FINDING OF NO SIGNIFICANT IMPACT (FONSI)
MTE LEVEE REPAIR PROJECT
KING COUNTY, WASHINGTON

The U.S. Army Corps of Engineers, Seattle District (USACE) has conducted an environmental analysis in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. The Final Environmental Assessment (EA) dated June 2023, for the Mason Thorson Ells (MTE) Levee Repair Project addresses flood damage to the levee near the city of North Bend, Washington.

The Final EA, incorporated herein by reference, evaluates various alternatives to restore flood protection to the damaged levee. The major Federal action requiring NEPA compliance and analysis in the Final EA is summarized below. The Federal action consists of two events, which include the signing of the Cooperation Agreement (CA) on May 18, 2023, and the proposed 2023 levee repairs.

Proposed Action: The preferred alternative is the Repair In-Place alternative. This alternative will repair the MTE Levee within the pre-damage footprint as it was designed and as it existed prior to the flood event that caused the damage. All riverward repairs will remain within the pre-damage levee footprint, i.e., the levee will not encroach farther into the river. Repair activities for this alternative are summarized in section 2.4 of the Final EA and are hereby incorporated by reference.

Alternatives: In addition to a “no action” plan, three alternatives were evaluated. 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. The other three alternatives included the Nonstructural, Levee Setback, and the Repair In-Place. The Nonstructural and Levee Setback alternatives were considered but were not carried forward for further evaluation as described in section 2 of the EA. The Repair In-Place alternative was identified as the preferred alternative compared to the other alternatives (Nonstructural and Setback) because it meets the purpose and need of the proposed project most efficiently, which is to restore the pre-damage level of flood protection of the MTE Levee.

The potential effects were evaluated for the No Action and the Repair In-Place alternatives. See section 2 of the Final EA for alternative formulation and selection. A summary assessment of the potential effects of the recommended plan appears in Table 1.

Table 1: Summary of Potential Effects of the Proposed Action

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

Impact Minimization: All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. Best management practices (BMPs) and conservation measures, as detailed in section 2.6 of the Final EA, will be implemented to minimize impacts. Measures include water quality monitoring, restricting in-water work to July 15 to October 31 to minimize construction related impacts to fish habitat, and mitigate impacts to vegetation.

Mitigation: The recommended plan will result in unavoidable adverse impacts to water quality and vegetation due to construction activities**.** To mitigate for these unavoidable adverse impacts, the USACE will install 10 willow bundles along the face of the repaired levee and 9 Douglas fir trees on an adjacent county-owned parcel. See section 2.6 in the Final EA for more mitigation details.

Public Review: Public review and comment of the Notice of Preparation for the proposed MTE Levee Repair Project closed on April 26, 2023. Comments and responses appear in Appendix G of the Final EA.

Tribal Consultation and Coordination: The Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Tulalip Tribes of Washington, and the Yakama Nation were contacted regarding the levee repairs, and the USACE will continue to coordinate throughout the project to meet all USACE obligations to tribes. To date, no comments have been received from the contacted Tribes regarding their treaty or trust rights.

Compliance:

a. Endangered Species Act:
USACE performed an evaluation of potential effects to threatened and endangered species to comply with the Endangered Species Act (ESA). Due to the nature of the project and the surrounding developed area, the presence of natural barriers to fish passage, the type of habitat within and surrounding the river at the project location, and the adherence to in-water work windows and BMPs, USACE concluded there would be no effect to listed species.

b. Magnuson-Stevens Fishery Conservation and Management Act:
USACE performed an evaluation of potential effects to essential fish habitat (EFH) within the project vicinity. According to the National Marine Fisheries Service (NMFS), the project area is designated as EFH for Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and pink salmon (*O. gorbuscha*) (NOAA 2021). Although these salmonid species are not located upstream of Snoqualmie Falls, project activities were analyzed to ensure no loss of EFH will occur. Spawning substrate, sufficient river flow and velocity, and presence of prey species do occur within the Middle Fork Snoqualmie River adjacent to the project area. This habitat supports resources that could flow downstream (e.g., sediment transport, prey migration) into the river reach where the EFH species occur. Because the project consists of a levee repair with no expansion of footprint or new waterward construction outside of the original levee prism, no degradation of these key components of EFH will occur. Benthic macroinvertebrates and other prey species will not lose any habitat within the Middle Fork Snoqualmie River, as the levee will be repaired within the same footprint with no waterward expansion. Adjacent areas along the Middle Fork Snoqualmie River provide sufficient habitat for prey species to use if temporary effects from turbidity, siltation, noise, or vibrations are experienced. Project BMPs have been designed to limit these impacts to the maximum extent practicable. As such, USACE concluded the project will not adversely affect EFH within the project area.

c. Clean Water Act:
The USACE has determined that the proposed repairs are exempt from the Clean Water Act (CWA). The proposed project does not include fill regulated under Section 404 CWA, because the repairs meet the parameters of the maintenance exemption under Section 404(f)(1)(B) (33 U.S.C. 1344(f)(1)(b), 33 CFR 323.4(a)(2)). Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. Proposed repairs at the levee do not exceed 1 acre of ground disturbance.

d. Coastal Zone Management Act:

The USACE has determined the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Zone Management Program. The USACE sent a Coastal Zone Management Act (CZMA) Consistency Determination to Ecology on May 1, 2023, requesting concurrence that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Coastal Zone Management Program. Ecology concurred with the USACE's consistency determination on June 23, 2023.

e. National Historic Preservation Act:

The MTE Levee was previously surveyed in 2009, and a USACE archaeologist conducted a pedestrian survey of the Area of Potential Effect (APE) on February 10, 2021, and May 3, 2023. Previous disturbances within the APE include construction of the MTE Levee and the 2009 levee repair work. The MTE Levee is over 50 years old and was recorded on a State Historic Preservation Officer (SHPO) historic property inventory form. USACE determined that the MTE Levee is not eligible for the National Register of Historic Places. SHPO concurred with this determination and recorded their review and agreement in project files in the Washington Information System for Architectural and Archaeological Records Data. SHPO also concurred with USACE's finding of no historic properties affected for this project on April 26, 2022, with the stipulation that a professional archaeological monitor be present during excavation of the levee toe and an archaeological monitoring and inadvertent discovery plan (MIDP) be developed. USACE developed an MIDP for this project and will implement it during construction. USACE consulted with the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Tulalip Tribes of Washington, and the Yakama Nation about the repair. An APE amendment including the updated access route was sent to the SHPO and the Tribes on May 17, 2023. SHPO concurred with the revised APE on May 17, 2023, and the determination of no historic properties affected on June 20, 2023, reasserting the stipulation that a professional archaeological monitor be present and an MIDP be followed. To date, USACE has received no comments from these Tribes regarding the NHPA consultation.

Determination:

a. Summary of Impacts and Compliance:

Impacts of the proposed work will be minor, short-term, and temporary. No effects to ESA-listed fish, their prey, or essential fish habitat will occur as a result of this project. Impacts will be further minimized by limiting construction to the in-water work window of July 15 to October 31. CZMA coordination with Ecology is ongoing. This project does not require a Section 404(b)(1) Evaluation or a Water Quality Certification under the Clean Water Act since the repair does not include the discharge of regulated fill into the waters of the U.S.. The project complies with the National Historic Preservation Act and USACE has coordinated the work with the Washington SHPO and affected Indian Tribes.

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 Final 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 determination that the recommended plan will not cause significant effects on the quality of the human environment and does not require preparation of an environmental impact statement.

7/4/23
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Date

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Alexander "Xander" L. Bullock
Colonel, Corps of Engineers
District Commander

MASON THORSON ELLS LEVEE REHABILITATION

ENVIRONMENTAL ASSESSMENT
KING COUNTY, WASHINGTON

June 2023

Seattle District
Corps of Engineers

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Mason Thorson Ells Levee Rehabilitation

Environmental Assessment

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ACRONYMS AND ABBREVIATIONS

AEP	Annual Exceedance Probability
APE	Area of Potential Effects
AQI	Air Quality Index
BMP	Best Management Practices
CA	Cooperation Agreement
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CWA	Clean Water Act
CY	Cubic yards
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
ER	Engineering Regulation
ESA	Endangered Species Act
FONSI	Finding of No Significant Impacts
H:V	Horizontal to Vertical ratio, measured in feet
LF	Linear Feet
LOP	Level of Protection
MIDP	Monitoring and Inadvertent Discovery Plan
MTE	Mason Thorson Ells (Levee)
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLD	National Levee Database
NMFS	National Marine Fisheries Service / NOAA Fisheries
NRHP	National Register of Historic Places
OHWM	Ordinary High-Water Mark
RM	River Mile
SHPO	State Historic Preservation Officer
Sp., Spp.	species (singular and plural)
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers, Seattle District
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WISAARD	Washington Information System for Architectural and Archaeological Records Data
WDFW	Washington Department of Fish and Wildlife

1 INTRODUCTION

An EA is NEPA compliance document prepared for a proposed action that is not likely to have significant effects. 40 CFR Part 1501.5(a). An EA must "briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" on actions authorized, funded, or carried out by the Federal Government. 40 CFR Part 1501.5(c)(1). Pursuant to Section 102(C) of NEPA, this assessment evaluates environmental consequences of the proposed rehabilitation action to be implemented by the U.S. Army Corps of Engineers (USACE) at the Mason Thorson Ells (MTE) Levee located in the city of North Bend, Washington. This EA includes analysis of four alternatives including: (1) the No Action Alternative; (2) the Nonstructural Alternative; (3) the Levee Setback Alternative; and (4) the Repair In-Place Alternative.

1.1 BACKGROUND

The MTE Levee was constructed by local interests to protect public infrastructure and is owned and maintained by King County, Washington (Figure 1). Levee construction was complete by 1969. The MTE Levee is on the left bank of the Middle Fork Snoqualmie River and is a complete system approximately 2,060 feet long. The upstream end of the levee ties into high ground and the downstream end terminates at higher ground upstream of a private residence (Photograph 1, Appendix A). The levee height ranges from 2 to 17 feet above the landward toe. It is predominantly composed of silty sand with gravel riverbed material and a rock armor blanket on the riverward slope. The riverward and the landward slopes are generally 1.5 to 2 horizontal to 1 vertical (1.5-2H:1V) (Appendix B) with the riverward slope being armored by Class V riprap. The levee crest is approximately 20 feet wide and surfaced with gravel and crushed rock for a drivable surface. The riverside of the levee is heavily vegetated with invasive Himalayan blackberry, patches of native willow and conifers, and other deciduous shrub species. The riverside of the levee also holds cottonwood trees ranging from 4 to 6 inches in diameter. A memorial bench is located at the edge of the levee and will be replaced following repairs. In its undamaged state, the levee provides a 10-year level of flood protection, and the National Levee Database (NLD) estimates that the levee protects approximately 1,068 people, 394 buildings, and $158 million worth of property value (NLD 2023). A 1 percent annual exceedance probability (AEP) flood has a 1 in 100 chance of being met or exceeded in any 1 year and has an average recurrence interval of 100 years (USGS 2018). In the damaged state, the MTE Levee's level of protection (LOP) is diminished from 10 percent to a 99 percent AEP (USACE 2020). A 99 percent AEP flood has a 99 in 100 chance of being exceeded in any 1 year. A vicinity map of the levee repair site is shown in Figure 1. The non-federal Sponsor for the levee repair is the King County Flood Control District.

Figure 1. MTE Levee site vicinity left bank of the Middle Fork Snoqualmie River in North Bend, Washington.

Flood Event

Heavy rainfall and warm temperatures led to high river flows and flooding over the region in western Washington during February 2020. On February 1, 2020, the Middle Fork Snoqualmie River had a peak flow of 19,600 cubic feet per second (Figure 2) with a stage height of 12.35 feet (USGS Gage 12141300). Based on a flow analysis at the gage, this event corresponded to approximately a 36 percent AEP.

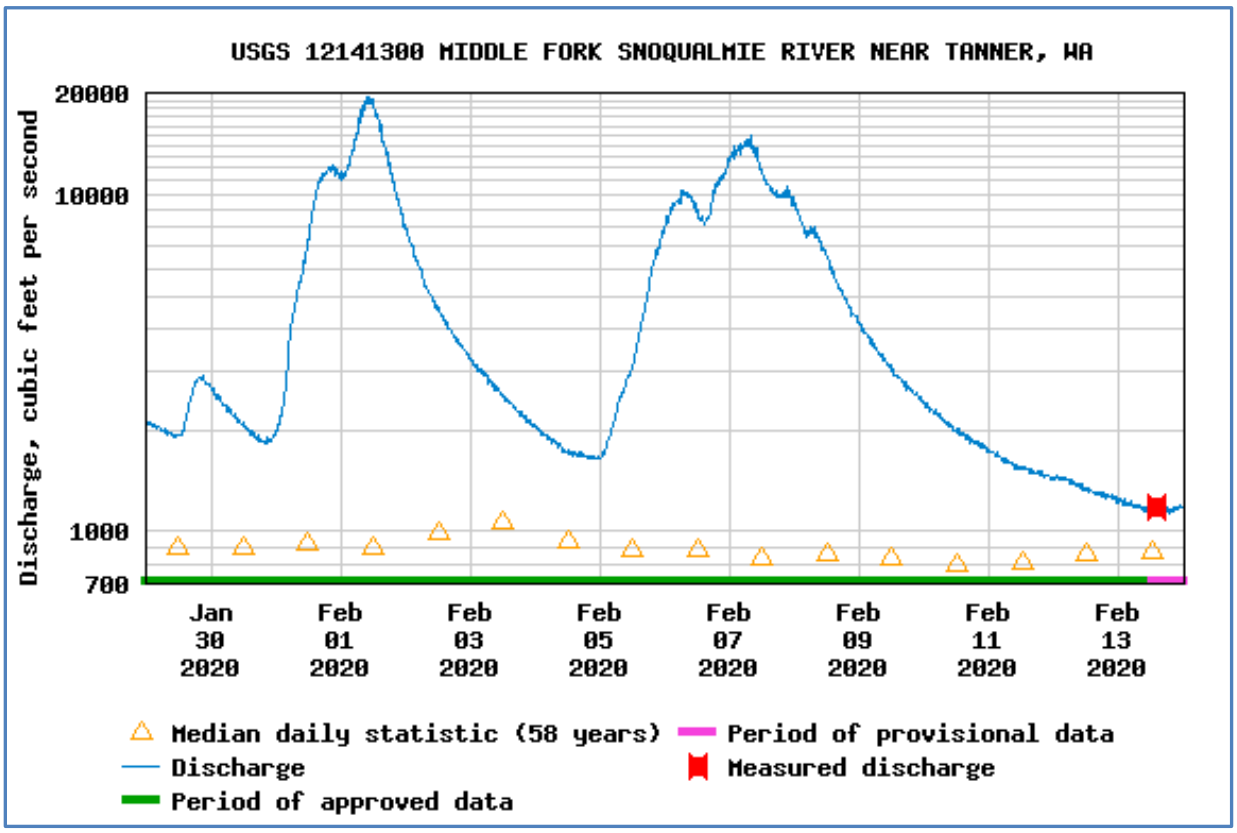


Figure 2. Flow hydrograph at the Middle Fork Snoqualmie gage during flood events in February 2020.

During the flood event, riprap forming the riverward toe and slope armor was scoured from approximately 60 linear feet (LF) of the levee, resulting in significant loss of embankment material in the crest, slope, and toe beginning at Station 0+00 and continuing to approximately Station -0+57 (Negative stationing is used due to a discrepancy in the total length of the levee between an inspection in 2006 and a subsequent inspection in 2020.) (Appendix B). Armor rock on the levee was scoured and no longer provides coverage of the embankment or associated erosion protection. Within the failure area, a tree undermined by the floodwater fell, exposing additional embankment material. In the damaged state, the level of protection is diminished from 10 percent to 99 percent AEP.

1.2 AUTHORITY

Public Law 84-99 provides the 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" (33 U.S.C. § 701n(a)(1)).

The USACE's repair work under this authority is limited to the repair of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the LOP exhibited by the flood control work prior to the damaging event.

This authority is delegated to Seattle District through 33 CFR, Part 203 and Engineering Regulation (ER) 500-1-1. From ER 500-1-1: "Improvements to design and equipment (e.g., geomembranes) that are a result of state-of-the-art technology, and are commonly incorporated into current designs in accordance with sound engineering principles, are permissible, and are not considered betterments."

1.3 PROJECT LOCATION

The MTE Levee is located near North Bend, King County, Washington (Section 10 of Township 23 North, Range 8 East; 47° 29' 53.49" N, 121° 45'45.86" W; Figure 3). It is on the left bank of the Middle Fork Snoqualmie River. Access to the project and the staging area, which is located on the levee crest, are shown in the design drawings (Appendix B). The mitigation area for native tree planting activities will occur on county-owned parcels adjacent to the project area (Appendix B).

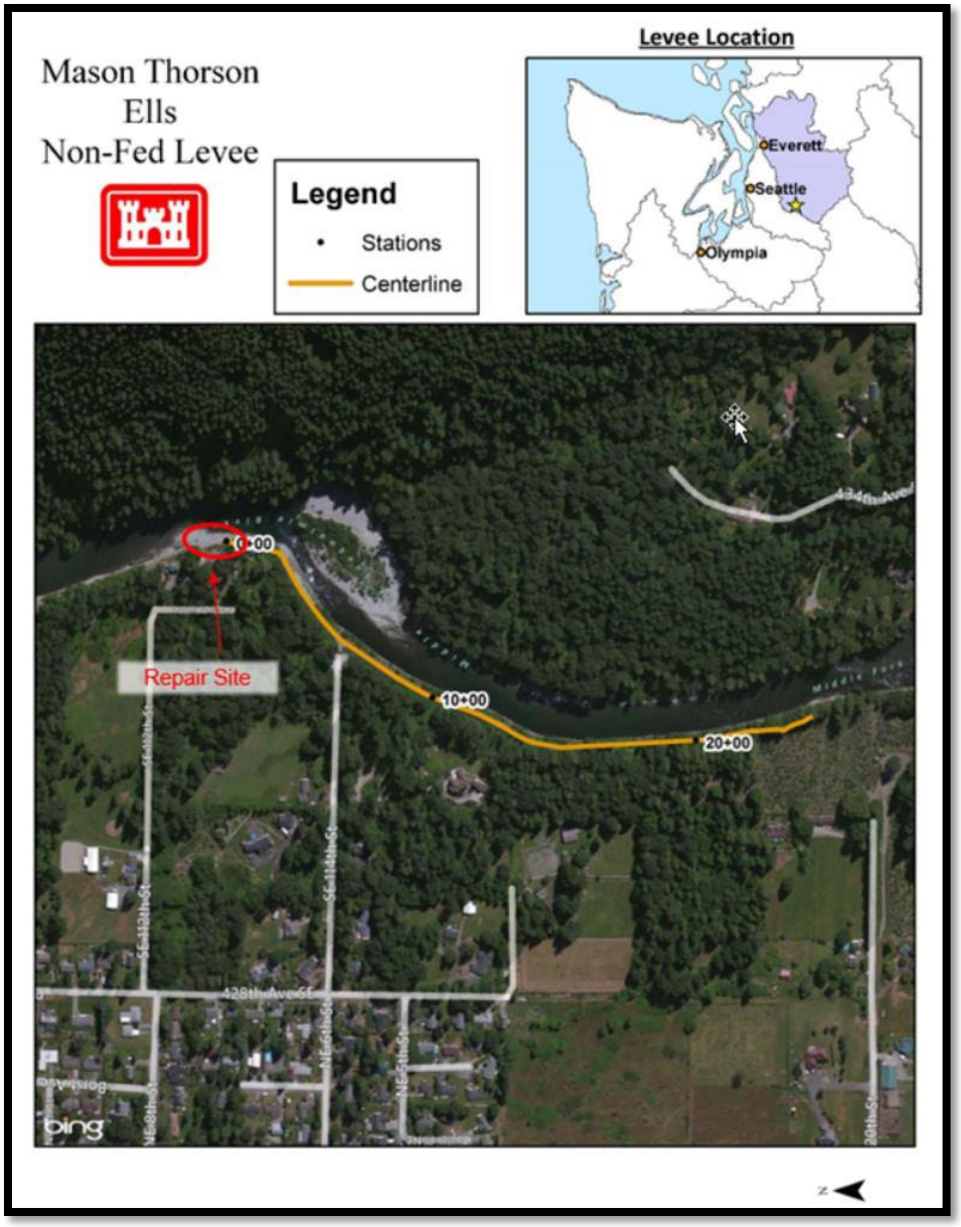


Figure 3. Project Location map for the MTE Levee repair project on the Middle Fork Snoqualmie River near North Bend, WA.

1.4 PURPOSE AND NEED

In the damaged condition, the levee presently provides an approximate 1-year LOP. If the levee were to fail, there would be an increased risk to life safety, improved property, and public infrastructure. The purpose of the permanent repair is to restore the pre-damage LOP exhibited prior to the 2020 flood event to protect lives and property from subsequent flooding. The proposed levee repairs addressed in this EA are the result of King County Flood Control District's request for assistance. This EA further addresses the need for implementing a permanent repair in 2023 in section 1.1.

2 PROPOSED ACTION AND ALTERNATIVES

The USACE has conducted a preliminary evaluation on the alternatives for fulfilling the purpose of permanently restoring the LOP, as discussed below. A reasonable alternative must restore reliable flood protection to the LOP prior to the next damaging event, must be environmentally acceptable, and should address the identified flood risk by being capable of being constructed prior to the next flood season. The preferred alternative will be the least cost alternative that restores the LOP while fulfilling all legal, technical, and environmental requirements. Below are four alternatives including the No Action Alternative and the preferred alternative.

Under Public Law 84-99, the USACE has limited discretion over repair alternatives. USACE may deviate from the original design of the non-federal levee (e.g., setback levee) with the participation of the non-federal sponsor who must agree to meet various obligations, including land acquisition and additional cost-share funding, to execute any alternative.

2.1 ALTERNATIVE 1: NO ACTION ALTERNATIVE

Under the No Action Alternative, the levee would remain in its damaged condition. This alternative would not meet the project purpose because the levee would likely be further damaged in future flood events and could fail, which would endanger residences, improved property, and public infrastructure. During any flood event that threatens the integrity of the levee system, the USACE or other Federal and non-federal agencies may act under emergency authorities to preserve the levee system and, to the extent possible, maintain protection of life and property behind the levee. Any response to damages during a flood event would be temporary, less certain of success, potentially more expensive, and could be less protective of environmental and cultural resources. A response would also take time to activate and execute, so there is risk that it would not prevent levee failure, such as overtopping or breaching.

The No Action Alternative is not recommended because it would maintain the current status of the levee, which is increasingly susceptible to damage or breaching. The current state of the levee presents a risk to life and property. 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: NONSTRUCTURAL ALTERNATIVE

This alternative consists of floodplain management strategies generally involving changes in land use offered by other Federal and State programs. These strategies would include zoning, easements, flood warning, floodplain evacuation, and flood insurance. Nonstructural strategies involve acquiring, relocating, elevating, and flood proofing existing structures. The costs and timeframe for implementing this alternative make it impractical. Furthermore, the participation of the non-federal Sponsor would be required to implement a non-structural alternative, and the non-federal Sponsor has not agreed to meet its obligations in executing a non-structural alternative. Therefore, this alternative is not recommended and not carried forward for further evaluation.

2.3 ALTERNATIVE 3: LEVEE SETBACK ALTERNATIVE

The Levee Setback alternative would shift the alignment of the levee embankment landward by the distance necessary to avoid or minimize direct contact with the river current. A setback levee would provide benefits to environmental and natural resources within the floodplain. But a setback levee would not likely be completed before the next flood season and would be more costly than the other alternatives because it requires much more embankment material. Such an approach would also encroach on structures and privately owned land used for recreational, residential, and business purposes. The costs and timeframe for implementing this alternative make it impractical. Furthermore, the participation of the non-federal Sponsor would be required to implement a levee setback alternative, and the non-federal Sponsor has not agreed to meet its obligations in executing a levee setback alternative. Therefore, this alternative is not recommended and not carried forward for further evaluation.

2.4 ALTERNATIVE 4: REPAIR IN-PLACE ALTERNATIVE (PREFERRED ALTERNATIVE)

The Repair In-Place alternative would repair the MTE Levee within the pre-damaged footprint as designed and built. Repairing the levee in place is recommended to restore it to the pre-damaged LOP. Design plans for the repairs under this alternative are included in Appendix B and described in detail below. This alternative is preferred above the other alternatives (No Action, Nonstructural, and Levee Setback) because it meets the purpose and need of the proposed project most efficiently.

2.4.1 Detailed MTE Levee Repair Description (Preferred Alternative)

The proposed action includes repair of 60 LF of levee, including the damaged levee section beginning at the upstream end near Station 0+00 and continuing approximately 40 feet downstream along the original alignment, the transition to the undamaged upstream sections of the levee, and the downstream cap. The downstream cap consists of approximately 20 feet of curved levee design to address the strong hydraulic eddies at this location. This total project length of 60 feet reflects the decision not to tie the levee repair into the adjacent private property. The repair would return the levee to the pre-flood LOP by constructing a buried toe and restoring a blanket of riprap backed by quarry spalls at 2H:1V. The damaged levee would be deconstructed by removing, salvaging, and stockpiling remnant riprap and other existing materials as practicable. These materials would be stockpiled in approved areas for reuse in the repair or disposed of off-site. The slope would be reconstructed and re-armored with a 4.5-foot-thick layer of Class IV riprap backed by a 12-inch-thick layer of 4- to 8-inch quarry spalls (Appendix B). Riprap would be placed at a 2H:1V slope to achieve good compaction and tight interlocking. A 6-inch layer of gravel would be placed on top of the levee to restore the levee crest (Appendix B). Work would require removal of a giant sequoia (*Sequoiadendron giganteum)* tree on the crest of the levee and two small deciduous trees on the landward side of the levee. A memorial bench would be temporarily removed at the edge of the levee and replaced following levee repairs. Native willow bundles and Douglas fir tree plantings would be included as mitigative measures for this alternative.

Equipment to be used include hydraulic excavator and dump trucks. Large rock would be placed and manipulated using the thumb attachment on the excavator. Small rock that is impracticable to manipulate with the thumb attachment, such as quarry spalls, would be transferred from the

bucket to the levee slope using a pouring motion. To achieve good compaction and tight interlocking, an excavator would "plate" the slope. Plating works by mechanically working the rock by applying pressure from the excavator bucket to the rock and moving the bucket back and forth until the rock locks up. This action occurs after all the riprap has been placed on the slope.

Table 1. Estimated materials and quantities for the preferred alternative.

Material	**Quantity**	**Location**	**Use**
Class VI riprap	436 cubic yards (CY)	Levee slope	Armoring
Filter spalls	87 CY	Levee slope between riprap and embankment material	Bedding course
1 ¼ inch rock	5 CY	Levee crown	Access road
Topsoil	50 CY	Around willow bundles and above backfill of buried levee at downstream end	Soil medium for willows and hydroseed
Willow bundles	10 bundles of six willow stakes	Along the ordinary high-water mark (OHWM)	Riparian habitat for mitigation
Native Douglas fir plantings	9 1-gallon plants	Within county-owned land adjacent to the levee	Mitigation for tree removal
Hydroseed	134 square yards	On topsoil and disturbed areas, above OHWM	Erosion prevention and mitigation

The MTE Levee is a non-federal project for which no as-builts or drawings from the original construction (initial fill design) are available. Project documentation and best professional engineering judgment indicate the preferred design will reinforce the rest of the levee structure, protect against future scour, and minimize erosion on the landward toe behind the levee. Additionally, existing riprap size along the MTE levee is estimated as predominantly Class V rock. Class V riprap ranges in size between 13-34 inches diameter, weight between 188-3,000 lbs. Data on file and consultation with the local Sponsor were used in estimating the pre-damage levee conditions. Data include past inspection reports, site visits, historical maps, and review of project documentation from other levee repairs in the project vicinity. Post-flood field conditions upstream and downstream of the damaged site were also analyzed. The hydraulic calculations indicate that Class VI riprap is the minimum acceptable size under current USACE sizing guidelines after considering the hydraulic analysis (Sheet C-301, Appendix B). Based on the information available and best professional engineering judgement, the proposed repair is not expected to increase the rock size of the levee.

Due to the emergency need to construct the repair, construction is scheduled to start in the summer of 2023. From start to completion, the repair is expected to take from 3 to 4 weeks. Any in-water work for the repairs would occur within the in-water work window between July 15 and October 31 (USACE 2023). Although listed salmonid species are not present due to the

impassable natural barrier presented by Snoqualmie Falls at 5.6 miles downstream of the project area, USACE would construct during this timeframe as an avoidance and minimization measure and best management practice (BMP). A typical work week includes 6 days of construction, 8 to 10 hours a day depending on available daylight.

Shoreline and river areas impacted by construction activities would be restricted to the access routes, staging area, damaged levee section, transitions to undamaged upstream section of the levee, the curved design on the downstream section of the levee, and mitigation areas. Work would require removing vegetation, i.e., approximately 2 small deciduous trees on the landward side of the levee and 1 large giant sequoia located on the crest of the levee (Photograph 2, Appendix A). No additional fill material volume would be added on the riverward levee slope below the OHWM or beyond the pre-flood levee footprint.

Equipment would be similar to those employed during previous levee repair projects and includes a hydraulic excavator and dump trucks. Construction is planned to occur the summer of 2023 between July 15 and October 31 (the in-water work window) and is expected to take approximately 3 to 4 weeks. Construction vehicles would access the site via an easement on private land to the north of the project and the levee crown, which are accessible from public rights-of-way. Excavated materials would be staged within the levee footprint and the designated staging area (Appendix B). BMPs would be employed to minimize project impacts (section 2.6.3).

Materials would be purchased from local, privately owned companies. However, any borrow site, quarry, or gravel mine would be fully permitted by the State. Armor rock pieces would be inspected upon delivery and prior to placement for quality, integrity, and absence of excessive imported sediments. During the designated work window, in-water work would include the salvage and replacement of riprap on the toe and riverward face of the levee. Some excavation and placement of repair materials would take place below the OHWM elevation at the repair site. BMPSs would be employed to minimize impacts associated with the work below the OHWM (section 2.6.3). Salvaged riprap would be temporarily stockpiled on the levee crown or staging area to enable sorting for reuse. Material that is not suitable for reuse would be disposed of offsite at an approved upland site.

2.4.2 Construction Sequence

Construction would occur in a single construction period within the approved construction window and would consist of the major components described below. Construction refers only to those activities associated with the deconstruction and reconstruction of the levee prism. Mitigation plantings are not considered part of the levee construction and would be installed as described in section 2.6. Specific existing conditions for the location where the fill material would be purchased are unknown, as the materials would be purchased from local, privately owned companies. A State-permitted site would be chosen through a contract bidding process prior to construction.

***Site Preparation*:** The first component of construction includes the preparation of access routes and the existing levee prisms for material removal. A pre-construction meeting would be held. The project limits would be clearly marked using stakes and flagging, and the repair area

cleared and grubbed as necessary. Invasive vegetation, including Japanese knotweed and Himalayan blackberry, would be disposed of off-site in a manner to prevent the spread of invasive vegetation. Staging activities would consist of temporarily stockpiling rock, supplies, equipment, and vehicles. Staging, storage, and work activities would be limited to the areas shown in the design plans (Appendix B).

***Deconstruct Damaged Levee*:** The damaged portion of the levee would be deconstructed by removing, salvaging, and stockpiling remnant riprap and other existing material as practicable. As necessary, sloughed embankment material would be excavated from the scoured riverward slope. Salvaged and stockpiled materials would be stored in approved areas for reuse in the repair or disposed of at a permitted disposal site. All deconstruction of the damaged levee would follow design plans (Appendix B).

***Construct Levee Repair*:** Construction would commence at the toe, starting upstream and working downstream, to deflect flows and minimize turbidity in the construction area. The construction would adhere to the design plans (Appendix B). The weighted toe, levee prism, and slope would be constructed per design requirements. The repair would smoothly transition at the upstream and downstream limits of construction into the adjacent slopes.

***Complete Construction*:** Upon completion of all construction activities, areas disturbed by levee construction, staging activities, and road access would be restored to pre-construction condition as necessary. The non-federal Sponsor and the USACE would complete mitigation as described below.

2.5 Environmental Mitigation

All environmental mitigation discussed in this section applies to execution of the preferred alternative.

At the repair site, the USACE estimates that there are 2 small deciduous trees on the landward side of the levee and 1 large giant sequoia located on the crest of the levee (Photograph 2, Appendix A). To offset impacts to fish habitat associated with the MTE Levee repair, the USACE would mitigate for the removal of the 3 trees at a 3:1 ratio, which accounts for temporal habitat loss due to the time lag for the trees to reach maturity and assumes that not all plantings would survive. The 9 plantings would consist of 1-gallon Douglas fir trees. Mitigation planting site selection was limited due to real estate requirements and proximity to the levee repair. Although vegetation removal is known to affect water temperatures due to reduced shading in many locations, river temperatures are not expected to discernibly change due to this project; thus, the mitigation planting provides other habitat values in addition to shading.

Monitoring and adaptive management, including replacement and maintenance of plantings, after the first year will be conducted by USACE. If after the first year less than 80 percent of the plantings survive, all the dead plantings will be replaced. In preparation for any required adaptive management in the form of replanting, USACE will evaluate why the plantings failed and plan the best path forward for successful replacement consistent with its authority and available funding. Subsequent monitoring, maintenance, and any necessary replanting will be the responsibility of the King County Flood Control District.

2.6 CONSERVATION, BEST MANAGEMENT PRACTICES, AND MITIGATION

2.6.1 Mitigation

Mitigation for effects of proposed actions is evaluated as part of the NEPA process. Mitigation can take any of the following forms per 40 CFR § 1508.1(s):

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

The preferred alternative is planned and designed to avoid and minimize project impacts to the maximum extent feasible. All access would be over existing roads and trails, and all staging would be in previously developed or disturbed uplands. All in-water activity would be timed to use construction timing windows established to protect fish (July 15 through October 31), although no ESA-listed salmonid species are present in the Middle Fork Snoqualmie River upstream of Snoqualmie Falls. The project area is located approximately 5.6 miles upstream of Snoqualmie Falls. Conservation measures and BMPs listed below include measures to protect the Middle Fork Snoqualmie River from sediment and turbidity originating from construction at the site. All mitigation measures developed in cooperation with the State Historic Preservation Officer (SHPO) and affected Tribes would be implemented to protect cultural resources.

2.6.2 Conservation Measures

Section 7(a)(1) of the Endangered Species Act (ESA) directs Federal agencies to use their authorities to further aid the purpose of the ESA by carrying out conservation programs for the benefit of threatened and endangered species. Although no ESA-listed salmonid species are located upstream of Snoqualmie Falls, USACE developed a list of conservation measures and incorporated these into the project design to reduce environmental impacts of the project to endangered and threatened listed species and designated critical habitat that exists downstream of the project area. For the preferred alternative, the measures are the following:

a. The erosion control seed mix specified in the BMPs (section 2.6.3) and mulch will be used. This will reduce runoff from the site and speed up revegetation by providing an organic base and retaining a soil layer in disturbed areas.
b. Willow bundles will be incorporated into the levee repair and native trees will be planted adjacent to the levee location. Monitoring and adaptive management, including replacement and maintenance, will be conducted after 1 year. Subsequent monitoring will be the responsibility of King County.
c. USACE will inspect the repair site after the repair is completed. If conservation measures and repairs require modification from those described here, or what is

depicted in the plans, they will be recorded and described. The USACE biologist will assess whether changes are needed, such as change in type or location of plantings.

2.6.3 Best Management Practices

The USACE developed a list of BMPs and would incorporate these into the action to reduce environmental impacts. Some are integrated into the repair, while others are guides to operation and care of equipment. These measures are as follows:

a) Work will be conducted during daylight hours.
b) Work area is restricted to the authorized project footprint as shown in the design plans in Appendix B, sheet CS103.
c) Temporary erosion control measures will be installed for all phases of work. As construction advances, installation of silt fencing will occur along the full length of the 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 river, and offsite. Accumulation of sediment in adjacent swales or storm drains will be monitored daily and cleaned to ensure continued service throughout construction.
d) In-water work will be limited to low flow periods and minimized to the extent possible. All in-water work will occur during the established work window of July 15 to October 31 as an avoidance and minimization measure.
e) The repair uses the steepest allowable slope to reduce riverward impacts.
f) Rock placement will occur only within locations specified in the design plans and within the authorized project footprint.
g) Material placed into the water (riprap, spall rock) shall be placed individually or in small bucket loads in a controlled manner to reduce turbidity and in-water noise generation. No end dumping of rock into the water will occur.
h) Rock placement will occur from the upstream end of the project to the downstream end so that the placed rock will act as a localized flow deflector and help manage flows in the installation areas to reduce turbidity.
i) Water quality monitoring for turbidity will be conducted a minimum of 1 day at the start of each new sediment-generating activity. See the attached Water Quality Monitoring Plan in Appendix C for protocols. If significant sediment enters the river and high levels of turbidity occur, work will be halted until the situation can be assessed and corrected.
j) Vegetation removal will be limited to the authorized project footprint and location of mitigation plantings.
k) Noxious weeds will be disposed of separately from other organic materials at an approved off-site location. Himalayan blackberry, including the root system, will be removed, and disposed of appropriately. Removed Himalayan blackberry will not be placed in a compost pile or left to root onsite.
l) USACE will replace any removed trees at a 3:1 replacement ratio in a mitigation planting location adjacent to the levee. A minimum of 9 Douglas fir trees will be planted during the normal planting season to ensure successful plant establishment. Trees will be obtained in 1-gallon pots from a local nursery.

m) USACE will conduct monitoring of the mitigation plantings and plant replacement trees during the first year after planting, as warranted. After 1-year, subsequent vegetation maintenance will become the responsibility of the sponsor.
n) Woody material generated during construction, such as removed trees, logs, and root wads, will be placed at the toe of the repaired levee to improve aquatic habitat complexity. Root wads will remain attached to the tree, to the extent feasible, and will be oriented to face upstream.
o) The Construction Supervisor or USACE biologist will oversee the mitigation plantings.
p) To reduce runoff from the site and speed up revegetation, all disturbed soils above the OHWM not covered by armor rock will be covered with topsoil and hydroseeded with the Meadow Seed Mix specified in the Stormwater Management Manual for Western Washington, BMP C120, Table II-3.4: Temporary and Permanent Seed Mixes which includes *Agrostis alba* or *A. oregonensis* 20% by weight, *Festuca rubra* 70% by weight, and *Trifolium repens* 10% by weight.
q) Refueling will occur on the back side of the levee or in staging areas away from the river. Biodegradable hydraulic fluids will be used in any portion of the equipment that will work in the water.
r) Construction equipment will be cleaned prior to site delivery.
s) Construction equipment shall be regularly checked for drips or leaks. Any leak will be fixed promptly, or the equipment will be removed from the project site.
t) At least one fuel spill kit with absorbent pads will always remain onsite.
u) Drive trains of equipment will not operate in moving water and work will occur from the top of the bank. Only the excavator bucket with thumb attachment will extend into the water. When in-water, equipment will be operated slowly to allow fish to escape from the area of active construction.
v) A pre-construction meeting will be conducted to look at existing conditions and any possible fine-tuning that can be done to best accomplish these BMPs and other environmental requirements. The pre-construction meeting may include outside resource agencies and/or the project sponsor.
w) At least one USACE biologist and geotechnical engineer will be available via phone during construction and on-site during initial construction activities. The USACE biologist and geotechnical engineer may also visit the construction site. All visits will be coordinated with the project manager, and Emergency Management Construction Lead.
x) 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. All trash will be disposed of properly after work is complete.

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. Table 2 identifies the resources evaluated for detailed analysis with a rationale for inclusion or exclusion. Resources were excluded from detailed analysis if they are not potentially affected by the alternatives or have no material bearing on the decision-making process.

Table 2. List of resources considered for detailed effects analysis and rationale for inclusion or exclusion.

Resource	Included in Detailed Analysis (Y/N)	Rationale for inclusion or exclusion
Hydraulics and Geomorphology	N	Repairs would be within the footprint and consistent with the character of the historic levee. This resource does not require further analysis.
Groundwater	N	Repairs would be within the existing levee footprint. Groundwater will not be affected. This resource does not require further analysis.
Water and Sediment Quality	Y	Repairs may affect water and sediment quality. Analysis is required to investigate what conditions are present and the extent of any potential effects.
Wetlands	N	Repairs would have no effect on wetlands. This resource does not require further analysis.
Vegetation	Y	Aquatic vegetation is not located in or immediately adjacent to the project area, but shoreline vegetation is present. Analysis is required to investigate what vegetation exists and to determine the extent of any potential effects.
Fish and Wildlife	Y	Animals in proximity to the project area could be affected. Analysis is required to determine what species are present and the extent of potential effects.
Threatened and Endangered Species	N	An analysis of potential effects on threatened and endangered species has been performed. USACE made a determination of no effect. This resource does not require further analysis.
Cultural Resources	Y	An analysis of potential effects on cultural resources is required. See Appendix D for documentation.
Tribal Treaty Rights	Y	An analysis of the potential effect to federally recognized Tribes and Tribal resources is required. Consultation with Tribes is described in Section 8.11.
Air Quality and Noise	Y	Repairs involve construction equipment that generate exhaust and noise. Analysis is required to understand the potential for effects.

Resource	Included in Detailed Analysis (Y/N)	Rationale for inclusion or exclusion
Hazardous, Toxic, and Radiological Waste	N	The repair area does not have contaminants. The closest superfund site is approximately 14 miles away in Maple Valley, WA. This resource does not require further analysis.
Aesthetics	Y	Repairs include removal of vegetation that would alter the aesthetics of the project area. Analysis is required to understand the potential for effects.
Recreation Resources	Y	Repairs may affect recreational uses on the levee during construction. Analysis is required to investigate what recreation is present, and to determine the extent of any potential effects.
Public Services and Utilities	N	Repairs will have no effect on public services and utilities. This resource does not require further analysis.
Socioeconomics & Environmental Justice	Y	Repairs may affect socioeconomics and environmental justice. Analysis is required to understand the potential for effects.
Transportation and Traffic	Y	Repairs involve construction equipment that must be transported to the site. Analysis is required to understand the potential for effects.

3.1 WATER AND SEDIMENT QUALITY

Washington State Department of Ecology (Ecology) has designated this portion of the Middle Fork Snoqualmie River as core summer salmonid habitat (although no anadromous fish can reach the area) and primary contact for recreation (WAC 173-201A-602). Water quality standards are established according to this aquatic life use designation.

According to the Washington State Department of Ecology's Water Quality Atlas (Ecology 2023c), the subject reach of the Middle Fork Snoqualmie River is listed as a Category 4A water for temperature. Category 4A waters are those waterbodies that already have an EPA-approved Total Maximum Daily Load (TMDL) plan in place and implemented. In this case, two approved water quality improvement plans cover the project area: the Snoqualmie River Watershed Temperature TMDL and the Snoqualmie River Watershed Multiparameter TMDL. The impairment for temperature was noted in 2006 when the 7-day mean of daily maximum values criterion of 16°C was exceeded 11 times. The maximum exceedance was 21.8°C. A TMDL set a load allocation for a segment downstream that requires the entire area to produce measured reductions in temperature such that the downstream segment may meet water quality standards (Ecology 2011).

Substrate in the area is dominated by cobble to large boulder-sized rocks due to the quantity and velocity of water in the area. Portions of the river, particularly the opposite side of the river from the project area, are lined by bare bedrock as the river moves most smaller particles downstream.

3.1.1 No Action Alternative

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, if flood fighting efforts were unsuccessful, could allow floodwater to transport debris and sediment into the river from adjacent properties with substantial impacts to water quality. Adjacent areas include recreational, agricultural, and residential properties.

3.1.2 Repair In-Place Alternative

Under the preferred alternative, Repair In-Place, the MTE Levee would be repaired to its pre-damage condition with slightly larger armor rock as appropriate given the hydrologic conditions. Doing so would require work in the active channel with some work below the OHWM. Construction would be expected to cause minor, temporary, and localized increases in turbidity. BMPs, including restrictions on fueling and prevention of fluid leaks from construction equipment, would be employed to minimize and prevent discharge of pollutants into the river. Materials used for the repair would be contaminant free and purchased through a contract bidding process from vendors fully permitted by the state. Turbidity would be monitored upstream and downstream of the project site during construction (Appendix C). If turbidity exceeds state water quality standards, particulate-generating activities would be halted until standards are met and construction methods changed to avoid future exceedances. All construction materials would be clean and contaminant-free, including free from oils and excessive sediment.

This alternative would remove shoreline vegetation at the repair location and replace it with rock armor. The vegetation removal is expected to have negligible effects to shading and localized water temperatures along the shoreline as the majority of the vegetation to be removed is low in stature with the exception of the one giant sequoia tree. The giant sequoia tree provides only very localized shade at the edge of the wide river channel in this location. To mitigate for the vegetation removal, hydroseeding would be incorporated into the repair and off-site mitigation plantings would be installed as described in section 2.6 to compensate for tree removal. In addition, willow bundles have been incorporated into the levee repair which will provide shade, insect habitat, and edge diversity, and as they mature the stems create refugia for fish during high-water events. This alternative would not have measurable effects to pH, bacteria, and dissolved oxygen levels in the river. Only clean, uncontaminated materials would be used, and no pollutants are expected to be introduced to the river. Effects to water quality from this alternative would be temporary and localized.

3.2 VEGETATION

The reach of river around the project site has a vegetated riparian corridor consisting of shrubs, willows (*Salix* spp.), and small black cottonwood (*Populus trichocarpa*) trees spanning the width

of the levee. Within the project area, a giant sequoia tree is located on the crest of the levee while the levee riverward face is dominated by invasive Himalayan blackberry (*Rubus armeniacus*). The margins of the levee crown are covered with grasses and forbs while the center is packed gravel. Where the levee terminates at the downstream end, there is a small, open grassy area. Landward of the levee is a patchy forest of Douglas fir (*Psuedotsuga menziesii*), western red cedar (*Thuja plicata*), and big leaf maple (*Acer macrophyllum*). Some native undergrowth shrubs such as ocean spray (*Holodiscus discolor*) and osoberry (*Oemleria cerasiformis*) occur, but the undergrowth is dominated by the invasive Himalayan blackberry.

3.2.1 No Action Alternative

Subsequent flood events would exacerbate damages to the levee and likely cause soil erosion and mortality to select vegetation in the area. Particularly, the root structure of the giant sequoia on the levee crown is likely to be undermined, resulting in an eventual fall. Other vegetation could be washed away by flood waters or succumb to stress of inundation if sensitive to excess water. Over time, a vegetation community able to withstand periodic flooding and inundation would likely establish on the damaged levee and surrounding areas.

3.2.2 Repair In-Place Alternative

The preferred alternative would require the removal of three trees, the mature giant sequoia near the crown of the levee and two smaller, deciduous trees on the landward side. The trees obstruct access to the repair site for the equipment needed to move and place Class VI riprap. Removed trees would be placed on the newly repaired levee slope just below the planted willow bundles. A minor reduction in habitat function is expected due to tree removal and construction activities. Establishment of willows at the repair site would replace some of the impacted habitat functions lost by the tree removal. Natural recruitment of woody species is expected to occur slowly. Establishment of herbaceous vegetation would limit rock exposure to the sun (to limit associated water temperature impacts) and would provide some nutrient input to the river. Mitigation activities, including hydroseeding and planting of conifers on landward side of levee, would provide some of the impacted riparian functions to include shoreline complexity, woody debris recruitment, and nutrient input. Willow bundles have been incorporated into the levee repair which will provide shade, insect habitat, and edge diversity, and as they mature the stems create refugia for fish during high-water events. Overall, the effect of the Repair In-Place Alternative on vegetation would be minor given the limited vegetation present and the mitigation plantings proposed.

3.3 FISH AND WILDLIFE

The subject reach of the Middle Fork Snoqualmie River supports cutthroat trout (*Oncorhynchus clarkii lewisi*), rainbow trout (*O. mykiss*), trout hybrids (*O. mykiss* x *O. clarkii*) and mountain whitefish (*Prosopium williamsoni*) (WDFW 2022) but is inaccessible for anadromous and federally listed salmonid species due to the presence of Snoqualmie Falls. Other fish species found in this reach include largescale sucker (*Catostomus macrocheilus*), longnose dace (*Rhinichthys cataractae*), and sculpin species (*Cottus* spp.). Western brook lamprey (*Lampetra richardsoni*) may also be present as they are present downstream of the proposed levee repair. Primary impacts to aquatic species would include vibration and noise disturbance because of the heavy equipment, as well as turbidity during active excavation and/or placement of rock.

Species would likely be displaced from the project area during in-water work; however, species are expected to return to the area once construction is complete. Most individuals are expected to avoid the area during construction, however, some individuals of bottom dwelling species, such as sculpins, could be killed during active excavation and rock placement.

Terrestrial areas around North Bend are home to numerous species including larger mammals such as black-tailed deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis nelsoni*), coyote (*Canis latrans*), cougar (*Puma concolor*), and bobcats (*Lynx rufus*). Bird observations nearby include a variety of mostly common birds adapted to coniferous forests (Little Si, ebird 2022). The project area and its immediate vicinity likely support fewer species consisting of those more habituated to humans. Primary impacts to local mammals would include noise and human disturbance during construction. Individuals may temporarily avoid the project area during construction but would be expected to return when construction is complete.

3.3.1 No Action Alternative

The No Action Alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee with associated severe turbidity and potential pollution impacts to the river. A flood fight would likely be undertaken to prevent a breach. 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 repair action. The exact effect to fish and wildlife associated with emergency flood actions is difficult to quantify or predict but does have the potential to be considerable if the flood event warrants repairs at a damaged site.

3.3.2 Repair In-Place Alternative

Repairs under this alternative would cause short-term impacts to fish and wildlife. The primary impacts would be a temporary increase in turbidity and noise, vibration, and human activity caused by heavy equipment use. These impacts may temporarily displace fish and wildlife during the 3 to 4 weeks of construction, but fish would be expected to return as soon as construction is complete. Effects to fish and wildlife due to this alternative would be temporary and localized.

3.4 CULTURAL RESOURCES

The MTE Levee was constructed by 1969 by local entities. A literature review and records search found no archaeological sites located within or adjacent to the area of potential effects (APE). The MTE Levee was previously surveyed in 2009, and a USACE archaeologist conducted a pedestrian survey of the APE on February 10, 2021, and May 3, 2023. Previous disturbances within the APE include construction of the MTE Levee and the 2009 levee repair work. The MTE Levee is over 50 years old and was recorded on a SHPO historic property inventory form. USACE determined that the MTE Levee is not eligible for the National Register of Historic Places (NRHP). SHPO concurred with this determination and recorded their review and agreement in project files in the Washington Information System for Architectural and Archaeological Records Data (WISAARD). SHPO also concurred with USACE's finding of no historic properties

affected for this project on April 26, 2022, with the stipulation that a professional archaeological monitor be present during excavation of the levee toe and an archaeological monitoring and inadvertent discovery plan (MIDP) be developed. USACE developed an MIDP for this project and will be implementing it during construction. USACE consulted with the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Tulalip Tribes of Washington, and the Yakama Nation about the repair. An APE amendment including the updated access route was sent to the SHPO and the Tribes on May 17, 2023. SHPO concurred with the revised APE on May 17, 2023, and the determination of no historic properties affected on June 20, 2023, reasserting the stipulation that a professional archaeological monitor be present and an MIDP be followed. To date, USACE has received no comments from these Tribes regarding the NHPA consultation.

3.4.1 No Action Alternative

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.

3.4.2 Repair In-Place Alternative

The preferred alternative is a repair within the pre-damage levee footprint. Under this alternative, the MTE levee would be repaired and would result in no historic properties affected, as there are no historic properties within the project APE (Appendix D).

3.5 AIR QUALITY AND NOISE

Air quality in King County and at the site is regulated by the Puget Sound Clean Air Agency (PSCAA 2022). The main sources of outdoor air pollution are motor vehicles, outdoor burning, and wood smoke.

Under the Clean Air Act, the Environmental Protection Agency (EPA) sets standards for air quality to regulate harmful pollutants. National ambient air quality standards 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 do not meet the national ambient air quality standards are designated non-attainment areas. The EPA sets *de minimis* thresholds for pollutants in non-attainment areas. National ambient air quality standards are met across Washington State, but Ecology and other clean air agencies continue to monitor air quality at 55 locations (Ecology 2023b).

The EPA established the Air Quality Index (AQI) as a simplified tool for communicating daily air quality forecasts and near real-time information to people for planning their daily activities. The AQI indicates how clean or polluted air is and what associated health effects might be a concern. It focuses on health effects that may be experienced within a few hours or days after breathing polluted air. An AQI value of 100 generally corresponds to the air quality standard for

the pollutant set to protect public health. A higher AQI indicates higher levels of air pollution and greater health concern.

The site is in Attainment Areas for all pollutants of concern (Ecology 2023a). National ambient air quality standards are monitored by Ecology and other clean air agencies at 55 locations throughout the state. One of these sites, North Bend Way, is in North Bend and is owned by Ecology (Ecology 2023b). Table 3 shows the AQI rating for 2021 by county in the region of the Puget Sound Clean Air Agency (PSCAA 2022). Most days in 2021 were rated as having a good air quality. Two days were rated as unhealthy and one day was rated as very unhealthy due to wildfires.

Table 3. AQI ratings for 2021 (PSCAA 2022).

	AQI Rating (percent of year)					
County	**Good (0-50 AQI)**	**Moderate (51-100 AQI)**	**Unhealthy for Sensitive Groups (101-150 AQI)**	**Unhealthy (151-200 AQI)**	**Very Unhealthy (201-300)**	**Highest AQI**
King	84.1	14.8	0.3	0.5	0.3	246
Kitsap	98.4	1.4	0.3	0	0	113
Pierce	83.6	15.6	0.8	0	0	139
Snohomish	82.5	16.7	0.8	0	0	137

The project site and its surroundings have been developed, with a wide variety of human activities contributing to ambient noise levels. Human-related existing noise sources at the project site include traffic, construction, internal combustion engines, and agricultural activities.

3.5.1 No Action Alternative

The No Action Alternative would have no direct effect on air quality or noise. Emergency actions may be required to protect lives and property in the event of a flood. These actions would likely have similar air emissions and noise effects as the preferred alternative but could differ depending on timing and 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 on air quality and noise would be negligible.

3.5.2 Repair In-Place Alternative

Construction vehicles and heavy equipment used in construction would temporarily and locally generate increased gasoline and diesel exhaust fumes. The small area of construction and the short duration of the activities would limit the impact to air quality. The proposed project would constitute routine repair of an existing facility, generating an increase in direct emissions of a criteria pollutant or its precursors that would be *de minimis*, and would therefore be exempt by 40 CFR Section 93.153(c)(2)(iv) from the conformity determination requirements. Emissions generated by the construction activity are expected to be minor, short-term, and would not affect the implementation of Washington's Clean Air Act implementation plan.

Unquantifiable but negligible exacerbation of effects of CO_2 emissions on global climate change would be anticipated.

During construction activities, there would be a localized increase in ambient noise levels from equipment operation. Proposed repairs would be conducted during daylight hours from 7 AM to 7 PM to limit noise impacts on surrounding properties. Construction-related traffic may cause temporary increases to local traffic, which is expected to cause a minor increase vehicle emissions. Effects on air quality and noise would be negligible.

3.6 AESTHETICS

The project area and its surroundings are typical of mid-elevation western Washington rivers. Water tolerant species such as willow, cottonwood, and native shrubs line the river with a mixed conifer deciduous forest on the landward side of the levee (predominantly Douglas fir and big-leaf maple with Himalayan blackberry dominating the undergrowth). The downstream end of the levee (within the proposed repair footprint) has two unique features, a memorial bench, and a large giant sequoia.

3.6.1 No Action Alternative

The No Action Alternative would likely result in further damage to the levee, potentially undermining the root system of the giant sequoia. Unmitigated damage to the levee could eventually lead to loss of the sequoia and the memorial bench on the crown of the levee.

3.6.2 Repair In-Place Alternative

Repairs to the levee would require the removal of the giant sequoia and two small, deciduous trees on the landward side of the levee. Following repairs, the removed trees would be placed just below the newly planted willow bundles. This will provide shading, organic input, cover, and some complexity to the shoreline. Mitigation for the removal of the trees would consist of planting nine conifers on the landward side of the levee.

The memorial bench would be temporarily moved prior to repair work commencing. Following completion of the repairs, the bench would be replaced in a similar manner and location on the crown of the levee as it was originally.

3.7 RECREATION RESOURCES

Because of the dangers associated with drowning at this site, King County discourages public access. Nonetheless, the area is unofficially used for river access to a popular swimming area. The levee crown is used by bicyclists and pedestrians; however, private property between the project area and the access point likely precludes most recreation from the project area.

3.7.1 No Action Alternative

The No Action Alternative would not alter public access to the area; however, the area may become more dangerous as erosion destabilizes the face of the levee.

3.7.2 Repair In-Place Alternative

The public will be temporarily barred from accessing the area during construction activities. Few individuals are likely to be affected by the closure and impacts would be limited to the

period of construction (anticipated to be a maximum of approximately 3-4 weeks). No long-term impacts to recreation resources will occur.

3.8 SOCIOECONOMICS & ENVIRONMENTAL JUSTICE

Executive Order 12898, Environmental Justice in Minority Populations and Low-Income Populations and Executive Order 14008, Tackling the Climate Crisis; EO 13985 & 14091, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government; 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 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.

Existing Conditions Pre-flood

An analysis of demographic data was conducted to derive information on the approximate locations of low-income and minority populations in the community of concern. Since the analysis considers disproportionate impacts, three areas were defined to compare the area affected by the project and a larger regional area that serves as a basis for comparison and includes the area affected. The larger regional area is defined as the smallest political unit that includes the affected area and is called the community of comparison. For purposes of the analysis, the affected area is approximately a 5-mile radius around the project area, and the city of North Bend, Washington, is the community of comparison. Demographic information was also compared against the State of Washington for reference. The EPA's Environmental Justice (EJ) Screening and Mapping tool, also known as the EJScreen tool, was used to obtain the study area demographics (EPA 2023a).

As shown in Table 4, the aggregate minority population is estimated at 19 percent in the affected area, 30 percent in the city of North Bend, and 33 percent in the State of Washington (EPA 2023a, Appendix E). The aggregate population percentage in the affected area does not

exceed 50 percent and is less than the state average. The EO does not provide criteria to determine if an affected area consists of a low-income population. For purposes of the assessment, the CEQ criterion for defining low-income population was adapted to identify whether the population in an affected area constitutes a low-income population. An affected geographic area is considered to consist of a low-income population (i.e., below the poverty level, for purposes of this analysis) where the percentage of low-income persons: 1) is greater than 50 percent, or 2) is meaningfully greater than the low-income population percentage in the general population or other appropriate unit of geographic analysis. The U.S. Census Bureau poverty assessment weighs income before taxes and excludes capital gains and non-cash benefits (such as public housing, Medicaid, and food stamps). Table 4 provides a summary of the income and poverty status for the study area. As shown in the table, 13 percent of the individuals in the affected area are considered low-income. This percentage in the affected area does not exceed 50 percent. In addition, the affected area low-income population percentage is smaller than the low-income population in the city (18 percent) and the percentage of the State (24 percent). Therefore, the affected area is not considered to have a high concentration of low-income population.

Table 4. Environmental Justice Demographic and Income Statistics.

Demographic Affected	Affected Area	City of North Bend	Washington State
Minority Population	19%	30%	33%
Low-Income Population	13%	18%	24%

The EPA's EJScreen tool also provides an index on environmental indicators (EPA 2023a, Appendix E). The EJ index is a combination of environmental and demographic information. There are 12 EJ Indexes in EJSCREEN reflecting the 12 environmental indicators. The EJ Index uses the concept of "excess risk" by looking at how far above the national average the block group's demographics are. EPA considers a project to be in an area of potential EJ concern when an EJScreen analysis for the impacted area shows one or more of the 12 EJ Indexes at or above the 80th percentile in the nation and/or state. None of the 12 EJ Indexes are at or above the 80th percentile in the nation and state (EPA 2023a, Appendix E).

According to the EPA, air toxics are defined as airborne substances that cause or may cause serious health, environmental, or ecological effects (EPA 2023b). EPA has identified 188 pollutants as air toxics in Section 112 of the Clean Air Act (EPA 2023b). The EPA's AirToxicScreen Mapper was used to identify cancer risk by air toxic and source type in the city of North Bend, King County, Washington (EPA 2023c, Appendix E).

Additionally, as part of the environmental justice analysis, the CEQ's Climate and Economic Justice Screening Tool was examined for disadvantaged communities. 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. The project area is located within census tract number 53033032704, which has a population of 7,326. This tract is not considered disadvantaged and does not meet any burden thresholds or at least one socioeconomic threshold (CEQ 2023).

3.8.1 No Action Alternative

The NLD estimates that MTE levee protects 1,068 people, 394 buildings, and $158 million worth of property value (NLD 2023). In the damaged condition, the levee presently provides an approximate 1-year LOP. The levee would likely be further damaged in future flood events and could fail, which would endanger homes, businesses, the wastewater treatment facility, and other public infrastructure.

3.8.2 Repair In-Place Alternative

The preferred alternative of repair of the existing levee does not involve a facility siting decision involving the siting of hazardous waste storage or emission generating activities and will not disproportionately affect minority or low-income populations nor have any adverse human health impacts. The area is not at or above the 80th percentile in the nation and/or State for all 12 EJ indexes. The project would not cause long-term increases to any of the 12 EJ indexes. Only minor and temporary increases related to construction equipment emissions are anticipated. Other 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. No cumulative impact to environmental justice is expected from interaction of the proposed levee repairs with other past, present, and reasonably foreseeable projects. Further, Tribal governments that are also environmental justice communities in the project area have been engaged and informed about the proposed action. The proposed action would not directly or through contractual or other arrangements, use criteria, methods, or practices that discriminate on the basis of race, color, or national origin, nor would it have a disproportionate effect on minority or low-income communities.

Because the levee protects the area from flooding of the Middle Fork Snoqualmie River, the area of analysis for environmental justice purposes also includes the floodplain for this river. The preferred alternative, which repairs the MTE 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 repair of the levee.

3.9 TRANSPORTATION AND TRAFFIC

Access to the MTE Levee is via public roadways through the city of North Bend. Public transportation and regular traffic patterns, including stop lights and round abouts, exist within North Bend.

3.9.1 No Action Alternative

The No Action Alternative could affect transportation and traffic in North Bend. If no action was taken and the levee were to breach, damage to public roadways could occur from flooding requiring additional repairs, traffic delays, and temporary detouring of public transportation.

3.9.2 Repair In-Place Alternative

The repair in-place alternative will require construction equipment to access the site via public roadways in the city of North Bend. Equipment to be used for this alternative would include a hydraulic excavator, dump truck, and bulldozer. The dump truck can be driven to the site while the excavator and bulldozer would need to be transported using a trailer. Temporary traffic delays are possible, as this equipment is mobilized to the site; however, these delays would be short in duration. No impact to public transportation will result from the construction of the proposed alternative.

4 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with the preferred alternative at each site would be the following: (1) temporary and localized increases in noise, activity, and emissions that may affect fish and wildlife in the area; (2) temporary and localized disruption of local traffic by construction activity and vehicles; (3) irretrievable commitment of fuels and other materials for repairs; (4) temporary and localized increase in turbidity levels during in-water construction, which may affect aquatic organisms in the area; and (5) removal of vegetation from within the proposed construction areas in the riparian zone. The vegetation removal has the longest duration of impact due to the length of time needed for vegetation to regrow to a similar size. Vegetation loss would be mitigated by the proposed plantings.

5 COMPENSATORY MITIGATION

As mitigation for loss of vegetation within the repair site due to construction activities, the USACE would complete the mitigation described in section 2.6. The plantings would provide a source of organic input to the Middle Fork Snoqualmie River and would offset project impacts to aquatic and terrestrial species.

The USACE would inform the non-federal Sponsor that the mitigation is part of the repair and should only be trimmed to the minimal amount necessary to retain adequate visual fields for inspection. The USACE would maintain and monitor the plantings for 1 year after construction to ensure 80 percent survival. If less than 80 percent survival is recorded after 1 year, the USACE would replace all the dead plants (via mechanical installation or hand installation) and would monitor for an additional growing season.

6 CUMULATIVE EFFECTS

The CEQ regulations implementing NEPA defines cumulative effects as the “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 actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR §1508.1(g)(3)).

The Snoqualmie River Basin has been substantially modified in the last 150 years. Dams, levees, irrigation projects and other water extraction and control projects have confined the river, impacted water quality, and altered flows. Riparian habitat has been lost, side channel and other floodplain features have been cut-off, salmonid populations have steeply declined. The proposed repairs contribute to these impacts by maintaining the negative effects of a stabilized riverbank, disallowing river meandering, and cutting off connection to the floodplain.

As the local non-federal Sponsor, the King County Flood Control District continues to maintain the levee system and conducts periodic repairs and vegetation maintenance to the levees it oversees. These actions by the local Sponsor maintain the status quo of degraded riverine habitat. Future flooding on the Snoqualmie River and its tributaries is likely to damage non-federal structures. Non-federal entities would likely undertake at least some repair actions under those circumstances and may seek Federal assistance with repairs or emergency responses. In February 2020, the Middle Fork Snoqualmie River experienced record flooding. It is possible that additional damage sites were created by this event and the local Sponsor could request Federal assistance from the USACE for additional repairs. If the USACE determines that the damages are eligible for assistance under the Public Law 84-99 Levee Rehabilitation Program, then additional repairs would take place. The scope and effects of those actions would likely be similar to those of the present action.

Historic modifications within the watershed have included commercial and residential development, farming, and extensive road development, which have substantially modified the river, watershed hydrology and water quality, and the habitat in the floodplain. Agricultural practices are expected to continue throughout the basin in the foreseeable future, consistent with current practices. Future development, including residential or commercial construction, road development, and expansion of water, sewer, and other utilities, is expected as the surrounding community and regional population grow, and these would add to the effects of past activities.

Repairs to the MTE Levee, as addressed in this EA, would maintain but not appreciably add an increment of ecological losses in the active floodplain at the repair in-place site. When evaluated in the context of past, present, and reasonably foreseeable future actions, the proposed project would not result in significant incremental detrimental effects when considered in conjunction with other past and present actions, and future proposals.

7 COORDINATION

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

- Washington Department of Ecology
- Washington State Historic Preservation Officer
- Muckleshoot Indian Tribe
- Snoqualmie Indian Tribe
- Tulalip Tribes of Washington
- Yakama Nation

A Notice of Preparation of an EA for the proposed project was made available for public review and comment on March 27, 2023, for a 30-day public review and comment period. One public comment was received (Appendix G).

8 ENVIRONMENTAL COMPLIANCE

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

8.1 BALD AND GOLDEN EAGLE PROTECTION ACT

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

A USACE biologist attended a site visit during the alternatives formulation phase and did not observe any eagle nests at the project sites (USACE 2020). Additionally, as recommended by the USFWS, the biologist examined iNaturalist, which did not show any eagle nests within the project vicinity (iNaturalist 2023). No take of either bald or golden eagles is likely through any of the proposed actions, since there are no known nests near any of the work locations.

8.2 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 2023a). USACE has determined that the proposed repair constitutes a routine facility repair generating an increase in emissions that is clearly *de minimis*, and thus a conformity determination is not required, pursuant to 40 CFR 93.153 (c)(2)(iv).

8.3 CLEAN WATER 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 suspended solids, turbidity, and temperature. The proposed permanent repair action would require work in the active channel with some work below OHWM for a portion of the repair 40 feet downstream along the original alignment including the transition to the undamaged upstream sections of

the levee. The downstream cap, which is approximately 20 feet long, curves away from the OHWM and back around the end point to address the strong hydraulic eddies at this location. Construction could cause minor, temporary, localized increases in turbidity. 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.

Three sections of the CWA are pertinent to the proposed actions: Section 401 covers water quality standards and evaluation of the effects discharges would have on those 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.

Section 404 and 401: The USACE does not issue Section 404 permits to itself for its own civil works activities, but the USACE accepts responsibility for the compliance of its civil works projects with Sections 401 and 404 under the CWA. Pursuant to 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" is: "Maintenance, including 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." This project remains within the same footprint of the original project with a curved downstream terminus and is replacing a rock armor layer with another rock armor layer. Although the total repair length is 60 feet, the design is curved and overlaps approximately 40 feet of the original levee length. Approximately 20 feet of the downstream end of the repair curves away from the river and into the upland, effectively providing a "cap" at the downstream end of the levee. A portion (approximately 20 feet) of the original levee will not be repaired, so there will be a net decrease in fill below and waterward of OHW within the original footprint. As such, it does not present a change in the character, scope, or size of the original fill design. Therefore, Section 404 of the CWA is not applicable. 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: Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance. The preferred alternative would not exceed 1 acre of ground disturbance.

8.4 COASTAL ZONE MANAGEMENT ACT OF 1972

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 Program. USACE is substantively consistent with the enforceable polices of the

King County Shoreline Master Program. The USACE sent a CZMA Consistency Determination to Ecology requesting concurrence with the finding that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Coastal Zone Management Program on May 1, 2023. Ecology concurred with the USACE's consistency determination on June 23, 2023 (Appendix F).

8.5 ENDANGERED SPECIES ACT

In accordance with Section 7(a)(2) of the ESA 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 performed an evaluation of potential effects to threatened and endangered species. Due to the nature of the project and the surrounding developed area, the presence of natural barriers to fish passage, the type of habitat within and surrounding the river at the project location, and the adherence to in-water work windows and BMPs, it was concluded there would be no effect to listed species.

8.6 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

The Magnuson-Stevens Fishery Conservation and Management Act, (16 U.S.C. § 1801 *et. seq.*), as amended by the Sustainable Fisheries Act of 1996 (PL 104-267) requires Federal agencies to consult with the NMFS regarding actions that may adversely affect 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.

USACE performed an evaluation of potential effects to EFH within the project vicinity. According to the National Marine Fisheries Service (NMFS), the project area has been identified as essential fish habitat (EFH) for chinook salmon (*O. tshawytscha*), coho salmon (*O. kisutch*), and pink salmon (*O. gorbuscha*) (NOAA 2021). Although these salmonid species are not located upstream of Snoqualmie Falls, project activities were analyzed to ensure no loss of EFH would occur. Spawning substrate, sufficient river flow and velocity, and presence of prey species do occur within the Middle Fork Snoqualmie River adjacent to the project area. This habitat supports resources that could flow downstream (e.g., sediment transport, prey migration) into the river reach where the EFH species occur. However, because the project consists of a levee repair with no expansion of footprint or new waterward construction outside of the original levee prism, no degradation of these key components of EFH will occur. Benthic macroinvertebrates and other prey species will not be losing any habitat within the Middle Fork Snoqualmie River, as the levee is being repaired within the same footprint with no waterward expansion. Adjacent areas along the Middle Fork Snoqualmie River provide sufficient habitat for prey species to use if temporary effects from turbidity, siltation, noise, or vibrations are experienced. Project BMPs have been designed to limit these impacts to the maximum extent

practicable. As such, it was concluded the project would not adversely affect EFH within the project area.

8.7 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) as amended protects over 800 bird species and their habitat and commits that the U.S. will 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 the USFWS of potential negative effects to migratory birds.

Work is proposed after the prime nesting season (April to mid-June) to comply with the in-water work window (July 15 to October 31). Trees that may provide nesting to migratory birds would be removed. Mitigation to offset tree removal would provide good nesting habitat as the plantings mature. Implementation of the preferred alternative would not have any direct, affirmative, and 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.

8.8 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 EIS be included in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment. The EIS must provide detailed information regarding the proposed action and alternatives, the environmental effects of the alternatives, appropriate mitigation measures, and any adverse environmental effects that cannot be avoided if the proposal is implemented. Agencies are required to demonstrate that decision makers have considered these factors prior to undertaking actions. Major Federal actions determined not to have a significant adverse effect on the quality of the human environment may be evaluated through an EA.

The Corps entered into a Cooperation Agreement with each of the Non-Federal Sponsor, the King County Flood Control District, on May 18, 2023. At that time, the Corps had initiated but not yet concluded full NEPA compliance for the levee repair project. The timing of signature of the Cooperation Agreement was critical because it was the triggering event in a subsequent series of critical-path steps leading to repair project execution. The Determination of Practicability for NEPA Compliance dated May 16, 2023, articulated the minimum time intervals required for each step in the procurement and execution processes leading up to the deadline for completion of in-water construction, some of which are necessarily sequential, and also took into account the resourcing and sequencing of milestones associated with conducting eight levee repair projects during the summer of 2023 in addition to the MTE Levee repair. If the Corps had failed to timely execute the Cooperation Agreement and initiate a sequence of meeting the subsequent critical-path milestones, the MTE Levee repairs would have been in

jeopardy of delay, leaving the levee in its current damaged condition into a fourth flood season. Completion of the NEPA documentation prior to executing the Cooperation Agreement, while still fulfilling the agency's emergency levee rehabilitation authorities and responsibilities under P.L. 84-99, was determined to be not practicable. At the time of execution of the Cooperation Agreement the Corps complied with NEPA "to the fullest extent possible" under the circumstances, considering what was practicable given the exigency of the need of reducing the urgent risk presented by these damaged flood control structures before the next flood season

8.8.1 NEPA / Proposed Action

The prospective Federal action is the proposed repair of the MTE Levee as discussed in the body of this EA. The proposed action would include both the levee repair and mitigation. This EA has been prepared pursuant to NEPA. Effects on the quality of the human environment as a result of the proposed levee repair are anticipated to be less than significant. The EA has incorporated any necessary and applicable modifications to the scope and/or nature of the project, any effects to the human environment resulting from these modifications, the procedures and practices used to implement the project, and/or the type and extent of compensatory mitigation associated with the project.

8.8.2 NEPA Summary

A Notice of Preparation of an EA for the proposed project was made available for public review and comment on March 27, 2023. The comment period ended on April 26, 2023. One public comment was received. The public comment and response are provided in Appendix G.

8.9 NATIONAL HISTORIC PRESERVATION ACT OF 1966

Section 106 (54 U.S.C. § 306108) of the NHPA (54 U.S.C. § 300101) requires that Federal agencies evaluate the effects of a Federal undertaking 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. The lead agency must examine whether feasible alternatives exist that avoid cultural resources eligible for the NRHP. If an effect cannot reasonably be avoided, measures must be taken to minimize or mitigate adverse effects.

A USACE archaeologist conducted a pedestrian survey of the APE on February 10, 2021, and May 3, 2023. Previous disturbances within the APE include construction of the MTE Levee and the 2009 levee repair work. The MTE Levee is over 50 years old and was recorded on a SHPO historic property inventory form. USACE determined that the MTE Levee is not eligible for the National Register of Historic Places (NRHP). SHPO concurred with this determination and recorded their review and agreement in project files in the WISAARD. SHPO also concurred with USACE's finding of no historic properties affected for this project on April 26, 2022, with the stipulation that a professional archaeological monitor be present during excavation of the levee toe and an archaeological MIDP be developed. USACE developed an MIDP for this project and will be implementing it during construction. USACE consulted with the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Tulalip Tribes of Washington, and the Yakama Nation about the repair. An APE amendment including the updated access route was sent to the SHPO and the Tribes on May 17, 2023. SHPO concurred with the revised APE on May 17, 2023, and

the determination of no historic properties affected on June 20, 2023, reasserting the stipulation that a professional archaeological monitor be present and an MIDP be followed. To date, USACE has received no comments from these Tribes regarding the NHPA consultation.

8.10 Wild and Scenic Rivers Act of 1968

The Wild and Scenic Rivers Act (16 U.S.C. 1271-1278) requires Federal agencies to protect the free-flowing condition and other values of designated rivers and consult with the Federal agency charged with administering the Act, the U.S. Geological Survey.

The project area is not located within a portion of the Middle Fork Snoqualmie River that is designated as a Wild and Scenic River. The designated portion of the Middle Fork Snoqualmie River is the 27.4-mile segment from the headwaters of the Middle Fork Snoqualmie River near La Bohn Gap in Section 20, Township 24 North, Range 13 East, to the northern boundary of Section 11, Township 23 North, Range 9 East. The repair site is located near river mile 46, while the Wild and Scenic designated river reach is approximately 13 miles away beginning near river mile 59 and extending upstream for 27.4 miles. Due to the location of the designation upstream from the project area, no impact to this wild and scenic river segment will result from the construction of the MTE Levee repair project.

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.

The Corps 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 (DODI) 4710.02, Section 3, Subject: DOD Interactions with Federally Recognized Tribes (24 September 2018). The Corps 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 into 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" (U&A) within Puget Sound were delineated in a federal court adjudication, U.S. 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" U.S. v. Washington, 384 F. Supp. 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 Northwest Sea Farms v. USACE,* 931 F. Supp 1515 (W.D. Wash.1996).

For this proposed project, the Corps has notified the following tribes: Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, the Tulalip Tribes of Washington, and the Yakama Nation, and evaluated impacts to fish and wildlife in this project and sent letters to the above listed Tribes requesting comments on the proposed project and providing the opportunity to initiate Government-to-Government consultation on March 2, 2023, and March 29, 2023. To date the Corps has received no comments from the contacted Tribes regarding treaty rights.

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 purpose of the levee repair is to restore the level of flood protection provided prior to the flood event. No expansion of the levee will occur and no additional development or new impact to the floodplain will result from the construction of the project.

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. Wetlands are not located in or immediately adjacent to the project area. The preferred alternative would have no effect on wetlands.

8.14 Executive Order 13007 Native American Sacred Sites

EO 13007, Native American Sacred Sites, directs Federal agencies to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners. Agencies are to avoid adversely affecting the physical integrity of such sacred sites and to maintain the confidentiality

of sacred sites when appropriate. The Act encourages government-to-government consultation with Tribes concerning sacred sites. Some sacred sites may qualify as historic properties under the NHPA.

USACE sent letters to the Muckleshoot Indian Tribe, Snoqualmie Indian Tribe, and the Yakama Nation requesting comments on the proposed project and providing the opportunity to initiate government-to-government consultation on March 2, 2023. USACE sent an additional letter to the Tulalip Tribes of Washington on March 29, 2023. To date, USACE has received no comments from the contacted Tribes regarding sacred sites.

8.15 Executive Order 13175 Consultation and Coordination with Indian Tribal Governments

EO 13175 reaffirmed the Federal Government's commitment to a government-to-government relationship with Indian tribes and directed Federal agencies to establish procedures to consult and collaborate with Tribal governments when new agency regulations would have Tribal implications. USACE has a government-to-government consultation policy to facilitate the interchange between decision makers to obtain mutually acceptable decisions. In accordance with this EO, USACE has engaged in regular and meaningful consultation and collaboration with the federally recognized tribes surrounding the project area as described above.

9 SUMMARY OF ASSESSMENT

The No Action Alternative (Alternative 1) does not meet the project's purpose and need. The Repair In-Place Alternative (Alternative 4) fulfills the project's purpose and need by repairing the MTE Levee within the pre-damage levee footprint and restoring the 10-year level of flood protection provided by the MTE Levee prior to the damaging event. Based on the above analysis, the proposed MTE Levee Repair 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.

10 REFERENCES

CEQ (Council on Environmental Quality). 2023. Climate and Economic Justice Screening Tool. Available online: https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5 Accessed May 10, 2023.

eBird. 2022. Sightings Little Si, King County Washington. Available online: https://ebird.org/hotspot/L567176?yr=all&m=&rank=mrec&hs_sortBy=count&hs_o=desc Accessed December 22, 2022.

Ecology (Washington State Department of Ecology). 2011. Snoqualmie River Basin Temperature Total Maximum Daily Load – Water Quality Improvement Report and Implementation Plan. Publication Number: 11-10-041.

Ecology. 2023a. Determining if areas in Washington meet national air quality standards. Available online: https://ecology.wa.gov/Regulations-Permits/Plans-policies/Areas-meeting-and-not-meeting-air-standards Accessed: January 11, 2023.

Ecology. 2023b. Washington's air monitoring network. Available online: https://enviwa.ecology.wa.gov/home/map. Accessed January 11, 2023.

Ecology. 2023c. Water Quality Atlas. Available online: https://apps.ecology.wa.gov/waterqualityatlas/wqa/map. Accessed January 11, 2023.

ESCP (Environmental Services City of Portland). Version 2.1. March 2016. Avoiding Impacts on Nesting Birds, Best Management Practices, Vegetation and Construction Projects.

EPA (Environmental Protection Agency). 2023a. "EJScreen: Environmental Justice Screening and Mapping Tool." Available online: https://ejscreen.epa.gov/mapper/ Accessed May 10, 2023.

EPA. 2023b. AirToxScreen Frequently Asked Questions. Accessed May 10, 2023, online at: https://www.epa.gov/AirToxScreen/airtoxscreen-frequent-questions#emm13

EPA. 2023c. AirToxScreen Mapping Tool. Accessed May 10, 2023, online at: https://epa.maps.arcgis.com/apps/MapSeries/index.html?appid=e5a7e59018c7424eaddcb64b31ba4a41

iNaturalist. Observations. Accessed May 10, 2023, online at: https://www.inaturalist.org/observations?place_id=any&subview=map

NLD (National Levee Database). 2023. Accessed January 2023 online at: https://levees.sec.usace.army.mil/#/

NOAA Fisheries. 2021. Essential Fish Habitat Mapper. https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper. Accessed December 22, 2022.

PSCAA (Puget Sound Clean Air Agency). 2022. 2021 Air Quality Data Summary. Available online: https://pscleanair.gov/300/Documents. Accessed January 11, 2023.

USACE (U.S. Army Corps of Engineers). 2020. Project Information Report, Rehabilitation of Flood Control Works, Mason Thorson Ells Levee. King County. SNQ-01-20.

USACE. 2023. Approved Work Windows for Fish Protection for All Freshwaters Excluding Waters Within National Park Boundaries, Columbia River, Snake River, and Lakes by County and Specific Watercourse. Accessed January 11, 2023, from: https://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Permit-Guidebook/

USGS (U.S. Geologic Survey). 2018. Floods and Recurrence Intervals. Accessed June 14, 2023, from: https://www.usgs.gov/special-topics/water-science-school/science/floods-and-recurrence-intervals.

WDFW (Washington State Department of Fish and Wildlife). 2022. SalmonScape. Available online: http://wdfw.wa.gov/mapping/salmonscape Accessed December 22, 2022.

Appendix A – Photographs

Photo 1. Crown of the levee looking downstream. A red arrow indicates the damaged portion of the levee. The adjacent private residence can be seen on the right of the photo.

Photo 2. Damaged MTE Levee looking upstream from near the King County property line.

Photo 3. Alternate view of the damage to the MTE levee looking across the Middle Fork Snoqualmie River.

Photo 4. Crown of the MTE levee looking upstream.

Appendix B – Design Plans

US Army Corps of Engineers ®
Seattle District

FY20 P2-489193 MTE
MASON THORSON ELLS
2020 LEVEE REHAB
NORTH BEND, WA

SHEET ID	TITLE
	GENERAL
G-001	TITLE, VICINITY MAP, PROJECT MAP, AND INDEX
	CIVIL
Enclosure - 1	SITE ACCESS
CS101	EXISTING SITE PLAN
CS102	EXCAVATION SITE PLAN
CS103	RIPRAP SITE PLAN
CS104	FINISHED GRADE SITE PLAN
C-301	CROSS SECTIONS 1
C-302	CROSS SECTIONS 2
	LANDSCAPE
L-101	MITIGATION SITE PLAN
L-501	PLANTING DETAILS

PROJECT VICINITY MAP
NTS

PROJECT LOCATION MAP
NTS

SAFETY PAYS

IF SHEET MEASURES LESS THAN 22" X 34" IT IS A REDUCED PRINT. REDUCE SCALE ACCORDINGLY.

US Army Corps of Engineers Seattle District

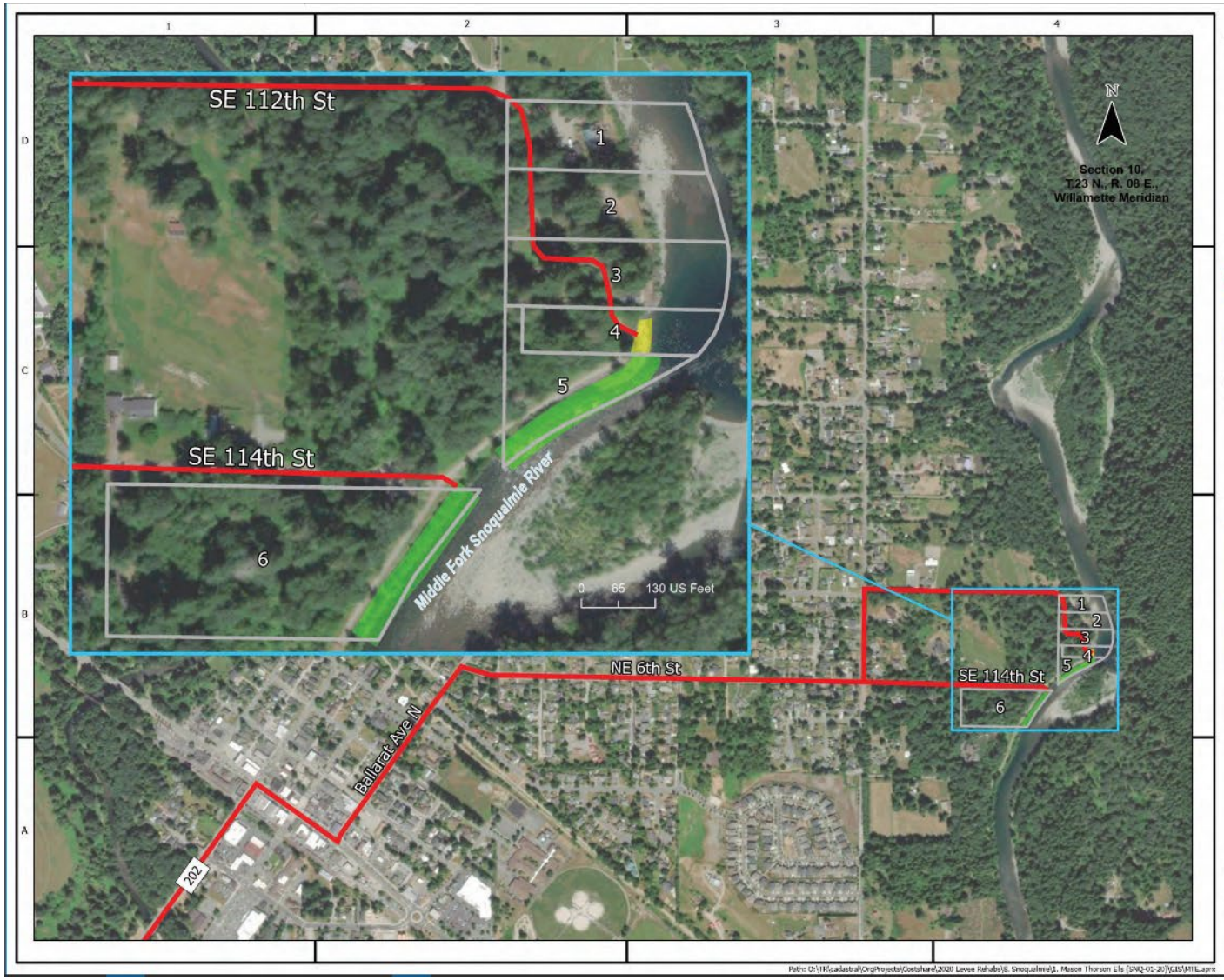
Date: 01 MAY 2023
Solicitation No.: -
File No.: E-6-7-59

Recommended by: GUY L. GREEN, P.E., Chief, Design Branch — Date
Approved by: JOANN T. WALLS, P.E., Chief, Engineering Div. — Date
Submitted by: AARON MEADOWS-ELLS, Project Manager — Date
Reviewed by: ANIL L. NISBARGAND, P.E., Chief, Specs. and Tech Review — Date
U.S. ARMY CORPS OF ENGINEERS SEATTLE DISTRICT SEATTLE, WASHINGTON
Prepared by: Chief, Preparing Section — Date

FY20 P2-489193 MTE
MASON THORSON ELLS
NORTH BEND, WA
2020 LEVEE REHAB
TITLE, VIC MAP, PROJ MAP, AND INDEX
COVER SHEET

SHEET ID
MTE
G-001

DATE AND TIME PLOTTED: 1:58:26 PM 5/1/2023 DESIGN FILE: E:\AECDesign\FY20_P2-489193_MTE\Con_Docs\CAD_Sheets\CMPApr23Revised_FY20_P2-489193_MTE-DRAWINGS.dgn



Emergency Management Levee Rehab

PL 84-99 Levee Rehabilitation

Mason Thorson-Ells Levee
SNQ-01-20

King County
North Bend, WA

US Army Corps of Engineers
Seattle District

Legend

- Temporary Access Easement
- Temporary Work Area Easement (Mitigation)
- Flood Protection Levee Easement
- Parcel

Vicinity Map

Notes:

THIS MAP IS NOT BASED ON AN ACTUAL FIELD SURVEY.

Designed by	
Drawn by	MAC
Checked by	JEF
Date	03-03-2023
File #	SEE SE-RE-TR
Rev.	

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

Prepared by: REAL ESTATE DIVISION
TECHNICAL RESOURCES
CADASTRAL

Emergency Management Levee Rehab

PL 84-99 Levee Rehabilitation
Mason Thorson-Ells Levee
SNQ-01-20

North Bend, WA

KING COUNTY — WASHINGTON

SITE ACCESS

Enclosure 1

Sheet 1 of 1

A1 EXISTING SITE PLAN

GENERAL NOTES

1. STATIONING DERIVED FROM THE NATIONAL LEVEE DATABASE (NLD).
2. LEVEE REPAIR SPANS FROM 0+00 TO -0+57 AS SHOWN.
3. TOPOGRAPHIC LINES ARE SHOWN IN 1-FOOT INCREMENTS (2016 KING COUNTY LIDAR).
4. GEOGRAPHIC COORDINATE SYSTEM: NAD83 WASHINGTON STATE PLANE, NORTH ZONE, US FOOT.
5. REFER TO SHEET Enclosure-1 FOR SITE ACCESS.

LEGEND

PROPERTY LINE

PRE-DAMAGE TOE

2016 EL CONTOUR

MITIGATION PLANTING AREA

US Army Corps of Engineers ®

DESIGNED BY: J. SKINDE	ISSUE DATE: 01 MAY 2023
DRAWN BY: G. SIMON	SOLICITATION NO.: SOL#
CHECKED BY: G. KATO	CONTRACT NO.: CONTRACT #
SUBMITTED BY: AARON MEADOWS-HILLS	FILE NUMBER: DA-3-B
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY S
SEATTLE, WASHINGTON 98134

FY20 P2-486199 MTE
MASON THORSON ELLS LEVEE REHAB 2020
NORTH BEND, WA

EXISTING SITE PLAN

SHEET ID
MTE
CS101

A1 EXCAVATION SITE PLAN

1" = 10'

GENERAL NOTES

1. STATIONING DERIVED FROM THE NATIONAL LEVEE DATABASE (NLD).
2. LEVEE REPAIR SPANS FROM 0+00 TO -0+57 AS SHOWN.
3. ALL IN-WATER WORK MUST OCCUR BETWEEN JULY 15 AND OCTOBER 31.
4. MEMORIAL BENCH TO BE TEMPORARILY REMOVED FOR SITE ACCESS DURING CONSTRUCTION AND REINSTALLED.
5. REFER TO SHEET Enclosure1 FOR SITE ACCESS.

LEGEND

MITIGATION PLANTING AREA

PROPERTY LINE

451' EXCAVATION CONTOUR

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: J. SKINDE
DRAWN BY: G. SIMON
CHECKED BY: G. KATO
SUBMITTED BY: AARON MEADOWS-HILLS
SIZE: ANSI D
ISSUE DATE: 01 MAY 2023
SOLICITATION NO.: SOLIC #
CONTRACT NO.: CONTRACT #
FILE NUMBER: D-6-A-89

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY S
SEATTLE, WASHINGTON 98134

FY20 P2-488193 MTE
MASON THORSON ELLS LEVEE REHAB 2020
NORTH BEND, WA

EXCAVATION SITE PLAN

SHEET ID
MTE
CS102

A1 RIPRAP SITE PLAN

GENERAL NOTES:

1. STATIONING DERIVED FROM THE NATIONAL LEVEE DATABASE (NLD).
2. LEVEE REPAIR SPANS FROM 0+00 TO -0+57 AS SHOWN.
3. ALL IN-WATER WORK MUST OCCUR BETWEEN JULY 15 AND OCTOBER 31.
4. MEMORIAL BENCH TO BE TEMPORARILY REMOVED FOR SITE ACCESS DURING CONSTRUCTION AND REINSTALLED.
5. TRANSITION UPSTREAM END OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPES AND ELEVATIONS.
6. REFER TO SHEET Enclosure-1 FOR SITE ACCESS.

LEGEND

- MITIGATION PLANTING AREA
- GRAVEL SURFACE
- WILLOW PLANTINGS
- PROPERTY LINE
- TRANSITION ZONE
- 451' RIPRAP CONTOUR
- EXCAVATION BOUNDARY

US Army Corps of Engineers

RIPRAP SITE PLAN

SHEET ID
MTE
CS103

A1 FINISHED GRADE SITE PLAN

GENERAL NOTES

1. STATIONING DERIVED FROM THE NATIONAL LEVEE DATABASE (NLD).
2. LEVEE REPAIR SPANS FROM 0+00 TO -0+57 AS SHOWN.
3. ALL IN-WATER WORK MUST OCCUR BETWEEN JULY 15 AND OCTOBER 31.
4. MEMORIAL BENCH TO BE TEMPORARILY REMOVED FOR SITE ACCESS DURING CONSTRUCTION AND REINSTALLED.
5. TRANSITION UPSTREAM END OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPES AND ELEVATIONS.
6. REFER TO SHEET Enclosure-1 FOR SITE ACCESS.

LEGEND

- GRAVEL SURFACE
- WILLOW PLANTINGS
- BURIED/SUBMERGED RIPRAP CONTOURS
- PROPERTY LINE
- BACKFILL EXTENTS
- FINISHED GRADE CONTOUR
- TRANSITION ZONE

US Army Corps of Engineers

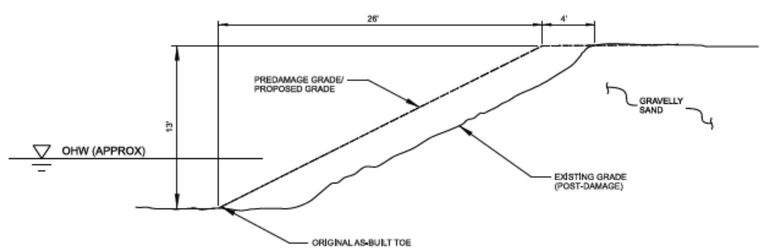
U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY S
SEATTLE, WASHINGTON 98134

ISSUE DATE: 01 MAY 2023

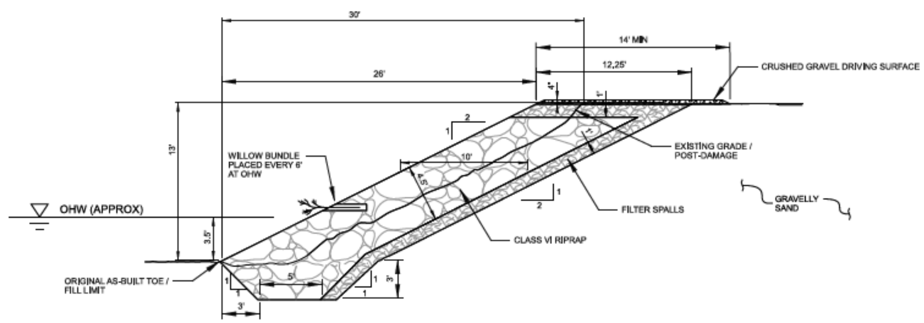
MASON THORSON ELLS LEVEE REHAB 2023
NORTH BEND, WA

FINISHED GRADE SITE PLAN

SHEET ID
MTE
CS104

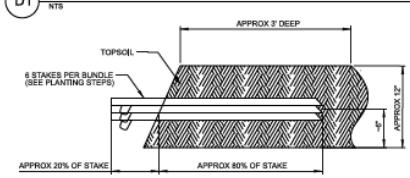


EXISTING AND PREDAMAGED/PROPOSED WATERWARD GRADE LINES
NTS



PROPOSED WATERWARD LEVEE
NTS

D1 LEVEE CROSS SECTIONS
NTS



A1 WILLOW BUNDLE PLANTING CROSS SECTION
NTS

PLANTING STEPS:

1. WILLOW STAKES SHALL BE CUT TO 4' IN LENGTH WITH AN ANGLE CUT (45 DEGREES) BASAL END OF 0.5" TO 1.5" IN DIAMETER AND PERPENDICULAR CUT JUST ABOVE A NODE (BUD) AT THE TOP.
2. WHEN SLOPE ARMOR IS PLACED TO THE PRE-EXISTING VEGETATION LINE (ORDINARY HIGH WATER), CREATE TOPSOIL UNITS WITH WILLOW/DOGWOOD BUNDLES SPACED 6 FEET ON CENTER ALONG THE WATERWARD LENGTH OF THE LEVEE REHAB PROJECT.
3. FOR EACH TOPSOIL UNIT, FIRST PLACE TOPSOIL 6 INCHES THICK, 2 FEET WIDE, AND 3 FEET DEEP ALIGNED HORIZONTALLY.
4. PLACE WILLOW/DOGWOOD BUNDLE HORIZONTALLY IN THE CENTER OF THE TOPSOIL UNIT SO THAT APPROXIMATELY 80% WILL BE EMBEDDED.
5. PLACE TOPSOIL 6 INCHES THICK, 2 FEET WIDE, AND 3 FEET DEEP ON TOP OF THE WILLOW BUNDLE. THEN CONTINUE ROCK PLACEMENT UP THE SLOPE.
6. WATER BUNDLES AFTER PLANTING.

GENERAL NOTES:

1. ALL IN-WATER WORK WILL OCCUR BETWEEN JULY 15 AND OCTOBER 31.
2. PROJECT SITE EXTENDS FOR 57 LINEAR FEET INCLUDING TRANSITIONS FROM NATIONAL LEVEE DATABASE (NLD) FROM STATION -00+00 TO STATION -0+57. ACTUAL STATION OF CROSS SECTIONS WILL VARY DEPENDING ON FIELD CONDITIONS.
3. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
4. QUARRY SPALLS SHALL CONFORM TO GRADATIONS IN TABLE 1 ON C-301 AND SHALL CONSIST OF CLEAN, ANGULAR, SCREENED AND CRUSHED ROCK.
5. CRUSHED GRAVEL DRIVING SURFACE SHALL CONFORM TO GRADATIONS IN TABLE 2 ON C-301.
6. CLASS VI RIPRAP SHALL CONFORM TO THE GRADATIONS IN TABLE 3 ON C-301. STONE SHALL BE HARD, SOUND, AND DURABLE MATERIAL, FREE FROM SEAMS, CRACKS AND OTHER DEFECTS TENDING TO LEAD TO PREMATURE WEATHERING.
7. SOIL FROM EXISTING LEVEE EMBANKMENT TO BE REUSED WHERE PRACTICABLE.
8. TOPSOIL PLANTING MATRIX SHALL CONSIST OF A 75/25 MIXTURE OF SOIL AND ORGANIC COMPOST. ENGINEERED TOPSOIL SHALL CONFORM TO GRADATION IN TABLE 4 ON C-301 AND SHALL BE FREE OF ROOTS, CHEMICALS GARBAGE AND DEBRIS.
9. WHERE HISTORICAL RIVERWARD TOE EXCEEDS THE EXTENT OF THE LEVEE REPAIR, EFFORT SHOULD BE MADE FOR EXISTING MATERIAL TO REMAIN INTACT SUCH THAT SAFE CONSTRUCTION PRACTICES AND STABLE SLOPES ARE STILL MAINTAINED.
10. LIMIT CONSTRUCTION ACTIVITIES TO WORK AREAS SHOWN.
11. WOODY MATERIAL FROM TREES AND LARGE SHRUBS REMOVED AS A RESULT OF THE REPAIR SHALL BE PLACED ON THE COMPLETED LEVEE AT THE LEVEE TOE. REMOVE INVASIVE VEGETATION SUCH AS JAPANESE KNOTWEED OR HIMALAYAN BLACKBERRY, BEFORE PLACING WOODY MATERIAL. DO NOT PLACE VEGETATION ON WILLOW BUNDLES.
12. ALL DISTURBED SOILS ABOVE OHWM SHALL BY HYDROSEEDED WITH THE MEADOW SEED MIX SPECIFIED IN THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, BMP C120, TABLE II-3.4, TEMPORARY AND PERMANENT SEED MIXES, WHICH CONSISTS OF AGROSTIS ALBA OR A. OREGONENSIS 20% BY WEIGHT, FESTUCA RUBRA 70% BY WEIGHT, AND TRIFOLIUM REPENS 10% BY WEIGHT.
13. OHW AS SHOWN IS APPROXIMATELY AT ELEVATION 444.5'.

REPAIR STEPS

1. CLEAR AND PREPARE REPAIR SITE AS NECESSARY. COMPLETE TREE REMOVALS (3) AND CLEAR, GRUB AND MULCH. INVASIVE VEGETATION, INCLUDING JAPANESE KNOTWEED AND HIMALAYAN BLACKBERRY, WILL BE DISPOSED OF PROPERLY AND IN A MANNER TO PREVENT THE SPREAD OF INVASIVE VEGETATION.
2. EXCAVATE SLOUGHED MATERIAL FROM TOE OF WATERWARD SLOPE. REMOVE EXISTING RIPRAP AND RETAIN AS PRACTICABLE.
3. EXCAVATE EXISTING SOIL FOR THE WATERWARD LEVEE AND REGRADE AS NEEDED TO ACHIEVE THE REQUIRED SLOPE. SEE SHEET C-301, DETAIL D1.
4. EXCAVATE SOIL FOR THE BURIED LEVEE AND REGRADE AS NEEDED TO ACHIEVE PROPER SLOPES. SEE SHEET C-302, DETAILS J3 AND B3.
5. INSTALL BLANKETS OF SPALLS AND CLASS VI RIPRAP FROM THE TOE TO THE TOP OF SLOPE, INCLUDING WILLOW PLANTINGS AS PER SHEET C-301, DETAIL A1.
6. TRANSITION UPSTREAM AND DOWNSTREAM ENDS OF REPAIR TO SMOOTHLY TIE INTO EXISTING SLOPES AND/OR GROUND ELEVATIONS.
7. BACKFILL BURIED LEVEE AND SLOPE TO MEET EXISTING ELEVATIONS. SEE SHEET C-302.
8. INSTALL CRUSHED GRAVEL DRIVING SURFACE CREST AND MATCH TOP TO SAME ELEVATION AS STA. 0+00 (EL. 455').
9. RESTORE SITE WITH TOPSOIL AND HYDROSEED AS SPECIFIED IN GENERAL NOTE 12.

TABLE 1: QUARRY SPALL GRADATION

SIEVE SIZE	PRECENT PASSING
8"	100
4"	0

TABLE 2: 1 1/4" MINUS CSBC GRADATION

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

TABLE 3: RIPRAP GRADATIONS (ASSUMED SPECIFIC GRAVITY = 2.60)

DISTRIBUTION	CLASS VI	
	WEIGHT (LB)	DIAMETER (IN)
100% SMALLER THAN	6000	42
50%	1500	27
10%	525	19
Cu		1.9

TABLE 4: ENGINEERED TOPSOIL GRADATION

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

TABLE 5: MATERIAL QUANTITIES

SITE	CLASS VI RIPRAP (CY)	FILTER SPALLS (CY)	1 1/4" ROCK (CY)	TOPSOIL (CY)	HYDROSEED (SY)
TOTAL	436	87	5	50	134

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98134

DESIGNED BY: J. SKRINDE
DRAWN BY: G. SIMON
CHECKED BY: G. KATO
SUBMITTED BY: AARON MEADOWS-HILLS
SIZE: ANSI D
ISSUE DATE: 01 MAY 2023
SOLICITATION NO.: WXXXXX
CONTRACT NO.: WXXXXX
FILE NUMBER: E-6-1-69

FY20 P2 489193 MTE
MASON THORSON ELLIS LEVEE REHAB 2020
NORTH BEND, WA
CROSS SECTIONS 1

SHEET ID
MTE
C-301

95% DESIGN SUBMITTAL

Plot Date: 1:53:00 PM 5/1/2023
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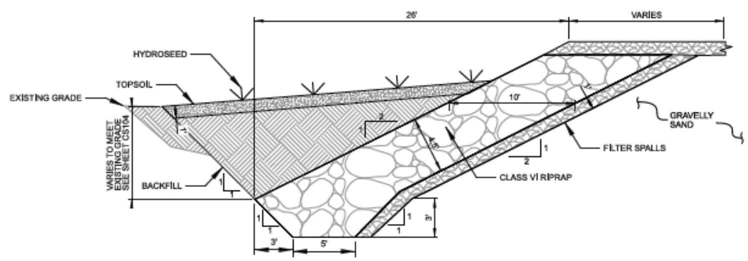
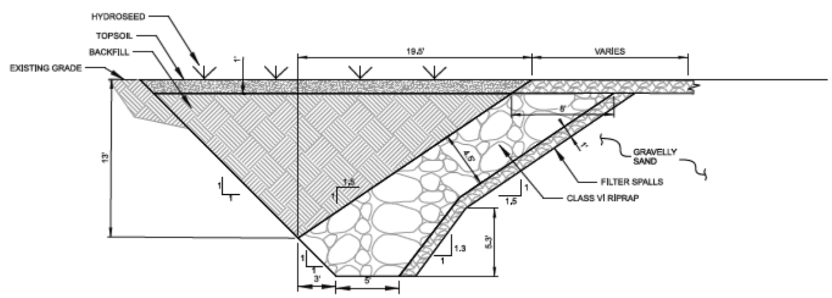


J3 PROPOSED BURIED LEVEE AT 2H:1V SLOPE
NTS



B3 PROPOSED BURIED LEVEE AT 1.5H:1V SLOPE
NTS

GENERAL NOTES:

1. USACE SHALL BE RESPONSIBLE FOR LOCATING UNDERGROUND AND OVERHEAD UTILITIES AS APPLICABLE PRIOR TO COMMENCING WORK.
2. SLOPE OF BURIED LEVEE ARMOR TO TRANSITION GRADUALLY FROM A 2H:1V TO 1.5H:1V. SEE SHEET CS103.
3. QUARRY SPALLS SHALL CONFORM TO GRADATIONS IN TABLE 1 ON C-301 AND SHALL CONSIST OF CLEAN, ANGULAR, SCREENED AND CRUSHED ROCK.
4. CLASS VI RIPRAP SHALL CONFORM TO THE GRADATIONS IN TABLE 3 ON C-301. STONE SHALL BE HARD, SOUND, AND DURABLE MATERIAL, FREE FROM SEAMS, CRACKS AND OTHER DEFECTS TENDING TO LEAD TO PREMATURE WEATHERING.
5. SOIL FROM EXISTING LEVEE EMBANKMENT TO BE REUSED WHERE PRACTICABLE.
6. TOPSOIL PLANTING MATRIX SHALL CONSIST OF A 75/25 MIXTURE OF SOIL AND ORGANIC COMPOST. ENGINEERED TOPSOIL SHALL CONFORM TO GRADATION IN TABLE 4 ON C-301 AND SHALL BE FREE OF ROOTS, CHEMICALS GARBAGE AND DEBRIS.
7. HYDROSEED MIXTURE, SEE SHEET C-301 NOTE 12.
8. OHW IS APPROXIMATELY ELEVATION 444.5' AND IS OUTSIDE OF THE CROSS SECTION VIEWS SHOWN ON THIS SHEET.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: J. SKRINDE	ISSUE DATE: 01 MAY 2023
DRAWN BY: G. SIMON	SOLICITATION NO.: WXXXXX
CHECKED BY: G. KATO	CONTRACT NO.: WXXXXX
SUBMITTED BY: AARON MEADOWS-HILLS	FILE NUMBER: E-6-7-69
SIZE: ANSI D	

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98134

FY20 P2 489193 MTE
MASON THORSON ELLS LEVEE REHAB 2020
NORTH BEND, WA

CROSS SECTIONS 2

SHEET ID
MTE
C-302

95% DESIGN SUBMITTAL

Plot Date: 1:53:34 PM 6/1/2023

A1 MITIGATION SITE PLAN

GENERAL NOTES:

1. PRECISE LOCATIONS OF 9 TREES AND SPECIES FOR PLANTING TO BE DETERMINED BY USACE REPRESENTATIVES IN THE FIELD.
2. REFER TO SHEET L-501 FOR TREE PLANTING DETAILS.
3. REFER TO SHEET Enclosure-1 FOR SITE ACCESS.

LEGEND

MITIGATION PLANTING AREA

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY S
SEATTLE, WASHINGTON 98134

DESIGNED BY: J. SKRINDE	ISSUE DATE: 01 MAY 2023
DRAWN BY: G. SIMON	SOLICITATION NO.: SOLIC #
CHECKED BY: G. KATO	CONTRACT NO.: CONTRACT #
SUBMITTED BY: AARON MEADOWS-HILLS	FILE NUMBER: E-LCJ-09
SIZE: ANSI D	

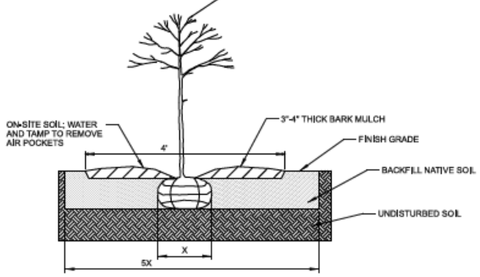
FY20 P2-489193 MTE
MASON THORSON ELLS LEVEE REHAB 2020
NORTH BEND, WA

MITIGATION SITE PLAN

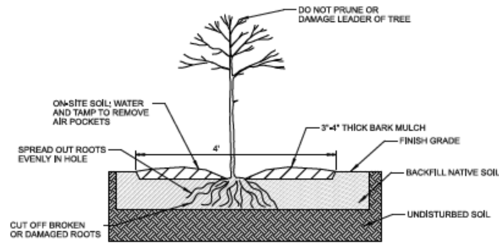
SHEET ID
MTE
L-101

TREE PLANTING NOTES:

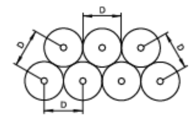
1. NEW TREES SHALL RECEIVE A 4 FT DIAMETER MULCHED CIRCLE.
2. DO NOT STAKE TREES.
3. PLANT PIT DIMENSIONS ARE TYPICAL FOR ALL TREES.
4. PLACE ALL ROOTBALLS SO TOPS ARE LEVEL WITH FINISH GRADE.
5. PRUNE ALL DEAD AND BROKEN LIMBS AND ROOTS PER SPECIFICATIONS.



G1 TREE PLANTING, WITH ROOTBALL
NTS



G8 BAREROOT PLANTING
NTS



NOTE:
1. D: 10 FEET

G15 MINIMUM TREE PLANTING SPACING
NTS

US Army Corps of Engineers ®

MARK | DESCRIPTION | DATE

DESIGNED BY: J. SKRINDE
DRAWN BY: G. SIMON
CHECKED BY: G. KATO
SUBMITTED BY: AARON MEADOWS-HILLS
SIZE: ANSI D
ISSUE DATE: 01 MAY 2023
SOLICITATION NO.: WXXXXX
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U.S. ARMY CORPS OF ENGINEERS
SEATTLE DISTRICT
4735 EAST MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98134

FY20 P2 469193 MTE
MASON THORSON ELLS LEVEE REHAB 2020
NORTH BEND, WA

PLANTING DETAILS

SHEET ID
MTE
L-501

95% DESIGN SUBMITTAL

Plot Date: 1:53:51 PM 6/1/2023

Emergency Management Levee Rehab

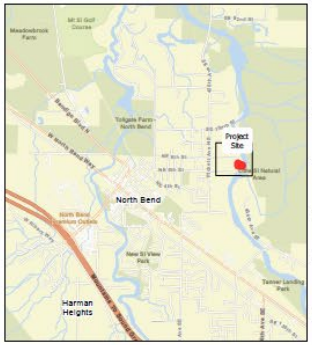
PL 84-99 Levee Rehabilitation
Mason Thorson-Ells Levee
SNQ-01-20
King County, WA

North Bend, WA

LEGEND

- Site Access
- Staging Area
- Construction Area
- Parcels

Locator Map



NOTES

THIS MAP IS NOT BASED ON AN ACTUAL FIELD SURVEY.

US Army Corps of Engineers
Seattle District

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

Emergency Management Levee Rehab
PL 84-99 Levee Rehabilitation
Mason Thorson-Ells Levee
SNQ-01-20
King County, WA
North Bend, WA
KING COUNTY WASHINGTON

Plate number
EX-1
Sheet 1 of 1

Path: O:\TR\cadastral\Org\Projects\Costshare\2020 Levee Rehabs\8. Snoqualmie\1. Mason Thorson Ells (6\NQ-01-20)\4. Real Estate\MasonThorson\MasonThomson\MasonThomson.aprx

Appendix C – Water Quality Monitoring Plan

WATER QUALITY MONITORING PLAN

Water quality monitoring will occur during in-water sediment-generating activities. Each new type of sediment generating activity will be monitored.

Sediment-Generating Activities Triggering Monitoring Efforts

Activities that trigger monitoring efforts include but are not limited to the following:

- In-water toe or bank excavation,
- Rock placement for toe rock, and
- Rock placement for bank construction.

Monitoring Frequency/Duration

- Point of Compliance monitoring will occur once per hour for the first 3 hours after the start of each new sediment-generating activity and then once every 3 hours, if no exceedance is noted, until the end of the workday.
- The following will be taken at the same frequency as the Point of Compliance samples:
    a. Early Warning sample
    b. Background sample
- If, after a minimum of one full day, the monitoring results verify that turbidity levels from a certain sediment-generating activity are remaining consistently below the stated water quality standards, physical monitoring (measurement of parameters using an instrument), may be reduced or stopped for that activity. Physical monitoring will be resumed during new sediment-generating activities or if precipitation events or any other changes will result in higher or lower project-related turbidity. Sampling will resume if visual monitoring indicates possible exceedance at the Early Warning or Point of Compliance sample locations. BMPs will be evaluated to see if additional steps can be taken to reduce and control turbidity.
- Visual monitoring will be done continuously for all in-water work.
- Maximum turbidity levels will meet standards in WAC 173-201A-200. Turbidity must not exceed 5 NTU over background when the background is 50 NTU or less; or a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

Sampling Locations

Sampling locations are shown in Attachment A and are located at the following points:

- Background – 300 feet upstream of the repair site or the closest safe accessible location.
- Early Warning – 150 feet downstream of the project site.
- Point of Compliance – 300 feet downstream of the project site.

Sampling Procedures

All water quality monitoring results (visual and physical) will be recorded on the monitoring form (Attachment B). USACE will keep all project monitoring forms on file. Water samples will

be collected and analyzed for the appropriate parameters, per the monitoring frequency described above, following the equipment and sampling guidelines below:

- Continuous visual monitoring will occur to identify the presence of oil or grease on the water's surface.
- Turbidity will be monitored using a Hach turbidimeter or equivalent.
- The onsite USACE Biologist or Quality Construction Assurance Personnel will conduct the water quality monitoring.
- A portable turbidity meter will be used in the field. A representative sample should accurately reflect the true condition of the water source from which the sample was taken. The following protocol will be used to ensure a representative sample is analyzed:
    - Use a clean container to obtain a sample from the source.
    - Collect the sample with care to avoid disturbance of sediments and collecting surface contaminants.
    - Gently but thoroughly mix the sample before pouring it into the small vial used to read the sample in the turbidimeter.
    - Without allowing the sample to settle, take turbidity reading according to turbidimeter manufacturer's instructions.
    - Several measurements can be taken, with the average used as the data for comparison.

A calibration check of the turbidimeter using secondary standards will be carried out regularly (at least once per week). The instrument will be recalibrated using primary standards at least once every 3 months, or more frequently when a calibration check indicates there is a problem. The manufacturer's calibration procedures will be followed.

Turbidity Exceedances and Exceedance Protocol

If measurements taken at the Point of Compliance show one of the following, the sample shall be recorded as an exceedance:

- turbidity sample exceeds 5 NTU over background when the background turbidity is 50 NTU or less.
- turbidity sample shows a 10 percent increase in turbidity over background when the background turbidity is more than 50 NTU.

USACE will take the following steps after an exceedance is detected:

Step 1: Verification

- If monitoring indicates an exceedance, USACE shall collect, within 10 minutes of the initial reading, another reading in the same location.
- If the exceedance still exists, USACE shall photograph conditions at the POC and then collect another series of readings at the Background sample location to determine if the exceedance is caused by the project or by a change in background conditions (for example due to a heavy rainfall event).

- USACE will modify sediment-generating activities to reduce turbidity and increase monitoring (see Step 2).

Step 2: Increased Monitoring

- USACE shall collect another reading no more than 1 hour after the exceedance is recorded to verify the construction activity or material placement operation has been modified to eliminate the exceedance and return conditions to levels within the acceptable limits.
- If this second reading, taken 1 hour later, still shows an exceedance, USACE will implement additional BMPs and evaluate additional alterations to the project to minimize turbidity.
- USACE shall collect a third reading taken no more than 2 hours after the first exceedance is recorded.

Step 3: Stop Sediment-Generating Activities

- If the third reading, taken 2 hours after the initial exceedance, still shows an exceedance, USACE will stop sediment-generating activities.
- USACE will provide monitoring data to the Washington State Department of Ecology (Ecology) and notify it that there was an exceedance within 24 hours of stopping work.

Step 4: Continued Sampling Until Compliance is Achieved

- After work is stopped, USACE shall collect additional samples at hourly intervals until water quality levels return to background.
- Once compliance has again been achieved, USACE will resume work and follow the Sampling Procedures outlined above.

Oil/Grease Exceedances and Exceedance Protocol

USACE will take the following steps if visual monitoring identifies the presence of oil or grease on the water's surface.

Step 1: Stop and Contain

- USACE will stop work and initiate containment and cleanup efforts.
- Equipment will be inspected to determine the source of the oil or grease.
- Equipment that is the source of the spill or leak will immediately be removed from the site.

Step 2: Report

The following entities will be contacted immediately in the event of an oil or grease spill.

- Ecology
    - Washington Emergency Management Division, 1-800-258-5990
    - Additional details available online: https://ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue/Report-a-spill

Ecology's Regional Spill Response Office
Rob Walls, Spills Manager, 425-649-7130, rob.walls@ecy.wa.gov

- U.S. Environmental Protection Agency
  - National Response Center, 1-800-424-8802
- Washington Department of Fish and Wildlife
  - Oil and Spill Prevention Response, 1-800-258-5990

Step 3: Resume Work

- Once the spill or leak has been responded to, USACE will resume work and continuous visual monitoring.
- Equipment that caused the spill or leak will be removed from the project site to be repaired. The equipment must be repaired and cleaned before allowed back to the project site.

Attachment A - Sampling Locations

Sample locations for the MTE Levee repairs are indicated with yellow pins. Approximate project location shown in red.

Attachment B - Sample Monitor Results Reporting Form

Date:	**Weather:**		**Site Designation/Location:**				
Time of Day	Construction Activity	Background Sample (NTU)	Early Warning Sample (NTU)	Point of Compliance Sample (NTU)	Background & Compliance Change (NTU)	Description of visible plume (Length downstream, width as % of channel)	Description of visible sheen (length downstream, width as % of channel)
Example: 0700	Excavation and toe rock placement	20.2	22	21.1	+0.9	Visible plume 50 ft long, <10% of channel width	Visible sheen 12ft long, 1 to 5% of channel width

Notes:

Appendix D – Cultural Resources Correspondence

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

April 26, 2022

Laura A. Boerner
Planning, Environmental & Cultural Resources
Seattle District
Corps of Engineers
PO Box 3755
Seattle, Washington 98124

Re: Mason Thorson Ells Levee Repair Project
Log No.: 2021-02-00584-COE-S

Dear Laura A. Boerner:

Thank you for contacting our department. We have reviewed the information and professional cultural resources survey report you provided for the proposed Mason Thorson Ells Levee Repair Project, North Bend, King County, Washington

We concur with your Determination of No Historic Properties Affected with the stipulations for professional archaeological monitoring and for an unanticipated find plan. Please upload the monitoring report when available.

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 that 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

May 17, 2023

Laura A. Boerner
Environmental Resources Section
Corps of Engineers – Seattle District
PO Box 3755
Seattle, Washington 98124-3755

Re: Mason Thorson Ells Levee Repair Project
Log No.: 2021-02-00584-COE-S

Dear Laura Boerner:

Thank you for contacting our department. We have reviewed the materials you provided for the Area of Potential Effect (APE) for the proposed *Mason Thorson Ells Levee Repair Project* King County, Washington

We concur with your determination of the updated 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*

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

June 20, 2023

Matthew Punke
Planning, Environmental & Cultural Resources
Seattle District
Corps of Engineers
PO Box 3755
Seattle, Washington 98124

Re: Mason Thorson Ells Levee Repair Project
Log No.: 2021-02-00584-COE-S

Dear Matthew Punke:

Thank you for contacting our department. We have reviewed the information you provided for the proposed *Mason Thorson Ells Levee Repair Project,* 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 that 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*

Appendix E – Environmental Justice Reports

EJScreen Report (Version 2.11)

5 miles Ring around the Area, WASHINGTON, EPA Region 10

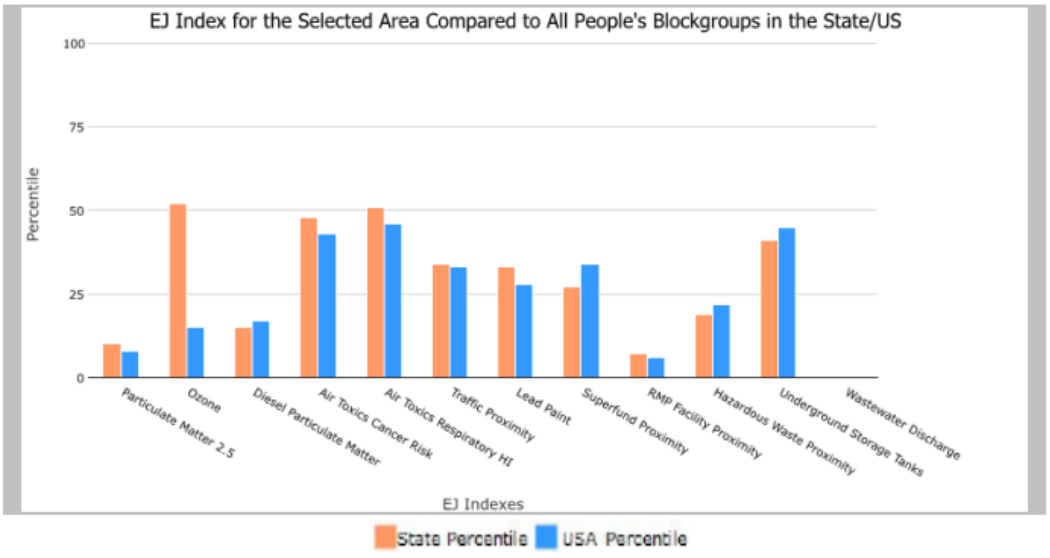
Approximate Population: 19,584

Input Area (sq. miles): 78.80

MTE Levee Repair Area

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
Particulate Matter 2.5 EJ index	10	8
Ozone EJ index	52	15
Diesel Particulate Matter EJ index*	15	17
Air Toxics Cancer Risk EJ index*	48	43
Air Toxics Respiratory HI EJ index*	51	46
Traffic Proximity EJ index	34	33
Lead Paint EJ index	33	28
Superfund Proximity EJ index	27	34
RMP Facility Proximity EJ index	7	6
Hazardous Waste Proximity EJ index	19	22
Underground Storage Tanks EJ index	41	45
Wastewater Discharge EJ index	N/A	N/A

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.



*Diesel particular 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.

EJScreen Report (Version 2.11)

5 miles Ring around the Area, WASHINGTON, EPA Region 10

Approximate Population: 19,584

Input Area (sq. miles): 78.80

MTE Levee Repair Area

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.11)

5 miles Ring around the Area, WASHINGTON, EPA Region 10

Approximate Population: 19,584

Input Area (sq. miles): 78.80

MTE Levee Repair Area

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m³)	6.34	7.85	9	8.67	6
Ozone (ppb)	37.4	35.3	75	42.5	18
Diesel Particulate Matter* (µg/m³)	0.0959	0.334	13	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	49	35	97	28	95-100th
Air Toxics Respiratory HI*	0.96	0.51	98	0.36	95-100th
Traffic Proximity (daily traffic count/distance to road)	270	740	49	760	52
Lead Paint (% Pre-1960 Housing)	0.18	0.22	56	0.27	45
Superfund Proximity (site count/km distance)	0.049	0.18	32	0.13	43
RMP Facility Proximity (facility count/km distance)	0.053	0.64	7	0.77	6
Hazardous Waste Proximity (facility count/km distance)	0.16	2.2	21	2.2	26
Underground Storage Tanks (count/km²)	2.1	6.3	52	3.9	60
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	0.021	N/A	12	N/A
Socioeconomic Indicators					
Demographic Index	16%	28%	23	35%	23
Supplemental Demographic Index	7%	12%	21	15%	16
People of Color	19%	33%	34	40%	37
Low Income	13%	24%	29	30%	22
Unemployment Rate	3%	5%	48	5%	47
Limited English Speaking Households	1%	4%	54	5%	58
Less Than High School Education	4%	8%	39	12%	30
Under Age 5	6%	6%	63	6%	63
Over Age 64	13%	15%	42	16%	38
Low Life Expectancy	13%	18%	5	20%	4

EJScreen Report (Version 2.11)

5 miles Ring around the Area, WASHINGTON, EPA Region 10

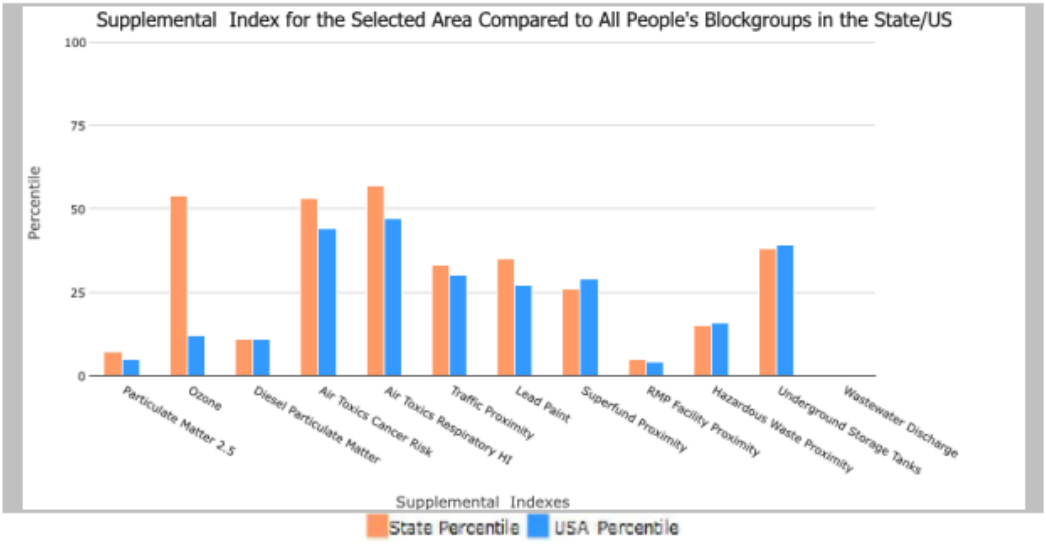
Approximate Population: 19,584

Input Area (sq. miles): 78.80

MTE Levee Repair Area

Selected Variables	State Percentile	USA Percentile
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	7	5
Ozone Supplemental Index	54	12
Diesel Particulate Matter Supplemental Index*	11	11
Air Toxics Cancer Risk Supplemental Index*	53	44
Air Toxics Respiratory HI Supplemental Index*	57	47
Traffic Proximity Supplemental Index	33	30
Lead Paint Supplemental Index	35	27
Superfund Proximity Supplemental Index	26	29
RMP Facility Proximity Supplemental Index	5	4
Hazardous Waste Proximity Supplemental Index	15	16
Underground Storage Tanks Supplemental Index	38	39
Wastewater Discharge Supplemental Index	N/A	N/A

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice.

EJScreen Report (Version 2.11)

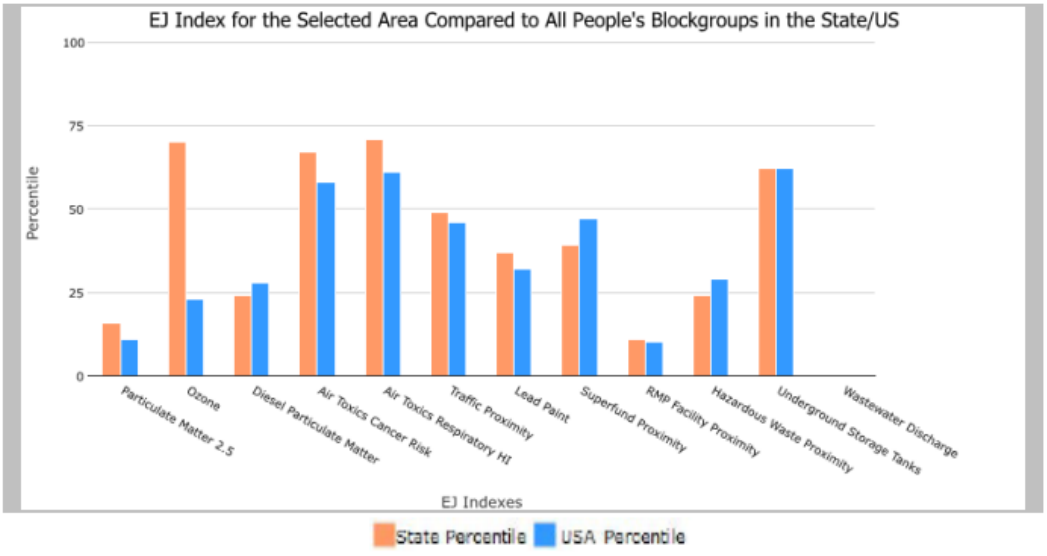
City: North Bend, WASHINGTON, EPA Region 10

Approximate Population: 7,186

Input Area (sq. miles): 4.41

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
Particulate Matter 2.5 EJ index	16	11
Ozone EJ index	70	23
Diesel Particulate Matter EJ index*	24	28
Air Toxics Cancer Risk EJ index*	67	58
Air Toxics Respiratory HI EJ index*	71	61
Traffic Proximity EJ index	49	46
Lead Paint EJ index	37	32
Superfund Proximity EJ index	39	47
RMP Facility Proximity EJ index	11	10
Hazardous Waste Proximity EJ index	24	29
Underground Storage Tanks EJ index	62	62
Wastewater Discharge EJ index	N/A	N/A

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.



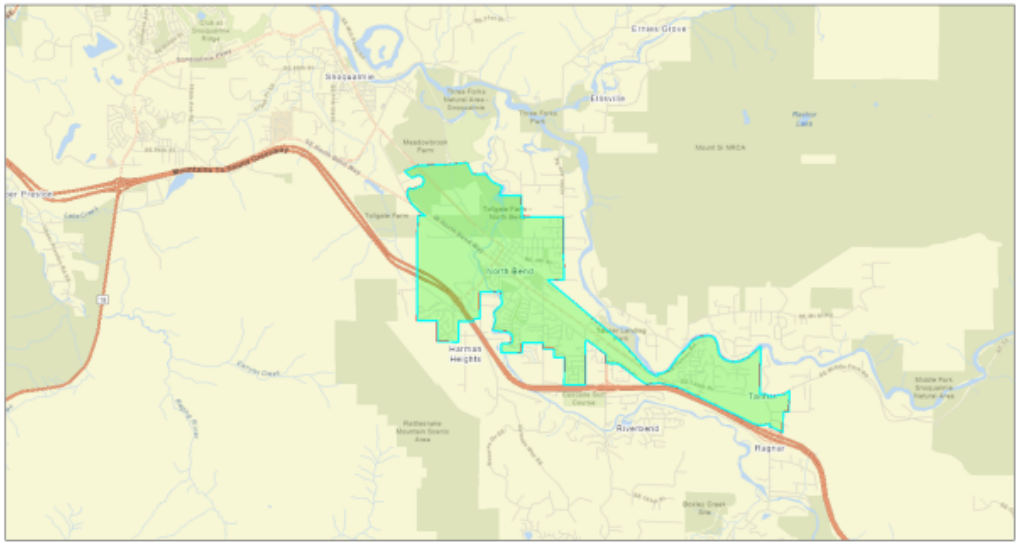
*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations 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.

EJScreen Report (Version 2.11)

City: North Bend, WASHINGTON, EPA Region 10

Approximate Population: 7,186

Input Area (sq. miles): 4.41



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EJScreen Report (Version 2.11)

City: North Bend, WASHINGTON, EPA Region 10

Approximate Population: 7,186

Input Area (sq. miles): 4.41

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m³)	6.41	7.85	10	8.67	7
Ozone (ppb)	37.4	35.3	75	42.5	18
Diesel Particulate Matter* (µg/m³)	0.12	0.334	16	0.294	<50th
Air Toxics Cancer Risk* (lifetime risk per million)	50	35	97	28	95-100th
Air Toxics Respiratory HI*	1	0.51	99	0.36	95-100th
Traffic Proximity (daily traffic count/distance to road)	350	740	56	760	59
Lead Paint (% Pre-1960 Housing)	0.13	0.22	48	0.27	39
Superfund Proximity (site count/km distance)	0.049	0.18	32	0.13	43
RMP Facility Proximity (facility count/km distance)	0.053	0.64	7	0.77	6
Hazardous Waste Proximity (facility count/km distance)	0.12	2.2	17	2.2	21
Underground Storage Tanks (count/km²)	4.4	6.3	65	3.9	75
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	0.021	N/A	12	N/A
Socioeconomic Indicators					
Demographic Index	24%	28%	48	35%	41
Supplemental Demographic Index	9%	12%	41	15%	30
People of Color	30%	33%	55	40%	50
Low Income	18%	24%	43	30%	33
Unemployment Rate	3%	5%	44	5%	43
Limited English Speaking Households	2%	4%	59	5%	63
Less Than High School Education	6%	8%	52	12%	40
Under Age 5	7%	6%	71	6%	71
Over Age 64	12%	15%	39	16%	36
Low Life Expectancy	17%	18%	36	20%	26

EJScreen Report (Version 2.11)

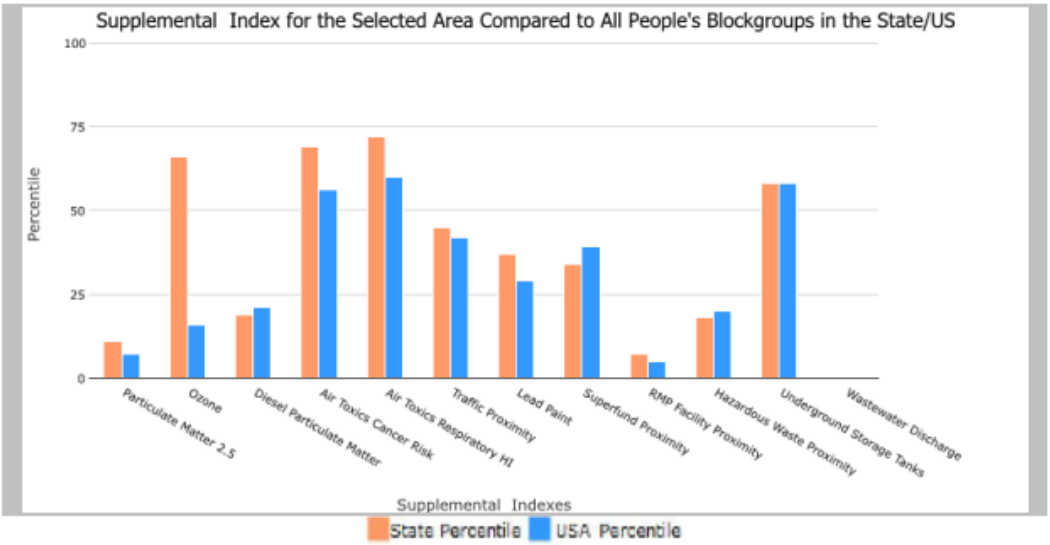
City: North Bend, WASHINGTON, EPA Region 10

Approximate Population: 7,186

Input Area (sq. miles): 4.41

Selected Variables	State Percentile	USA Percentile
Supplemental Indexes		
Particulate Matter 2.5 Supplemental Index	11	7
Ozone Supplemental Index	66	16
Diesel Particulate Matter Supplemental Index*	19	21
Air Toxics Cancer Risk Supplemental Index*	69	56
Air Toxics Respiratory HI Supplemental Index*	72	60
Traffic Proximity Supplemental Index	45	42
Lead Paint Supplemental Index	37	29
Superfund Proximity Supplemental Index	34	39
RMP Facility Proximity Supplemental Index	7	5
Hazardous Waste Proximity Supplemental Index	18	20
Underground Storage Tanks Supplemental Index	58	58
Wastewater Discharge Supplemental Index	N/A	N/A

Supplemental Indexes - The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on low-income, limited English speaking, less than high school education, unemployed, and low life expectancy populations with a single environmental indicator.



This report shows the values for environmental and demographic indicators, EJScreen indexes, and supplemental indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. For additional information, see: www.epa.gov/environmentaljustice.

Climate and Economic Justice Screening Tool

Explore the map | Methodology & data | About | Contact

Explore the map

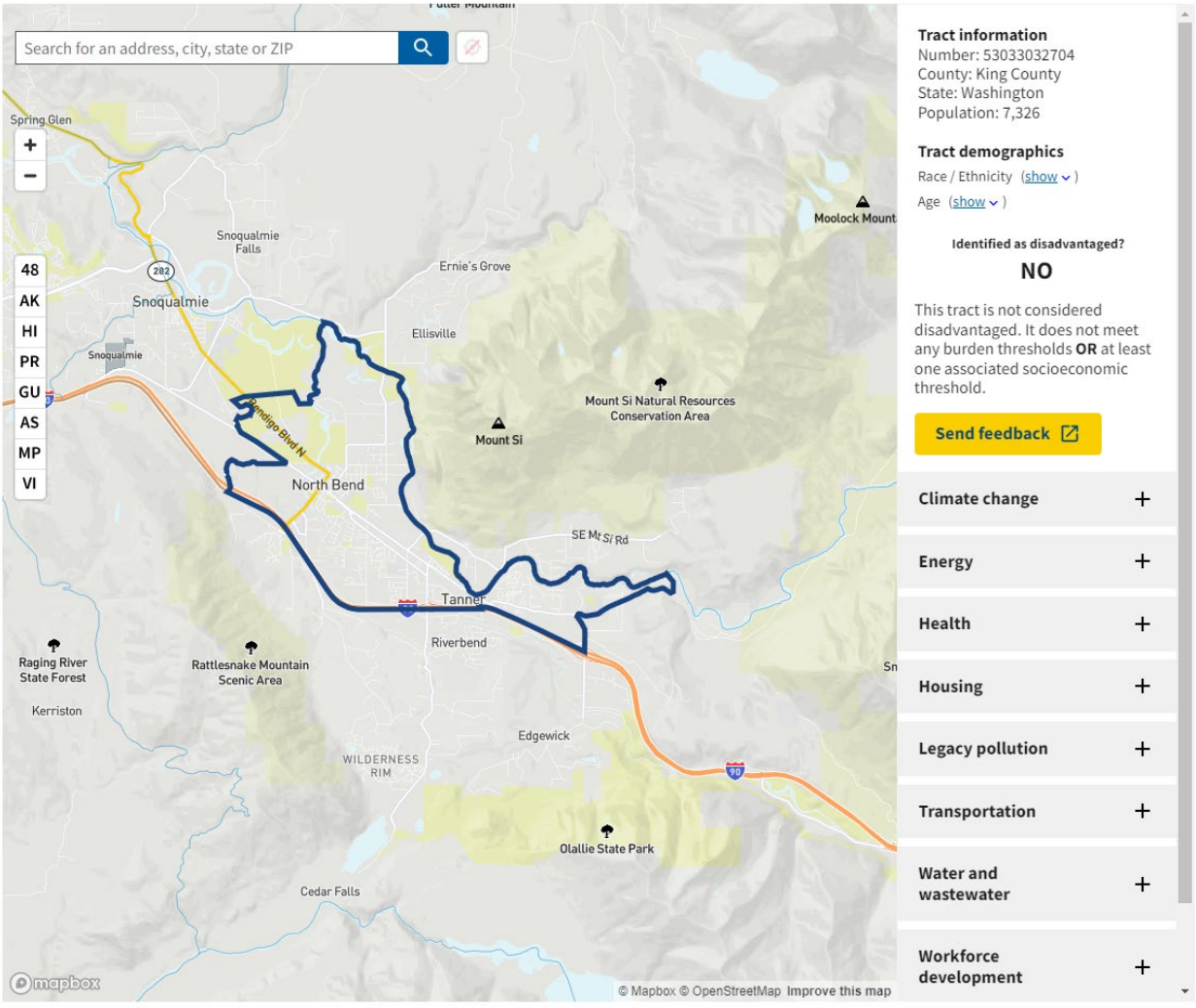
Share data sources with CEQ

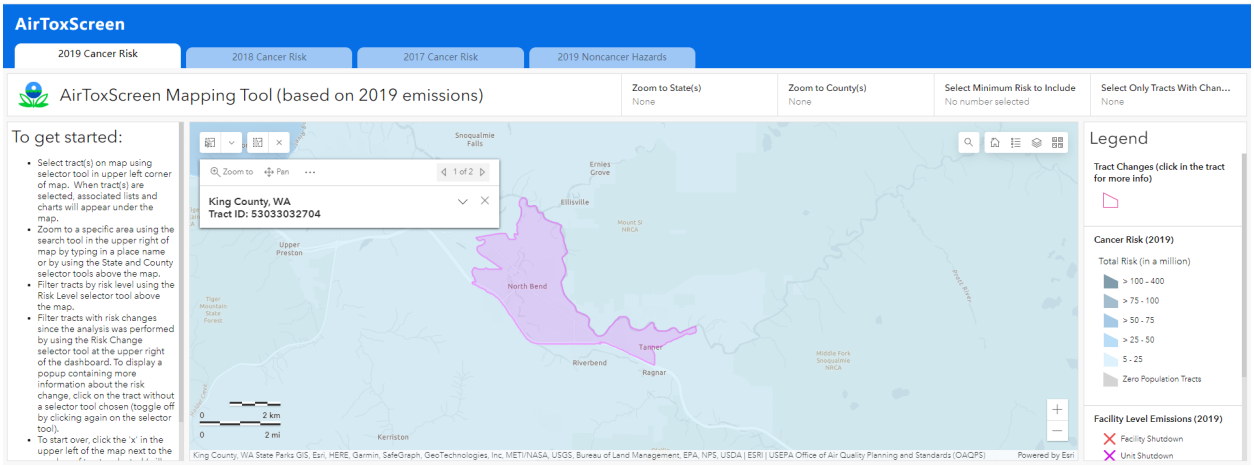
Census tracts that are overburdened and underserved are highlighted as being disadvantaged on the map. Federally Recognized Tribes, including Alaska Native Villages, are also considered disadvantaged communities.

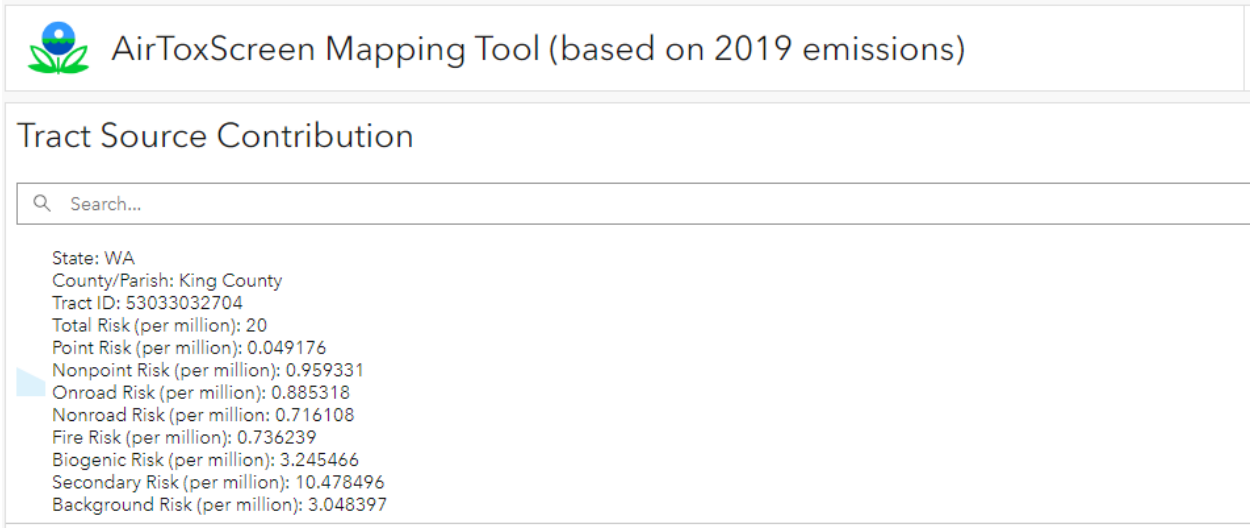
Zooming in and selecting shows information about each census tract.

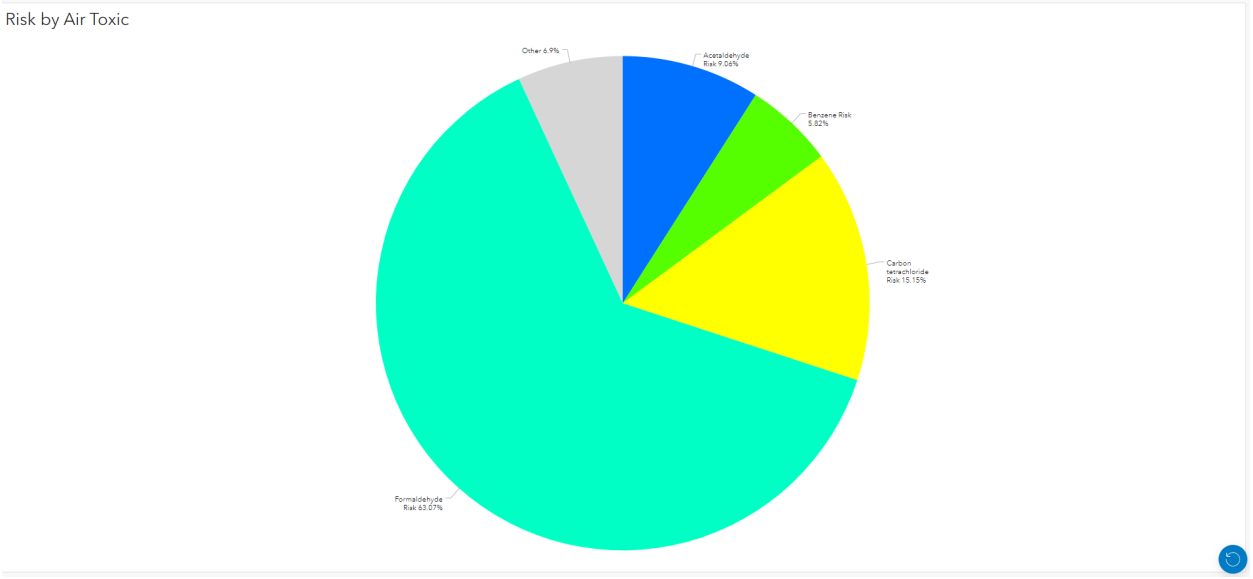
Get the data

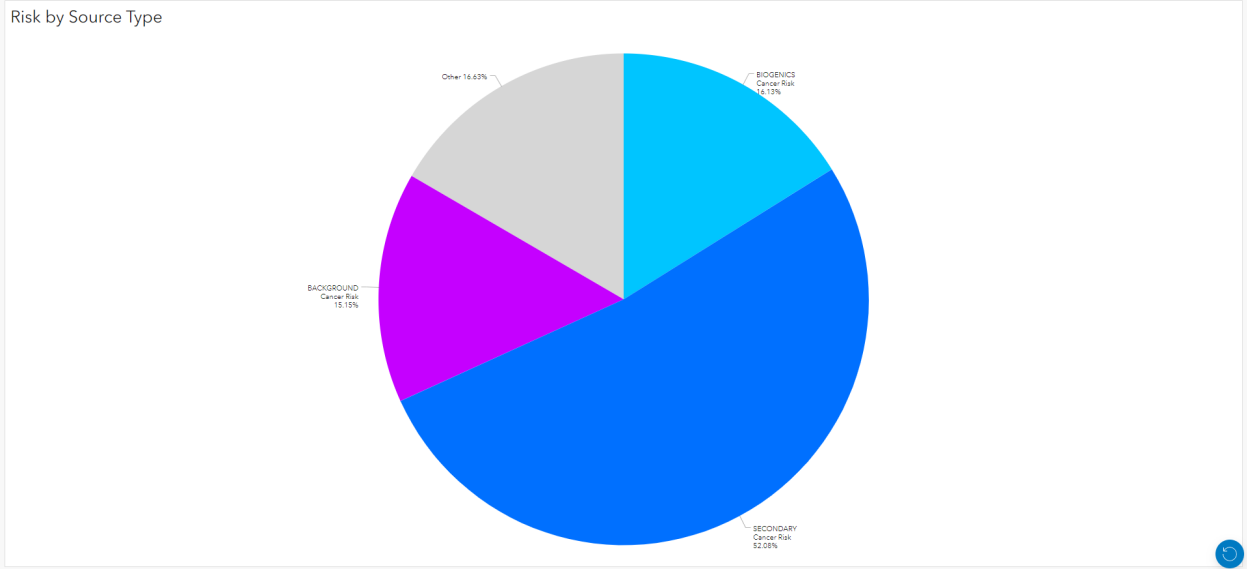
Download the data with documentation and shapefile from the downloads page.




AirToxScreen
2019 Cancer Risk
2018 Cancer Risk
2017 Cancer Risk
2019 Noncancer Hazards
AirToxScreen Mapping Tool (based on 2019 emissions)
Zoom to State(s)
None
Zoom to County(s)
None
Select Minimum Risk to Include
No number selected
Select Only Tracts With Chan...
None
To get started:
Select tract(s) on map using selector tool in upper left corner of map. When tract(s) are selected, associated lists and charts will appear under the map.
Zoom to a specific area using the search tool in the upper right of map by typing in a place name or by using the State and County selector tools above the map.
Filter tracts by risk level using the Risk Level selector tool above the map.
Filter tracts with risk changes since the analysis was performed by using the Risk Change selector tool at the upper right of the dashboard. To display a popup containing more information about the risk change, click on the tract without a selector tool chosen (toggle off by clicking again on the selector tool).
To start over, click the 'x' in the upper left of the map next to the
King County, WA
Tract ID: 53033032704
Snoqualmie Falls
Ernies Grove
Ellisville
Upper Preston
North Bend
Tanner
Riverbend
Ragnar
Kerriston
Legend
Tract Changes (click in the tract for more info)
Cancer Risk (2019)
Total Risk (in a million)
> 100 - 400
> 75 - 100
> 50 - 75
> 25 - 50
5 - 25
Zero Population Tracts
Facility Level Emissions (2019)
Facility Shutdown
Unit Shutdown


AirToxScreen Mapping Tool (based on 2019 emissions)
Tract Source Contribution
Search...
State: WA
County/Parish: King County
Tract ID: 53033032704
Total Risk (per million): 20
Point Risk (per million): 0.049176
Nonpoint Risk (per million): 0.959331
Onroad Risk (per million): 0.885318
Nonroad Risk (per million: 0.716108
Fire Risk (per million): 0.736239
Biogenic Risk (per million): 3.245466
Secondary Risk (per million): 10.478496
Background Risk (per million): 3.048397


Risk by Air Toxic
Other 6.9%
Acetaldehyde Risk 9.06%
Benzene Risk 5.82%
Carbon tetrachloride Risk 15.15%
Formaldehyde Risk 63.07%


Risk by Source Type
Other 16.63%
BIOGENICS
Cancer Risk
16.13%
BACKGROUND
Cancer Risk
15.15%
SECONDARY
Cancer Risk
52.08%

Appendix F – Coastal Zone Management Act Correspondence

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600, Olympia, WA 98504-7600 • 360-407-6000

June 23, 2023

Department of the Army
United States Corps of Engineers, Seattle District
ATTN: Laura A. Boerner
4735 East Marginal Way South
Building 1202
Seattle, WA 98134-2388

Re: Coastal Zone Management Federal Consistency Decision for the Mason Thorson Ells Levee PL 84-99 Repair, North Bend, King County, Washington

Dear Laura A. Boerner:

On May 1, 2023, the Seattle District, U. S. Army Corps of Engineers (Corps) submitted a Consistency Determination with the Washington State Coastal Zone Management Program (CZMP). Ecology issued a 21-day public notice on May 9, 2023, and received no comments. On June 20, 2023, Ecology requested a 15-day extension pursuant to 15 CFR 930.41(b) extending the CZM decision deadline to July 15, 2023. At Ecology's request, the Corps supplied additional information on June 21, 2023.

The proposed federal activity includes repairs to the Mason Thorson Ells (MTE) Levee located near the City of North Bend, King County, Washington (Section 10 of Township 23 North, Range 8 East). It is on the left bank of the Middle Fork Snoqualmie River and is a complete system approximately 2,060 feet long. A February 2020 flood event damaged approximately 60 linear feet (LF) of the MTE Levee. The repair will restore flood protection to the same level provided by the levee prior to the February damaging flood event. From start to completion, repairs are expected to take 3 to 4 weeks, and any in-water work for the repairs will occur within the approved in-water work window for the Middle Fork Snoqualmie River (July 15 to October 31).

The Corps proposes to repair the MTE Levee to its pre-flood level of protection within the original levee footprint. The design includes an increase in riprap size within the repair area from Class V to Class VI to withstand ongoing hydraulic scour from an eddy present at the repair site. Any sloughed material at the damaged site will be removed from the slope. The Corps will re-armor the riverward slope with a 4.5-foot-thick blanket of Class VI riprap placed over a 12-

inch layer of four- to eight-inch quarry spalls. Although the total repair length is 60 feet, the design is curved and overlaps approximately 40 feet of the original levee length. Approximately 20 feet of the downstream end of the repair curves away from the river and into the upland, effectively providing a "cap" at the downstream end of the levee. A portion (approximately 20 feet) of the original levee will not be repaired, so there will be a net decrease in fill below and waterward of ordinary high water within the original footprint. This curved design will reinforce the rest of the levee structure, protect against future scour, and minimize erosion on the landward toe behind the levee. This approach addresses the strong hydraulic eddies at this location and reflects the decision not to tie the levee repair into the adjacent private property. None of the repairs will extend past the pre-damage footprint. Project repairs will require in-water work. Following rehabilitation, the Corps will hydroseed all disturbed soils.

Shoreline and river areas impacted by construction activities will be restricted to the access routes, the staging areas, the damaged levee section beginning at the upstream end near Station 0+00 and continuing approximately 40 feet downstream along the original alignment, the transition to the undamaged upstream sections of the levees, and the mitigation areas. Work would require removing vegetation, approximately three mature trees from the levee within the construction project footprint. No additional fill material volume would be added on the riverward levee slope below the ordinary high-water mark or beyond the existing levee footprint.

Pursuant to Section 307(c)(3) of the Coastal Zone Management Act of 1972 as amended, Ecology concurs with the Corps' determination that the proposed work is consistent with Washington's CZMP. The proposed action was reviewed for consistency under the applicable enforceable policies found in the state Shoreline Management Act, the State Water Pollution Control Act, and the Washington Clean Air Act. The proposal did not trigger the enforceable policies of the Ocean Resources Management Act or the Marine Spatial Plan for Washington's Pacific Coast.

If you have any questions regarding Ecology's consistency determination, please contact Teressa Pucylowski at 360-764-0546.

Your right to appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do all of the following within 30 days of the date of receipt of this Order:

- File your notice of appeal and a copy of this Order with the PCHB (see filing options below). "Filing" means actual receipt by the PCHB during regular business hours as defined in WAC 371-08-305 and -335. "Notice of appeal" is defined in WAC 371-08-340.

- Serve a copy of your notice of appeal and this Order on the Department of Ecology, in paper form, by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Filing an appeal with the PCHB:

For the most current information regarding filing with the PCHB, visit:
https://eluho.wa.gov/content/11

Address and Location Information

Street Address:

Department of Ecology
Attn: Appeals Processing Desk
300 Desmond Drive SE
Lacey, WA 98503

Pollution Control Hearings Board
1111 Israel RD SW
STE 301
Tumwater, WA 98501

Mailing Addresses:

Department of Ecology
Attn: Appeals Processing Desk
PO Box 47608
Olympia, WA 98504-7608

Pollution Control Hearings Board
PO Box 40903
Olympia, WA 98504-0903

E-Mail Address:

Department of Ecology
Not currently available (see WAC 371-08)

Pollution Control Hearings Board
Pchb-shbappeals@eluho.wa.gov

Sincerely,

Loree' Randall, Section Manager
Federal Permitting Section
Shorelands and Environmental Assistance Program

Sent via e-mail: Laura.A.Boerner@usace.army.mil

E-cc: fedconsistency@ecy.wa.gov
Caren Crandall, Corps
Kylie Webb, Corps
Teressa Pucylowski, Ecology
Joe Burcar, Ecology
Misty Blair, Ecology
Railin Santiago, Ecology

Appendix G – Public Comments

Comment 1:

From: Matthew Baerwalde
To: Kiehart, Kaitlyn M CIV USARMY CENWS (USA)
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Notice of Preparation for Mason Thorson Ells Levee PL 84-99 Repair Project
Date: Friday, April 21, 2023 9:58:55 PM

Hello Kaitlyn,

In this report from the Corps, on p. 6 it says the removed trees are to be placed on the landward side of the levee. This is contrary to our previous communications with King County, which have indicated that the removed trees will be placed in a location to interact with the river environment. We would prefer the removed trees go on the waterward side of the levee to provide aquatic habitat complexity as partial mitigation for the negative effects of the work and continued maintenance of the river facility on riparian and aquatic habitat, water quality, and riverine ecological function.

Thank you for the opportunity to comment.

Sincerely,
Matt

Matthew J. Baerwalde
Environmental Policy Analyst
sdukʷalbixʷ
Snoqualmie Indian Tribe Environmental & Natural Resources Dept.
mailing: PO Box 969, Snoqualmie WA 98065
physical: 9416 384th Ave SE, Snoqualmie WA 98065
mobile 425-495-4111
mattb@snoqualmietribe.us (he/him/his)

Response 1:

Thank you for your comment. The removed trees will be placed at the toe of the repaired levee to improve aquatic habitat complexity as specified in BMP n. (Section 2.6.3).