



**US Army Corps
of Engineers®**

Seattle District

NOTICE OF AVAILABILITY AND CLEAN WATER ACT PUBLIC NOTICE

DRAFT ENVIRONMENTAL ASSESSMENT

DRAFT FINDING OF NO SIGNIFICANT IMPACT

U.S. Army Corps of Engineers
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Seattle, WA 98134-2388

Public Notice Date: September 12, 2024
Expiration Date: October 12, 2024
Reference: PMP-24-05
Name: Desimone Levee
Rehabilitation Project

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

PUBLIC INTEREST EVALUATION

The decision to proceed with this action involving the discharge of dredged or fill material would be preceded by a determination of whether the proposed activity would be in the public interest. All factors which may be relevant to the proposal's public interest would be considered (e.g., water quality, endangered species, economics, safety).

As a foundation for its public interest determination USACE would consider, on an equal basis, all alternatives that are both reasonable and practicable, i.e., available and capable of being accomplished after taking into consideration cost, existing technology, and logistics in light of overall project purposes. USACE selects the alternative that represents the least costly alternative, constituting the discharge of dredged or fill material into waters of the U.S. in the least costly manner and at the least costly and most practicable location; that is consistent with sound engineering practices; and that meets the environmental standards established by the Clean Water Act Section 404(b)(1) evaluation process.

COMMENT AND REVIEW PERIOD

USACE invites submission of comments on the environmental impact of the proposed action. Comments will be considered in determining whether it would be in the public interest to

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

A further purpose of this Notice is to solicit comments on the proposed discharge of fill material into the waters of the U.S. under the Clean Water Act. This Public Notice is issued in accordance with the rules and regulations published in 33 CFR 335 "Operation and Maintenance of Army Corps of Engineers Civil Works Projects Involving the Discharge of Dredged or Fill Material into Waters of the U.S. or Ocean Waters"; 33 CFR 336 "Factors to be Considered in Evaluation of Army Corps of Engineers Dredging projects Involving the Discharge of Dredged Material into Waters of the U.S. and Ocean Waters"; 33 CFR 337 "Practice and Procedure"; and 33 CFR 338 "Other Corps Activities Involving the Discharge of Dredged Material or Fill into Waters of the U.S."

PUBLIC HEARING

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

COMMENT SUBMISSION

Submit comments to this office, Attn: Daniel Taylor, 4735 E. Marginal Way S. Bldg. 1202, Seattle, WA, 98314-2388, no later than 30 days after the posting of this notice to ensure consideration.

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

Project Name: Desimone Levee Rehabilitation Project

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

Posting Date: September 12, 2024

End of Comment Period: October 12, 2024

DRAFT ENVIRONMENTAL ASSESSMENT AND CLEAN WATER ACT, SECTION 404 PUBLIC INTEREST REVIEW

DESIMONE LEVEE REHABILITATION PROJECT

KING COUNTY, WASHINGTON

September 2024





Seattle District
Corps of Engineers

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Acronyms and Abbreviations

ACE	Annual Chance Exceedance
APE	Area of potential effects
BA	Biological Assessment
BMP	Best Management Practices
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulation
cfs	Cubic Feet per Second
CWA	Clean Water Act
CY	cubic yards
CZMA	Coastal Zone Management Act
DAHP	Washington State Department of Archeology and Historic Preservation
dB	Decibels
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	Environmental Protection Agency
ER	Engineering Regulation
ESA	Endangered Species Act
FR	Federal Regulation
FONSI	Finding of No Significant Impacts
H:V	Horizontal to Vertical ratio, measured in feet
HP	Horsepower
LAA	Likely to Adversely Affect
LF	Linear Feet
LOP	Level of Protection
LPP	Locally Preferred Plan
LWM	Large Woody Material
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLAA	Not Likely to Adversely Affect

NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
OHWM	Ordinary High Water Mark
PL	Public Law
PSE	Puget Sound Energy
RM	River Mile
SHPO	State Historic Preservation Officer
SMA	Shoreline Management Act
Sq ft	Square Feet
SRKW	Southern Resident Killer Whale
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code

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1 PROPOSAL FOR FEDERAL ACTION

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

1.1 BACKGROUND

The Desimone Levee is an urban, non-Federal flood risk management project located in the city of Tukwila, in King County, Washington (Section 35 of Township 23 North, Range 4 East). The levee is located on the right bank of the Green River. The Desimone Levee is the downstream segment of a 6-segment levee system. From downstream to upstream the levee system includes Desimone-Briscoe School, Boeing, Lower-Russell Road-Holiday Kennel, Upper Russell Road-Somes-Dolan, Kent Shops-Narita, and Meyers Golf. Construction of the Desimone Levee was completed in 1964 by King County, who is the non-federal sponsor for the project. King County requested assistance from USACE to repair the levee in 2020 following a flooding event in February 2020. USACE affirmed this request to repair the levee under Public Law (P.L.) 84-99.

The Desimone Levee was constructed of silty sandy gravel in the 1960s by King County. It is the downstream segment of a 6-segment levee system providing flood risk protection to the cities of Renton, Tukwila, and Kent, Washington. The levee is a flood risk reduction project located on the right bank of the Green River, from river mile (RM) 14.6 to 17.0, between South 180th Street in the city of Tukwila and South 200th Street in the city of Kent, Washington. The levee is 2.2 miles long, 5-11 feet tall, with a typical crest width of 16 feet. The levee's side slopes are 2.5H:1V (Horizontal to Vertical ratio) landward and 2-2.5H:1V on the riverward slopes. The riverward slopes are armored with sod or Class III to IV riprap (PIR 2020). The levee was previously damaged in flood events in 1995, 1996, 2006, and 2014 and repaired in 1998, 1999, 2002, 2009, and 2015. In its undamaged state, the Desimone Levee provides a 150-year level of protection (0.67 percent Annual Chance Exceedance (ACE)) against flood of commercial, residential, and public infrastructure. King County and the city of Kent have recently constructed 4500 feet of flood walls along upstream segments of the levee providing a 500-year level of protection (LOP).

1.2 DAMAGING FLOOD EVENT

In February 2020, an atmospheric river event occurred in the Pacific Northwest. This brought copious precipitation to Washington, as well as warmer temperatures that increased snowmelt runoff. These conditions caused flooding across Washington. Three-day rainfall values were estimated at more than 10 inches in the North Cascades and up to 20 inches in areas near Mount Rainier.

Howard Hanson Dam regulates the Green River at RM 64.5. Howard Hanson Dam (HHD) is a Federal multiple purpose project operated by USACE that regulates flows in the Green River in a manner consistent with its congressional authorization.

The flood storage reservoir reduces the intensity of discharge but increases the duration of elevated discharge rates. The dam regulates peak discharge rates up to 12,000 cubic feet per second (cfs) at the USGS Auburn gage (USGS 12113000) which is located approximately 16.4 miles upstream of the damaged levee. The flood stage at this gauge is recognized as 9,000 cfs by the National Weather Service. While the Rapid Assessment identified a damaging event on 30 January 2020, inspection of data from the Auburn gage revealed two events above flood stage later in February 2020 as seen in Figure 1. The first event occurred on February 6 for 13 hours and the second occurred from February 7-11 for 93.5 hours. The second event recorded a maximum flow of 11,400 cfs and a stage reading of 64.3 feet, which corresponds to approximately a ten-year average return period, or a 10 percent ACE, based on Bulletin 17C analysis.

High flows damaged three sections of the Desimone levee. Seepage was observed between Station 28+00 and 31+00 (Site 2) onset during the January flood event. Ponding of seepage and observed sediment mounds landward of the levee crest suggest seepage path formation through the foundation. Two slope failures later occurred during declining river flows between stations 12+50 to 14+50 and 33+00 to 35+00 (sites 1 and 3). Slope failures resulted in silt deposit bench formation, which incised the levee prism and displaced riprap armor. Consequently, the damaged state of the levee provides 99% (1-year) ACE.

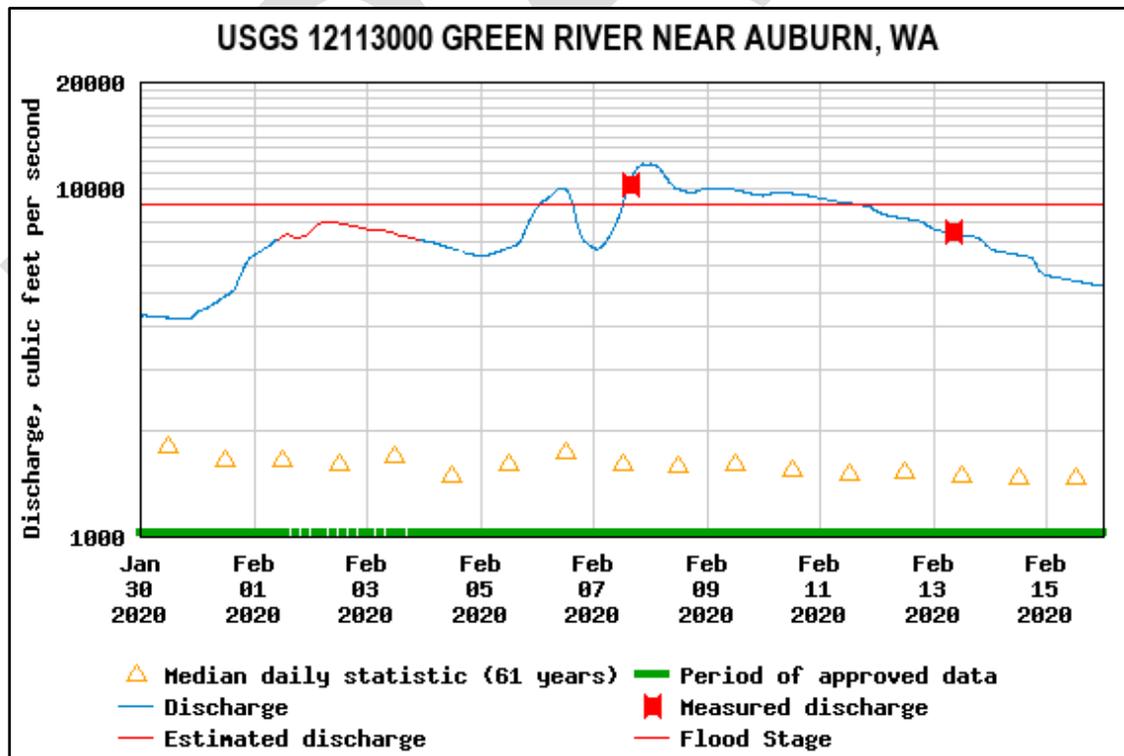


Figure 1. Flow Hydrograph at Auburn Gauge 12113000.

1.3 AUTHORITY

Construction of the Desimone Levee was completed in 1964 by King County. The non-federal sponsor for the project is King County. P.L. 84-99 provides USACE with the authority for “the repair or restoration of any flood control work threatened or destroyed by flood, including the strengthening, raising, extending, realigning, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control and subject to the condition that the Chief of Engineers may include modifications to the structure or project, or in implementation of nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-federal sponsor.” USACE’s repair work under this authority is limited to the repair of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the level of protection exhibited by the flood control work prior to the damaging event (33 U.S.C. § 701n(a)(1)). Deviations from the original design are generally not included in P.L. 84-99 rehabilitations unless, according to Engineering Regulation (ER) 500-1-1, they are “improvements to design and equipment that are a result of state-of-the-art technology and are commonly incorporated into current designs in accordance with sound engineering principles.” King County requested assistance to repair the levee in 2020 following a flooding event in February 2020 (King County, 2020).

1.4 PROJECT LOCATION

The project area extends between station 8+50 (RM 15.2) to 36+00 (RM 14.6) on the right bank of the Green River in Tukwila, Washington (Figure 2). The surrounding area is dominated by industrial land use and roads. High volume interstate roads are located 3800 feet to the west, and 1.44 miles to the east, and a railway 2000 feet to the east of the project area. Secondary roads surround the project area. There is a mitigation site within the footprint of the project area between station 16+00 to station 22+00.

The construction area includes all surfaces within the levee repair areas and the upland area behind the older mitigation area at the bend. Construction staging areas will be established in existing paved parking areas adjacent to buildings behind the levee.

Vegetation coverage on the riverward face of the levee is dominated by invasive Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*), and smaller patches of horsetail (*Equisetum arvense*) with few small trees. The landward face of the levee includes mown grass and maple trees adjacent to industrial buildings. The Green River Trail is a recreational asphalt paved pathway traversing the levee crest. The opposite bank of the Green River is part of the Tukwila 2008 levee project and includes large, anchored wood aquatic habitat features.

Photos of the present state of Desimone Levee are included in Appendix A – Site Photos.

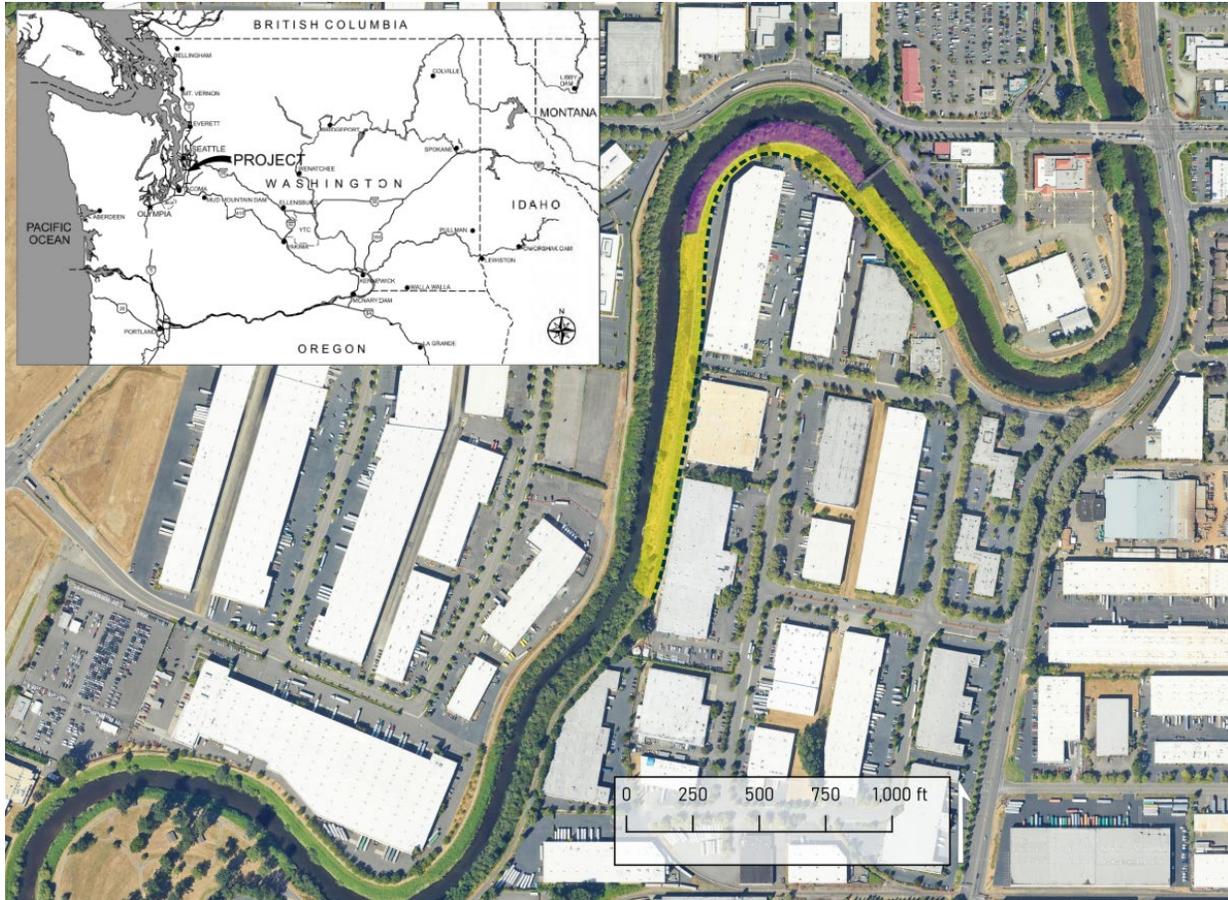


Figure 2. Project area map of the Desimone Levee, city of Tukwila, King County, Washington. Yellow: Levee rehabilitation areas. Violet: 2016 Mitigation Site. Dashed line: Cut-off and flood wall

1.5 PURPOSE AND NEED

The purpose of the proposed repair is to restore the level of flood protection provided by the Desimone levee that existed prior to flood damage sustained by the levee during a 2020 flood event, and further described in Section 1.2.2. An assessment of the levee confirmed that there is an increased likelihood of damage or breaching of the levee in its current condition (USACE Seattle District, 2020).

The need for the project is the persistent risk to human safety and infrastructure. In its undamaged state, the Desimone Levee provides a 150-year level of protection (0.67 percent Annual Chance Exceedance (ACE)) against flood of commercial, residential, and public infrastructure. In its present damaged state, the levee provides a one-year flood (99 percent ACE) level of protection. The Desimone Levee protects approximately 2,776 buildings valued at \$205.9 million (2020 dollars) over 7.65 square miles of urban land, and a day-time population of 53,101 against flood risk (Figure A.1, USACE 2020). Rehabilitation of the levee is needed to restore the authorized flood protection.

Under P.L. 84-99 and ER 500-1-1, USACE has limited discretion over repair alternatives. USACE may deviate from the original design of the non-federal levee (e.g., setback levee, habitat enhancement features) 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 to the original design. The non-federal sponsor for the Desimone project requested a Locally Preferred Plan for the repair, including features not currently present at the site (King County, 2023). Costs associated with these features must be accomplished at non-federal expense. USACE approved this request on December 23, 2023.

2 PROPOSED ACTION AND ALTERNATIVES

USACE conducted a preliminary evaluation of the alternatives for fulfilling the purpose of restoring LOP. Viable alternatives must restore reliable flood protection to the LOP that existed prior to the damaging event, must be environmentally acceptable, should address the identified flood risk, and fulfill all legal, technical, and environmental requirements.

2.1 ALTERNATIVE 1: NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the Desimone Levee would remain in its damaged condition, which provides a 1-year LOP. This alternative would not meet the project purpose because the pre-existing LOP would not be restored. The levee would likely be further damaged in future flood events and could fail, which would increase the risk to human safety and property. During any flood event that threatens the integrity of the levee system, response actions may be taken by local, state, or, upon request, Federal agencies such as USACE to preserve the levee system and, to the extent possible, maintain protection of safety and property behind the levee. Emergency response to address an active flood event would address the emergency nature of the threat at that time and would not be focused on identifying a durable or long-term solution. Reasonably, this could lead to further and additional impacts through successive multiple future flood events. This approach could potentially cost more and would likely be less protective of environmental and cultural resources, given that there would be less time to identify specific avoidance and minimization measures for work at this site. As a response would also take time to activate and execute, there is some risk that an emergency response would not prevent levee failure, such as overtopping or breaching.

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

2.2 ALTERNATIVE 2: NON-STRUCTURAL ALTERNATIVE

This alternative consists of floodplain management strategies generally involving changes in land use offered by other Federal and State programs. Such strategies would include zoning, easements, flood warning, floodplain evacuation, and flood insurance. Nonstructural strategies

also involve acquisition, relocation, elevating, and flood proofing existing structures. A non-structural plan could lessen the environmental impact by restoring parts of the floodplain, enhancing habitat for some species, while still reducing flooding impacts.

In this highly developed part of the Green River watershed, industrial and commercial buildings abut the existing levee and the Green River. Private property behind the levee would need to be acquired and existing buildings would need to be demolished. The cost and time needed to implement this alternative make it impractical to implement before the next flood season. Furthermore, the non-federal sponsor has not asked to participate in executing a Non-Structural Alternative and must request implementation of a Non-Structural alternative per PL 84-99 and its implementing regulations. Therefore, this alternative is not carried forward for detailed consideration.

2.3 ALTERNATIVE 3: REPAIR-IN-KIND

The repair in-kind alternative would repair the levee at three specific locations that were damaged during the 2020 flood. At sites 1 and 3 the riverward slope would be reconstructed with a buried toe using Class IV riprap. This approach would entail removing sloughed material from the levee toe and riverward slope, and reconstructing the levee prism with suitable embankment material. The reconstructed slope would be armored with a blanket of Class IV riprap backed by quarry spalls at 2H:1V. Total construction length, including transitions, would be 200 linear feet (LF) at site 1 and 220 LF at site 3. The repair in-kind alternative for site 2 would be to construct a drain blanket between the landward toe and the adjacent building. The blanket would increase overburden pressures at the site and provide a controlled outlet for seepage through the foundation. Construction of a two-stage filter drain blanket would further reduce the risk of piping of embankment and foundation materials. Total construction length would be 300 LF.

A geotechnical assessment of the levee embankment evaluated seepage and slope stability. The analysis confirmed the slopes at sites 1 and 3 are unstable in their current condition. In addition, the analysis indicated that the high phreatic surface and rapid drawdown during floods contributed to the failure. Reconstructing the slope and re-armoring with riprap and bedding material would repair the slope. The subsurface conditions and soil profile are similar to those at site 2 where sand boils were present in post-flooding inspection. At sites 1 and 3 as well as within the general vicinity, water was visibly ponding and exiting up through asphalt pavement near the landward toe of the levee which corresponds to the phreatic surface in the evaluated models. There is a risk that there are boils and piping forming beneath the pavement which are not visible. Repair of the damaged slopes would not address this issue as subsurface conditions would be unchanged.

At site 2, a seepage blanket would be constructed against the landward toe. Total construction length will be 300 LF. Further consideration of this proposed option shows that the proposed extent of the seepage berm is within the footprint of an industrial building. The seepage berm as proposed would abut, or nearly so, the adjacent building and would direct water towards the building. As underseepage is not addressed and the proposed repairs are not feasible due to

overlap with existing buildings, the LOP would not be restored. Therefore, this alternative is not carried forward for detailed consideration.

2.4 ALTERNATIVE 4: AMENDED REPAIR IN-KIND

Given the real estate constraints and the impacts of installing relief wells or seepage/drainage berms adjacent to buildings, a cut-off wall can limit the impact of seepage and subsequent piping of material. Based on the geologic conditions, steel sheet-pile would likely be the method selected to limit underseepage. The sheet-pile wall would be constructed to an equivalent level of protection for the pre-flood configuration of the levee and located along the landward edge of the crest. When assessing the alignment and location of the cut-off wall, considerations were given to the impacts of a segmented wall. The construction of a sheet-pile wall concentrates seepage flows both upstream and downstream, and if constructed in segments would exacerbate the seepage and increase the risk for additional stability and performance related issues in the future. Considering the overall alignment of the Green River in relationship to the failure modes caused by prolonged hydraulic loading and the locations of damage, a cut-off sheet-pile wall would begin downstream of site 1, tying into an existing floodwall at 8+50 and extend through site 2 and terminate at 100 feet upstream of site 3 at 36+00 site 3 (Figure 2). Riverward slope armoring would be required to repair the damaged slope at sites 1 and 3. Slope repair would resemble the repairs at the nearby rehabilitation site conducted in 2014, which would include reconstruction of the levee profile and re-armoring with a 4-foot-thick blanket of Class IV riprap (up to 29 inches in diameter) placed over a 12-inch layer of quarry spalls. The amended repair in-kind alternative meets the project purpose and is practicable.

As described below, Alternative 5 includes the repair elements and design approach of Alternative 4. Alternative 5 includes additional elements that focus on enhancing riparian and aquatic habitat that are not included in Alternative 4. These additional elements would serve as improvements to the local environment beyond repair of the levee and restoration of flood protection. The construction methods of the shared elements described in Alternative 4 and 5, and their associated effects on resources would be very similar. Slope repairs in Alternative 5 differing from Alternative 4 include reducing the slope angle by setting the crest landward and covering armoring with substrate. As these effects are described in detailed analysis of Alternative 5, this alternative is not carried forward separately for detailed consideration.

2.5 ALTERNATIVE 5: LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

A Locally Preferred Plan was proposed by the non-federal sponsor, King County, and includes all the elements of the amended repair in-kind alternative with the following additions: 1) a higher floodwall to increase the level of protection to a 500 year flood (500 year protection would be achieved after additional planned projects are built upstream); 2) shifting the steel cut-off wall alignment landward to utilize expanded easements and decrease the existing slope between the cut-off wall and the river to achieve a more stable slope through the length of the project area, 3) integrate environmental features along the more stable slope; and 4) shift the Green River

regional recreation trail landward. Under this alternative, USACE would implement the Locally Preferred Plan including all the features listed above.

In 2014, King County Flood Control District (FCD) approved resolution FCD 2014-09, establishing a provisional increase in the LOP to 500-year ACE plus 3 feet of freeboard for capital projects in the Lower Green River. The increase in design containment flow was based in part on findings from hydraulic and economic modeling, which reflected 2012 USACE changes in design flood hydrographs, and indicated a much higher level of flood risk, particularly for events exceeding 12,000 cfs. The increased level of protection has been included for all planned capital projects in the Lower Green River in approved FCD budget documents since 2016 and in the Lower Green River System Wide Improvement Framework (SWIF) accepted by USACE in 2019, along with subsequent SWIF progress reports. The increased LOP for the Desimone Project was included in the 2020, 2021, and 2022 SWIF progress reports.

The Preferred Alternative consists of installation of a steel sheet-pile cut-off wall with a concrete cap (flood wall) tied into an existing downstream flood wall, repair of the levee toe and scour protection layer, modification and repair of the levee profile to set the crest back to the flood wall, relocation of the existing recreational path, installation of aquatic habitat features, and planting of the riverward levee face. Impact Avoidance and Minimization Measures (Section 2.3) and Best Management Practices (Section 2.4) would be utilized to avoid and minimize environmental impacts. The project design plans are in Appendix B. The total project footprint would be approximately 7.4 acres.

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

Action	Area (acres)	Length (ft)
Staging areas	6.36	
Scour Protection Layer	0.65	2100
Vegetation Planting Area	1.89	2800
Intermediate slope area (2H:1V)	0.42	2800
Recreational path and levee crest	0.96	2800
Project Area Total	7.4	

From the levee toe to the 12,000 cfs elevation the slope would be decreased to approximately 3H:1V, thereby reducing the slope of the embankment over different water elevations and flood stages. The remaining top of the embankment would be graded at a 2:1 slope up to the crest at approximately 19,000 cfs elevation. The levee profile would be shifted landward, and the crest would be set back adjacent to the flood wall. The Green River regional trail is currently atop the levee crest, and it is used for flood facility inspection and maintenance access, as well as recreation. Shifting the levee crest landward requires shifting the trail landward as well.

Habitat features would be installed throughout the project site. These include wood structures anchored to boulders along the levee and boulder piles placed near the levee toe. The purpose of these structures is to create hydraulic variability along the shoreline, pool habitat, and low velocity habitat all along the levee prism. Between the Ordinary High Water Mark (OHWM) and up to a distance of 10 feet from the Green River Trail, trees and shrubs would be planted across the project site. The objective is to plant trees and shrubs along the entire slope of the levee between the OHWM and the 12,000 cfs elevation to improve riparian conditions.

The Locally Preferred Plan meets the project purpose and need. It also meets additional needs of the local sponsor and provides habitat enhancement features intended to improve the aquatic ecosystem. From a cumulative effects perspective, the project results in a net decrease in permanent fill below the OHWM which is a benefit to the aquatic ecosystem. For these reasons, the Locally Preferred Plan is the preferred alternative and the environmentally preferable alternative.

2.5.1 DETAILED PROJECT DESCRIPTION

2.5.1.1 Cut-off and flood wall

The Preferred Alternative would include a continuous steel cut-off wall along the length of the 2800-foot project from station 8+50 (RM 14.6) to station 36+00 (RM 15.2). The cut-off wall would be positioned as far from the river as possible given constraints of existing buildings, approximately 90-120 feet from the existing toe of the levee. Sheet pile would need to be driven to a depth of approximately 50 feet to prevent underseepage. A flood wall would be constructed on top of the cut-off wall. The height of the flood wall would provide a 500-year LOP plus three feet of freeboard. The cut-off wall and flood wall would be tied into an existing similar structure at the downstream end of the project site at 8+50 (RM 15.2). The current 500-year LOP at the Desimone site is approximately 14,000 cfs. The flood wall would be constructed to an approximately 19,000 cfs elevation level (plus 3 feet) to accommodate the sponsor's long term capital project planning objectives on the Green River. Future flood protection projects planned by King County upstream of the Desimone site, once constructed, are predicted based on modeling to increase the 500-year LOP at the Desimone site to approximately 19,000 cfs.

The cut-off and flood wall would serve as the landward edge of the levee crest, thereby eliminating the landward embankment. The flood wall would be completed by 1 November in preparation for the upcoming flood season.

2.5.1.2 Levee embankment

The levee embankment waterward of the flood wall would be repaired from the flood wall down to the levee toe in two sections, from station 8+50 to 15+00 (RM 14.6 - 14.75) and from station 22+50 to 36+00 (RM 15.0 - 15.2). Between stations 15+00 and 22+50 (RM 14.75 - 15.0), an inner bend in the river, the levee is not damaged and contains a maturing vegetated area on the riverward slope that was previously developed as a mitigation site. The area will not be disturbed. The existing slope of this area will be graded into the areas being repaired at the up and downstream extents.

The riverward slope waterward of the flood wall would be reduced as much as possible by shifting the levee crest to the base of the flood wall. The existing levee crest elevation would be maintained, just shifted landward. This results in the riverward slope being reduced from the current roughly 2H:1V to a 2.5-3H:1V slope.

Scour protection of the levee toe would be reworked and repaired by excavating the existing levee toe and placing a 3-foot-thick layer of class IV riprap from location of the original undamaged levee toe up to the OHWM (i.e., 2,000 cfs elevation). The riprap scour protection layer would be covered with smaller size material. Below the water, the riprap would be covered with a mix of coarse sand and fine gravel to minimize turbidity during construction. Above the water, the riprap would be covered with the streambed material that was previously excavated from the site.

2.5.1.3 Habitat features

Habitat features would be installed throughout the project. These include wood structures anchored to boulders along the levee, and boulder piles placed near the levee toe. The purpose of these structures is to create hydraulic variability along the shoreline, pool habitat, and low velocity habitat all along the levee prism. Boulders used as anchors for logs would be 5-foot diameter quarry stone and partially buried in the embankment for stability. Below the OHWM, the log structures would consist of 6 logs chained to anchor stones and to each other. Logs would be sourced from fir trees, with varying dimensions up to 25 feet long including the root ball and a 2-foot-thick trunk diameter. Above the OHWM, single logs chained to anchor stones would be placed randomly in the planting area as high- or flood-flow refugia. Boulder piles would consist of two layers of 36 to 48-inch rounded boulders bedded with coarse gravel and placed on top of the rebuilt levee extending from the tow of the levee up to the OHWM. These features are intended to stick out into the flow to create hydraulic diversity and low velocity habitat.

2.5.1.4 Green River trail

The Green River Trail would be removed throughout the length of the project area and rebuilt approximately 20 feet landward of its current location. The trail would be adjacent to the proposed flood wall on the riverward side. The trail would be rebuilt at the same vertical elevation. It would be similar in size to the current trail, and it would be paved with asphalt. The trail would be tied into the existing trail up and downstream of the project area. An access point will be constructed to permit ingress and egress to the trail over the flood wall.

During construction, the trail would be temporarily rerouted outside of the construction area (Appendix H).

2.5.1.5 Planting Plan

Topsoil would be added to the planting area to help establish vegetation. An irrigation system would be installed to facilitate plant establishment. The topsoil would be covered with wood mulch prior to installing plants. Wood mulch would be used for ground cover to prevent recruitment of invasive species and for moisture retention. Mulch would be placed with a three-foot diameter buffer around the trees and shrubs.

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Between the OHWM and up to a distance of 10 feet from the Green River Trail, trees and shrubs would be planted across the project site. The objective is to plant trees and shrubs along the entire slope of the levee between the OHWM and the 12,000 cfs elevation to improve riparian conditions (Table 4 and 5). Trees and shrubs would be planted in a clump mosaic pattern to replicate a natural plant distribution more closely. Plants would be installed in the fall or winter to limit their exposure to dry periods and watered when planted. An irrigation system will be installed to facilitate plant watering.

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

Equipment	Equipment Notes	Number	Location	Activities	General Description
Bulldozer	Blade length 12 feet	3	Throughout the rehabilitation footprint	Manipulates materials. Move and place rock, vegetation, and other materials	Move and place material
Grader	Similar to 12H, min hp 140, min lbs, 30,000, min blade length 12 ft	1	Throughout the rehabilitation footprint	Driveway grading, blade levels dirt or grave for roads	Driveway construction
Excavator	Track-mounted hydraulic excavator w/hydraulic thumb, similar to 300 series, min hp 200, min lbs 70,000, min reach 30 ft	4	Throughout the rehabilitation footprint	Workhorse of the rehabilitation. Manipulates materials. Move and place rock, vegetation, and other materials.	Move and place material
Pile Driver	Vibratory or impact	2	Cut-off wall	Drives sheet pile	Drives sheet pile
Water Truck	Holds up to 3,000 gal	1	Haul route Existing roads	Wets surfaces to control dust	Dust control
Dump Truck	10-12 CY Solo Dump truck, haul up to Class V riprap	Dependent on delivery	Haul route Existing roads	Transport of materials to and from the project	Material transport

2.5.1.6 Construction sequence

Due to the size and complexity of the project, USACE intends to hire a contractor to construct the project. The precise construction techniques and methods would thus be determined by the contractor. The construction methodology discussed below represents the methods USACE anticipates being used by the contractor. In some cases, more than one approach is described for the purpose of including the possible range of techniques anticipated.

Construction would occur between April 1st and December 31st, 2025, and generally consist of the following major components described below. In-water work would be conducted between July 1st and September 15th. Construction may intermittently occur overnight (24-hour work period), especially during the in-water work window.

Site preparation: The first component of construction includes the preparation of temporary access routes and the existing levee prism for material removal. The project limits will be clearly marked using stakes and flagging. A detour route would be established while the site is under construction. Staging activities would consist of temporarily stockpiling rock, sheet pile, supplies, equipment, and vehicles in staging areas.

Levee deconstruction and repair: Invasive vegetation, including Himalayan blackberry and reed canary grass will be disposed of off-site in a manner to prevent the spread of invasive vegetation. Vegetation will be removed within the project footprint. The existing asphalt recreational path would be excavated and the material disposed offsite.

The project would then likely proceed with two independent activities that could run in sequence or simultaneously, depending on material availability and space constraints in the work area: 1) the levee embankment would be excavated, repaired, and habitat features installed, and 2) cut-off and flood wall construction.

Complete construction: Upon completion of all construction activities, areas disturbed by the project including staging activities and road access will be re-seeded with native grasses to avoid recruitment of invasive plant species or planted according to the planting plan.

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

Material	Quantity	Location	Use
Embankment Material (cubic yards [CY])	13200 (import) 57300 (export)	Levee profile, landward and riverward of the levee centerline	Levee structure
Class IV Riprap (CY)	11200	Levee slope	Levee armor
Topsoil (CY)	5596	Levee embankment planting area	Topsoil for vegetation plantings
Trees and shrubs	3223	Riverward embankment	Riparian habitat
Wood mulch (CY)	932	Riverward embankment	To reduce recruitment of invasive species and moisture control

2.6 IN-WATER WORK WINDOW

All work conducted in-water is proposed to occur between July 1 and September 15. This is longer than the authorized in-water work window for the Green River, which is from August 1 to August 31 (USACE 2023). The proposed extended in-water work window is needed to accomplish the work in a timely manner. The proposed work is extensive and in-water work would progress along the levee as it is reconstructed. Entry, exit, and lateral working space is constricted in the project area, which would be a limiting factor in the pace of construction. To ensure sufficient time to complete the in-water work in one year, USACE is therefore requesting a longer in-water work window from the National Marine Fisheries Service (NMFS) and USFWS (U.S. Fish and Fish and Wildlife Service).

The contractor may construct a cofferdam or install a silt curtain to isolate the construction site from the river for the purpose of maintaining water quality standards. The cofferdam would be expected to be constructed with supersacks containing gravel or similar method that can be placed in sequence to isolate sections of the river and then removed when the section of work in completed.

2.7 IMPACT AVOIDANCE AND MINIMIZATION MEASURES PLAN

There are four major components of the Impact Avoidance and Minimization Measures Plan: removal of invasive species, vegetation plantings, wood and boulder habitat feature installation, and a maintenance, monitoring, and adaptive management plan. Details of some these

measures including the wood and boulders features and plantings are discussed above. Additional details are described below.

2.7.1 REMOVAL OF INVASIVE SPECIES

All existing vegetation on the riverward slope of the levee would be excavated, including invasive species. The upper 6-12 inches of soil would be disposed at an approved offsite disposal site to minimize reemergence of the invasive species.

2.7.2 VEGETATION PLANTINGS

A total of about 97 trees of least four-inch diameter at breast height (DBH) would be removed for levee embankment modification and construction of the flood wall. Trees would be replaced at a 3:1 ratio on the levee to compensate for the loss of these trees. Therefore, 291 trees would be planted to offset vegetation impacts of the proposed project. The new vegetation plantings will take approximately 10 to 40 years to reach the same age and size as the trees that will be removed. Shrubs would also be interplanted between trees to offset impacts from shrub removal. Since the project has a habitat objective to substantially plant the riverward slope of the levee, the total number of plants installed exceeds the quantity typically replanted in local USACE projects to address impacts for plants cleared to facilitate construction. A planting plan and total approximate plant numbers are in Appendix B.

Table 4. Trees to be planted at the project site.

Trees	
Common Name	Species Name
Bigleaf Maple	<i>Acer macrophyllum</i>
Red Alder	<i>Alnus rubra</i>
Sitka Spruce	<i>Picea sitchensis</i>
Black Cottonwood	<i>Populus trichocarpa</i>
Douglas Fir	<i>Pseudotsuga menziesii</i>
Grand Fir	<i>Abies grandis</i>
Oregon Ash	<i>Fraxinus latifolia</i>
Western Red Cedar	<i>Thuja plicata</i>

Table 5. Small trees and shrubs to be planted at the project site.

Small Trees and Shrubs	
Common Name	Species Name
Pacific Willow	<i>Salix lasiandra</i>
Sitka Willow	<i>Salix sitchensis</i>
Red-osier Dogwood	<i>Cornus stolonifera</i>
Indian Plum	<i>Oemleria cerasiformis</i>
Western Hazelnut	<i>Corylus cornutus</i>
Black Hawthorn	<i>Crataegus douglasii</i>
Oceanspray	<i>Holodiscus discolor</i>
Pacific Ninebark	<i>Physocarpus capitatus</i>
Nootka Rose	<i>Rosa nutkana</i>
Red Elderberry	<i>Sambucus racemosa</i>
Mock Orange	<i>Philadelphus lewisii</i>
Salmonberry	<i>Rubus spectabilis</i>

2.7.3 MAINTENANCE, MONITORING, AND ADAPTIVE MANAGEMENT PLAN

USACE would conduct monitoring and adaptive management of the planted vegetation, including replacement and maintenance, for the first year. If survival rates are less than 80 percent during the first year, USACE would evaluate why the plantings failed and plan the best path forward for successful replacement. USACE would engage with the non-federal sponsor to assist in identifying the problem and alternate planting practices for successful replanting. These may include planting different species, changing the planting location, or adding pest control or exclusion devices. USACE would report the success of the vegetation plantings to the resource agencies coordinated with for the rehabilitation. The planting would be evaluated in September of each year before leaf drop.

USACE is currently collaborating with the non-federal sponsor on a multi-year vegetation monitoring approach that would begin after year one monitoring described above. USACE expects to communicate this final approach to vegetation monitoring in the final EA.

2.8 BEST MANAGEMENT PRACTICES (BMPs)

To minimize environmental impacts during construction activities, the project would adhere to the following BMPs. To ensure environmental requirements and water quality standards are achieved, the contractor would be expected to develop additional BMPs, as well as methods to document the project's environmental compliance, and will depend on the specific methods they choose to conduct the work.

- Trees planned for removal will be surveyed prior to removal to ensure nesting birds are not present.
- All in-water work will occur between 1 July to and 15 September during the low flow period.
- All construction materials will be free of contaminants such as oils and excessive sediment.
- Equipment used near the water will be cleaned prior to construction.
- Entry/exit to the site will be constructed of quarry spalls to remove dirt from truck tires before they exit the site.
- Public access road will be cleaned and maintained of sediment and debris.
- 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.
- Drive trains of equipment will not operate in moving water.
- Low sulfur fuel will be used when appropriate.
- Engines will not be idled unnecessarily.
- Observed hydraulic oil or other petroleum leaks will be contained with an absorbent boom or other means appropriate for the magnitude of the leak.
- At least one USACE biologist and engineer will be available via phone during construction. USACE biologists may visit the construction site and provide periodic updates to regulatory agencies. The engineer may also visit the construction site. All visits will be coordinated with the Project Manager and Construction Manager.
- Vegetation removal will be limited to the areas identified on the project plans.
- Noxious or invasive vegetation will be disposed off-site.
- All plantings (trees and shrubs) will be watered at the time of installation.
- All disturbed soils outside of the identified planting area (e.g., staging areas, Green River Trail buffer zone) will be hydroseeded with a native seed mix.
- Temporary erosion control will be installed for all phases of the work. Contractor will be required to develop a Stormwater Pollution and Prevention Plan and comply with requirements of the Construction General Permit under the Environmental Protection Agency's National Pollutant Discharge Elimination System.

- Woody material from trees removed during construction will be incorporated in the in-water log habitat features.
- Restrict work to the areas shown in the project footprint to include all staging areas and access.
- The construction site boundaries will be clearly marked to avoid or minimize disturbance of riparian vegetation and other sensitive sites outside of the project footprint.
- All trash and unauthorized fill generated during the repair will be removed from the project and staging area, including concrete blocks or pieces, bricks, asphalt, metal, treated wood, glass, floating debris, and paper. It will be disposed of properly after work is completed.
- Storage and staging will occur where indicated on the project plans, and will consist of temporary stockpiling of excess rock, embankment materials, steel sheet piles, supplies, equipment, and vehicles.
- A Fueling and Spill Recovery Plan will be developed prior to construction that will include specific BMPs to prevent spills or leaks and to prepare and react quickly should an incident occur. Refueling will occur on the landward side of the levee or on top of the levee. At least one fuel spill kit with absorbent pads will be always onsite with the refueling vehicle.
- A Water Quality Monitoring Plan will be implemented during construction. Turbidity monitoring will be conducted to ensure that State Water Quality Standards are met. Should construction efforts exceed the state turbidity standards, or a visible turbidity plume is observed, work will be halted, and construction methods adjusted to ensure that further exceedances will not occur. Turbidity will be monitored and controlled according to the Clean Water Act 401 Water Quality Certificate issued by the Washington Department of Ecology.

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

Table 6. List of resources considered for detailed effects analysis and rationale for inclusion or exclusion.

Resource	Included in Detailed Analysis (Yes/No)	Rationale
Land Use, Utilities, and Infrastructure	Yes	Buildings and infrastructure behind the levee are currently at risk of flooding. The proposed action would temporarily impact land use, utilities, and infrastructure during construction. Analysis is required to investigate what land use, utilities, and infrastructure may be impacted.
Water Resources and Water Quality	Yes	The proposed action may affect water quality through in-water work, vegetation removal, and stormwater runoff. Analysis is required to establish present water quality conditions and to determine the extent of any potential effects.
Vegetation	Yes	Shoreline vegetation is within the project footprint, there are no wetlands near the project site. Since vegetation is being removed, an analysis is required to investigate potential effects.
Threatened and Endangered Species	Yes	The proposed action may affect protected species in the project area. Analysis is required to determine what species are present and the extent of potential effects.
Fish and Wildlife	Yes	Same rationale as above.
Air Quality, Greenhouse Gas Emissions, and Noise	Yes	The proposed action involves construction equipment that generate exhaust and noise. Analysis is required to investigate existing air quality, greenhouse gas emissions, and noise conditions and to determine the extent of any potential effects.
Cultural Resources	Yes	Analysis is required to investigate cultural resources and to determine the extent of any potential effects.
Environmental Justice	Yes	Analysis is required to investigate impacts to marginalized communities and to determine the extent of any potential effects.
Recreation	Yes	Analysis is required to investigate recreational activities in the area and to determine the extent of any potential effects.
Navigation	Yes	Installation of aquatic habitat features may affect navigation; an analysis is required to investigate potential effects.

Resource	Included in Detailed Analysis (Yes/No)	Rationale
Hazardous, Toxic, and Radiological Waste	No	The project area does not have contaminants within any areas that would drain into or out of the project area. The nearest Superfund site is approximately 1 mile southeast of the project area. There are 2 Model Toxics Control Act Sites nearby, but they are located sufficiently inland to not be disrupted by construction. This resource will not be carried forward for evaluation.

3.1 LAND USE, UTILITIES, AND INFRASTRUCTURE

3.1.1 EXISTING CONDITIONS PRE-FLOOD (2020)

There are many commercial, industrial, and public infrastructure facilities located behind the Desimone Levee (Figure 2). The Desimone Levee protects approximately 2,776 buildings valued at \$205.9 million (2020 dollars) over 7.65 square miles of urban land, and a day-time population of 53,101 against flood risk (Appendix A Figure 1), (USACE Seattle District, 2020).

3.1.2 NO ACTION ALTERNATIVE

Implementation of the No-Action Alternative would not be expected to result in any land use changes, but private property and public infrastructure are at risk to floods. The numerous industrial and commercial buildings in the vicinity behind the levee are at risk of flooding. Under the No Action Alternative, the levee would not be rehabilitated. If flooding occurs due to breaches in weak sections of the levee, emergency flood fight efforts would be needed. Underseepage from future high-flow conditions may continue to undermine the integrity of the levee. Flood fighting efforts could present more environmental impacts than a scheduled rehabilitation because emergency flood response often includes unmitigable impacts to vegetation, fish and wildlife, and water quality. Additionally, the existing Desimone Levee could fail in the event of a flood and would likely require extensive in-water work to restore the levee.

3.1.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

Under the Preferred Alternative, private property behind the levee and flood wall would be protected from underseepage and direct overtopping of flood waters relative to the existing condition of the levee by the installation and location of the proposed sheet pile wall. USACE maintains a calibrated hydraulic model of the Lower Green Basin from Howard Hanson Dam to Elliott Bay. A subset of the current USACE model, from approximately RM 34 to RM 10 or the reach from the Soos Creek confluence to Renton, was used to measure the impact of the Preferred Alternative on flood flow related water surface elevations. Two model geometries were developed: existing conditions and post-project conditions. The existing conditions model includes all levees, bank protections, and surface features present in the 2019 lidar and thus reflects the state of the river prior to the 2020 flood event. When compared to existing

conditions, the model results predict that the Preferred Alternative will result in no overtopping of the levee or floodwall on either bank of the river and a small reduction in water surface elevations at the 100- and 500-year flood events. These reductions are a result of regrading the right bank and removing the sediment bench which increased conveyance capacity through the reach. Accordingly, there is unlikely to be induced flooding due to the Preferred Alternative.

The need for the levee work is to repair damage to an existing levee and to increase the level of flood protection consistent with the local sponsor's long term flood management plan for this region. The proposed project alone would not change the level of flood protection for existing infrastructure, land use, and utilities. However, when added to future projects planned by King County, the collective set of flood protection projects, which includes the higher Desimone levee, when fully constructed would increase the level of protection for the urban areas behind the levee system. The area protected is one of the most highly developed and urban locations in the region.

During construction, there would be minor and temporary impacts to land use, utilities, and infrastructure. Land use in the project area would not change but may be disrupted temporarily from construction activities and equipment. Construction-related traffic may cause temporary increases to and disruption of local traffic. Flaggers and signs would be used, as needed, to direct traffic safely around the construction site. The Green River trail would be temporarily rerouted. Water lines and fire hydrants in the project footprint would be relocated to accommodate construction and installation of the flood wall. Existing infrastructure would not be altered to prevent its intended purpose and use.

3.2 WATER RESOURCES AND WATER QUALITY

3.2.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The Green River originates in the Cascade Mountains, flowing over 93 miles into Elliott Bay. Howard A. Hanson Dam is 63 miles above the river mouth and the Tacoma Headworks Diversion Dam is 3 miles downstream of the Howard A. Hanson Dam, providing drinking water for the city of Tacoma. The Green-Duwamish watershed has been profoundly modified over the past century, resulting in dramatic changes to the drainage area, including diversion of major tributaries (King County, 2016). The Green River currently experiences low river flows during summer and fall, and as a highly urbanized watershed, is also increasingly covered by impervious surfaces.

The proposed levee rehabilitation work is along a section of the Green River that is listed on the Environmental Protection Agency (EPA) 303(d) list of impaired water bodies for dissolved oxygen (Category 5), fecal coliform (Category 5), and water temperature (Category 4A, Washington Department of Ecology). Category ranges from 1 to 5 indicate the water body's degree of meeting water quality standards, where category 1 (least polluted) waters meet standards for clean water and category 5 (most polluted) waters require a water improvement project. A total maximum daily load has been developed for temperature and dissolved oxygen. The Washington Administrative Code (WAC 173-201A-200), Table 200(1)(C) lists water body uses for this reach (in Water Resource Inventory Area 9) as salmonid spawning, rearing, and migration, and has a maximum temperature criterion (7-DADMax) of 17.5°C (63.5°F) and

oxygen at 10 mg L⁻¹ or 90% saturation (1 day). Summer temperatures and dissolved oxygen concentrations routinely exceed established water quality thresholds. At the nearest monitoring station (King County station 0311, RM 12.5), recent temperatures in July and August exceed the WAC 173-201A-200 upper threshold, and dissolved oxygen concentrations from June-October fall below the WAC 173-201A-200 lower threshold. Summer temperatures have been increasing over the past century and will increase on average under projected climate change scenarios, as well as increased frequency and duration of heat waves (Heeter et al., 2023). Increased temperature also implies reduced dissolved oxygen concentrations as solubility decreases (Wetzel, 2001).

3.2.2 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. Adjacent areas include public roadways, commercial and industrial buildings, and parking lots. Levee failure could allow floodwater to transport debris and sediment from surrounding impervious surfaces. This would potentially impact water quality due to the rapid introduction of pollutants and contaminants to the river.

3.2.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

The proposed construction would cause short-term impacts to local water quality. The proposed project includes removal of vegetation along the riverward side of the levee. The loss of limited shading vegetation and 97 trees is not expected to result in significant changes to water temperatures within the river because the tallest trees are clustered in a 680-foot length on the downstream segment over 90 feet away from the river (Figure 3), and only provide summer shade when the angle of the sun is less than 48° which is limited to a few hours in the afternoon. The project will include planting of approximately 3,223 native trees and shrubs (Table X). By planting on the riverward slope, closer to the river, the rehabilitated habitat will provide more effective shading than the current trees provide when mature. Placement of earthen embankment, rip rap, topsoil, mulch, and gravel above OHWM will not affect water quality in the project area.

Repair of the levee toe will require excavation of fine sediments and placement of riprap on the excavated slope. Turbidity would be generated during in-water work along the edge of the construction area, but this would be temporary. BMPs would be implemented to ensure water quality standards are maintained.

Overall, USACE does not expect long term negative effects to water quality because the project is not likely to discernibly change river temperatures. In the long-term, USACE expects local water temperature to be either unaffected or reduced as a result of the riparian plantings in the project due to potential shading to the river.

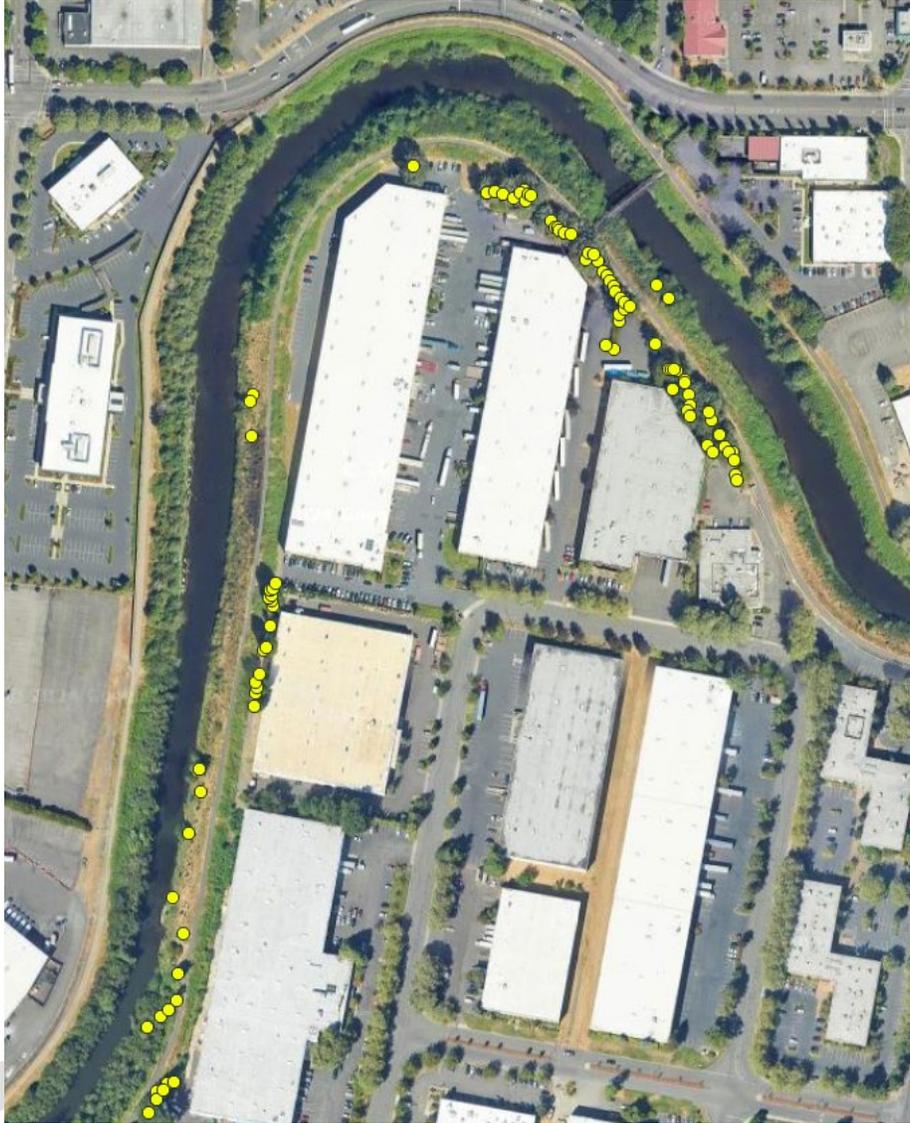


Figure 3. Trees (>4-inch DBH) to be removed for construction, marked with yellow dots. Imagery date: 8/22/2022.

3.3 VEGETATION

3.3.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The riverward face of the levee is dominated by invasive blackberry and reed canary grass, and limited patches of horsetail. The existing planted site between RM 14.75 - 15.0 consists of 300 planted trees (ash, cherry, cottonwood, maple, spruce) and numerous planted shrubs (currant, dogwood, oceanspray, ninebark, Nootka rose, salmonberry, snowberry, thimbleberry, twinberry, willow). Outside of this planted area and in the project area, there are 15 trees (>4 inch DBH) on the riverward face of the levee, consisting of alder, cottonwood, and willow with clumps of shrubs and grass. The landward face is covered by mowed grass with a few larger maple and cottonwood trees behind or at the base of the levee (Appendix A – Site Photos). Shoreline

conditions in this reach of the Green River are heavily modified and almost no intact riparian buffer exists in the reach (Kleinschmidt Associates, 2023). There are no wetlands present within the project area.

3.3.2 NO ACTION ALTERNATIVE

The Desimone Levee, in its damaged state, has a high likelihood (99% ACE) of failing during flood conditions (USACE Seattle District, 2020), meaning that the levee in its current state is susceptible to breaching under minor flooding. Flood fighting would be required more often to protect infrastructure and property behind the levee. Construction to repair the Desimone levee during a flood event is difficult and is completed rapidly without the benefit of advanced planning to avoid and minimize environmental impacts. Vegetation would be removed or buried as needed under flood construction conditions. Federal assistance, if requested to supplement local response during a flood fight event, involves the provision of either technical or direct assistance primarily to stabilize an area, and does not address long-term habitat restoration or vegetation replanting. If the levee fails, inundation and possible channel migration could alter and erode vegetation in the affected areas.

3.3.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

The proposed construction would have short term negative impacts on existing vegetation. Construction of the flood wall and levee repairs will require the removal of 97 trees and numerous shrubs. Most of these trees are approximately 90-120 feet from the OHWM. Removing the trees could decrease the amount of shading on the river in the afternoon. Due to the highly developed land use around the levee, there is limited vegetation and most shrubs are identified as nuisance species. The levee is not compromised between 15+00 and 22+50 (RM 14.75 - 15.0), an inner bend in the river, and contains a maturing vegetated area on the riverward slope that was previously developed as a city of Kent planting site that was required for a city of Tukwila Shoreline permit. The riverward slope of this area will be avoided and not disturbed by the proposed work.

To reduce the impact of tree and shrub removal, trees will be replaced to address temporal loss of vegetation with interplanted shrubs using seasonally available native plants (sections 2.5 and 2.7). The planting area will be 1.89 acres and plantings will be established closer to the river (approximately 30 feet above the river instead of 100 feet). Planting of native trees and shrubs (Tables 4 and 5) in a clustered mosaic pattern would be more representative of naturally established vegetation (Appendix B). Over time (10-40 years), new plantings would more than offset the impacts of the removed vegetation due to the number of new plants installed and the location of the vegetation closer to the Green River where the riparian area will provide enhanced ecosystem functions relative to the present state, such as direct shading, organic matter and wood inputs, macroinvertebrate fallout, complex riparian habitat, and hydraulic roughness under all flow conditions.

3.4 THREATENED AND ENDANGERED SPECIES

In accordance with Section 7(a)(2) of the Endangered Species Act (ESA), Federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally-listed and proposed threatened or endangered species. The species listed in Table 7 are

protected under the ESA and may occur in the project area. The following sections briefly summarize relevant information about the protected species, current knowledge on the presence, and use of the project and action areas by these species. The ESA consultation assesses how the proposed project may affect the species, concluding with a determination of effect. See section 8.6 for details about ESA compliance.

Table 7. ESA-listed species and designated or proposed critical habitat potentially found in the action area.

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

3.4.1 EXISTING CONDITIONS PRE-FLOOD (2020)

3.4.1.1 Chinook Salmon

The Puget Sound Chinook salmon was listed as threatened on March 24, 1999 (64 F.R. 14308), revised on June 28, 2005 (70 F.R. 37159), and updated on April 14, 2014 (79 F.R. 20802). The Green River was designated as critical habitat for Chinook salmon on September 2, 2005 (69 F.R. 74572).

Chinook salmon are most often found in large streams or rivers, and many stocks spawn far inland. Chinook salmon are considered main channel spawners, although they will use smaller channels and streams with sufficient flow. Adult Chinook salmon migrate upstream in the Green River to spawn during summer and fall. Juvenile Chinook salmon outmigration occurs from winter through early summer. Green River Chinook populations are fall run (Ruckelshaus et al., 2006), and spawning is focused between RM 24 to 61 (NMFS, 2019).

3.4.1.2 Steelhead

The Puget Sound steelhead was listed as threatened in 2007 (72 F.R. 26722) and updated in 2014 (79 F.R. 20802). The Green River population is part of the Puget Sound distinct population segment. Critical habitat is designated for steelhead on this section of the Green River (81 F.R. 9251) adjacent to the project area.

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

In the Green River, adults for the ESA-listed winter population typically enter freshwater between November and May (Hard et al., 2007). Spawning begins in March and continues into June with peak spawning typically in April. Juveniles are present in the river year-round. They typically hatch in the spring and early summer. The majority remain in the river for two years and in the ocean for two years (Quinn, 2018). Outmigration timing generally peaks in April or May (Seiler et al., 2004). Recent analyses estimate a relative increase in abundance of adult steelhead returning to Green River comparing the 5-year intervals between 2010-2014 and 2015-2019, although these increases represent less than 50% of the recovery target (Ford, 2022).

3.4.1.3 Bull Trout

The Puget Sound bull trout (*Salvelinus confluentus*) was listed as threatened on November 1, 1999 (64 F.R. 58910). Final critical habitat for Puget Sound bull trout was designated in 2004 (69 F.R. 59995) and revised in 2010 (75 F.R. 2270) and includes all reaches of the Green River adjacent to the project area. Bull Trout have more specific habitat requirements than most other salmonids with strong preference for colder waters (Rieman & McIntyre, 1993). Habitat components that particularly influence their distribution and abundance include water temperature, cover, channel form and stability, spawning and rearing substrate conditions, and migratory corridors (Fralely & Shepard, 1989; Quinn, 2018; Watson & Hillman, 1997).

Although historical accounts indicate a much greater use of the Green River watershed by bull trout in the past prior to the diversion of the White and Cedar rivers out of the basin, current use appears to be very limited (USFWS, 2015). Today, low numbers of bull trout appear to use the Green River primarily for foraging and potentially overwintering. Occasional sightings or catches are reported, but very few adults are observed in the Green River (Goetz et al., 2004).

3.4.1.4 Southern Resident Killer Whale

Southern Resident Killer Whales (*Orcinus orca*, SRKWs) were listed as endangered on February 16, 2006 (70 F.R. 69903) and updated on April 14, 2014 (79 F.R. 20802). Their customary range is thought to be primarily within Puget Sound, and through and within the Georgia and Johnstone Straits. Critical habitat was originally designated for the SRKW in 2006 (71 F.R. 69054) and revised in 2021 (86 F.R. 41668). The Green River is not designated as SRKW critical habitat, but critical habitat is designated in the Puget Sound.

SRKWs do not use the Green River and even though SRKWs do not directly occupy the shallow waters of the river, they show a strong preference for Chinook salmon (primarily Fraser River Chinook salmon; NMFS, 2008). The survival of these whales has been shown to positively correlate with Chinook salmon abundance (Hanson et al., 2021). SRKWs likely include Chinook salmon from the Green River basin in their diet.

3.4.2 NO ACTION ALTERNATIVE

The No Action Alternative could result in continued erosion and destabilization of the levee embankment, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee and could potentially strand ESA-listed fish when flood levels decrease. Additionally, associated turbidity and potential pollution impacts to the river are likely during an event where the levee fails.

During a flood, an emergency flood fight could occur to prevent a levee breach. Such action could require in-water work that could affect Chinook, steelhead, and bull trout. Emergency actions could have greater impact on aquatic dependent ESA-listed species habitat than a scheduled rehabilitation action. Flood fight actions that remove vegetation and disturb the river would have negative impacts, the severity of which is determined by timing, location, and extent which cannot be accurately predicted. If flood fights are unsuccessful and the levee fails, inundation of the commercial and industrial properties behind the levee would occur along with potential releases of contamination from impervious surfaces to the Green River. SRKWs do not use the Green River and are indirectly affected by impacts to outmigrant (juvenile) Chinook salmon.

A primary factor contributing to inferior recruitment of ESA listed salmonids in the Green River is lack of complexity, refugia, and shallow aquatic habitat. Aquatic and riparian habitats in this part of the Green River are poor quality and partially contribute to impaired water quality (temperature and dissolved oxygen). The existing grade of the levee embankment is inadequate for stable long-term establishment of large vegetation. These habitats would likely remain in poor condition, and this reach would continue to function solely as a migratory corridor, not spawning ground or suitable rearing habitat.

3.4.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

3.4.3.1 Chinook, Steelhead, and Bull Trout

The proposed in-water construction window (July 1, 2025 to September 15, 2025) coincides with the presence of salmonids in the Green River. Migrating adult Chinook would be present in the

river during the construction window as well as juvenile steelhead. Bull trout could be present at the very beginning and very end of the construction period.

Based on the preceding effects analysis along with the Impact Avoidance and Minimization Measures, USACE has concluded the project may affect, and is likely to adversely affect Chinook, steelhead, and bull trout. The project may affect and is likely to adversely affect critical habitat for Chinook salmon, steelhead, and bull trout in the action area. The primary effects are summarized below:

- In-water work would be conducted in a manner that complies with water quality criteria. Noise emissions and turbidity plumes from construction activities may cause behavioral responses, such as avoidance of the project area.
- Physical injury or mortality of salmonids is possible as a result of the construction activities.
- The project location is within the known range of Chinook salmon, steelhead, and bull trout.
- Juvenile and adult steelhead and Chinook salmon are likely to be present in the action area when work is occurring. Bull trout could also be present.
- Impacts to habitat include vegetation removal which would have short-term impacts to shade potential but would be offset by the Impact Avoidance and Minimization Measures Plan. Vegetation plantings would provide long-term beneficial effects by enhancing the quality of the riparian habitat.
- Reducing the levee embankment slope would expand shallow aquatic habitat.
- The addition of habitat features on the levee embankment will enhance aquatic habitat quality for both juvenile and adult salmonid life stages at a range of flow regimes. Over time the riparian area will provide enhanced ecosystem functions relative to the present state, such as direct shading, organic matter and wood inputs, macroinvertebrate fallout, complex riparian habitat, and hydraulic roughness under higher flow conditions. Habitat features will provide refuge for juvenile and adult fish, and hydraulic processes advantageous for rearing, foraging and migration.

3.4.3.2 Southern Resident Killer Whale

SRKWs do not enter the Green River and so are not directly impacted by the proposed activities. There is potential for indirect impacts via impacts to their prey, which include Chinook and chum salmon due to injury to juveniles. Adult Chinook migrating past the project area are semelparous, meaning they migrate upstream to reproduce and die as a part of their natural life-history. Therefore, adult Chinook affected by the project may have reduced reproductive effort, but the adults themselves are no longer an available prey item for SRKWs during this stage of migration. The project would not affect SRKW.

3.5 FISH AND WILDLIFE

3.5.1 EXISTING CONDITIONS PRE-FLOOD (2020)

More than 30 fish species have been documented in the Green/Duwamish River. The salmonid species include both resident and anadromous stocks. The anadromous salmonid runs include Chinook, coho, chum, and pink salmon, and steelhead. Most of the salmonid spawning occurs upstream of RM 25 which is 10 miles upstream from the project location. Limited spawning occurs downstream of this point because spawning gravels (1/4 to 3 inch in diameter stone) are limited (Kondolf & Wolman, 1993). Small numbers of sea-run cutthroat trout may also use the Green River. Resident fish populations may include rainbow trout, cutthroat trout, and mountain whitefish. Other native fish species include lamprey, minnows, sculpins, and suckers (Kerwin & Nelson, 2000).

Upland habitat in this area is sparse as it is highly developed, consisting of industrial and commercial roads and buildings. The Springbrook Greenbelt, a small, vegetated corridor, is located approximately 2000 feet to the east of the project area, connected to a 100-acre forested area approximately 3000 feet from the project area. A 100-acre wooded area adjacent to Interstate-5 is approximately 2500 feet west of the project area. The existing planted mitigation site between RM 14.75-15.0 comprises 1.3 acres of maturing vegetated riparian habitat. Wildlife in this area mainly consists of small mammals (rabbits, rodents, squirrels), beavers, birds, amphibians, reptiles, and arthropods (insects, arachnids).

3.5.2 NO ACTION ALTERNATIVE

The No-Action Alternative could result in continued erosion of the bank, especially in a flood event, and could leave the levee vulnerable to continued damage and breaching. A breach would result in inundation behind the levee and could potentially strand fish behind the levee when flood levels decrease. Additionally, associated turbidity and potential pollution impacts to the river are likely during an event where the levee fails.

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

Further degradation of the levee would likely entail degradation of the limited habitat for fish and wildlife present in the area.

3.5.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

Rehabilitation work under this alternative would cause short-term impacts to fish and wildlife during the period of construction (April 1, 2025 – December 31, 2025). The primary impacts would be a temporary increase in noise, vibration, and human activity caused by heavy equipment use. These impacts may temporarily alter the behavior of fish and wildlife during construction. Construction work at the levee toe will be below the OHWM and during the in-water work window (July 1, 2025 to September 15, 2025), and involves excavation and potential

isolation of the work area. Installation of isolation measures may disturb fish present in the area. It is likely they will attempt to avoid the working area. Fish may become temporarily trapped within the isolation area. A fish rescue will be conducted following USFWS protocol prior to use of a temporary isolation system (USFWS, 2012). . Repair work at the levee toe will involve excavation and rock placement in the water. Fish present at the first onset of construction near the work site may incidentally be injured or killed if in contact with construction equipment or materials. However, this is not expected as fish will likely flee the work area immediately after onset of construction. It is likely that excavation and rock placement noise will cause behavioral responses of fish in the project area. Lighting of the construction site at night during periods of longer work may disrupt fish and wildlife behavior and their prey bases. However, due to the existing nighttime illumination in this developed area, it is expected these animals are somewhat acclimated to a light-disturbed environment. Taller trees removed may serve as nesting sites for birds, and dense shrubs along the levee embankment may serve as refuge and nesting sites for smaller mammals and birds. Vegetation in the project area serves as habitat for multiple food chain levels of arthropods, amphibians, reptiles, birds, and small mammals. Until vegetation plantings become established, removal of vegetation from the project area would temporarily reduce wildlife abundance and productivity in the project area, disturb food chains and delay use of the area post-construction.

Removal of vegetation and the consequent reduction in the shade over the Green River will be offset with new plantings that would provide more shade and beneficial ecosystem processes as improved riparian habitat than the existing vegetation after maturation. Since shading is presently limited in the project area, the delayed maturation timespan is not likely to make a discernable change to water temperatures. Vegetation planting on the riverward slope will eventually contribute to shading of the Green River, increase habitat characterized by native vegetation, and provide sources of organic matter, woody material, and invertebrate fallout. Expanded shallow habitat along the levee embankment will be beneficial to migrating and rearing juvenile fish. Habitat features installed along the riverward embankment will substantially increase shoreline complexity, hydraulic variability, pools, refugia, low velocity habitat, and loci for macroinvertebrates. These long-term habitat improvements are expected to contribute to greater fish and wildlife abundance, diversity, and fitness in this section of the Green River.

3.6 AIR QUALITY, GREENHOUSE GAS EMISSIONS, AND NOISE

3.6.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The Clean Air Act sets National Ambient Air Quality Standards (NAAQS) to regulate harmful pollutants (42 U.S.C. § 7403). NAAQS are set for six common air pollutants: ozone, carbon monoxide, nitrogen dioxide, particulate matter (solid and liquid particles suspended in the air), sulfur dioxide, and lead. Areas that persistently exceed the standards are designated as nonattainment areas. King County is not currently classified as a nonattainment area and air quality is regulated by the Puget Sound Clean Air Agency (Ecology 2024). The EPA sets *de minimis* thresholds for pollutants in nonattainment and maintenance areas (40 C.F.R. § 93.153). Once a nonattainment area has attained and maintained NAAQS, they may be redesignated as “maintenance areas”. According to the Washington State Department of Ecology, all areas of Washington, except a small area in Whatcom County, currently meet air quality standards (Washington Department of Ecology, 2024) meaning the project is in an attainment area.

Greenhouse gases (GHG) accumulate in the atmosphere and contribute to climate change by absorbing energy and slowing the rate at which energy, such as heat or light, escapes into space, essentially insulating and warming the Earth. GHG emissions are often reported in carbon dioxide (CO₂) equivalent (CO_{2e}), which provides a common unit of measure to compare different GHG emissions to account for the ability of various gasses to absorb different amounts of energy. Anthropogenic GHG emissions have contributed to inordinate global-scale changes to climate, including significant increasing trends in global temperatures, where 2023 was the warmest year on record (NOAA, 2024). The concern for Federal projects is whether the contribution of GHGs to the atmosphere is of large enough quantities as to outweigh the benefit of executing the proposed action. The current national strategy to accomplish net-zero GHG emissions aims to reduce emissions by 2030 by 40% relative to 1990, and achieve a negative trajectory after 2050 (United States Department of State, 2021). The most recent estimates (2019) of annual GHG emissions for Washington State were 102.1 MMT CO_{2e} (Washington Department of Ecology, 2022b) and King County’s approximately 27.1 MMT CO_{2e} (Cascadia Consulting Group, 2022).

The project site and its surroundings have been developed, with various activities contributing to ambient noise levels. Anthropogenic noise sources at the project site include transportation (Figure 4), construction, internal combustion engines, and commercial activities.

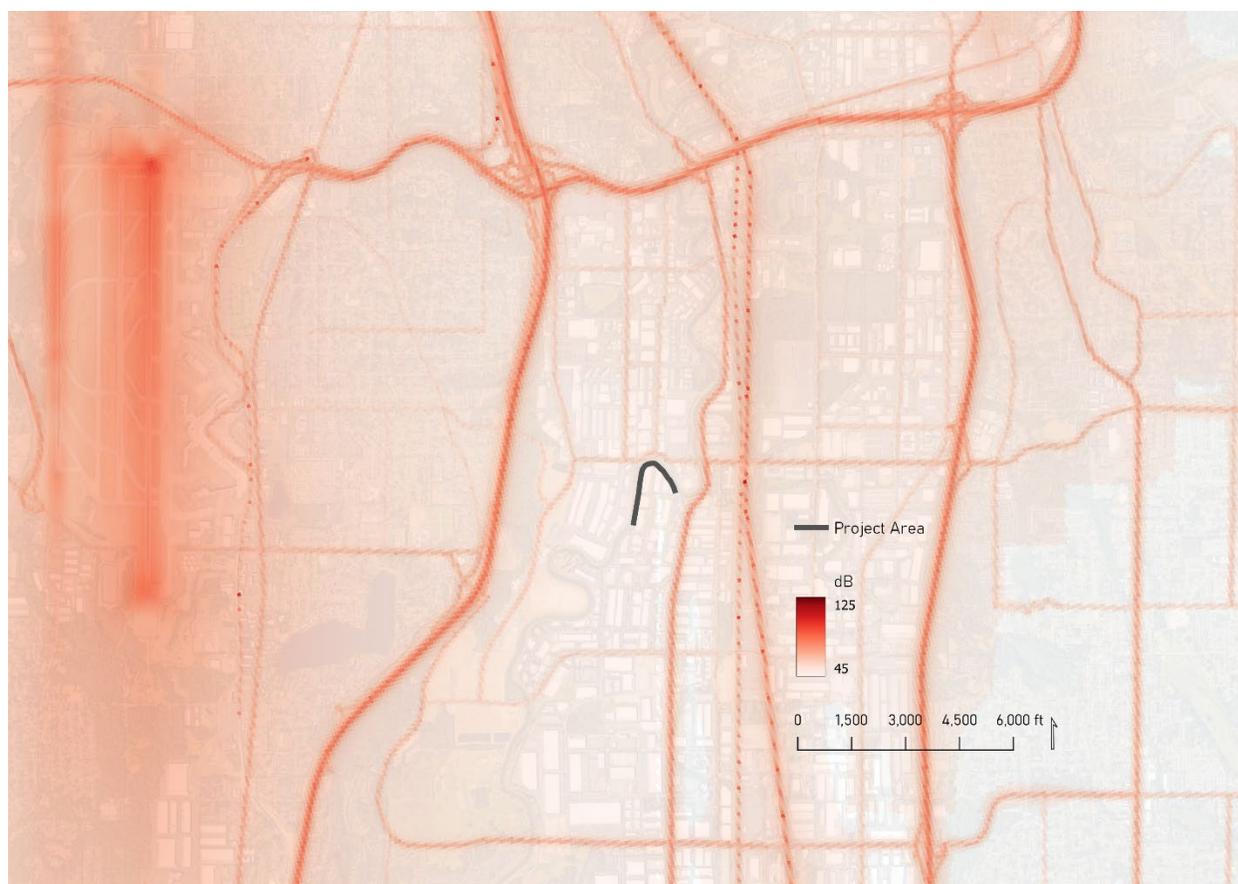


Figure 4. Representative background noise from transportation sources in the region around the project area (black line). Map source: (BTS, 2022)

3.6.2 NO ACTION ALTERNATIVE

This alternative would have limited to variable direct effects on air quality or noise. Emergency actions may be required to protect lives and property in the event of a flood. These actions would likely have less air emissions and a shorter duration of noise generated compared to the Preferred Alternative because the Preferred Alternative requires a substantially greater construction effort (USACE Seattle District, 2020). Over a longer term, it is possible that multiple seasons of flood fighting would cumulatively contribute to greater air emissions over time. Effects to air quality and noise would be temporary and within the range produced by on-going activities in the area. Effects of ambient air quality and noise would be negligible.

3.6.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

3.6.3.1 Air Quality

Impacts to air quality for the proposed rehabilitation work are *de minimis* under Federal emissions thresholds in maintenance or non-attainment areas (40 C.F.R. § 93.153). Construction equipment used during the proposed levee rehabilitation work would temporarily and locally generate increased diesel exhaust emissions.

USACE calculated expected emissions for the project using conservative estimates for equipment horsepower, average fleet year (2015), and maximum expected equipment run time over the construction period (April – December 2025) with equipment-specific emission rates from the California Air Resources Board OFFROAD2007 model-based database (CARB, 2007). This model does not calculate nitrous oxide directly, so USACE calculated this component with a factor of 0.92 gN₂O per gallon fuel (EPA, 2024b). Emission rates and summary emissions can be found in Appendix D. Regulated gas emissions are listed in Table 8. The project could directly emit up to 2103 tons of CO₂, 0.17 tons of methane, and 0.16 tons of nitrous oxide, which have equivalent global warming potentials of 29.8:1 and 273:1 to CO₂ respectively (IPCC, 2021). Total project carbon emissions would be roughly equivalent to 36 days of sailing for the M/V Tacoma on its typical route in the Washington State Ferry System (Mersin et al., 2023), or 3 hours of average daily traffic in King County, Washington, assuming all emissions are from passenger cars producing 400g CO₂ per mile (EPA, 2023; WSDOT, 2023). The estimated 'social cost' of GHG emissions in 2020 dollars would be \$291,562 (EPA, 2023a). While the preferred alternative will result in both more emissions and a higher social cost of greenhouse gases than the no action alternative, it will not result in significant effects as it does not prevent the US from achieving net zero by 2050.

Table 8. Comparison of conservative estimates of pollutant emissions for the Desimone Levee Rehabilitation Project to EPA de minimis emission levels.

Pollutant	EPA de minimis Threshold (tons/year)	Estimated Project Emissions (tons/year)	GHG Global Warming Potential (CO_{2e} tons/year)
Carbon monoxide (CO)	100	6.54	-
Carbon dioxide (CO ₂)	-	2103	2103
Methane (CH ₄)	-	0.17	5.1
Nitrogen oxides (NO _x)	100	13.84	-
Nitrous oxide (N ₂ O)	-	0.16	42.4
Ozone (VOC's/ROG's)	100	1.85	-
Particulate Matter (total)	100	0.57	-
Sulfur dioxide (SO ₂)	100	0.03	-

3.6.3.2 Noise

Construction-related noise would be generated from driving the sheet pile cut-of wall, levee excavation activities, movement of heavy equipment, and placement of scour protection rock at the levee toe. Maximum airborne noise source levels could be up to 105 dB at 50 feet (129 dB at source) from driving sheet pile. Construction noise will likely deter wildlife residence in the vicinity of the project area and likely disturb people nearby. Rock placement conducted underwater may generate levels up to 172 dB (re 1 μ PA), however this is not likely to spread very far from the noise source due to the shallow depths at the project site and sinuous morphology of the river. Construction noise could interrupt foraging and migration behavior of fish, people, and deter wildlife from utilizing the project area. NMFS fish injury thresholds (fish with swim bladder not associated with hearing) for pile driving noise are 183 dB for cumulative sound exposure and 206 dB for peak sound exposure (NMFS, 2023; Popper et al., 2014). Underwater noise occurring within the authorized in-water work window may cause behavioral responses of fish in the project area but is unlikely to directly cause injury to fish or wildlife.

3.7 CULTURAL RESOURCES

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

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

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

3.7.1 EXISTING CONDITIONS PRE-FLOOD (2020)

The Desimone Levee was originally constructed in 1964 by King County. Since the levee is more than 50 years old, there may potentially be historic property as per the National Historic Preservation Act. A USACE archaeologist has reviewed online records using the Washington Information System for Architectural and Archaeological Resources Database to identify any previously conducted inventories and recorded historic properties. The review indicated that there are no known archaeological resources in the project's area of potential effects (defined

as the zone directly affected by the levee restoration), and no historic era structures eligible for listing on the NRHP.

3.7.2 NO ACTION ALTERNATIVE

The No-Action Alternative would have no impact on cultural resources within the APE. Under this alternative, USACE would not repair the levee, and the risk of future levee failures would remain. No action would result in continued degradation of the levee through natural erosion processes. 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. Potential failure of the levee could adversely affect historic structures, if present, behind the levee that may be eligible for inclusion in the NRHP.

3.7.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

Under this alternative, the Desimone Levee would be repaired by setting the levee crest back to a flood wall that will tie into an existing flood wall downstream from the project. This action would avoid adverse effects to historic properties and unevaluated cultural resources by restoring the LOP. Based on the literature review and a records search, cultural resource survey, and coordination with the Washington State Department of Archeology and Historic Preservation (DAHP) and the contacted Tribes, USACE determined that the proposed rehabilitation would have no adverse effect to historic properties within the APE that are listed in or determined eligible for listing in the NRHP. DAHP has concurred with USACE's determinations that the levee was determined not eligible (Appendix C). Effects on cultural resources would be negligible.

3.8 ENVIRONMENTAL JUSTICE IN MINORITY POPULATIONS AND LOW-INCOME POPULATIONS

Executive Orders (EOs):

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

"Environmental Justice" is the fair treatment and meaningful involvement of all people regardless of income, race, color, national origin, or disability in agency decision making and other Federal activities that affect human health and the environment so that people: (1) Are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (2) Have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.

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.

3.8.1 ANALYSIS METHODS

USACE assessed the presence and state of potentially socioeconomically disadvantaged populations in the surrounding area of the project site. The assessment relied on the EPA's EJScreen tool and the White House CEQ Climate and Economic Justice Screening Tool (CEQ, 2024; EPA, 2024a).

EJScreen is the EPA's environmental justice mapping and screening tool that provides a nationally consistent dataset and approach for combining environmental and demographic socioeconomic information to derive vulnerability of and risk to populations in defined geographic areas. EPA considers a project to be in an area of potential environmental justice concern when one or more of the 13 environmental justice indexes defined in the tool are at or above the 80th percentile in the nation and/or state. USACE applied a 2-mile buffer as a potential impact area on surrounding communities.

The CEQ's Climate and Economic Justice Screen Tool is a mapping tool used to identify disadvantaged communities. Communities are considered disadvantaged if they are in a census tract that meets a 90th percentile threshold for at least one of the tool's "categories of burden" and corresponding socioeconomic indicator; or are on the lands of a federally recognized Tribe. USACE used this additional information from the CEQ tool, with the same 2-mile buffer, to ensure it captured the presence of environmental justice communities or issues of concern.

3.8.2 ANALYSIS RESULTS

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

The EJScreen tool reported 10 of the 13 environmental justice indices were reported above the 80th percentile (Appendix E). Proximity to hazardous sites and exposure to air pollutants are major issues for the populations residing and using the 2-mile area around the project area. The aggregate minority population is estimated at 70% in the affected area, which is the 93rd percentile in the State of Washington, and 77th for the nation. The aggregate low-income

population percentage is 22% within 2 miles of the project area, which is above the state average (56th) but below the country average (42nd). The area around the project is above the 50th percentile (state) for members of the population who are unemployed, limited English speakers, and have less than a high school education.

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

Using the CEQ's Climate and Economic Justice Screening Tools, USACE found the project site is not located within a disadvantaged track. However, the track immediately east of the project area is identified as disadvantaged for expected population loss (in the 99th percentile) and flood risk from climate change (in the 98th percentile), housing cost (in the 97th percentile), lack of green space, proximity to hazardous waste facilities and Superfund sites, diesel particulate matter exposure, underground storage tanks and releases, linguistic isolation (in the 90th percentile), and low median income (in the 96th percentile). All of this demographic information indicates that this area will be disproportionately impacted by environmental disasters like flooding.

3.8.3 EXISTING CONDITIONS PRE-FLOOD (2020)

The EJ analyses conducted above concluded that the project area is not located within a disadvantaged track according to CEQ, but the surrounding area does have higher than state and country averages of minority populations and unemployment rates. Additionally, the project area also experiences greater concentrations of diesel particulate matter, respiratory air toxics, traffic proximity, Superfund site proximity, hazardous waste proximity, and underground storage tanks compared to state and country averages (Appendix E).

3.8.4 NO ACTION ALTERNATIVE

In its undamaged condition, the Desimone Levee provides a 150-year LOP. 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 property behind the levee. If no action is taken, the disadvantaged populations identified in the Environmental Justice analyses would remain unprotected from flooding. Low income and linguistically isolated communities are less likely to receive or understand flood risk alerts and have proportionately more to lose in every flood event. Given the proximity of superfund sites and underground storage tanks, they are also at a higher risk of exposure to toxic substances during a flood event. The No Action alternative would not ensure that these communities will be able to have an environment that is healthy, sustainable, climate-resilient, and free from harmful pollution and chemical exposure. The No Action alternative would not protect against the disproportionate and adverse human health and environmental effects and risks.

3.8.5 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

The Preferred Alternative involves construction with heavy equipment in the project area. The area exceeds the 80th percentile for 10 of the EJScreen indices. USACE anticipates temporary increases of air pollutants related to diesel exhaust emissions from heavy equipment during the construction phase (April-December 2025). As the surrounding populations have been identified

to be overburdened for diesel particulate matter, the project could temporarily contribute to increased exposure. It is unlikely the project will affect other indicators in the short term, such as proximity to Superfund or hazardous sites, linguistic isolation, or wastewater discharge. The project would restore and improve flood protection for the affected area, thereby lowering the risks of environmental burdens on these environmental justice communities. USACE expects no cumulative socioeconomic or environmental impact to disadvantaged populations because of interaction between the proposed levee rehabilitation work and other past, present, and reasonably foreseeable projects.

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

Because the Desimone Levee protects the area from flooding of the Green River, the area of analysis for environmental justice purposes also includes the floodplain for these rivers. The Preferred Alternative, which rehabilitates the levee to its pre-damage LOP, would provide a universal benefit to persons, including disadvantaged minority, low-income, and Tribal communities, residing in the floodplain. The potential impacts of increased diesel exhaust from construction equipment to this already disadvantaged community would be temporary that are minimized through BMPs and the long-term results of the project to the community would be beneficial.

3.9 RECREATION

3.9.1 EXISTING CONDITIONS PRE-FLOOD (2020)

There are several recreation sites near the Desimone Levee. Briscoe Park is approximately 2000 feet upstream of the project area, the Springbrook Greenbelt is 2000 feet east of the project area, and the Green River Regional Recreational Trail runs through the project area on top of the existing levee crest. A bridge over the Green River connects the trail to the left bank of the river. Access to the trail is limited within the project area due to the private industrial and commercial properties abutting the levee. There are no recreational areas immediately behind the levee. The lower Green River is relatively infrequently used by kayakers and canoers (Herrera Environmental Consultants, 2014).

3.9.2 NO ACTION ALTERNATIVE

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

3.9.3 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

The Green River Trail would be inaccessible during construction due to transit of heavy equipment, removal and reconstruction of the trail, and the risks to public safety. During construction, a detour route would be established for trail users (Appendix H) until the trail is reconstructed on the levee crest adjacent to the flood wall. Long term benefits from vegetation enhancement and installation of habitat features are expected for trail users and wildlife viewing. Shifting the trail landward will expand the riverward space for vegetation and wildlife.

3.10 NAVIGATION

3.9.4 EXISTING CONDITIONS PRE-FLOOD (2020)

The Green River is used by pleasure boaters, recreational and tribal fishermen, and for occasional environmental surveys. There is a public boat ramp approximately 4 RM upstream of the project area on Russel Road. In the project area, there are several anchored logs on the opposite bank of the river (Appendix A Figure 8), and there have been several log jams installed further upstream of the project area over the past few years. There are no documented observations of large wood recruitment in the anchored wood features on the opposite bank, which have been in place since 2008.

3.9.5 NO ACTION ALTERNATIVE

The No Action alternative would have little to no effect on navigation in the Green River. Damages from flooding may introduce navigation hazards into the river; however, it is unlikely that boats will be present in the area under flooding conditions.

3.9.6 LOCALLY PREFERRED PLAN (PREFERRED ALTERNATIVE)

The Preferred Alternative would install anchored logs at several elevations along the levee embankment and boulder piles that would extend up to 10 feet into the river from the levee toe. The main channel would not be blocked by these features. The velocity in this section of the river is relatively low, so boaters should be able to easily navigate around the structures. 'Deflector logs' would be installed on the front of the log structures as a precaution to 'deflect' boaters away from the structure and minimize risk of boater interaction with the structures. Effects on navigation would be minimal or negligible.

4 MITIGATION

Under NEPA "mitigation means measures that avoid, minimize, or compensate for effects caused by a proposed action or alternatives as described in an environmental document or record of decision that have a connection to those adverse effects" 40 C.F.R. § 1508.1 (y). While NEPA requires consideration of mitigation, it does not mandate the form or adoption of any mitigation. Mitigation includes, in general order of priority:

1. Avoiding the impact altogether by not taking a certain action or parts of an action
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.”

No compensatory mitigation is required by the proposed Federal action. The existing planted mitigation site will not be disturbed. Measures to offset and minimize the temporary loss of riparian habitat from the preferred alternative are described in section 2.7. These measures include removal of invasive species, plantings, and installation of aquatic habitat features. Maintenance monitoring and adaptive management would be implemented to ensure success of these measures (section 2.7.3). Although there is a decadal time lag for tree plantings to fully mature, the other measures would immediately rehabilitate or restore functionality to aquatic and terrestrial species and their habitat. Planted vegetation would replace riparian habitat removed by the construction work.

5 UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with the preferred alternative would be (1) temporary and localized increases in noise, activity, and emissions from construction equipment, which may affect fish and wildlife in the area; (2) temporary and localized disruption of local traffic by construction activity and vehicles; (3) irretrievable commitment of fuels and other materials for rehabilitation work; (4) and removal of vegetation from within the proposed construction areas. Vegetation loss and the time lag for vegetation to fully mature will be offset by re-planting at a higher ratio (section 2.7.2).

6 CUMULATIVE EFFECTS

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

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

vegetation and habitat has been lost, side channel and other floodplain features have been cut-off, and salmonid populations have steeply declined.

There are an additional nine flood control projects contemporaneously planned for the Green/Duwamish River (Table 9). USACE is managing three of these projects: Desimone, Tukwila (Gaco), and Horseshoe Bend levees. King County and the city of Tukwila manage the remaining projects. King County developed a flood management plan with three guiding principles of the planning effort: laying the groundwork for achieving multi-benefit outcomes, promoting climate resilience, and ensuring that flood risk reduction activities are developed and implemented with a focus on equity and social justice (King County, 2024). Additionally, King County plans to raise all the levees in the lower Green River to a 500-year LOP.

Table 9. List of flood reduction projects in the Green/Duwamish basin including project name, location, type of project, year of construction, and the responsible agency.

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

As the local non-federal sponsor, King County continues to conduct periodic rehabilitation work and maintain vegetation along the levees. Future flooding on the Green River and its tributaries is likely to result in periodic rehabilitation actions. Sponsors may seek Federal assistance with rehabilitation or emergency responses. If USACE determines that the damages are eligible for

assistance under the PL 84-99 Levee Rehabilitation Program, then additional rehabilitation work would take place.

To maintain existing land use development, future activities along the Green River would cause similar impacts to those from the Desimone Levee Rehabilitation project. The proposed project would contribute to maintaining the current channelized state of the river, and protect existing investment in a community with commercial, industrial, and residential development.

Environmental components of the project would increase habitat quality in this reach of the Green River. When evaluated in the context of past, present, and reasonably foreseeable future actions, the incremental additional effects of the proposed project would not result in significant adverse effects and would not appreciably alter the existing pattern of land use development and cumulative effects within the Green River.

7 Coordination

USACE is coordinating with Federal and state agencies and Tribes regarding the proposed Federal action. USACE has been in contact with the following agencies and entities throughout the proposed project development, the environmental review and compliance process, and will continue coordination until the project is completed.

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

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

8 ENVIRONMENTAL COMPLIANCE

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

8.1 AMERICAN INDIAN RELIGIOUS FREEDOM ACT

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

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

8.2 BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act (16 U.S.C. § 668-668d) prohibits the taking, possession or commerce of bald and golden eagles, except under certain circumstances. A USACE biologist did not observe any eagle nests at the project site during a site visit during the alternatives-formulation phase. Additionally, as recommended by USFWS, the biologist examined iNaturalist, which did not show any eagle nests in the project vicinity (iNaturalist 2024). The preferred alternative is not expected to cause take of either bald or golden eagles since there are no known nests near the project site. Trees will be inspected for bird nests prior to removal.

8.3 CLEAN AIR ACT OF 1972

The Clean Air Act as Amended (42 U.S.C. § 7401 et seq.) prohibits Federal agencies from approving any action that does not conform to an approved State or Federal implementation plan. The operation of heavy equipment, placement of rock, excavation, construction of the flood wall, and regrading the levee embankment during construction would result in increased vehicle emissions and a slight increase in fugitive dust. These effects would be localized and temporary. The project area is not part of a non-attainment area (Ecology 2024). (<https://ecology.wa.gov/Regulations-Permits/Plans-policies/Areas-meeting-and-not-meeting-air-standards>). USACE has determined that the combination of emissions of the proposed rehabilitation work constitutes a routine facility rehabilitation generating an increase in emissions that are *de minimis*, and thus a conformity determination is not required, pursuant to 40 CFR § 93.153 (c)(2)(iv).

8.4 CLEAN WATER ACT – FEDERAL WATER POLLUTION CONTROL ACT

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) is more commonly referred to as the Clean Water Act (CWA). This act is the primary legislative vehicle for Federal water pollution control programs and the basic structure for regulating discharges of pollutants into waters of the U.S. The CWA was established to “restore and maintain the chemical, physical,

and biological integrity of the nation's waters." The CWA sets goals to eliminate discharges of pollutants into navigable waters, protect fish and wildlife, and prohibit the discharge of toxic pollutants in quantities that could adversely affect the environment.

This EA evaluates possible impacts to water quality, primarily with respect to water temperature and turbidity. The proposed levee rehabilitation work requires work below the OHWM and in the water for repairs to the levee toe and installation of habitat features. BMPs would be employed to minimize turbidity and erosion and avoid discharge of pollutants into the river (Section 2.8).

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

8.4.1 SECTION 404 AND 401

USACE is responsible for administration of Section 404 of the CWA. USACE does not issue Section 404 permits to itself for its own civil works activities, but USACE accepts responsibility for the compliance of its civil works projects with Sections 404 under the CWA for jurisdictional activity. The proposed levee rehabilitation work requires placing fill below the OHWM. There are no jurisdictional wetlands at the project site that would be protected under the CWA. A 404(b)(1) evaluation was conducted by USACE for the proposed rehabilitation (Appendix J). Based on the analyses presented in the 404(b)(1) evaluation and general policies for the evaluation of permit applications analysis, USACE finds that the project complies with the substantive elements of Section 404 of the CWA. To ensure compliance with Section 401 of the CWA, USACE requested a Section 401 Water Quality Certification from the Washington Department of Ecology on May 31, 2024.

8.4.2 SECTION 402

Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance, which is the case for this proposed rehabilitation. To manage stormwater and minimize potential for erosion during construction, USACE will require the contractor to develop a Stormwater Pollution Prevention Plan and seek coverage for the work under the National Pollutant Discharge Elimination System Construction General Permit administered by the Environmental Protection Agency.

8.5 COASTAL ZONE MANAGEMENT ACT

The Coastal Zone Management Act (CZMA) of 1972 as amended (16 U.S.C. §1451-1464) requires Federal agencies to conduct activities in a manner that is consistent to the maximum extent practicable with the enforceable policies of the approved State Coastal Zone Management (CZM) Program, which includes certain state laws. USACE has determined that this project is substantively consistent with the enforceable policies of the State of Washington, including the Washington Clean Air Act, Water Pollution Control Act, and the Shoreline Management Act (SMA). USACE submitted a CZMA Consistency Determination to Ecology on

July 16, 2024, requesting concurrence that the proposed rehabilitation work is consistent to the maximum extent practicable with the enforceable policies of the approved CZM Program (Appendix F).

8.6 ENDANGERED SPECIES ACT

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

USACE evaluated potential effects to endangered species in a Biological Assessment (BA) that was sent to the USFWS and NMFS on May 17, 2024. The BA contained an evaluation of effects of the proposed project on ESA-listed species and their critical habitat (Table 7). In the BA, USACE provided determinations for ESA-listed species and their critical habitat (Table 10). USACE determined the project would adversely affect Chinook salmon, steelhead, and bull trout (Table 10).

Table 10. Summary of effects determinations for ESA-listed species and designated critical habitat. Determinations include No Effect, Not likely to Adversely Affect (NLAA), and May Effect, and is Likely to Adversely Affect (LAA).

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

USACE requested consultation with the USFWS and NMFS under Section 7 of the ESA on May 17, 2024, with the intent to conclude consultation before the start of construction. On June 4, 2024, NMFS acknowledged receipt of the request and assigned a tracking number (WCRO-

2024-01207). On May 22, 2024, USFWS acknowledged receipt and assigned reference number (2024-0094575).

USACE also requested that if there was insufficient time for the USFWS and NMFS to conclude consultation before the last date on which construction must be initiated in order to complete construction prior to the 2025 flood season, that consultation be conducted under expedited procedures under 50 C.F.R. § 402.14(l), or emergency circumstances under 50 C.F.R. § 402.05. Though consultation is not complete, USACE has reached an agency determination of species/habitat effect, based on the best factual and technical information available at the time of decision. Consultation with NMFS and USFWS is on-going.

8.7 MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

The Magnuson-Stevens Fishery Conservation and Management Act, (16 U.S.C. § 1801 et. seq.), as amended by the Sustainable Fisheries Act of 1996 (P.L. 104-267) requires Federal agencies to consult with NMFS regarding actions that may adversely affect essential fish habitat (EFH) for Pacific coast groundfish, coastal pelagic species, and Pacific salmon. The Act defined EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” EFH is the habitat (waters and substrate) required to support a sustainable fishery and a managed species’ contribution to a healthy ecosystem. Waters include aquatic areas and their associated physical, chemical, and biological properties used by fish. Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities. The Green River is designated as EFH for Chinook, coho, and pink salmon and functions as a migration corridor, spawning habitat for adults, and rearing habitat for juveniles (Table 11).

USACE determined that the proposed action may adversely affect EFH designated for Chinook, coho and pink salmon (Table 11). Effects of the proposed work on EFH would be essentially identical to those discussed above for species in Section 5 and Section 8.6. There could be temporary impacts during construction to include increased noise, vibration, turbidity, and removal of vegetation. There will be a period where the re-planted vegetation will need to mature to re-establish its ecological functions. The project results in improved riparian and aquatic habitat conditions by reducing the levee embankment slope, vegetation plantings on the embankment, and installation of aquatic habitat features.

Table 11. Essential fish habitat species and their life history stages that in the project area.

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

USACE outlined these effects from the rehabilitation work in a BA submitted to NMFS on May 17, 2024, requesting formal consultation. Consultation with NMFS is ongoing.

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

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

Birds inhabit the riparian area of the Green River all year, and the proposed work may overlap with some nesting seasons. Nesting seasons vary by species; however, the majority of local bird species nest between February through July (BES, 2022). USACE must complete the proposed heavy equipment work between April 1, 2025, and December 31, 2025.

Trees that may provide nesting to migratory birds would be removed. Trees identified for removal will be inspected for nests prior to removal. Plantings to offset tree removal would provide adequate nesting habitat as the plantings mature. Implementation of the Preferred Alternative would not have any direct, affirmative, or purposeful negative effect to migratory birds. The project would have temporary incidental effects to a small number of individual birds that may be present in the project area.

8.9 NATIONAL ENVIRONMENTAL POLICY ACT

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

This draft EA evaluates the environmental effects of the proposed 2024 Desimone Levee Rehabilitation Project consistent with the requirements of NEPA.

8.9.1 NEPA / PROPOSED ACTION

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

8.9.2 NEPA SUMMARY

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

effects on the quality of the human environment are identified and cannot be mitigated, USACE would initiate an EIS and afford all the appropriate public participation opportunities attendant to an EIS. Comments and responses will be included in Appendix I of the final EA.

8.10 NATIONAL HISTORIC PRESERVATION ACT OF 1966

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

As described in Section 3.7, the Desimone Levee Rehabilitation Project will not adversely affect historic properties. USACE determined and documented the APE for both direct and indirect effects, as required at 36 C.F.R § 800.4 and determined there would be no historic properties affected by the projects. The Washington State Historic Preservation Officer (SHPO) has concurred with the APEs and USACE's findings. USACE also coordinated with the Muckleshoot Indian Tribe, Suquamish Indian Tribe, Snoqualmie Indian Tribe, and the Confederated Tribes and Bands of the Yakama Indian Nation about the APE. Concurrence letters from SHPO are in Appendix C. To date, only the Suquamish Indian Tribe replied to our request for consultation, and they had no comments or concerns about the project. The other affected tribes did not provide any information or comments regarding these determinations.

8.11 NATIVE AMERICAN TRIBAL TREATY RIGHTS & TRIBAL CONSULTATION UNDER EO 13175, CONSULTATION AND COORDINATION WITH INDIAN TRIBAL GOVERNMENTS

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

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

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

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

In the 1850s, in exchange for the cession of their ancestral lands, numerous Tribes in the Pacific Northwest entered 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” within Puget Sound were delineated in a Federal court adjudication, *United States v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974). The Stevens treaties reserved the signatory Tribes’ right to “take fish at usual and accustomed grounds and stations . . . in common with all citizens of the territory.” *Id.* at 332. Federal case law has recognized that the signatory Tribes also reserved the right to take up to 50 percent of the harvestable anadromous fish runs passing through those grounds (Fair Share). Over the years, the courts have held that this right also comprehends certain subsidiary rights, such as access to their “usual and accustomed” fishing grounds. See *Nw. Sea Farms v. U.S. Army Corps of Eng’rs*, 931 F. Supp 1515 (W.D. Wash. 1996).

USACE has evaluated impacts to fish and wildlife in this project and sent letters to the Muckleshoot Indian Tribe (MIT), Snoqualmie Indian Tribe, Suquamish Indian Tribe, and the Confederated Tribes and Bands of the Yakama Nation requesting comments on the proposed project and providing the opportunity to conduct a site visit. No response was received from the Suquamish Indian Tribe or the Confederated Tribes and Bands of the Yakama Nation. The Snoqualmie Indian Tribe initially accepted the invitation for a site visit but later declined. The MIT requested additional information on January 17, 2024, and accepted the offer to conduct a site visit. The site visit occurred on February 27, 2024. Comments from the MIT were received on 22 March 22, 2024. USACE provided comment responses on April 24, 2024. A follow-up site visit occurred on 1 May 1, 2024. Regular coordination with MIT on the project design has been occurring throughout this period and is ongoing.

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 floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. The proposed project will rehabilitate an existing levee that currently protects one of the most developed areas of the region. The project design is intended to move the levee and flood wall as far from the river as practicable which results in an increase in the available floodplain at the project site, thereby protecting the preexisting development from the adverse impacts of being located in a floodplain. This floodplain area will be further enhanced with numerous habitat features intended to benefit aquatic species. Given the extensive development and economic activity that has occurred and is now protected by the existing levee infrastructure, it is not practicable to relocate this infrastructure out of the floodplain. For these reasons, the project must remain in the floodplain.

8.13 EXECUTIVE ORDER 11990 PROTECTION OF WETLANDS

EO 11990 encourages Federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands when undertaking Federal activities and programs. There are no wetlands located within the project area.

9 Public Interest Evaluation Factors for Discharge of Fill into Waters Of The U.S.

An evaluation of the discharge of fill into Waters of the United States was conducted in light of the public interest factors prescribed in 33 CFR 336.1(c). These factors include navigation and the Federal standard for dredged material disposal; water quality; coastal zone consistency; wetlands; endangered species; historic resources; scenic and recreation values; fish and wildlife; marine sanctuaries; and applicable state/regional/local land use classifications, determinations, and/or policies. Of these, water quality, coastal zone consistency, wetlands, endangered species, historic resources, scenic values, recreational values, and fish and wildlife have been evaluated in this Draft EA. The factor of marine sanctuaries is not applicable as work would not occur in marine sanctuaries.

As provided in 33 CFR sections 335.4, 336.1(c)(1) and 337.6, USACE has fully considered, on an equal basis, all alternatives that are both reasonable and practicable, i.e., available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. The necessary budget resources, including required items of local responsibility assigned to the non-federal sponsors are available and adequate to fully support the action. The preferred alternative represents least environmentally damaging, practicable alternative that meets the project purpose and need, is consistent with sound engineering practices, and meets the environmental standards established by the CWA Section 404(b)(1) evaluation process. Execution of the preferred alternative, following consideration of all applicable evaluation factors, would be in the public interest. The CWA Section 404(b)(1) analysis is in Appendix J.

10 SUMMARY OF ASSESSMENT

The No-Action Alternative does not meet the purpose and need of the proposed Federal action. The Non-structural Alternative is impractical, and the sponsor has not requested to participate in a Non-Structural Alternative. The Repair-in-Kind Alternative does not restore the LOP. The Amended Repair-in-Kind fulfills the project purpose by restoring the LOP. The Preferred Alternative (Locally Preferred Plan) fulfills the project's purpose and need by restoring the LOP to the degree practicable in a more resilient and stable manner than the pre-damaged condition. The Preferred Alternative includes several improvements to the levee that will reduce the impacts of the Federal action, meet the local sponsor's needs, and will enhance local ecological conditions. Based on the analysis above, USACE does not expect the proposed Desimone Levee Rehabilitation Project to constitute a major Federal action significantly affecting the quality of the human environment, and therefore would not require preparation of an EIS. Public

comments are invited on this Draft EA and will be considered prior to the finalization of this EA and FONSI.

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DRAFT

Figure A.1. Desimone Leveed area.

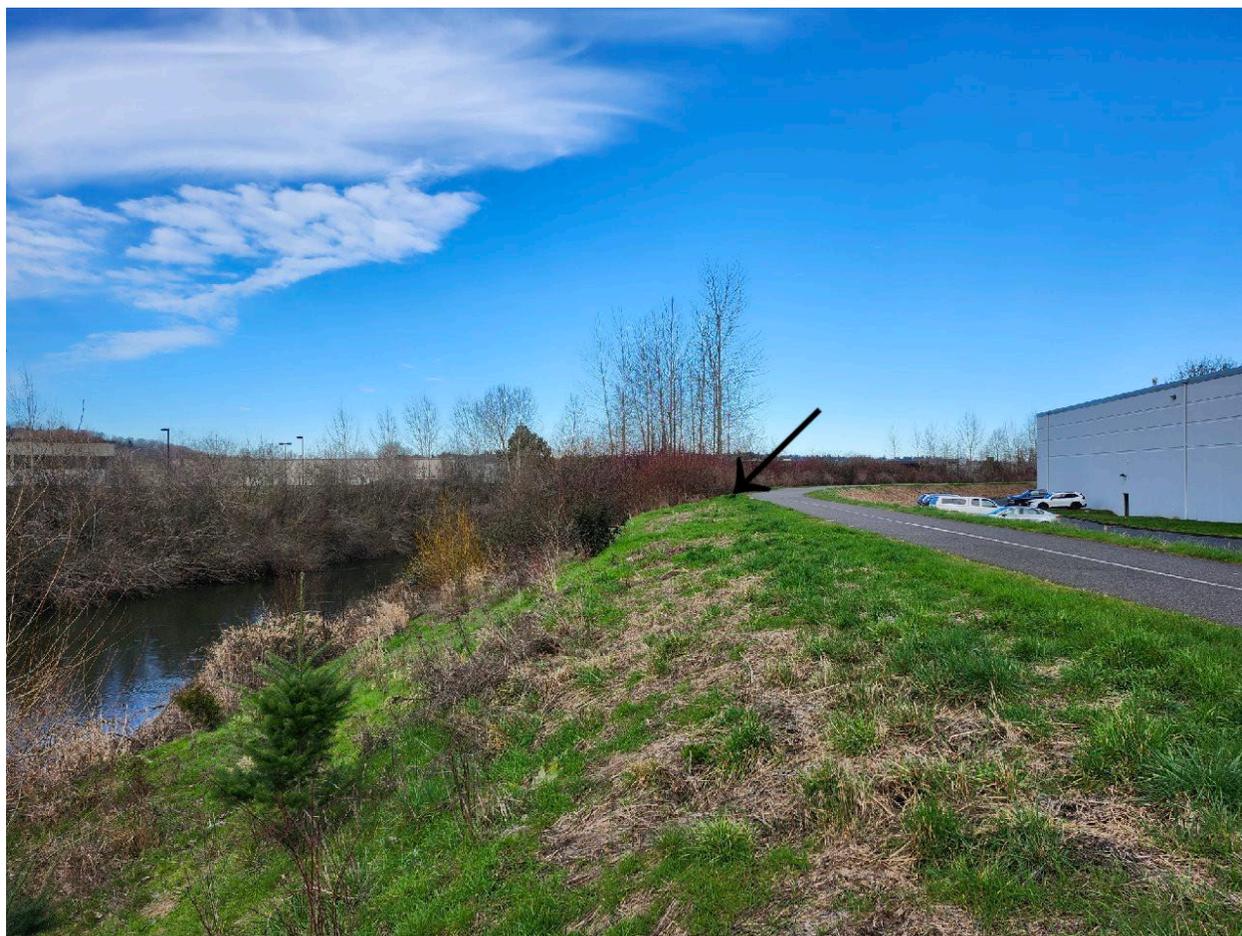


Photo A-1. Desimone levee at approximately RM 15, downstream orientation. Grass and small, dispersed vegetation on riverward slope. Recreational path on levee crest. Arrow points to mitigation site edge. February 2024.



Photo A-2 Desimone levee at approximately RM 15, upstream orientation. Grass and small, dispersed vegetation on riverward slope. Instream LWM on opposite riverbank established in 2008 repair. February 2024.



Photo A-3. Blackberry and reed canarygrass on riverward slope. Approximately RM 15.
February 2024.



Photo A-4. Small, planted trees and horsetail grass on riverward slope. Approximately RM 15.1. February 2024.



Photo A-5. Erosion of riverward levee face. Scattered riprap over mixed earth. Upstream orientation. Approximately RM 15.15.



Photo A-6. Instream LWM on opposite riverbank, established during 2008 repair. Logs are oriented parallel to riverbank, chained to submerged boulders. Orientation and position generate pool formation and shallow low-velocity refugia.



Figure A-7. Approximately RM 15.2. Instream LWM on opposite riverbank tied into levee toe, oriented at an angle to the riverbank. Substantial amounts of plastic debris, refuse, and structures within shrubs on project-side of river.

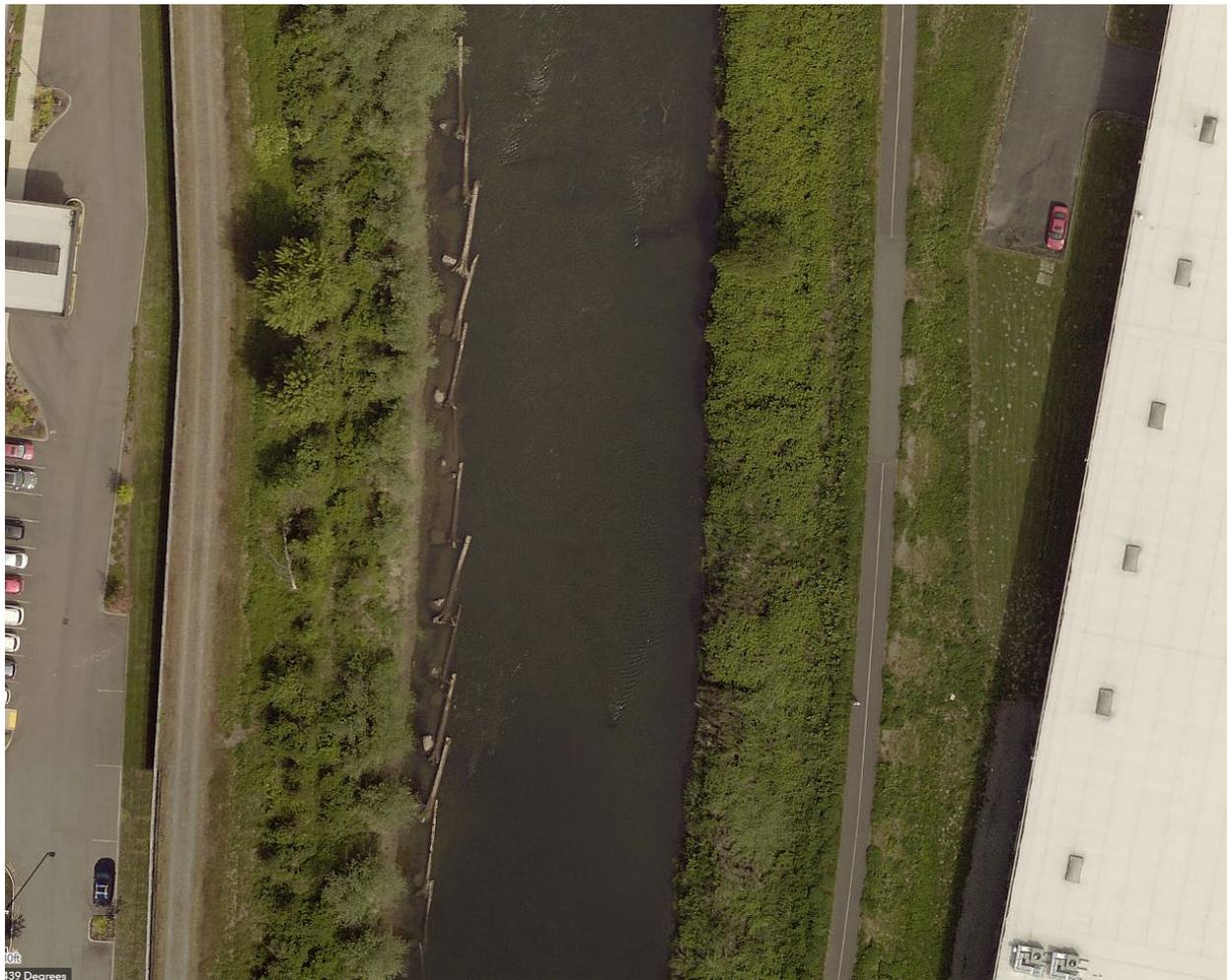
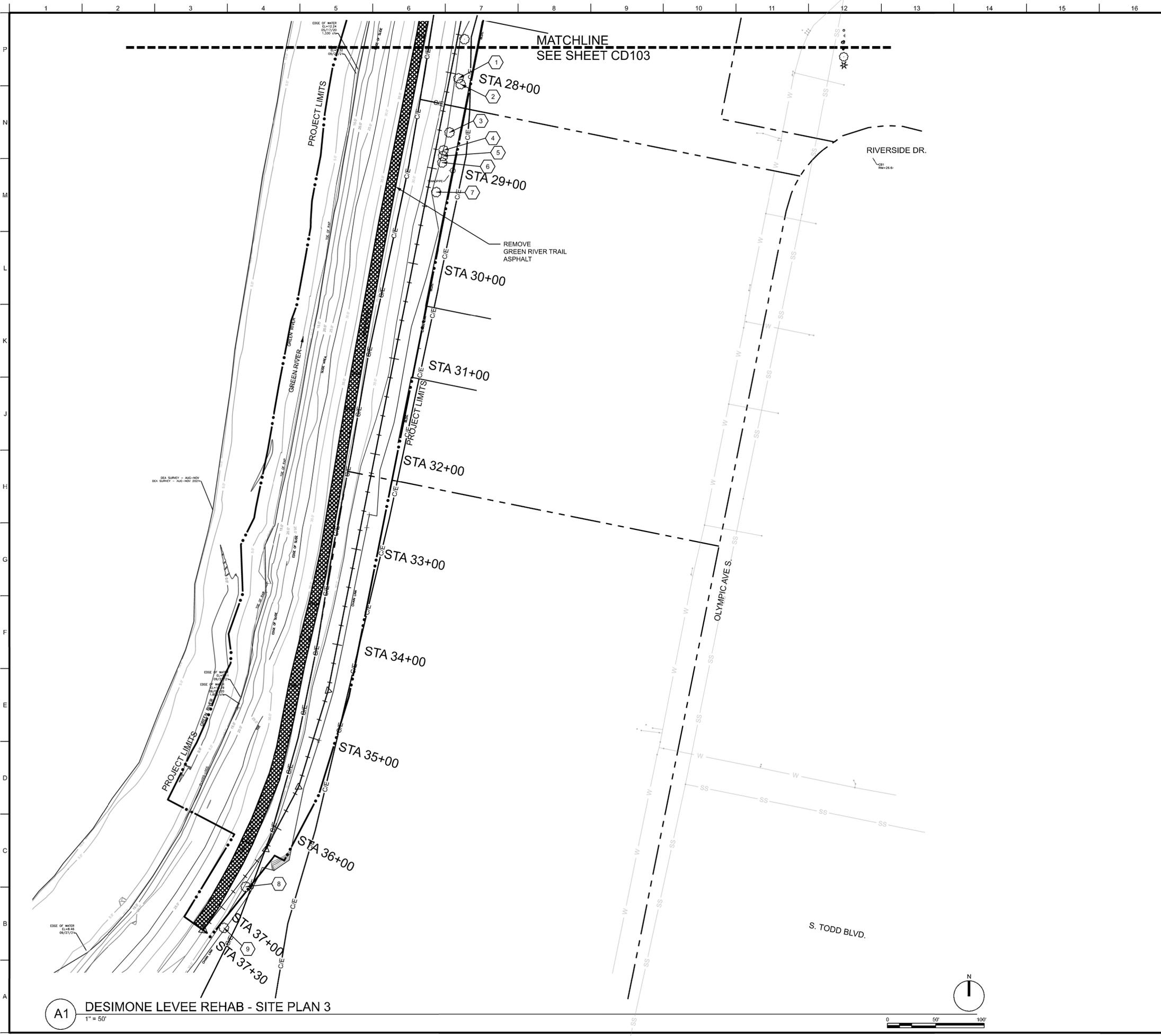


Figure A-8. Green River at RM 15.05. Desimone levee on right bank of river lacks diverse riparian vegetation and complex aquatic habitat. The left bank is a levee repair from 2008 that included aquatic habitat features (LWM). Image source: King County Orthogonal Base Imagery (2019):

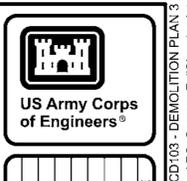
https://gismaps.kingcounty.gov/arcgis/rest/services/BaseMaps/KingCo_Aerial_2019/MapServer



GENERAL NOTES:
 1. CIVIL ABBREVIATIONS, LEGEND AND GENERAL NOTES SEE SHEET C-001.

TREE IDENTIFICATION TABLE:

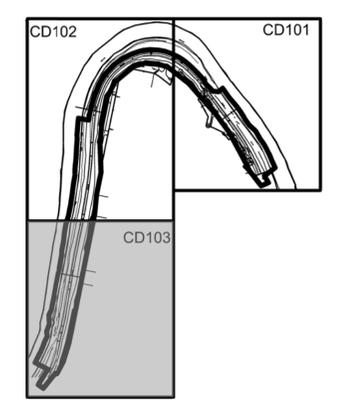
TREE #	TYPE	DIA.	NORTHING	EASTING
1	DECIDUOUS	18"	N 163,190.75	E 1,289,171.03
2	DECIDUOUS CLUSTER (6)	12"	N 163,184.79	E 1,289,173.38
3	DECIDUOUS	20"	N 163,135.16	E 1,289,161.84
4	DECIDUOUS CLUSTER (2)	12"	N 163,116.75	E 1,289,155.79
5	DECIDUOUS	30"	N 163,110.73	E 1,289,155.16
6	DECIDUOUS CLUSTER (2)	18"	N 163,104.02	E 1,289,154.37
7	DECIDUOUS	28"	N 163,073.56	E 1,289,148.14
8	DECIDUOUS CLUSTER (3)	12"	N 162,358.34	E 1,288,951.42
9	OAK	48"	N 162,316.11	E 1,289,929.09



MARK	DESCRIPTION	DATE

DESIGNED BY: J. SKRINDE	ISSUE DATE:
DRAWN BY: S. BARRETT	SOLICITATION NO.:
CHECKED BY:	CONTRACT NO.:
SUBMITTED BY: K. CERAGIOLI	FILE NO.:
SIZE: ANSI D	
U.S. ARMY CORPS OF ENGINEERS SEATTLE DISTRICT SEATTLE, WASHINGTON	

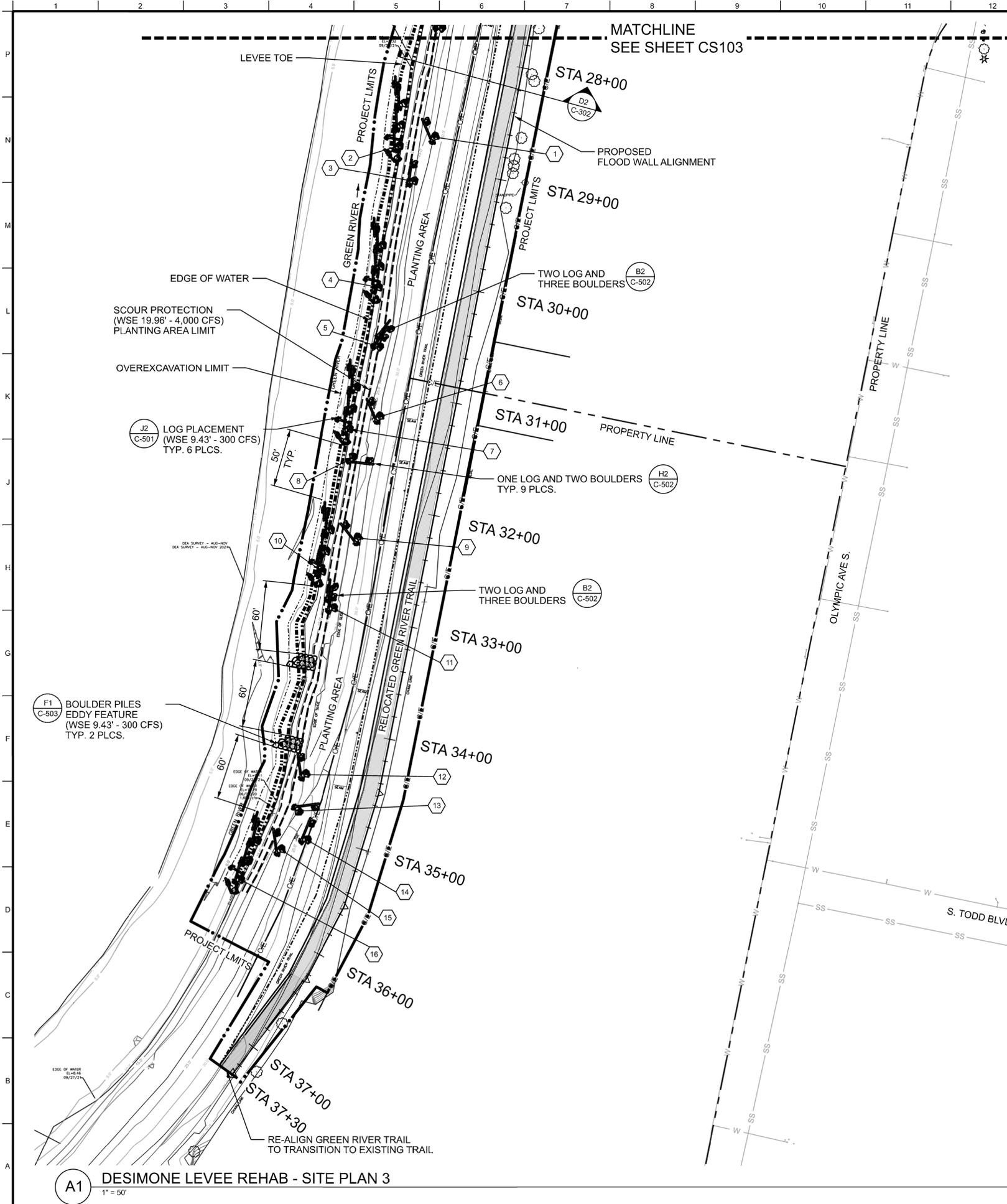
KEY PLAN



A1 DESIMONE LEVEE REHAB - SITE PLAN 3
 1" = 50'

FY25 P2-489779 DESIMONE
 DESIMONE LEVEE GRN-01-20
 TUKWILA, WASHINGTON
 DEMOLITION PLAN 3

SHEET ID
CD103



HABITAT FEATURES:

FEATURE	NORTHING	EASTING	REFERENCE
1	N 163,136.03	E 1,289,085.83	SHEET C-502 (H2)
2	N 163,128.35	E 1,289,054.37	SHEET C-501 (J2)
3	N 163,097.01	E 1,289,067.17	SHEET C-502 (H2)
4	N 163,003.93	E 1,289,035.35	SHEET C-501 (J2)
5	N 162,951.80	E 1,289,036.50	SHEET C-502 (B2)
6	N 162,890.30	E 1,289,037.22	SHEET C-502 (H2)
7	N 162,879.47	E 1,289,010.50	SHEET C-501 (J2)
8	N 162,854.94	E 1,289,013.51	SHEET C-502 (H2)
9	N 162,784.60	E 1,289,018.05	SHEET C-502 (H2)
10	N 162,722.60	E 1,288,996.51	SHEET C-501 (J2)
11	N 162,722.74	E 1,288,996.52	SHEET C-502 (B2)
12	N 162,577.06	E 1,288,971.80	SHEET C-502 (H2)
13	N 162,544.73	E 1,288,965.76	SHEET C-502 (H2)
14	N 162,519.64	E 1,288,973.04	SHEET C-502 (H2)
15	N 162,511.06	E 1,288,950.41	SHEET C-502 (H2)
16	N 162,484.81	E 1,288,914.59	SHEET C-501 (J2)

- GENERAL NOTES:**
- CIVIL ABBREVIATIONS, LEGEND AND GENERAL NOTES SEE SHEET C-001.
 - AREA BETWEEN FRO GREEN RIVER TRAIL TO THE EDGE OF THE NEW TRAIL SHOW FOR PLANTINGS.
 - STAGING AREA, SEE SHEET C-002.

FLOODWALL/PROJECT STATIONING

STATION	NORTHING	EASTING
STA 28+00	N 163,196.37	E 1,289,163.13
STA 28+50	N 163,147.33	E 1,289,153.38
STA 29+00	N 163,098.29	E 1,289,143.62
STA 29+50	N 163,049.25	E 1,289,133.87
STA 30+00	N 163,000.21	E 1,289,124.12
STA 30+50	N 162,951.17	E 1,289,114.37
STA 31+00	N 162,902.13	E 1,289,104.62
STA 31+50	N 162,853.09	E 1,289,094.86
STA 32+00	N 162,804.05	E 1,289,085.11
STA 32+50	N 162,755.01	E 1,289,075.36
STA 33+00	N 162,705.97	E 1,289,065.61
STA 33+50	N 162,656.93	E 1,289,055.85
STA 34+00	N 162,607.90	E 1,289,046.10
STA 34+50	N 162,558.99	E 1,289,036.24
STA 35+00	N 162,510.63	E 1,289,021.39
STA 35+50	N 162,463.14	E 1,289,006.80
STA 36+00	N 162,418.87	E 1,288,984.00
STA 36+50	N 162,377.02	E 1,288,957.04
STA 37+00	N 162,337.66	E 1,288,926.16
STA 37+30	N 162,313.93	E 1,288,907.81

KEY PLAN

US Army Corps of Engineers

DESIGNED BY: J. SKRINDE
 DRAWN BY: D. BARRETT
 CHECKED BY: K. CERAGIOLI

ISSUE DATE:
 SOLICITATION NO.:
 CONTRACT NO.:
 FILE NO.:

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

FY25 P2-489719 DESIMONE
 DESIMONE LEVEE GRN-01-20
 TUKWILA, WASHINGTON

SITE PLAN 3

SHEET ID
CS103

65% DESIGN SUBMITTAL

APPENDIX C – CULTURAL RESOURCES COORDINATION



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

March 28, 2024

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

In future correspondence please refer to:
Project Tracking Code: 2023-11-07572
Property: PL 84-99 King County Desimone-Briscoe Right Bank Non-Federal Levee
Rehabilitation 2024, Kent, King County, Washington
Re: No Historic Properties Affected

Dear Collin Ray:

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

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

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

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

Sincerely,

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





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

January 16, 2024

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

Re: King County Desimone-Briscoe School Right Bank Non-Federal Levee
Rehabilitation 2024 Project
Log No.: 2023-11-07572-COE-S

Dear Vanessa Pepi:

Thank you for contacting our department. We have reviewed the materials you provided for the Area of Potential Effect (APE) for the proposed *King County Desimone-Briscoe School Right Bank Non-Federal Levee Rehabilitation 2024 Project* along the Green River near the city of Tukwila, King County, Washington

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

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

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

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

Sincerely,

A handwritten signature in blue ink, appearing to read 'Rob Whitlam', with a long horizontal line extending to the right.

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



APPENDIX D – AIR POLLUTANT AND GREENHOUSE GAS EMISSIONS CALCULATIONS

Type	HP	#	Hours/day	Days	rates (g/hr)							sum (MT)							
					ROG	CO	NOX	SOX	PM	CO2	CH4	ROG	CO	NOX	SOX	PM	CO2	CH4	N2O
Excavator	250	4	20	75	47.80	153.73	356.63	0.81	11.91	71977.22	4.31	0.29	0.92	2.14	0.00	0.07	431.86	0.03	0.02
Rubber Tired Dozer	250	2	20	75	95.20	275.15	774.94	0.94	32.06	83228.29	8.59	0.29	0.83	2.32	0.00	0.10	249.68	0.03	0.02
Grader	120	1	20	75	45.46	235.70	282.15	0.40	22.65	34003.46	4.10	0.07	0.35	0.42	0.00	0.03	51.01	0.01	0.01
Off-Highway Truck	250	2	20	75	53.49	165.62	393.63	0.85	13.17	75543.67	4.83	0.16	0.50	1.18	0.00	0.04	226.63	0.01	0.01
Off-Highway Truck	175	1	20	75	52.78	342.55	346.88	0.64	18.93	56738.80	4.76	0.08	0.51	0.52	0.00	0.03	85.11	0.01	0.01
Excavator	250	4	10	165	47.80	153.73	356.63	0.81	11.91	71977.22	4.31	0.32	1.01	2.35	0.01	0.08	475.05	0.03	0.03
Rubber Tired Dozer	250	2	10	165	95.20	275.15	774.94	0.94	32.06	83228.29	8.59	0.31	0.91	2.56	0.00	0.11	274.65	0.03	0.03
Grader	120	1	10	165	45.46	235.70	282.15	0.40	22.65	34003.46	4.10	0.08	0.39	0.47	0.00	0.04	56.11	0.01	0.01
Off-Highway Truck	250	2	10	165	53.49	165.62	393.63	0.85	13.17	75543.67	4.83	0.18	0.55	1.30	0.00	0.04	249.29	0.02	0.01
Off-Highway Truck	175	1	10	165	52.78	342.55	346.88	0.64	18.93	56738.80	4.76	0.09	0.57	0.57	0.00	0.03	93.62	0.01	0.01



EJScreen Community Report

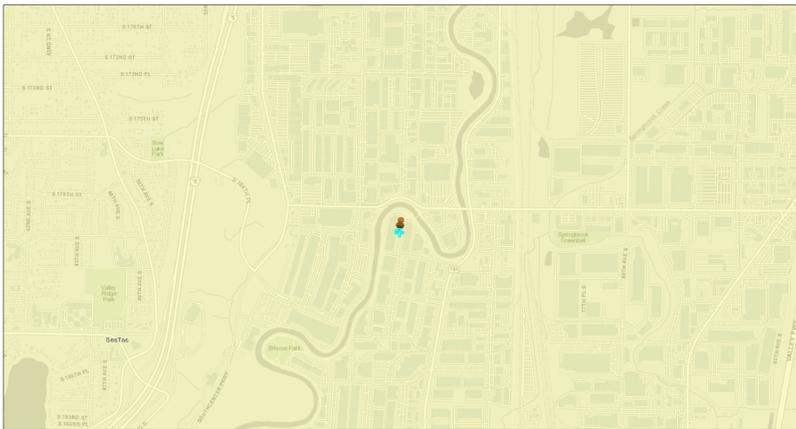
This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Tukwila, WA

2 miles Ring Centered at 47.439914,-122.251372

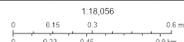
Population: 21,365

Area in square miles: 12.56



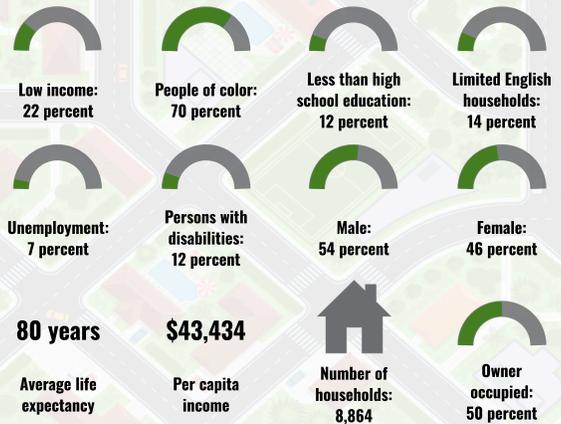
July 10, 2024

Project 1

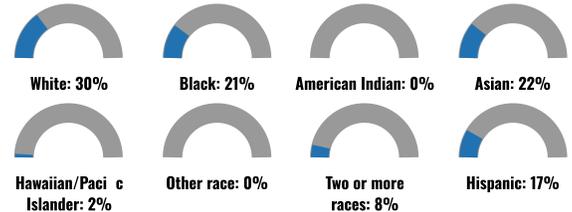


City of Benton, Bureau of Land Management, Esri, HERE, Garmin, GeoCartography, Inc., USGS, EPA, County of King, Esri, HERE

COMMUNITY INFORMATION



BREAKDOWN BY RACE



BREAKDOWN BY AGE



LIMITED ENGLISH SPEAKING BREAKDOWN



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	54%
Spanish	13%
French, Haitian, or Cajun	1%
Russian, Polish, or Other Slavic	1%
Other Indo-European	4%
Chinese (including Mandarin, Cantonese)	2%
Vietnamese	2%
Tagalog (including Filipino)	3%
Other Asian and Pacific Island	6%
Other and Unspecified	14%
Total Non-English	46%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race. Source: U.S. Census Bureau, American Community Survey (ACS) 2018-2022. Life expectancy data comes from the Centers for Disease Control.

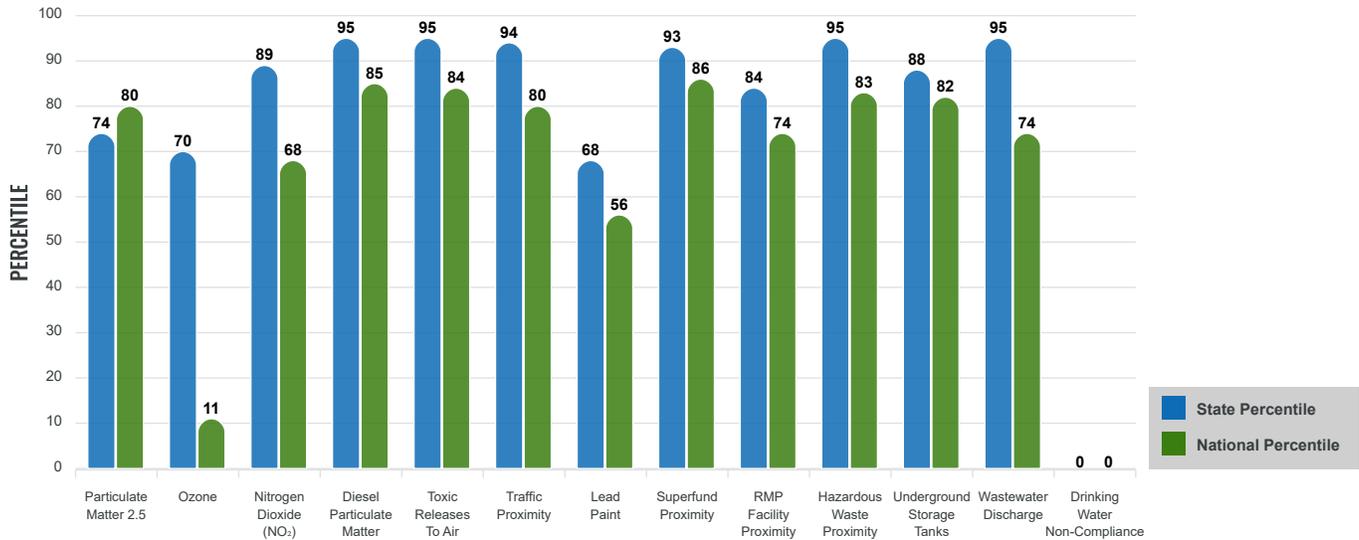
Environmental Justice & Supplemental Indexes

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

EJ INDEXES

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

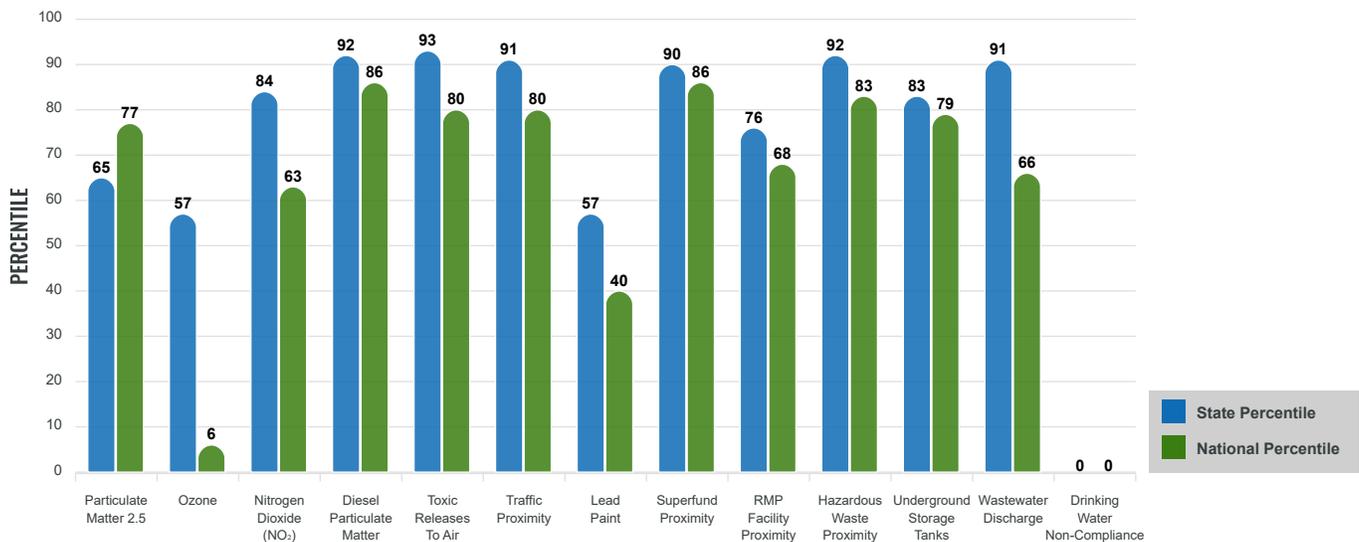
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

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

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



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

Report for 2 miles Ring Centered at 47.439914,-122.251372

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
ENVIRONMENTAL BURDEN INDICATORS					
Particulate Matter 2.5 (µg/m ³)	9.05	9.51	45	8.45	76
Ozone (ppb)	31.3	32.7	41	41	5
Nitrogen Dioxide (NO ₂) (ppbv)	8.1	6.3	78	7.8	55
Diesel Particulate Matter (µg/m ³)	0.471	0.256	91	0.191	94
Toxic Releases to Air (toxicity-weighted concentration)	3,600	1,800	89	4,600	82
Traffic Proximity (daily traffic count/distance to road)	3,100,000	1,200,000	93	1,700,000	83
Lead Paint (% Pre-1960 Housing)	0.18	0.23	58	0.3	46
Superfund Proximity (site count/km distance)	1.1	0.53	89	0.39	92
RMP Facility Proximity (facility count/km distance)	0.52	0.51	63	0.57	64
Hazardous Waste Proximity (facility count/km distance)	8.3	2.9	92	3.5	88
Underground Storage Tanks (count/km ²)	14	6.1	86	3.6	93
Wastewater Discharge (toxicity-weighted concentration/m distance)	190	300	97	700000	61
Drinking Water Non-Compliance (points)	0	1	0	2.2	0
SOCIOECONOMIC INDICATORS					
Demographic Index USA	1.63	N/A	N/A	1.34	67
Supplemental Demographic Index USA	1.61	N/A	N/A	1.64	54
Demographic Index State	2.31	1.47	84	N/A	N/A
Supplemental Demographic Index State	1.7	1.37	73	N/A	N/A
People of Color	70%	33%	93	40%	77
Low Income	22%	23%	56	30%	42
Unemployment Rate	7%	5%	72	6%	70
Limited English Speaking Households	14%	4%	92	5%	89
Less Than High School Education	12%	8%	78	11%	65
Under Age 5	5%	5%	47	5%	49
Over Age 64	13%	17%	41	18%	39

*Diesel particulate matter index is 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. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>.

Sites reporting to EPA within defined area:

Superfund	1
Hazardous Waste, Treatment, Storage, and Disposal Facilities	12
Water Dischargers	157
Air Pollution	19
Brownfields	8
Toxic Release Inventory	34

Other community features within defined area:

Schools	5
Hospitals	1
Places of Worship	4

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 2 miles Ring Centered at 47.439914,-122.251372

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	18%	18%	52	20%	39
Heart Disease	4.3	4.8	36	5.8	21
Asthma	10.7	10.9	39	10.3	65
Cancer	5.5	6.5	27	6.4	30
Persons with Disabilities	11.4%	13.4%	40	13.7%	40

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	4%	11%	43	12%	36
Wildfire Risk	0%	12%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	10%	8%	69	13%	50
Lack of Health Insurance	9%	6%	79	9%	65
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access Burden	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Report for 2 miles Ring Centered at 47.439914,-122.251372
 Report produced July 10, 2024 using EJScreen Version 2.3

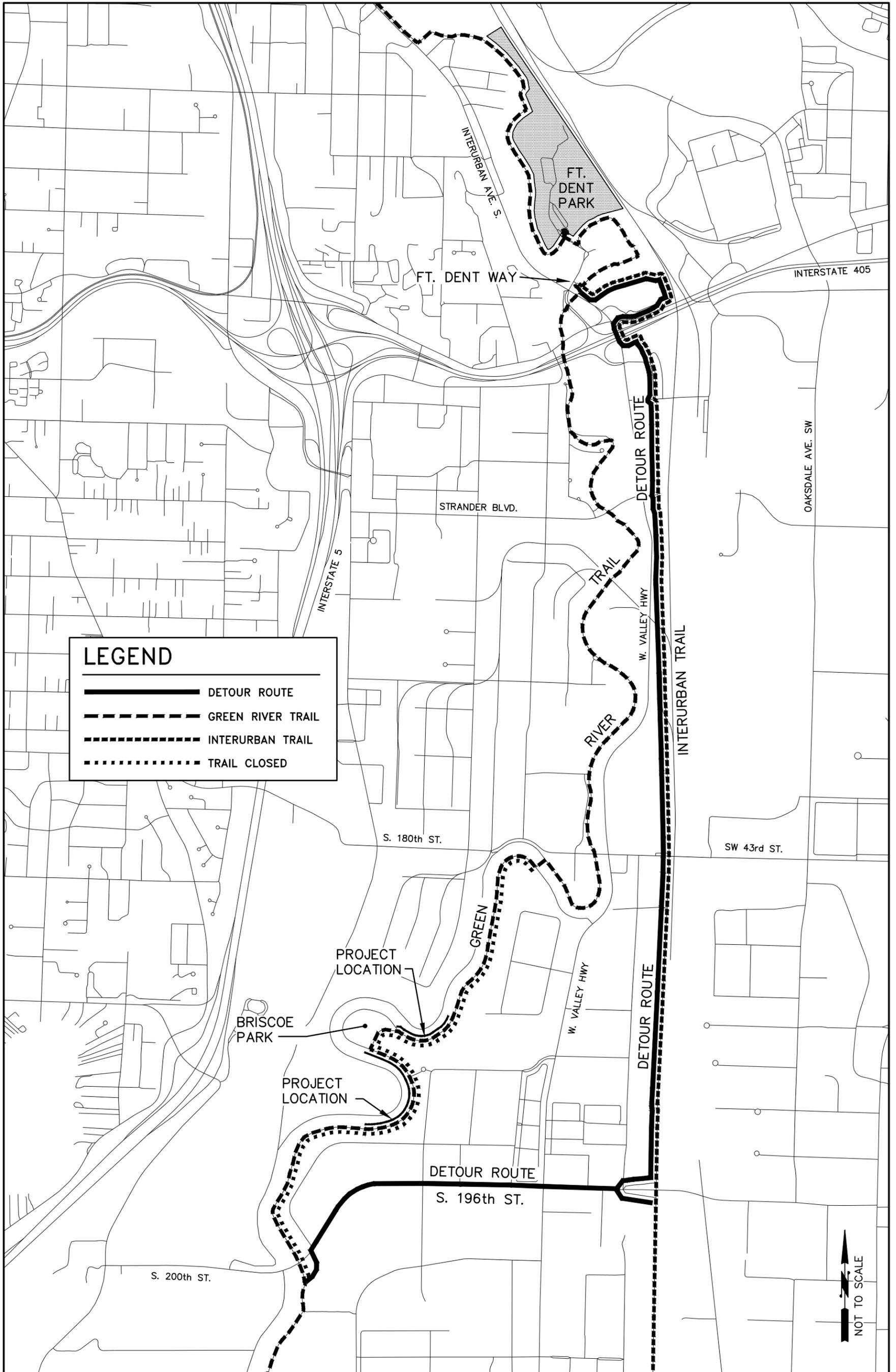
APPENDIX F – COASTAL ZONE MANAGEMENT COORDINATION

USACE sent a Coastal Zone Management Act Consistency Determination to Washington State Department of Ecology on July 16, 2024. Consultation is still on going.

APPENDIX G – ENDANGERED SPECIES ACT COORDINATION

USACE sent a Biological Assessment (BA) to the USFWS and NMFS on May 17, 2024. Consultation is still on going.

APPENDIX H – PROPOSED GREEN RIVER RECREATIONAL TRAIL DETOUR ROUTE



GREEN RIVER TRAIL DETOUR PLAN

BRISCOE-DESIMONE LEVEE IMPROVEMENTS
MARCH 24, 2014 – DECEMBER 2014

APPENDIX I – PUBLIC COMMENTS

APPENDIX J – DRAFT FINDING OF NO SIGNIFICANT IMPACT AND CLEAN WATER ACT SECTION 404 STATEMENT OF FINDINGS

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI) and CLEAN WATER ACT SECTION 404 STATEMENT OF FINDINGS Desimone Levee Rehabilitation Project King County, WASHINGTON

The U.S. Army Corps of Engineers, Seattle District (USACE) has begun an environmental analysis in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended. The Draft Environmental Assessment (EA) dated 12 September 2024, for the Desimone Levee Rehabilitation Project addresses flood damage to a levee near Tukwila, Washington.

The Draft EA, incorporated herein by reference, evaluates various alternatives to restore flood protection to the damaged levee. One major Federal action requiring NEPA compliance is analyzed in the EA summarized below.

Proposed Action: The preferred alternative is a Locally Preferred Plan. This alternative would include construction of a flood wall that ties into an existing downstream flood wall, modifying the levee profile landward and reduction of the riverward embankment slope, reconstruction of the levee embankment, native vegetation planting along the riverward embankment, installation of aquatic habitat features, and realignment of the Green River Trail on the crest of the levee. Construction is expected to commence April 1, 2025, and end December 31, 2025. In-water work includes repair of the levee toe and habitat feature installation, which will occur between July 1, 2025, and September 15, 2025. Rehabilitation work under this alternative is summarized in Section 2 of the Draft EA and is hereby incorporated by reference.

Alternatives: In addition to a “no action” plan, four alternatives were evaluated. The alternatives include the No-Action, Non-Structural, Repair In-Kind, Amended Repair In-Kind, and Locally Preferred Plan Alternatives. **Of these**, the potential effects were evaluated for the No Action and Locally Preferred Plan Alternatives. See Section 2 of the Draft EA for alternative formulation and selection. A summary assessment of the potential effects of the Preferred Alternative are listed in Table 1:

Table 1: Summary of Potential Effects of the Proposed Action

	Insignificant effects	Insignificant effects because of mitigation*	Resource unaffected by action
Vegetation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Navigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geology and Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wetlands	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Threatened and Endangered Species	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fish and Wildlife	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cultural Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hazardous, Toxic, and Radiological Waste	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Air Quality and Noise	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Land Use, Utilities, and Infrastructure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Impact Minimization: All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the preferred alternative (Section 2.7). Best management practices, as detailed in Section 2.8 of the Draft EA, would be implemented to minimize impacts. Measures include removing invasive vegetation, covering levee toe armoring with sand/gravel, vegetation planting in the riparian area, and installation of aquatic habitat features for enhanced ecological conditions in this section of the Green River. Additionally, in-water work will be conducted when the river level is lowest, during the summer.

Mitigation: The preferred alternative would result in unavoidable adverse impacts to vegetation to construct the flood wall and modify the levee profile. To minimize these unavoidable adverse impacts, USACE would plant new native trees at a 3:1 ratio with native shrubs interplanted. Additional trees would be planted to accomplish the riparian habitat goals described in the alternative. In total approximately 3223 trees and shrubs would be planted along the levee embankment in a clustered pattern more representative of natural vegetation patterns. These plantings would provide shade and other beneficial habitat functions to aquatic and terrestrial species in the Green River when they mature. See Section 2.5 in the Draft EA for more mitigation details.

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

Treaty Tribes: The Muckleshoot Indian Tribe, Suquamish Indian Tribe, Snoqualmie Indian Tribe, and the Confederated Tribes and Bands of the Yakama Indian Nation were contacted regarding the levee repairs and USACE will continue to coordinate throughout the project to meet Tribal Treaty obligations. Two site visits have been conducted with the Muckleshoot Indian Tribe and comments have been received. The Snoqualmie Indian Tribe declined the offer of a site visit.

Compliance:

a. Endangered Species Act:

The National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), and the U.S. Fish and Wildlife Service (USFWS) are responsible for the Endangered Species Act of 1973 (ESA). USACE evaluated potential effects to endangered species in a Biological Assessment (BA). ESA consultation was initiated with submission of a BA and a request for consultation to the USFWS and NMFS on May 17, 2024. USACE has summarized effects determinations for ESA-listed species from the project in the BA in Table 2. Both agencies have confirmed receipt and consultation is ongoing.

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

Species	Species Effect Determination	Critical Habitat Determination
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	LAA	LAA
Steelhead (<i>Oncorhynchus mykiss</i>)	LAA	LAA
Bull Trout (<i>Salvelinus confluentus</i>)	LAA	LAA

Killer whale (<i>Orcinus orca</i>)	No Effect	NLAA
North American Wolverine (<i>Gulo gulo luscus</i>)	No Effect	No Effect
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	No Effect	No Effect
Yellow-Billed Cuckoo (<i>Coccyzus americanus</i>)	No Effect	No Effect
Northwestern Pond Turtle (<i>Actinemys marmorata</i>)	No Effect	No Effect

b. Magnuson-Stevens Fishery Conservation and Management Act:

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

c. Clean Water Act:

The proposed levee rehabilitation work requires placing fill below the OHWM. There are no jurisdictional wetlands under the CWA at the project site. A 404(1)(B) analysis was conducted by USACE for the proposed rehabilitation. USACE requested a Section 401 Water Quality Certification from the Washington Department of Ecology on May 31, 2024.

Section 402 of the CWA is triggered when a construction site would have greater than 1 acre of ground disturbance, which is the case for this proposed rehabilitation. To manage stormwater and minimize potential for erosion during construction, USACE will require the contractor to develop a Stormwater Pollution Prevention Plan and seek coverage for the work under the National Pollutant Discharge Elimination System Construction General Permit administered by the Environmental Protection Agency.

d. Coastal Zone Management Act:

USACE has determined that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Management Program. USACE sent a CZMA Consistency Determination to Ecology on 16 July, 2024,

requesting concurrence that the proposed repairs are consistent to the maximum extent practicable with the enforceable policies of the approved Coastal Zone Management Program.

e. National Historic Preservation Act:

USACE initiated consultation with the Washington State Department of Archeology and Historic Preservation (DAHP) on the Area of Potential Effect (APE) on January 16, 2024. The DAHP concurred with the APE on January 16, 2024. USACE also coordinated with the Muckleshoot Indian Tribe, Suquamish Indian Tribe, Snoqualmie Indian Tribe, and the Confederated Tribes and Bands of the Yakama Indian Nation about the APE on January 16, 2024. USACE completed an effects determination on March 13, 2024. DAHP concurred with Corps determination of no historic properties effected on March 28, 2024. To date, only the Suquamish Indian Tribe replied to our request for consultation, and they had no comments or concerns about the project. The other affected tribes did not provide any information or comments regarding this undertaking.

Draft Determination:

a. Summary of Impacts and Compliance:

Impacts of the proposed work are anticipated to be minor, short-term, and temporary. Environmental improvements are expected from project components focused on expanding riparian and aquatic habitat. This project is undergoing ESA consultation; a BA has been prepared and transmitted to NMFS and USFWS. Impacts to ESA listed fish and their prey would be minimized by construction during the in-water work window of July 1 to September 15, 2025. ESA and EFH consultations are ongoing. USACE has requested a CWA 401 Water Quality Certificate and a CZMA Consistency Determination from Washington Department of Ecology. The project complies with the National Historic Preservation Act and USACE has coordinated the work with the Washington SHPO and affected Indian Tribes.

Draft District Engineer's Findings and Conclusion: I have evaluated the repair in light of the public interest factors prescribed in 33 CFR 336.1(c). The following factors were evaluated as considerations potentially impacting the quality of the human environment in the accompanying EA: navigation and the Federal standard for dredged material disposal; water quality, coastal zone consistency, wetlands, endangered species, historic resources, scenic values, recreational values, and fish and wildlife; and applicable state/regional/local land use classifications, determinations, and/or policies. In accordance with 33 CFR 337.1(a)(14) and 325.3(c)(1), the following additional relevant factors were also considered: air quality, noise, land use, utilities, and infrastructure.

The preferred alternative represents least environmentally damaging, practicable alternative that meets the project purpose and need, is consistent with sound engineering practices, and meets the environmental standards established by the CWA Section 404(b)(1) evaluation process. Execution of the preferred alternative, following consideration of all applicable evaluation factors, is in the public interest.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on the analysis presented in the Draft EA, which has incorporated or referenced the best information available; the reviews by other Federal, state

and local agencies, Tribes; input of the public; and the review by my staff, it is my anticipated determination that the recommended plan would not cause significant effects to the quality of the human environment and does not require preparation of an environmental impact statement.