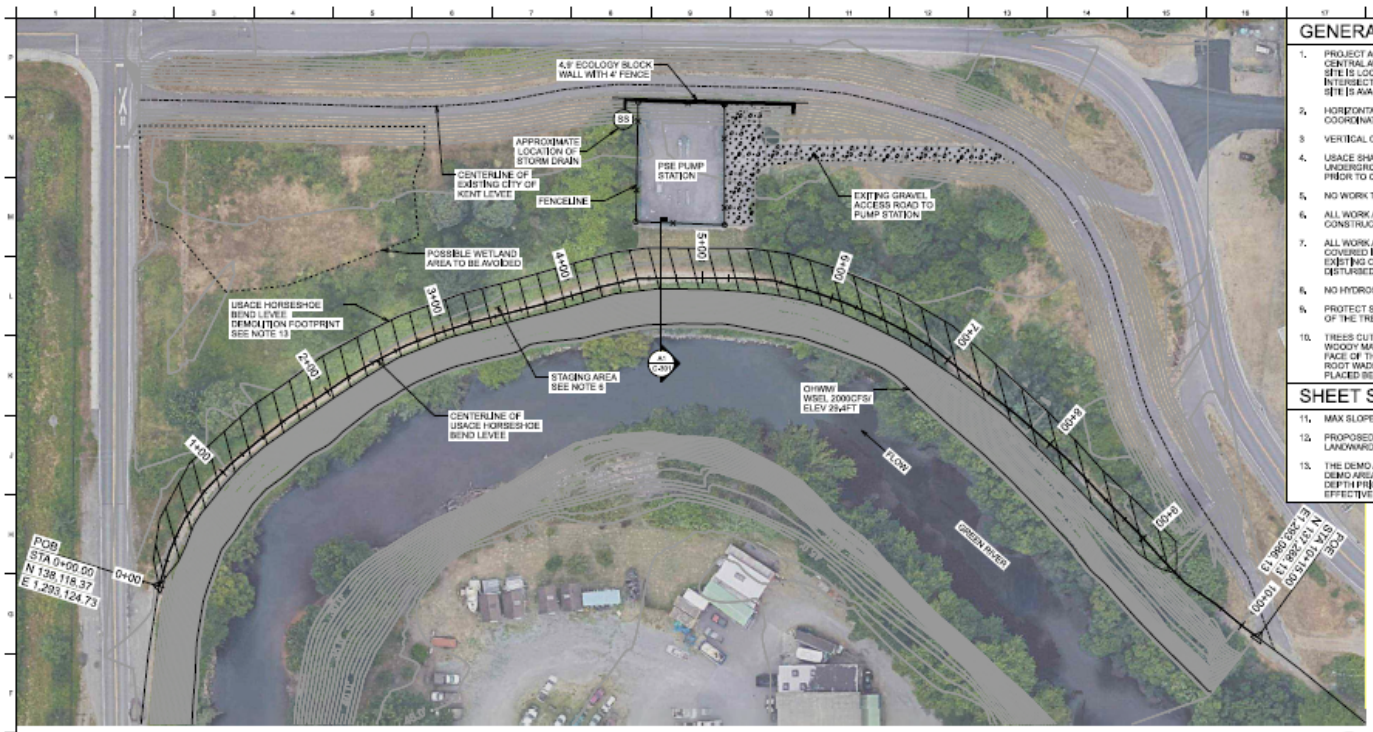
US Army Corps of Engineers

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

TREE DEMOLITION

SHEET ID CD101

100% DESIGN SUBMITTAL



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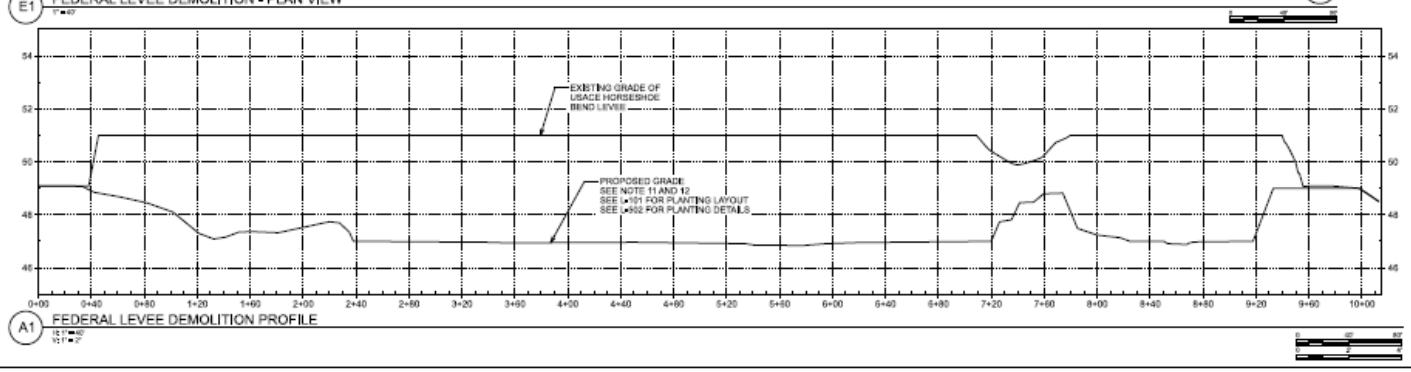
SHEET SPECIFIC NOTES:

11. MAX SLOPE OF 6H:1V ALLOWED FOR PROPOSED GRADE
12. PROPOSED GRADE TO MATCH THE EXISTING GRADE LANDWARD OF USACE HORSESHOE BEND LEVEE
13. THE DEMO AREA WILL BE USED AS A PLANTING AREA. THIS DEMO AREA WILL BE SCARIFIED DOWN TO AT LEAST A 1FT DEPTH PRIOR TO TOPSOIL PLACEMENT TO ENSURE EFFECTIVE ROOTING AND GROWTH OF THE PLANTS.

E1 FEDERAL LEVEE DEMOLITION - PLAN VIEW



A1 FEDERAL LEVEE DEMOLITION PROFILE

US Army Corps of Engineers

FEDERAL LEVEE DEMOLITION PLAN AND PROFILE

SHEET ID CD102

100% DESIGN SUBMITTAL

TABLE 1: RIPRAP GRADATIONS (ASSUMED SPECIFIC GRAVITY = 2.60)		
DISTRIBUTION	CLASS II	
	WEIGHT (LB)	DIAMETER (IN)
100% SMALLER THAN	1500	27
50% SMALLER THAN	300	17
15% SMALLER THAN	55	10
Cu	-	2.2
ALLOWED DEVIATION	+/- 10%	+/- 5%

TABLE 2: ENGINEERED EMBANKMENT GRADATION	
SIEVE SIZE	PERCENT PASSING BY WEIGHT
3-INCH	100
2-INCH	80-100
1-INCH	70-90
1/2 INCH	55-85
NO. 4	35-75
NO. 40	15-50
NO. 200	10-15

TABLE 3: ENGINEERED TOPSOIL GRADATION	
SIEVE SIZE	PERCENT PASSING BY WEIGHT
1/2 INCH	100
NO. 4	75-100
NO. 10	40-75
NO. 18	25-65
NO. 40	25-60
NO. 200	10-20

TABLE 4: MATERIAL QUANTITIES							
SITE	LENGTH (FEET)	CLASS II RIPRAP (CY)	EMBANKMENT SOIL (CY)	GRAVEL (CY)	TOPSOIL (ACRES)	HYDROSEED (ACRES)	MULCH (ACRES)
USACE LEVEE DEMO	1011	-	1890	-	0.48	0.42	0.07
RING DIKE	474	308	2443	58	0.27	0.27	-
ACCESS ROAD	110	-	10	27	0.05	0.05	-

*INCLUDES QUANTITIES FOR RESTORATION TO MATCH EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

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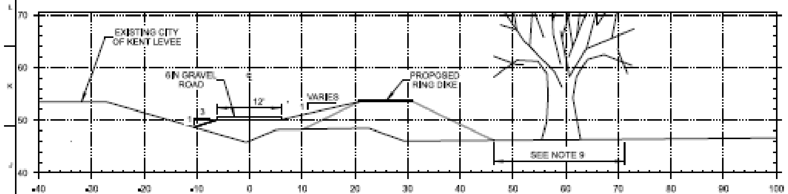
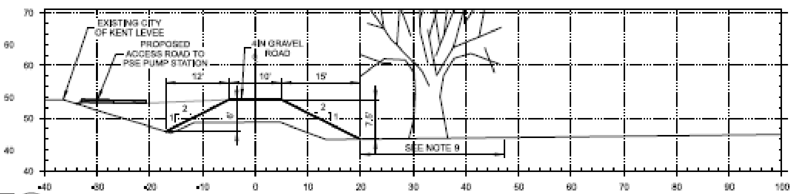
SHEET SPECIFIC NOTES:

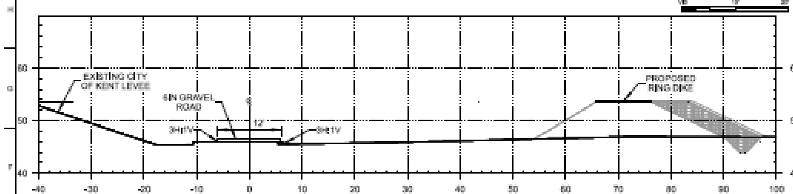
11. SOIL FROM THE EXISTING USACE HORSESHOE BEND LEVEE EMBANKMENT TO BE REUSED ALONG THE EMBANKMENT. EMBANKMENT SOIL SHALL CONFORM TO THE GRADATIONS IN TABLE 2 C-301.
12. TOPSOIL PLANTING MATRIX SHALL CONSIST OF A 95/5 MIXTURE OF SOIL AND ORGANIC COMPOST. ENGINEERED TOPSOIL SHALL CONFORM TO THE GRADATION IN TABLE 3 ON C-301 AND SHALL BE FREE OF ROOTS, CHEMICALS, GARBAGE, AND DEBRIS.



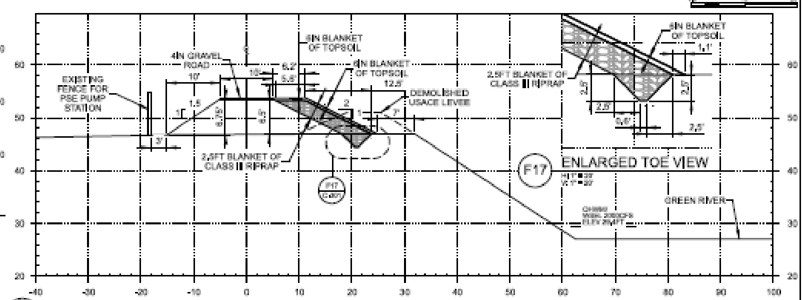
H1 ACCESS ROAD CROSS SECTION STA 0+60
H: 1" = 10'
V: 1" = 10'



H11 RING DIKE CROSS SECTIONS STA 3+60
H: 1" = 10'
V: 1" = 10'

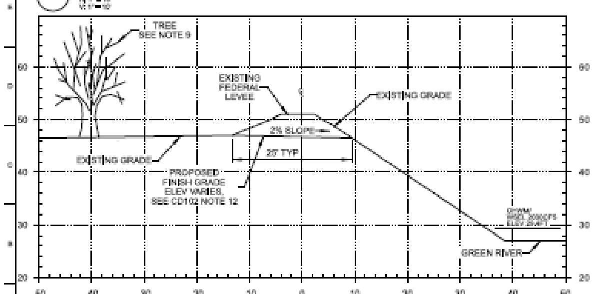


E1 ACCESS ROAD CROSS SECTION STA 0+00
H: 1" = 10'
V: 1" = 10'

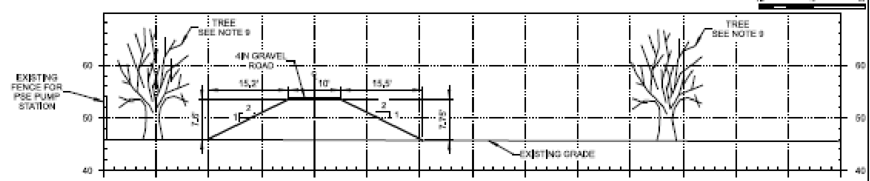


F17 ENLARGED TOE VIEW

D11 RING DIKE CROSS SECTIONS STA 1+80
H: 1" = 10'
V: 1" = 10'



A1 USACE LEVEE DEMO TYPICAL CROSS SECTION
H: 1" = 10'
V: 1" = 10'



A11 RING DIKE CROSS SECTIONS STA 0+60
H: 1" = 10'
V: 1" = 10'

US Army Corps of Engineers®

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

CROSS SECTIONS
USACE LEVEE DEMO, RING DIKE, ACCESS ROAD

SHEET ID
C-301

100% DESIGN SUBMITTAL

A1 VEGETATION PLANTINGS AND LARGE WOODY MATERAIL PLACEMENT PLAN

GENERAL NOTES:

1. PROJECT ACCESS: FROM WA-516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST. THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST. ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST, AND FROM S 261ST ST.
2. HORIZONTAL CONTROL BASED ON WASHINGTON STATE PLANE COORDINATE SYSTEM NORTH ZONE, NAD83.
3. VERTICAL CONTROL BASED ON NAVD88.
4. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
5. NO WORK TO OCCUR WITHIN THE POSSIBLE WETLAND.
6. ALL WORK ACTIVITIES AND STAGING SHALL BE LIMITED TO THE CONSTRUCTION FOOTPRINT.
7. ALL WORK ACTIVITY AREAS AND STAGING AREAS WILL BE COVERED IN TOPSOIL, HYDROSEEDED, AND MATCH THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ALL DISTURBED AREAS AND TOPSOIL WILL BE HYDROSEEEDED.
8. NO HYDROSEED WILL BE PLACE ON ARBORIST CHIPS.
9. PROTECT SEQUOIA AND OTHER TREES WITHIN THE DRIPLINE OF THE TREES.
10. TREES CUT DURING DEMOLITION SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED ALONG THE FACE OF THE EXISTING USACE FEDERAL LEVEE WITH THE ROOT WADS LYING TOWARDS THE RIVER. TREES WILL NOT BE PLACED BELOW OHWM. SEE SHEET L-101 FORE MORE DETAIL.

SHEET SPECIFIC NOTES:

11. SEE SHEET L-501 FOR PLANTING DETAILS OF TREES AND SHRUBS.

LEGEND:

(symbol)	GRAVEL
(symbol)	FENCE
(symbol)	CENTERLINE
(symbol)	LARGE WOODY MATERIAL (LWM)
(symbol)	TREE AND SHRUB PLANTING AREA

US Army Corps of Engineers

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

VEGETATION PLANTINGS AND LARGE WOODY MATERIAL PLACEMENT PLAN

SHEET ID

L-101

100% DESIGN SUBMITTAL

GENERAL NOTES

1. PROJECT ACCESS: FROM WA-516/WILLIS ST TURN RIGHT ONTO CENTRAL AVE S, TURN RIGHT ONTO S 259TH ST. THE PROJECT SITE IS LOCATED AT THE SOUTH WEST CORNER OF THE INTERSECTION OF S 259 ST AND 80TH AVE ST. ACCESS TO THE SITE IS AVAILABLE FROM S 259 ST, AND FROM S 261ST ST .
2. HORIZONTAL CONTROL BASED ON WASHINGTON STATE PLANE COORDINATE SYSTEM NORTH ZONE, NAD83.
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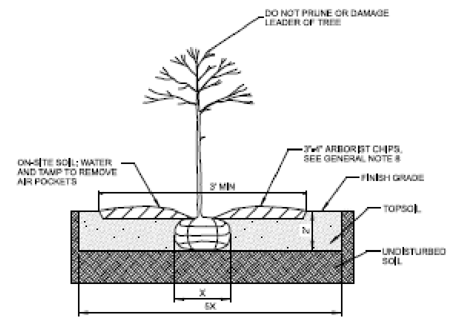
4. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
5. NO WORK TO OCCUR WITHIN THE POSSIBLE WETLAND.
6. ALL WORK ACTIVITIES AND STAGING SHALL BE LIMITED TO THE CONSTRUCTION FOOTPRINT.
7. ALL WORK ACTIVITY AREAS AND STAGING AREAS WILL BE COVERED IN TOPSOIL, HYDROSEEDED, AND MATCH THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION, ALL DISTURBED AREAS AND TOPSOIL WILL BE HYDROSEED.
8. NO HYDROSEED WILL BE PLACE ON ARBORIST CHIPS.
9. PROTECT SEQUOIA AND OTHER TREES WITHIN THE DRIPLINE OF THE TREES.
10. TREES CUT DURING DEMOLITION SHALL BE USED AS LARGE WOODY MATERIAL (LWM). LWM SHALL BE PLACED ALONG THE FACE OF THE EXISTING USACE FEDERAL LEVEE WITH THE ROOT WADS LYING TOWARDS THE RIVER. TREES WILL NOT BE PLACED BELOW OHWM. SEE SHEET L-101 FORE MORE DETAIL.

SHEET SPECIFIC NOTES:

11. THE HYDROSEED MIX WILL INCLUDE AGROSTIS ALBA OR A. OREGONENSIS (20 PERCENT BY WEIGHT), FESTUCA RUBRA (70 PERCENT BY WEIGHT), AND TRIFOLIUM REPENS (10 PERCENT BY WEIGHT) PER WASHINGTON DEPT. OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL.
12. SUBSTITUTES MAY BE USED AFTER REVIEW AND APPROVAL BY PROJECT BIOLOGIST.
13. SOIL FROM THE EXISTING USACE HORSESHOE BEND LEVEE EMBANKMENT TO BE REUSED ALONG THE EMBANKMENT. EMBANKMENT SOIL SHALL CONFORM TO THE GRADATIONS IN TABLE 2 C-301.
14. TOPSOIL PLANTING MATRIX SHALL CONSIST OF A 95/5 MIXTURE OF SOIL AND ORGANIC COMPOST. ENGINEERED TOPSOIL SHALL CONFORM TO THE GRADATION IN TABLE 3 ON C-301 AND SHALL BE FREE OF ROOTS, CHEMICALS, GARBAGE, AND DEBRIS.



K1 TREE PLANTING, WITH ROOTBALL
NTS

PLANTING NOTES:

1. NEW TREES SHALL RECEIVE AT LEAST A 3' DIAMETER MULCHED CIRCLE.
2. DO NOT STAKE TREES AND SHRUBS.
3. PLANT PIT DIMENSIONS ARE TYPICAL FOR ALL TREES AND SHRUBS.
4. PLACE ALL ROOTBALLS SO TOPS ARE LEVEL W/FINISH GRADE.
5. TREES AND SHRUBS WILL BE SELECTED BASED ON SEASONAL AVAILABILITY AND INTERPLANTED ACCORDING TO THE SPACING REQUIREMENTS OUTLINED IN TABLE 1 AND 2.
6. VEGETATION PLANTING WILL BE LOCATED ON THE REMOVED LEVEE CROWN. THE APPROXIMATE AREA FOR SUITABLE VEGETATION PLANTING WILL BE 25 WIDE BY 750' LONG = 18,750 SQFT. IF THE SOIL IS NOT SUITABLE FOR VEGETATION PLANTINGS, LANDWARD PLANTINGS IN THE CITY OF KENT PROPERTY IS NEEDED.
7. VEGETATION PLANTINGS WILL BE PLANTED AT THE END OF THE SUMMER AND WATERED WHEN INSTALLED.
8. EROSION CONTROL MEASURES WILL BE TAKEN AS NECESSARY.
9. MULCH WILL BE ADDED TO PREVENT RECRUITMENT OF INVASIVE SPECIES.
10. THE PLANTING AREA WILL BE SCARIFIED DOWN TO AT LEAST A 1FT DEPTH PRIOR TO TOPSOIL PLACEMENT TO ENSURE EFFECTIVE ROOTING AND GROWTH OF THE PLANTS.
11. SOIL AMENDMENTS; AT LEAST 2FT DEEP OF SOIL AMENDMENTS (MINERAL:ORGANIC, 95:5 MIX) WILL BE ADDED TO HELP ESTABLISH VEGETATION.
12. VEGETATION PLANTING WILL START AT THE END OF THE SUMMER OR BEGINNING OF WINTER TO LIMIT THE PLANTS EXPOSURE TO DRY PERIODS.

TABLE 1: INVASIVE SPECIES

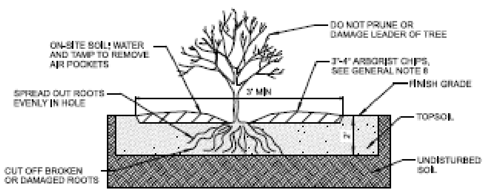
COMMON NAME	SPECIES NAME	NOXIOUS WEED CLASS	REMOVAL METHODS
HIMALAYAN BLACKBERRY	RUBUS ARMENIACUS	C	DIGGING, MOWING, AND HERBICIDE. CUTTING FOLLOWED BY DIGGING UP ROOT CROWNS IS MUCH MORE EFFECTIVE. FOR HERBICIDES, FOLLOW PRODUCT LABELS FOR TIMING AND APPLICATION INSTRUCTIONS.
KNOTWEED	FALLOPIA SPP. (4 DIFFERENT SPP.)	B	DIGGING, CUTTING, COVERING, CHEMICAL, SPRAYING, AND STEM INJECTIONS MAY BE APPLIED. SPECIAL LICENSE MAY BE REQUIRED IF NEAR WATER.

TABLE 2: TREES

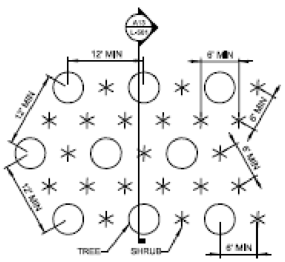
COMMON NAME	SPECIES NAME	QUANTITY
BIGLEAF MAPLE	ACER MACROPHYLLUM	28
SITKA SPRUCE	PICEA SITCHENSIS	27
BLACK COTTONWOOD	POPULUS TRICHOCARPA	28
W. REDCEDAR	THUJA PLICATA	27
WILLOW, PACIFIC	SALIX LUCIDA	28

TABLE 3: SHRUBS

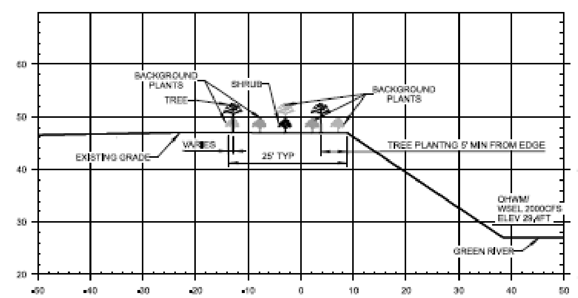
COMMON NAME	SPECIES NAME	QUANTITY
RED-OSIER DOGWOOD	CORNUS STOLONIFERA	66
INDIAN PLUM	OEMLERIA CERASIFORMIS	66
PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS	66
SALMONBERRY	RUBUS SPECTABILIS	66
BLACK TWINBERRY	LONICERA INVOLUNCRATA	66



K7 SHRUB BAREROOT PLANTING
NTS



E7 TYPICAL PLANT LAYOUT - 12FT MIN TREE SPACING AND 6FT MIN SHRUB SPACING
NTS



A13 TYPICAL PLANTING CROSS SECTION

US Army Corps of Engineers

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

PLANTING DETAILS

SHEET ID
L-501

100% DESIGN SUBMITTAL

APPENDIX C – CULTURAL RESOURCES COORDINATION

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

January 16, 2024

Vanessa Pepi
Environmental Resources Section
Corps of Engineers – Seattle District
PO Box 3755
Seattle, Washington 98124-3755

Re: Horseshoe Bend North Bank Non-Federal Levee Rehabilitation Project
Log No.: 2023-12-08130-COE-S

Dear Vanessa Pepi:

Thank you for contacting our department. We have reviewed the materials you provided for the Area of Potential Effect (APE) for the proposed *Horseshoe Bend North Bank Non-Federal Levee Rehabilitation Project* along the Green River near the city of Kent, King County, Washington

We concur with your determination of the Area of Potential Effect (APE) as described and presented in your figures and text.

We look forward to further consultation as you consult with the concerned tribal governments, the results of your identification efforts, and your determination of effect.

We would also appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: *rob.whitlam@dahp.wa.gov*

State of Washington • **Department of Archaeology & Historic Preservation**
P.O. Box 48343 • Olympia, Washington 98504-8343 • (360) 586-3065
www.dahp.wa.gov

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

March 26, 2024

Collin Ray
Seattle District
Corps of Engineers
PO Box 3755
Seattle, Washington 98124

Re: Horseshoe Bend North Bank Non-Federal Levee Rehabilitation Project
Log No.: 2023-12-08130-COE-S

Dear Collin Ray:

Thank you for contacting our department. We have reviewed the information and professional cultural resources review you provided for the proposed *Horseshoe Bend North Bank Non-Federal Levee Rehabilitation Project* along the Green River near the city of Kent, King County, Washington.

We concur with your Determination of No Historic Properties Affected with the stipulation for an unanticipated find plan.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4). In the event archaeological or historic materials are encountered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribe's cultural staff and cultural committee and this department notified.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer in compliance with the Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations 36CFR800.4. Should additional information become available, our assessment may be revised, including information regarding historic properties that have not yet been identified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 890-2615
email: *rob.whitlam@dahp.wa.gov*

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

March 28, 2024

Collin Ray
Chief
Planning and Environmental and Cultural Resources Branch
US Army Corps of Engineers - Seattle District
PO Box 3755
Seattle, WA98124-3755

In future correspondence please refer to:
Project Tracking Code: 2023-12-08130
Property: PL 84-99 Horseshoe Bend North Bank Non-Federal Levee Rehabilitation, Kent, King County, Washington
Re: No Historic Properties Affected

Dear Collin Ray:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP) regarding the above referenced proposal. This action has been reviewed on behalf of the State Historic Preservation Officer (SHPO) under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. Our review is based upon documentation provided in your submittal.

We concur that no historic resources will be affected by the current project as proposed.

As a result of our concurrence, further contact with DAHP on this proposal is not necessary. However, if new information about affected resources becomes available and/or the project scope of work changes significantly, please resume consultation as our assessment may be revised. Also, if any archaeological resources are uncovered during construction, please halt work immediately in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. If you have any questions, please feel free to contact me.

Sincerely,

Maddie Levesque, M.A
Architectural Historian
(360) 819-7203
Maddie.Levesque@dahp.wa.gov

APPENDIX D – ENVIRONMENTAL JUSTICE ANALYSIS

Horseshoe Bend Report:

EPA

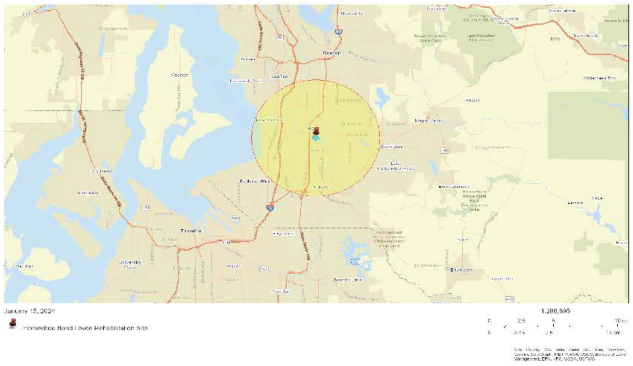
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Kent, WA

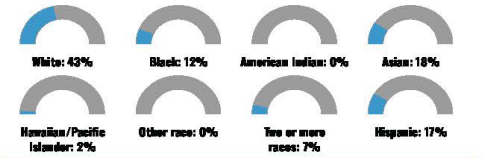
5 miles Ring Centered at 47.369524,-122.233887
Population: 271,228
Area in square miles: 78.53

A3 Landscape



COMMUNITY INFORMATION

BREAKDOWN BY RACE



BREAKDOWN BY AGE

LIMITED ENGLISH SPEAKING BREAKDOWN

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	60%
Spanish	13%
French, Haitian, or Cajun	1%
Russian, Polish, or Other Slavic	4%
Other Indo-European	6%
Korean	1%
Chinese (including Mandarin, Cantonese)	2%
Vietnamese	3%
Tagalog (including Filipino)	3%
Other Asian and Pacific Island	4%
Arabic	1%
Other and Unspecified	4%
Total Non-English	40%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 - 2021. Life expectancy data comes from the Centers for Disease Control.

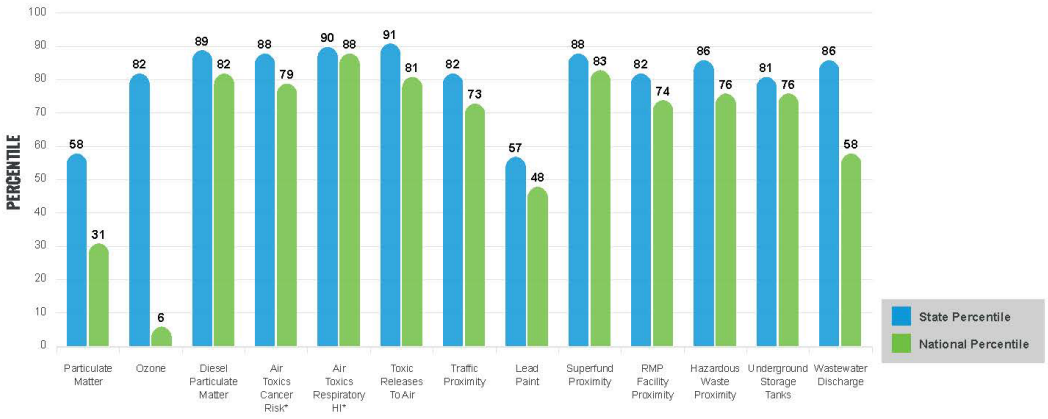
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

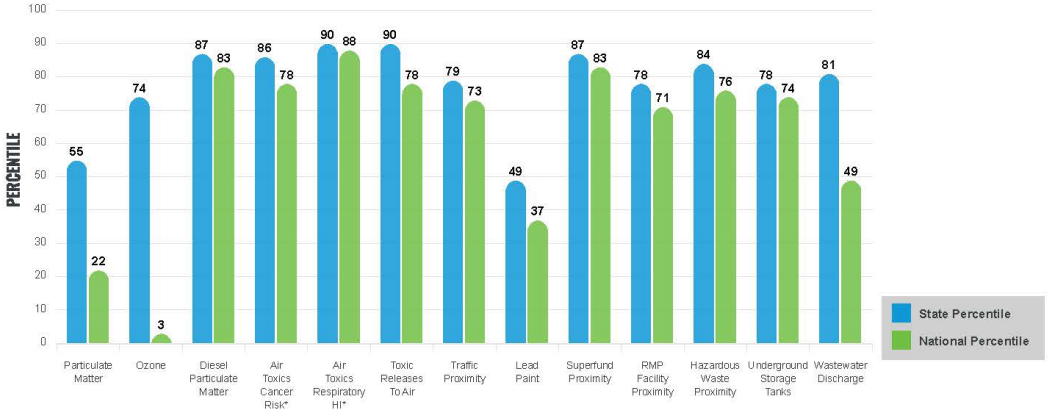
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 5 miles Ring Centered at 47.369524,-122.233887

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	6.65	7.02	33	8.08	14
Ozone (ppb)	50.6	49.8	59	61.6	2
Diesel Particulate Matter (µg/m^3)	0.483	0.355	79	0.261	90
Air Toxics Cancer Risk* (lifetime risk per million)	31	27	37	25	52
Air Toxics Respiratory HI*	0.49	0.39	39	0.31	70
Toxic Releases to Air	2,100	1,800	79	4,600	73
Traffic Proximity (daily traffic count/distance to road)	220	190	78	210	77
Lead Paint (% Pre-1960 Housing)	0.1	0.23	43	0.3	35
Superfund Proximity (site count/km distance)	0.43	0.18	90	0.13	93
RMP Facility Proximity (facility count/km distance)	0.42	0.4	74	0.43	73
Hazardous Waste Proximity (facility count/km distance)	2.8	1.6	82	1.9	79
Underground Storage Tanks (count/km^2)	7.8	6.3	76	3.9	85
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.0031	0.024	93	22	58
SOCIOECONOMIC INDICATORS					
Demographic Index	42%	28%	82	35%	67
Supplemental Demographic Index	15%	12%	75	14%	61
People of Color	57%	32%	85	39%	70
Low Income	28%	24%	65	31%	51
Unemployment Rate	7%	5%	71	6%	68
Limited English Speaking Households	9%	4%	85	5%	83
Less Than High School Education	12%	8%	77	12%	65
Under Age 5	7%	6%	66	6%	66
Over Age 64	12%	16%	39	17%	36
Low Life Expectancy	18%	18%	48	20%	36

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund 3
Hazardous Waste, Treatment, Storage, and Disposal Facilities 26
Water Dischargers 605
Air Pollution 36
Brownfields 33
Toxic Release Inventory 69

Other community features within defined area:

Schools 75
Hospitals 2
Places of Worship 82

Other environmental data:

Air Non-attainment ..... Yes
Impaired Waters ..... Yes

Selected location contains American Indian Reservation Lands* ..... Yes
Selected location contains a "Justice40 (CEJST)" disadvantaged community ..... Yes
Selected location contains an EPA IRA disadvantaged community ..... Yes

Report for 5 miles Ring Centered at 47.369524,-122.233887

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	18%	47	20%	36
Heart Disease	4.9	5.3	36	6.1	24
Asthma	10.2	10.5	33	10	58
Cancer	5.5	6.3	28	6.1	33
Persons with Disabilities	11.3%	13.1%	40	13.4%	41

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	12%	11%	72	12%	71
Wildfire Risk	0%	12%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	7%	9%	53	14%	35
Lack of Health Insurance	9%	6%	78	9%	62
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for 5 miles Ring Centered at 47.369524,-122.233887

City of Kent Report:

EPA

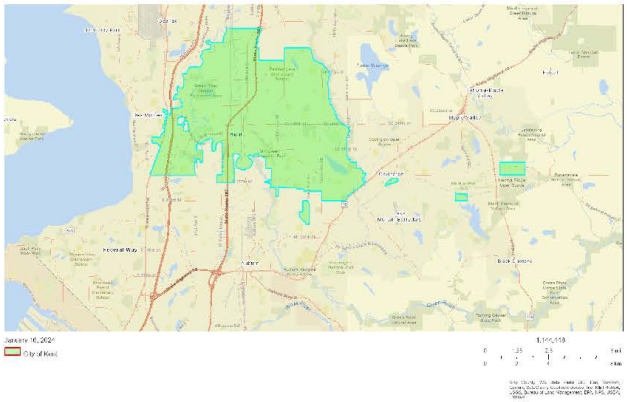
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Kent, WA

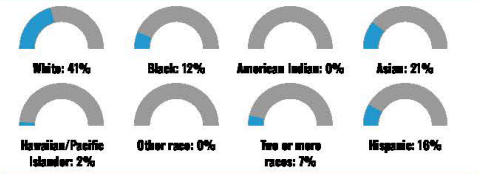
City: Kent
Population: 135,808
Area in square miles: 34.42

A3 Landscape



COMMUNITY INFORMATION

BREAKDOWN BY RACE



BREAKDOWN BY AGE

LIMITED ENGLISH SPEAKING BREAKDOWN

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	58%
Spanish	12%
Russian, Polish, or Other Slavic	4%
Other Indo-European	7%
Chinese (including Mandarin, Cantonese)	2%
Vietnamese	3%
Tagalog (including Filipino)	4%
Other Asian and Pacific Island	4%
Arabic	1%
Other and Unspecified	4%
Total Non-English	42%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 - 2021. Life expectancy data comes from the Centers for Disease Control.

APPENDIX E – COASTAL ZONE MANAGEMENT ACT COORDINATION

Note: USACE sent a CZMA Consistency Determination to Ecology requesting concurrence that the proposed rehabilitation are consistent to the maximum extent practicable with the enforceable policies of the approved CZM Program on April 5, 2024. Ecology has provided public notice seeking public comments on this request from April 11, 2024 - May 2, 2024 (Aquatic ID 14340). Ecology's public notice and the USACE CZMA Consistency Determination are available online at https://apps.ecology.wa.gov/aquatics/notices/

APPENDIX F – ENDANGERED SPECIES ACT COORDINATION

USACE sent a Biological Assessment (BA) to the USFWS and NMFS on February 15, 2024. Consultation is ongoing.

APPENDIX G – PUBLIC COMMENTS

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Horseshoe Bend Levee Rehabilitation Project

King COUNTY, WASHINGTON

The U.S. Army Corps of Engineers, Seattle District (USACE) has begun an environmental analysis in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. The Draft Environmental Assessment (EA) dated 5 May 2024, for the Horseshoe Bend Levee Rehabilitation Project addresses flood damage to these levees near Kent, Washington.

The Draft EA, incorporated herein by reference, evaluates various alternatives to restore flood protection to the damaged levee. There is one major federal action, presenting two events requiring NEPA compliance and analyzed in the EA summarized below.

Proposed Action: The preferred alternative is Setback Levee and Ring Dike Alternative. This alternative would realign the Horseshoe Bend Levee within the city of Kent's Setback Levee by constructing a ring dike around the Puget Sound Energy's facility. All construction work will be conducted above the ordinary high water mark (OHWM). Rehabilitation work under this alternative is summarized in Section 2 of the Draft EA and is hereby incorporated by reference.

Alternatives: In addition to a "no action" plan, four alternatives were evaluated. The alternatives include the No-Action, Non-structural, Repair In-Kind with Critical Failure Adjustments, Locally Preferred Plan, and Setback Levee and Ring Dike Tie-in Alternatives. **Of these**, the potential effects were evaluated for the No Action and Slope Layback and Armored Slope Alternatives. See Section 2 of the Draft EA for alternative formulation and selection. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table G- 1. Summary of Potential Effects of the Proposed Action

	Insignificant effects	Insignificant effects because of mitigation*	Resource unaffected by action
Vegetation		X	
Navigation			X
Water Resources			X
Geology and Soils			X
Wetlands			X
Threatened and Endangered Species	X		
Fish and Wildlife	X		
Cultural Resources	X		
Hazardous, Toxic, and Radiological Waste			X
Air Quality and Noise	X		
Land Use, Utilities, and Infrastructure	X		
Recreation	X		

Impact Minimization: All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan (Section 2.5). Best management practices, as detailed in Section 2.6 the Draft EA, would be implemented to minimize impacts. Measures include removing the existing levee crown to restore floodplain connectivity, minimize construction related impacts to protected salmon, mitigating impacts to vegetation, and conducting all work out of water.

Mitigation: The recommended plan would result in unavoidable adverse impacts to vegetation to construct the ring dike**.** To mitigate for these unavoidable adverse impacts, the Corps would plant new native trees at a 6:1 ratio with native shrubs interplanted. The result will have approximately 138 trees and 330 shrubs planted closer to the OHWM. These plantings would provide shade and other beneficial habitat functions to aquatic and terrestrial species in the Green River when they mature. Additionally, invasive species will be removed, flood plain

access will be restored, and large woody material will be placed above the OHWM. See Section 2.5 in the Draft EA for more mitigation details.

Public Review: The Corps invites submission of comments on the environmental impact of the proposed action as outlined in the Draft EA/FONSI. The Corps will consider all submissions received during the comment period. The nature or scope of the proposal may be changed upon consideration of the comments received. If significant effects on the quality of the human environment are identified and cannot be mitigated for, the Corps would initiate an Environmental Impact Statement (EIS) and afford all the appropriate public participation opportunities attendant to an EIS.

Treaty Tribes: The Muckleshoot Indian Tribe, Suquamish Indian Tribe, Snoqualmie Indian Tribe, and the Confederated Tribes and Bands of the Yakama Indian Nation were contacted regarding the levee repairs and the Corps will continue to coordinate throughout the project to meet Tribal Treaty obligations. We received comments from the Muckleshoot Indian Tribe and the Snoqualmie Indian Tribe. The Snoqualmie Indian Tribe declined the offer of a site visit. The Muckleshoot Indian Tribe attended a site visit on February 27, 2024, and provided comments.

Compliance:

a. Endangered Species Act:

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) are responsible for the Endangered Species Act of 1973 (ESA). The Corps evaluated potential effects to endangered species in a Biological Assessment (BA). ESA consultation was initiated with submission of a BA to the USFWS and NMFS on February 15, 2024. The Corps has summarized effects determinations for ESA-listed species from the project in the BA in Table 2.

Table G- 2. Summary of effects determinations for ESA-listed species and designated critical habitat. Determinations include No Effect, Not likely to Adversely Affect (NLAA), and May Effect, and is Likely to Adversely Affect (LAA).

Species	Species Effect Determination	Critical Habitat Determination
Chinook Salmon (*Oncorhynchus tshawytscha*)	NLAA	LAA
Steelhead (*Oncorhynchus mykiss*)	NLAA	LAA
Bull Trout (*Salvelinus confluentus*)	NLAA	LAA
Killer whale (*Orcinus orca*)	No Effect	No Effect
North American Wolverine (*Gulo gulo luscus*)	No Effect	No Effect
Marbled murrelet (*Brachyramphus marmoratus*)	No Effect	No Effect
Yellow-Billed Cuckoo (*Coccyzus americanus*)	No Effect	No Effect
Northwestern Pond Turtle (*Actinemys marmorata*)	No Effect	No Effect

b. Magnuson-Stevens Fishery Conservation and Management Act:

The Corps determined that the proposed action may adversely affect Essential Fish Habitat (EFH) for Chinook, coho (*O. kisutch*) and pink (*O. gorbuscha*) salmon. This determination was included in the BA sent to the NMFS.

c. Clean Water Act:

The Corps has determined that the proposed repairs are exempt from the Clean Water Act. The proposed project does not include fill requiring consideration under Section 404. Since the project does not result in any discharge into waters of the U.S., Section 401 Water Quality Certification is not required. Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. Proposed rehabilitation to the Horseshoe Bend Levee does not exceed 1 acre of ground disturbance.

d. Coastal Zone Management Act:

The Corps has determined that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Management Program. The Corps will sent a CZMA Consistency Determination to Ecology on April 5, 2024, requesting concurrence that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Coastal Zone Management Program.

e. National Historic Preservation Act:

The Corps initiated consultation with the Washington State Department of Archeology and Historic Preservation (DAHP) on the Area of Potential Effect (APE) on January 16, 2024. The DAHP concurred with the APE for both levee repairs on January 16, 2024. The Corps also coordinated with the Muckleshoot Indian Tribe, Suquamish Indian Tribe, Snoqualmie Indian Tribe, and the Confederated Tribes and Bands of the Yakama Indian Nation about the APE on January 16, 2024. The Corps completed an effects determination on March 21, 2024. DAHP concurred with Corps determination of no historic properties effected on March 26, 2024. To date, only the Suquamish Indian Tribe replied to our request for consultation, and they had no comments or concerns about the project. The other affected tribes did not provide any information or comments regarding this undertaking.

Draft Determination:

a. Summary of Impacts and Compliance:

Impacts of the proposed work are anticipated to be minor, short-term, and temporary. This project is undergoing ESA consultation; a BA has been prepared and transmitted to NMFS and USFWS. Impacts to ESA listed fish and their prey would be minimized by construction during the in-water work window of June 3rd to October 30th, 2024. ESA and EFH consultations are ongoing. The project is exempt from the Clean Water Act. The project complies with the National Historic Preservation Act and the Corps has coordinated the work with the Washington SHPO and affected Indian Tribes.

Draft District Engineer's Conclusion: All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the analysis presented in the Draft EA, which has incorporated or referenced the best information available; the reviews by other Federal, state and local agencies, Tribes; input of the public; and the review by my staff, it is my anticipated determination that the recommended plan would not cause significant adverse effects on the quality of the human environment and does not require preparation of an environmental impact statement.