US Army Corps of Engineers
Seattle District

Notice of Preparation/ Clean Water Act Public Notice

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Reference: PMP-18-23
Name: Ferndale, Hannegan, and Sande-Williams Levee Rehabilitations

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This NOP is an updated version of the one posted on 29 October 2018. It contains new information about the Sande-Williams levee damaged in early November 2018 by flooding on the Nooksack River. To assist with public review and comment the changes from the original NOP are in red.

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Seattle District (Corps) plans to prepare, pursuant to the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) for proposed levee repairs to the Ferndale, Hannegan, and Sande-Williams Levees, located on the Nooksack River, in Whatcom County, Washington (Figure A-1). The repairs are intended to address damage caused by high river flows on 23 and 24 November 2017 and more recently between 1 and 5 November 2018. The purpose of this Notice of Preparation (NOP) is to solicit comments from interested persons, groups, and agencies on the Corps' proposed action under NEPA.

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."

AUTHORITY

The proposed levee repairs are authorized by Public Law 84-99 (33 U.S. Code Section 701n). The Corps rehabilitation and restoration work under this authority is limited to the repair of flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the condition and level of protection exhibited by the flood control work prior to the damaging event. City of Ferndale is the non-Federal sponsor for the Ferndale project site. Whatcom County is the non-Federal Sponsor for the Hannegan

project. Deming Diking District #2 is the non-Federal sponsor for the Sande-Williams projects site.

In response to Sponsor requests, the Corps prepared Project Information Reports (PIR) for rehabilitation of flood control works on the Ferndale and Hannegan levee systems in Whatcom County, Washington which received U.S. Army Corps of Engineers Northwestern Division (Division) approval on 8 March 2018. The PIR for rehabilitation of flood control works on the Sande-Williams levee system received Division approval on 19 March 2018.

The Deming Diking District #2 requested assistance from the Corps on 01 November 2018 for flooding on the Nooksack River. The Corps deployed to the Sande-Williams levee and conducted flood fight activities at two locations. Flood fight activities terminated on 05 November 2018 as it was predicted the river would stay below flood stage. Flood fight actions are temporary repairs and it is the local sponsor's responsibility to keep or remove the repair. Deming Diking District #2 has decided to partner with the Corps under the PL 94-99 program to remove the temporary repair and replace it with a permanent repair to restore the level of protection.

PROJECT LOCATION AND NEED

The Ferndale, Hannegan and Sande-Williams levees, in the undamaged condition, provide flood risk reduction to their protected areas by reducing flood water elevations and associated impacts to structures.

In their current condition, damages to residences, commercial structures, contents, inventories, and risk to life could occur for any event less frequent than 100% (1-year) Annual Chance of Exceedance (ACE). Given the historic medium duration of floods (typically 1 to 4 days) in the area and nature of the hydrology in the Nooksack River, it is assumed that in the case of a breach, flood stage in the protected area would equal river stage.

Many residences in Ferndale are located at least three feet below the top of the lowest point of the Ferndale Levee. The Ferndale levee project reduces damages to over 50 residences, several farms, multiple businesses, and public entities including: Central Elementary School, the Ferndale Chamber of Commerce, the Ferndale City Hall and the combined Ferndale Water/Wastewater Treatment Plant. In the undamaged condition, the levee has a 100-year level of protection (LOP). In the damaged condition the Ferndale levee has a 1-year LOP.

Residences within the Hannegan leveed area could experience inundation in a 100% ACE event with levee failure. Any event less frequent than 100% ACE would result in more extreme inundations and increased damages. This levee protects the only intake structure for the City of Lynden's water supply, along with agricultural and farmland, and residential and commercial properties. In the undamaged condition, the levee has a 10-year level of protection (LOP). In the damaged condition the Ferndale levee has a 1-year LOP.

Residences within the Sande-Williams leveed area would experience some inundation for a 3.3% ACE event. The Sande-Williams levee reduces damages to at least 44 residential and agricultural structures totaling 320 acres of public infrastructure. In the undamaged condition, the levee has a 28-year level of protection (LOP). In the damaged condition before early November 2018 flooding, the Sande-Williams levee had a 1-year LOP. After the November 2018 flood response the Corps estimates the Sande-Williams levee retains the 1-year LOP.

Repairs to the three levees would restore them to their pre-damaged LOPs. The anticipated remaining service life of all four levees is 50 years.

Ferndale

The Ferndale levee is located along the right bank of the Nooksack River in the City of Ferndale, WA, located in Section 29, Range 2 East, and Township 39 North, in Whatcom County, Washington (Figure A-2). The levee embankment consists of compacted earthen material armored with riprap on the riverward side and a rock toe. Between the Ferndale Levee and the Nooksack River, there is typically a narrow vegetated bench at the toe of the levee.

On 24 November 2017, high river flows of 29,300 cubic feet per second (cfs) occurred on the Nooksack River with an ACE of 33% (a 3-year event). These high flows scoured the levee slope and toe and included loss of riprap (Figures A-3 and A-4) within a triangular, 20 feet high, and 10 feet wide area, over approximately 125-foot long stretch of levee. The damage is located in close proximity and upstream of the water treatment plant intake.

Hannegan

The Hannegan levee is located along the left bank of the Nooksack River, near the town of Lynden, located in Sections 21, Township 40 North, and Range 03 East, in Whatcom County, Washington (Figure A-5). The levee is a little over 1.5 miles long and consists of earthen material with sod and riprap for scour protection. The downstream end of the project is located at Hannegan Road and the upstream end is near Polinder Road.

On 23 November 2017, high flows of 39,900 cfs occurred on the Nooksack River which correlates with an ACE of 5% (a 20-year event). The high flows scoured approximately 50 linear feet section of the levee slope and toe, including loss of embankment material (Figure A-6). The total length of repair is approximately 280 linear feet including tie-ins. The repair length is substantially longer than the damaged length so that a buried toe can be included in the repair action. This buried toe would address concerns related to scouring where the river makes a sharp turn. In the damaged condition, the levee would provide a 1-year Level of Protection.

Sande-Williams

The Sande-Williams levee is located along the right bank of the Nooksack River just downstream of the town of Deming, WA, located in Sections 35 and 36, Range 4 East, Township 39 North in Whatcom County, Washington (Figure A-7). The levee is

constructed of earthen material and armored with riprap on the riverward side of the levee. The levee crown consists of gravel/cobble material for vehicular access.

On 23 November 2017, high flows of 47,800 cfs occurred on the Nooksack River with an ACE of 5% (a 20-year event). The high flows, as well as impacts from floating logs, resulted in scour of the levee slope and toe, including loss of riprap and embankment material up to several feet above the water level at the time of the PIR site visit on 23 February 2018. The levee was damaged in two sections. Site 1 was damaged for approximately 580 linear feet (Figure A-8). This damage site is directly adjacent to a repair performed by the Corps in 2015. Site 2 has a damage toe and slope for approximately 100 linear feet (Figure A-9). The total length of repair at that time was approximately 680 feet.

Then on 02 November 2018 the Nooksack River exceeded flood stage. High flows scoured the levee armor along the slope and toe at Site 2 and at a new location downstream. In response, the Corps made emergency repairs at these two locations. Temporary repairs to Site 2 were made along the slope and toe within the previously known damaged location (100 feet). The second emergency repair location was downstream and included 300 feet of work. This site is the third damaged location (Site 3) on the Sande-Williams levee (Figure A-10 and A-11).

Table 1 below describes the work conducted during the flood fight response at both sites (Site 2 and Site 3). Table 2 outlines the materials placed during the event. Flood fight activities at Site 2 and Site 3 resulted in temporary emergency repairs to prevent catastrophic levee failure. Post-flood repair work is required to restore these damaged and flood fought locations to full levee performance.

Table 1. Overview of flood fight at Sande-Williams in early November 2018.

Day	Site 2	Site 3
01 Nov 2018	Emergency response deployed. No work.	
02 Nov 2018	No work	Class V riprap placed on slope and toe
03 Nov 2018	No work	Class V riprap placed on slope, toe and scour hole
04 Nov 2018	Class V riprap placed on slope and toe	Continue rock placement on slope
05 Nov 2018	Minor placement of riprap at Site 3 and minor grading and crushed rock placed along 5,800 feet of levee access road.	

Table 2. November 2018 Flood Fight Response Materials.

Material	Location	Tons Placed
Class V Riprap	Site 2	431.05
	Site 3	1719.92
	total riprap	2150.97
1 ¼" Minus Crushed Rock	levee access road	786.49

THE PURPOSE
The purpose of the proposed project is to restore the level of flood protection that existed prior to the damaging event in order to protect lives and property from subsequent flooding at the damaged locations.

ALTERNATIVES
The National Environmental Policy Act (NEPA) and 33 CFR Part 230 *Procedures for Implementing NEPA* require a reasonable range of alternatives be considered during the planning process. Alternatives considered under NEPA must include, at least, the proposed action and the "No Action" Alternative, which provides a baseline from which to compare other alternatives. The alternatives identified below were evaluated to determine if they satisfy the purpose and need of the Federal Project:

- **Alternative 1 No-Action.**
  No project features would be implemented by the Corps under the No Action Alternative. The levees would be left in their damaged condition for the near future. The No Action Alternative would reduce the level of protection and increase probability of increased damages or breach of the levees. The No Action Alternative poses an increased risk to health and safety due to the potential for additional flood damage.

- **Alternative 2 Repair In-Kind**
  Preferred Alternative for Ferndale and Sande-Williams Levees.

  Ferndale
  The Repair In-Kind Alternative would repair the damaged levee sections to match and tie-in to existing undamaged sections upstream and downstream. The repair would entail removal and replacement of materials, including the replacement of spall rock and riprap, restore the riverward toes, riprap armor, re-establish the riverward slope to match the upstream and downstream slopes, and place a driving course on the levee crown. This alternative includes a construction length of approximately 125 linear feet (Figure A-12).

  The construction limits shall end at least 25 feet from the water intake structure so to avoid changing flow characteristics into the Public Utility District (PUD) water intake downstream of the repair section.

  The total area of ground disturbance would be approximately 2,565 square feet. The site would be accessed along the existing levee access road. The staging area would be approximately 4,730 square feet (Figure A-13).

  Hannegan
  The Repair In-Kind Alternative would restore the damaged riverbank section to a condition that matches undamaged sections. New embankment material and armor would be placed along the toe within the damaged section to repair scour damage along 50 feet of levee. Armor may extend up the slope similar to the

adjacent downstream repair. This would entail removal and replacement of materials, reshaping the riverward slope, restoring the riverward toe.

This alternative is not the preferred alternative due to concerns about continued scour after repair. The river flows through a sharp turn into the damaged site. This sharp turn results in significant scour during high flow events. Therefore, a launchable toe has been proposed (see Alternative 3 below) as the preferred alternative for the Hannegan Levee to address scour concerns.

Sande-Williams

The Repair In-Kind Alternative would repair the damaged levee sections to match and tie-in to existing undamaged sections upstream and downstream. The repairs would entail removal and replacement of materials, including the replacement of the missing embankment material, restoring the riverward toes, replacing the missing or broken riprap, re-establishing the riverward slope to match the upstream and downstream slopes, and restoring the levee crown surface.

The material added at Site 2 and Site 3 during the flood fight would be removed and stockpiled for reuse in the permanent repair. The scour hole that was filled during the flood fight has dimensions which are unknown. To the extent feasible riprap placed in the scour hole riverward of the levee toe during the flood fight will be removed. It is possible some riprap may remain in place if removing it will jeopardize the stability of the finished levee slope.

The alternative includes a construction length of approximately 580 linear feet for Site 1 and 100 linear feet for Site 2 and 400 feet for Site 3 (Figures A-14 to A-16).

The area of ground disturbance for the Sande-Williams repair Site 1 would be 0.7 acres. Access to the repair site would be along the 2,600 foot access road and levee crown. The staging area would be 0.08 acres. The area of ground disturbance for the Sande-Williams repair Site 2 would be 0.09 acres. Access to the repair site would be along 1,500 foot levee crown. The staging area would be 0.2 acres (Figure A-17). For Site 3, the area of ground disturbance would be 0.5 acres with access along 700 feet of levee crown. No additional staging is required for Site 3.

- **Alternative 3 Buried Toe**

  The Preferred Alternative for Hannegan Levee. Not considered at the other two levees.

  The 50 foot damaged section of Hannegan Levee would be repaired similar to Alternative 2. However, a buried armored toe would be added to the footprint to extend the riprap upstream for an additional 150 feet and tie into existing riprap downstream. The remaining 130 feet the riprap would be buried and follow the levee alignment as it shifts away from the river. No in-water work is anticipated in

this portion of the repair. The buried area upstream would be restored and planted with trees and shrubs. The construction length is 280 Linear Feet, including tie-ins (Figures A-18 and A-19).

The area of ground disturbance for the Hannegan levee would be 23,270 square feet. Access to the repair area would be along 1,410 feet of existing driveway. The staging area would be approximately 2,000 square feet (Figure A-20).

- **Alternative 4 Non-Structural**
  The Non-Structural Alternative consists of floodplain management strategies generally involving changes in land use offered by other Federal and state programs. Strategies would include: zoning, easements, flood warning, floodplain evacuation, and flood insurance. Nonstructural strategies involve acquisition, relocation, elevation, and flood proofing existing structures. The project sponsor has been informed of their options to pursue a Non-Structural Alternative project and they have considered this option. The Non-Structural Alternative is not acceptable to the Sponsors.

- **Alternative 5 Set Back Levee**
  The Set Back Levee Alternative would shift the alignment of the levee embankment landward by a yet-to-be determined distance in order to avoid or minimize direct contact with the river current. Typically, the setback would be a newly-constructed earth embankment structure and would abandon the existing levee located on the river bank. A levee set back may not be able to be completed prior to the next flood season due to more extensive embankment material requirements. Additionally a levee set back would encroach on privately-owned land currently used for residential purposes.

The Corps proposes to repair all three levees to return the levees to their pre-damaged LOP. The proposed levee rehabilitation/repair design would stabilize and armor the riverward slope to prevent further erosion damage. Generally, the repairs re-establish rock armor and bring the slopes back to a ratio of a 1.5 horizontal (H):1 vertical (V) or 2H:1V. The armor consists of Class V (approximately 27 inched diameter) riprap and a minimum of 1 foot thick layer of 2 to 4 inch quarry spalls as a filter layer. Excess material would be stockpiled for re-use as cover along the upper port of the riprap. Disturbed soils would be hydroseeded with native grasses with native trees and shrubs planted above the buried toe at the Hannegan levee. Ferndale levee would establish 2 rows of native shrub plantings along 190 feet on an upstream riverward bench. No plantings are proposed at the Sande-William sites due to the dynamic nature of the river.

Total construction length for levee repairs, including smooth transitions into the existing slopes, is approximately 1,485 linear feet (lf). Repair lengths for each Levee Location area as follows:

Ferndale	125 lf	Sande-Williams (Site 1) 580 lf
Hannegan	280 lf	Sande-Williams (Site 2) 100 lf
		Sande-Williams (Site 3) 400 lf

ANTICIPATED IMPACTS

Anticipated impacts are as follows for the proposed repairs. Impacts caused by the emergency flood fight at Sande-Williams at Site 2 and 3 would be the same unless otherwise specified.

Water Quality: Short-term, localized project-related increases in background turbidity levels would likely occur as a result of in-water toe or bank excavation, rock placement for toe rock, and rock placement for bank construction. Rock placement would only occur within the project footprint. Material placed into the water would be placed individually or in small bucket loads; no end dumping of rock into the water would occur. Given the construction methods for rock placement, proposed excavation techniques (only the excavator bucket with thumb attachment would extend into the water), proposed handling of excavated substrates (placement on backside levee slope or side-casting), and timing of in-water work (June 15 and August 31); it is anticipated that any project related increases in background turbidity would be very limited and highly localized.

Any increases in turbidity should not expected to extend to detectable levels far downstream. Turbidity during project construction would be monitored; if state water quality standards for maximum turbidity are exceeded, project work would be halted until the standards are met or construction methods changed to avoid future exceedances. Short-term increases in background turbidity around the action areas resulting from work below the ordinary high water mark (OHWM) are expected to be temporary with no long term adverse effects to Water Quality.

Proposed tree removal within the levee repair areas is minor in comparison to the surrounding riparian forest. There would be a minor loss of river shading within the repair reach at Ferndale and Hannegan, with minor loss at Sande-Williams due to existing vegetation being trimmed routinely by the local sponsor. Planting native shrubs and trees along the Ferndale and Hannegan repair areas is proposed to offset the anticipated riparian vegetation impacts such as shading and temperature buffers created by vegetated areas.

No monitoring was done during the flood fight response at Sande-Williams. However, impacts to turbidity are expected to have been minor as flooding would have significantly risen and masked any turbidity generated by the action. Furthermore, the repair utilized only clean rock. Summer water temperature impacts from the flood fight work are not expected to be noticeable as no significant shade producing vegetation was present on site.

Aquatic Resources: Impacts to aquatic resources from the completed flood fight at Sande-Williams and the proposed action include possible entrainment during

excavation activities, potential hydroacoustic disturbances, alteration of substrates and fill into waters of the U.S. (pool, scour hole), temporary degraded water quality associated with excavation, impacts to migration and spawning, and vegetation removal within repair sites.

The potential for entrainment is largely dependent on the likelihood of aquatic organisms occurring within the excavation area, the scope and scale of the excavation activity, and the life stage of the organism. Given the location of proposed excavation activities, use of an open bucket excavator, and relatively slow speed of excavation; it is reasonably certain that the risk of injury to aquatic species from the completed and proposed excavation activities is low but not insignificant.

Short-term, localized project-related increases in background turbidity levels would likely occur as a result of in-water toe or bank excavation, rock placement for toe rock, and rock placement for bank construction during the proposed repair. Short-term increases in background turbidity around the action areas resulting from work below the OHWM would be temporary and are not expected to result in long-term adverse effects to aquatic species, or significant net change in function of the in-stream habitat.

Disturbance from vibration from the flood fight and the proposed action is possible during construction, stemming from delivery and dumping of rock on land as it is staged for construction, and as a result of excavation and placement of rock along the riverward face of the levee. Vibrational disturbance during the proposed construction would be minimized by working from the top of the bank, avoiding in-water excavation, and placing rock individually or in small bucket loads (no end-dumping into the river). Following these construction techniques it is reasonably certain that impacts to aquatic species resulting from equipment use or rock placement during construction would be minimal, but not entirely insignificant or discountable for injury or long-term adverse behavioral effects.

Adult fish migrating upstream at the time of construction may be temporarily delayed at the construction site due to disturbance and/or sediment loads. Most migrating fish would likely continue their migrations in the evening after construction is shut down for the day; hence, delays in migration would be expected to be very short-term. The degree to which aquatic species use the specific project locations for spawning is unknown. The area affected would be limited to portion of the channel adjacent to the levee and the proposed actions would likely have no long-term effect on migrating or spawning fish species. Additionally, the sites are present in areas where flows are typically stronger than other sections of the river. For example, at Hannegan it is unlikely river substrate is used for spawning due to the river dynamics found in the sharp riverine turns.

Levee vegetation removal may indirectly impact aquatic species by decreasing shade, reducing plant material and insects dropped into the water for forage, reducing quality of refugia, and a decreasing large woody material input. Tree removal would only occur along the levee within repair sites. Proposed tree removal is minor in comparison to the

surrounding riparian forest. There would not be a major loss of river shading, because the vegetation on the bank opposite of the repair would be left intact and would be offset from the proposed plantings at Hannegan and Sande-William levee repairs. Additionally, there is off-channel habitat with adequate riparian cover. No significant temperature effects are expected from vegetation removal.

Terrestrial Resources/Wildlife: The effects of the flood fight and the preferred alternative on wildlife would likely include displacement of birds and other small vertebrates as a result of construction activities. Construction would also cause temporary displacement of birds in the project area due to noise and the presence of human activity. Construction may temporarily displace small mammals and may injure or cause mortality of reptiles and rodents. Loss of trees would affect wildlife habitat by reducing cover, perching, foraging, and nesting opportunities. This effect would not be significant given the limited vegetation present onsite, the small number of trees to be removed, proximity of similar habitat for displaced animals, and plantings incorporated into the repair to offset the repair impacts.

Threatened and Endangered Species: The Nooksack River is an important area for Puget Sound native fish such as Chinook and steelhead. The river and estuary are designated critical habitat for Puget Sound Chinook (*Oncorhynchus tshawytscha*), Puget Sound Steelhead (*Oncorhynchus mykiss*), and Coastal-Puget Sound bull trout (*Salvelinus confluentus*). Limiting in-water work to specific windows is conservation measure that can be implemented to reduce impacts to species by avoiding key life cycle stages. For the area of the proposed repairs, the in-water work window is 15 June to 31 August. Repairs may cause short-term impacts to fish and wildlife and maintain long-standing detrimental conditions for aquatic life. The primary impacts would be a temporary increase in turbidity, noise, vibration, and human activity caused by heavy equipment and materials that may displace fish and wildlife during construction. The longest lasting impacts would be vegetation removal which is offset with plantings, and continued alteration of the natural shoreline with rock and channelization. Predicted impacts of the construction of the riverward slopes and toe would include minor increase in turbidity, increased noise emissions form the use of heavy equipment, possible minor disturbance to fish and wildlife present during construction and removal of vegetation from the bank.

The Corps has prepared a Biological Assessment pursuant to Sec. 7(a)(2) of the Endangered Species Act for consultation with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). The Corps sent the Biological Assessment to USFWS and NMFS on 15 October 2018. The Corps has provided an update to USFWS and NMFS concerning the flood fight activities and how those actions add to and change the impacts outlined in the Biological Assessment. Due to the urgent nature of completing the emergency actions prior to the oncoming flood season and due to time constraints under which this project is implemented, the Corps intends to proceed with construction prior to completion of the consultation with the Services.

Vegetation: Removal trees would create wider unvegetated spaces at the project locations. Vegetation removal could decrease river shading in the immediate area around the projects. Loss of herbaceous plants and shrubs on levee faces would also have short-term impacts on nutrient input (plant material and insect fall) and quality of refugia for fish in high waters. However, there is a large riparian corridor in the upper reaches above the action areas and a thin band of riparian vegetation along Nooksack River in the reaches between action areas. Additionally, there is off-channel habitat with adequate riparian cover.

Tree removal would be limited to occur only along the levee within repair sites. The proposed removal of mature vegetation is minor in comparison to the surrounding riparian forest. Repair areas would be hydroseeded with a native seed mix post construction. Planting native shrub and trees species along some repair areas is proposed to offset impacts to riparian vegetation. No significant long-term impact is expected to vegetation. Vegetation impacts from the flood fight were minor, consisting of invasive vegetation (reed canary grass and Himalayan blackberry) with no tree removal.

Cultural Resources: Prior to repairs, a Corps archeologist would conduct a cultural resources survey of the project area to determine whether there is potential for the proposed repairs to cause effects to historic properties. The Corps would evaluate the project and prepare documentation necessary pursuant to compliance with Section 106 of the National Historic Preservation Act (NHPA). The report would include the findings of the investigations for each repair site, recommendations for archaeological monitoring during construction, and a determination of effects to archaeological and historic properties. The Corps' determinations of effects to historic properties, the investigation report, and monitoring plan if necessary, would be coordinated with the Washington State Historic Preservation Office (SHPO), Indian Tribes, and other consulting parties prior to approval of the proposed action.

Noise: The proposed action would slightly increase localized ambient noise levels within the proposed Right of Way during construction. However, given the rural location of the proposed action, it is anticipated that any potential disturbance resulting from slightly elevated short-term ambient noise levels from construction activities would be negligible. No long-term change in noise levels would occur as a result of the project. No long-term impacts resulting from the flood fight action are expected.

Air Quality: Construction vehicles and heavy equipment used during the proposed construction would temporarily and locally generate increased gasoline and diesel exhaust fumes. The small area of construction and the short duration of the work would limit the impact to air quality. The activity would constitute routine repair of an existing facility, generating an increase in direct emissions of a criteria pollutant or its precursors that would be *de minimis*, and therefore exempted by 40 CFR Section 93.153(c)(2)(iv) from the conformity determination requirements. Emissions generated by the construction activity are expected to be minor, short-term, and well below the *de minimis* threshold. Unquantifiable but insignificant exacerbation of effects of CO_2

emissions on global climate change would be anticipated from the proposed repair and from the completed flood fight activities.

Climate Change: Climate change is not expected to have a significant impact on the proposed levee repairs or resulting from the flood fight activities. The levees would be repaired to their status quo and would provide flood protection against increased winter flow. There would be no anticipated additional direct positive or negative effects on climate change.

The flood fight action and proposed repairs could impact climate change through increased use of internal combustion engines during construction. Heavy trucks and machinery would be required for the proposed levee rehabilitations. Increased use of internal combustion engines would result in more fuel consumption which could result in higher greenhouse gas emissions. Global atmospheric temperatures are correlated to increased atmospheric carbon dioxide levels (IPCC 2001). The emissions from the proposed action would be part of world-wide cumulative contributions to climate change by way of increases in greenhouse gas emission. Given the minuscule contribution of CO_2 emissions from construction activities during the proposed action to overall global emissions, effects are considered to be insignificant. There would be extremely negligible effects on climate change as a result of implementing the proposed levee repairs.

Geology and Soils: Increased compaction of the soil in the immediate area of construction may occur due to operation of heavy equipment for the repair. However the areas are typically patrolled and maintained with large vehicles so that some level of compaction would already exist. Restoration of the levee and the toe would minimize the erosion of the banks on the river. Frequency and depth of floodplain inundation of the site would be maintained at pre-damage levels. Overall project (completed and proposed) effects to geology and soils would be insignificant.

At the Hannegan Levee, soil may be further excavated within the levee repair area to install the proposed buried toe.

Cumulative Effects: The baseline conditions of the three levees would not be notably altered due to the proposed action. Cumulative effects of past and proposed actions would be fully considered in the environmental documentation, as required under NEPA and ESA.

COMPLIANCE WITH OTHER LAWS AND REGULATIONS

The Corps has made a preliminary determination that the environmental impacts of the proposal and the completed flood fight activities can be adequately evaluated under the NEPA through preparation of an EA. Preparation of an EA addressing potential environmental impacts associated with the levee rehabilitation project is currently underway.

The purpose of the Federal Water Pollution Control Act (33 U.S.C § 1252 et seq.), commonly referred to as Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands.

The completed emergency action and proposed repair to Sande-Williams Site 3 involve(d) discharge of fill material into waters of the U.S. that will be evaluated for substantive compliance with guidelines promulgated by the Environmental Protection Agency under authority of Section 404(b)(1) of the CWA.

The Corps does not issue permits for its own Civil Works activities. Nevertheless, the Corps accepts responsibility for the compliance of its Civil works project with Section 401 and 404 of the CWA. The project repair at Sande-Williams Site 3 may result in fill outside of the original levee footprint to ensure levee stability. Fill was placed riverward of the levee during the flood fight to arrest erosion. To the extent feasible this fill will be removed, but some may remain in place if its removal jeopardizes the stability of the finished levee repair. This repair is analogous to a Nationwide Permit (NWP) 3, which authorizes the repair, rehabilitation, or replacement of any currently serviceable structure, provided that the structure or fill is not to be put to a different use. Necessary minor deviations in the structure's configuration are authorized.

The Corps has reviewed the parameters of NWP 3 as guidance for analyzing project impacts. The Corps concluded that the Sande-Williams Site 3 repair is functionally analogous to NWP 3. Furthermore, the Corps analyzed the project pursuant to the conditions attached to NWP 3 and concludes that the project satisfies the conditions and qualifies for the State's general certification for Section 401 of the Clean Water Act. A memorandum detailing the Corps' analysis will be provided to the Washington Department of Ecology (Ecology) for their review.

At the remaining sites, the proposed repairs would be evaluated to determine if the project meets the 33 USC 1344(f)(1)(B) exemption. This exemption applies to levee repair projects in which the repairs are to maintain recently damaged parts of currently serviceable levees. The levee repairs would be conducted within the pre-damaged levee footprint and would not change the character, scope, and size of the structure from the original fill design. Therefore the proposed repairs may not require a Section 404 (b)(1) evaluation or Section 401 certification.

Section 402 of the CWA would be triggered by construction. The area of disturbance for the proposed repair site would be greater than 1 acre. A Storm Water Pollution Prevention Plan would be prepared and an application for a National Pollutant Discharge Elimination System Construction General Permit would be submitted to the Environmental Protection Act prior to construction.

In evaluating compliance with the Coastal Zone Management Act, the Corps has determined that the proposed work is consistent to the maximum extent practicable with

the enforceable policies of the approved Washington Coastal Management Program. The State has made a general determination that activities meeting the parameters of maintenance and repair of levees is consistent with the enforceable policies of the Coastal Zone Management Act. A memorandum detailing the Corp's analysis was provided to Ecology for their review on 22 October 2018. Ecology concurred with the Corps determination for the Ferndale levee repairs on 15 January 2019. On 16 January 2019 Ecology concurred with the Corps' determination for the Hannegan and Sande-Williams Sites 1 and 2 levee repairs. The Corps will update the appropriate documentation for Sande-Williams, make a new consistency determination, and resubmit it to Ecology as appropriate.

In preparation of the environmental documentation for this project, coordination has been conducted or is ongoing with the following public agencies:

(1) U.S. Fish and Wildlife Service;
(2) Natural Marine Fisheries Service (NOAA Fisheries);
(3) Environmental Protection Agency;
(4) Washington Department of Ecology;
(5) Washington State Historic Preservation Office.

No significant unmitigated impact to Tribal Treaty Rights is expected as a result of the completed or proposed activities. The proposed project would be analyzed with respect to its effects on the treaty rights or rights reserved to tribes through executive order or other legal instrument. The proposed action area is within the area of interest for the following Tribes and they would be coordinated and consulted with prior to making a final decision:

(1) Lummi Nation;
(2) Nooksack Tribe;
(3) Samish Indian Nation;
(4) Suquamish Tribe;
(5) Swinomish Indian Tribal Community;
(6) Tulalip Tribes.

PUBLIC INTEREST EVALUATION

The decision to proceed with this action involving the discharge of dredged or fill material will 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 will be considered (i.e. water quality, endangered species, economics, safety).
As a foundation for its public interest determination the Corps will consider, 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 Corps typically selects the alternative that represents the least costly alternative, constituting the discharge of dredged or fill material into waters of the United States 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 CWA Section 404(b)(1) evaluation process.

COMMENT AND REVIEW PERIOD

The Corps invites submission of factual comment on the environmental impact of the proposal from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the effects of this activity. To make this decision, comments are used to assess impacts on ESA listed species, historic/cultural properties, water quality, general environmental effects, as well as the other public interest factors listed above. Comments would also be considered in determining whether it would be in the public interest to proceed with the proposed project. The Corps considers 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. The Corps would initiate an Environmental Impact Statement (EIS), and afford the appropriate public participation opportunities attendant to an EIS, if significant effects on the quality of the human environment are identified and cannot be mitigated.

PUBLIC HEARING

Any person may request, in writing and 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 manner in which the interest may be affected by this activity, and the particular reason for holding a public hearing regarding this activity.

COMMENTS TO THE CORPS OF ENGINEERS

Submit comments to this office, Attn: Planning, Environmental and Cultural Resources Branch, 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 Zachary.M.Wilson@usace.army.mil. The Notice of Preparation can be found online at the link below.

Project Name: Ferndale, Hannegan, and Sande-Williams Levee Rehabilitations

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

Requests for additional information should be directed to Mr. Zachary Wilson at 206-316-3896 or the above e-mail address.

Posting Date: 15 February 2019
End of Comment Period: 17 March 2019

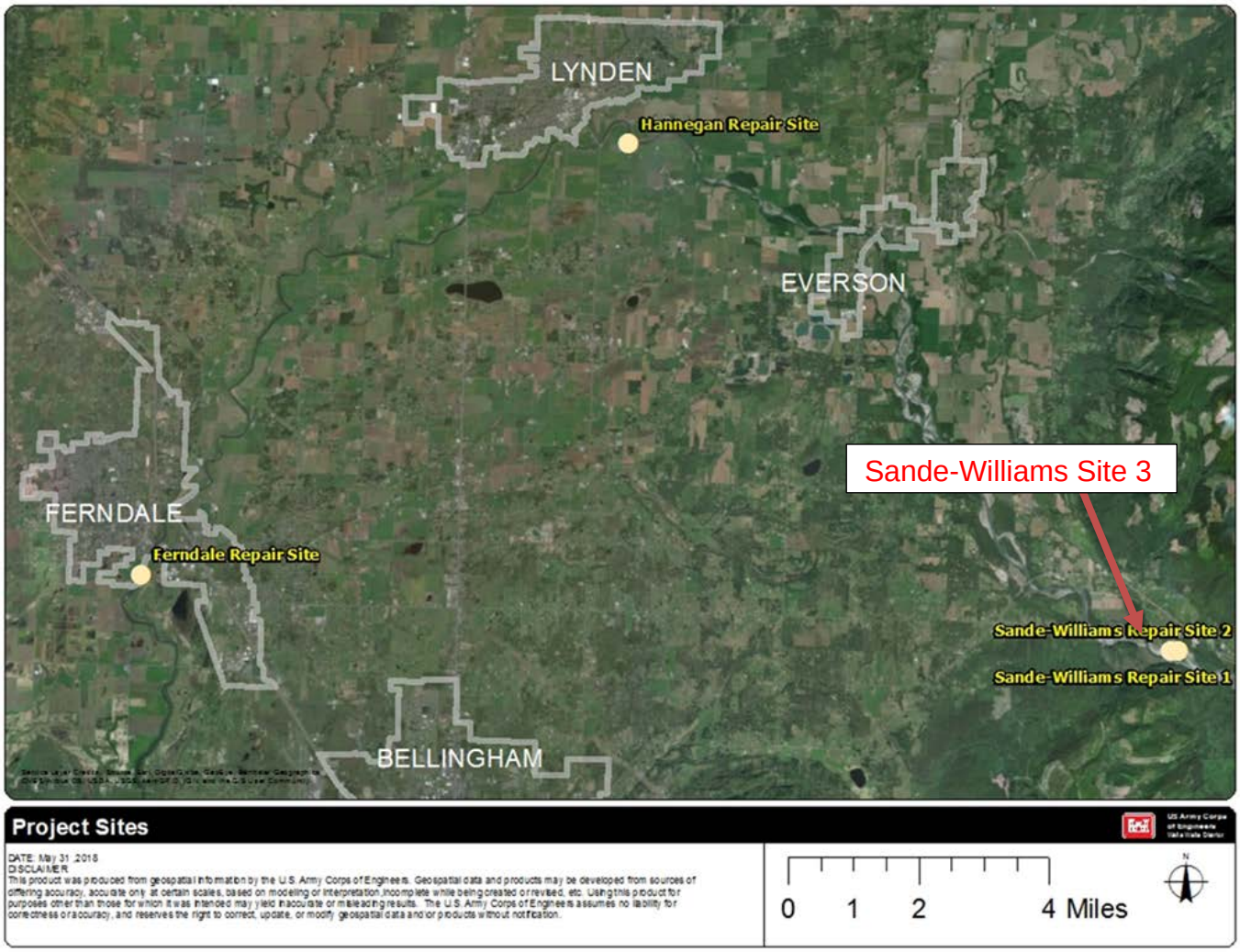
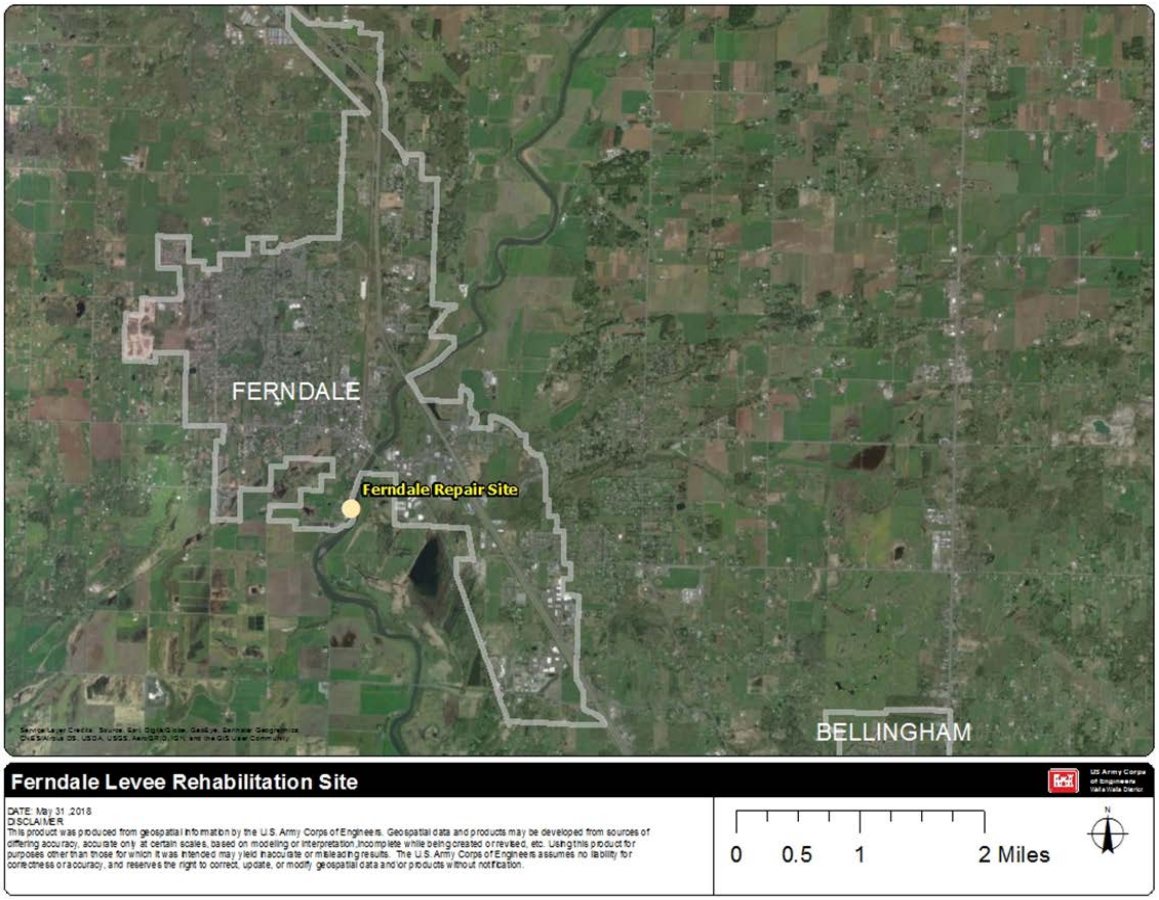


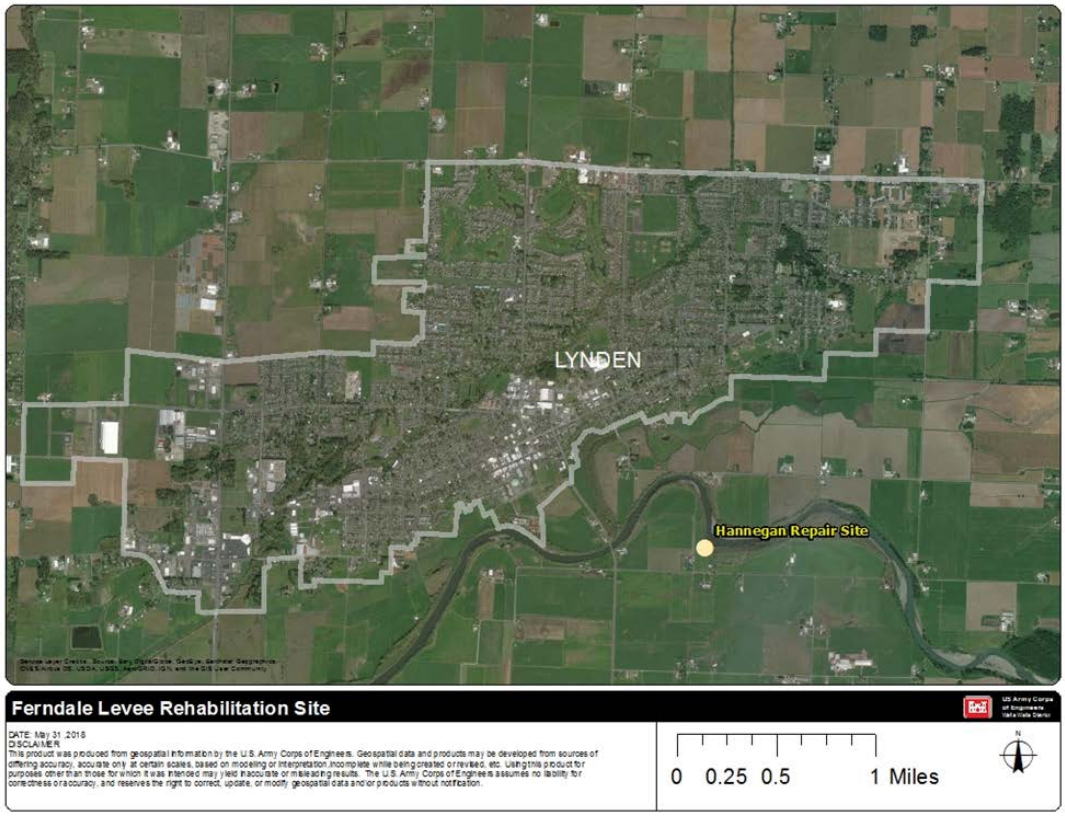
Figure A-1. General Project Locations for the Ferndale, Hannegan, and Sande-Williams Project Sites. Sande-Williams Site 3 is located downstream of Site 2 by approximately 1,450 feet.



A-2. Repair Site Location on the Ferndale Non-Federal Levee System.

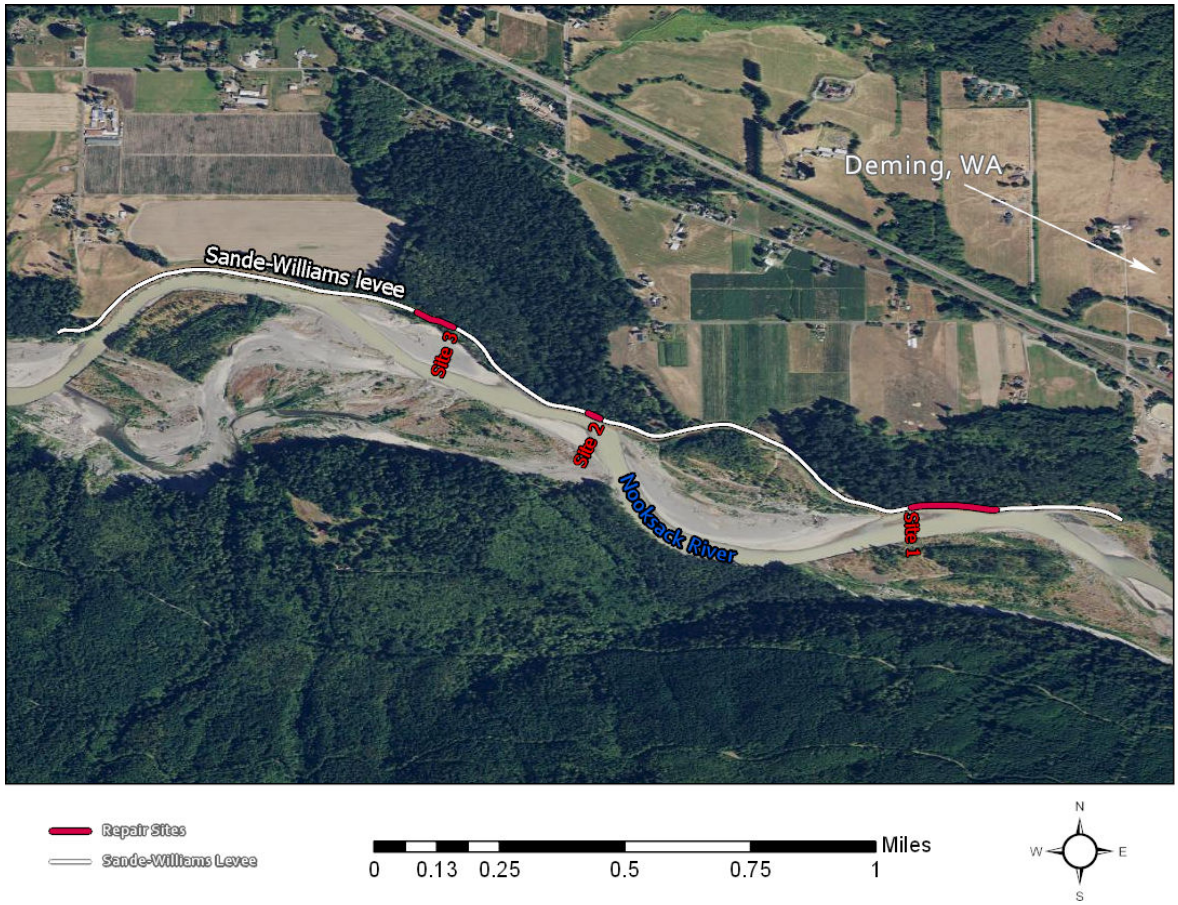
Figure A-3. Scour Damage as seen from the top of the Ferndale Levee.

A-4. Looking downstream the Ferndale Levee at the scour damage through riprap and into the levee Prism.



A-5. Repair Site Location on the Hannegan Non-Federal Levee System.

Figure A-6. Damage to Hannegan Levee Slope and Toe Including Loss of Embankment Material.



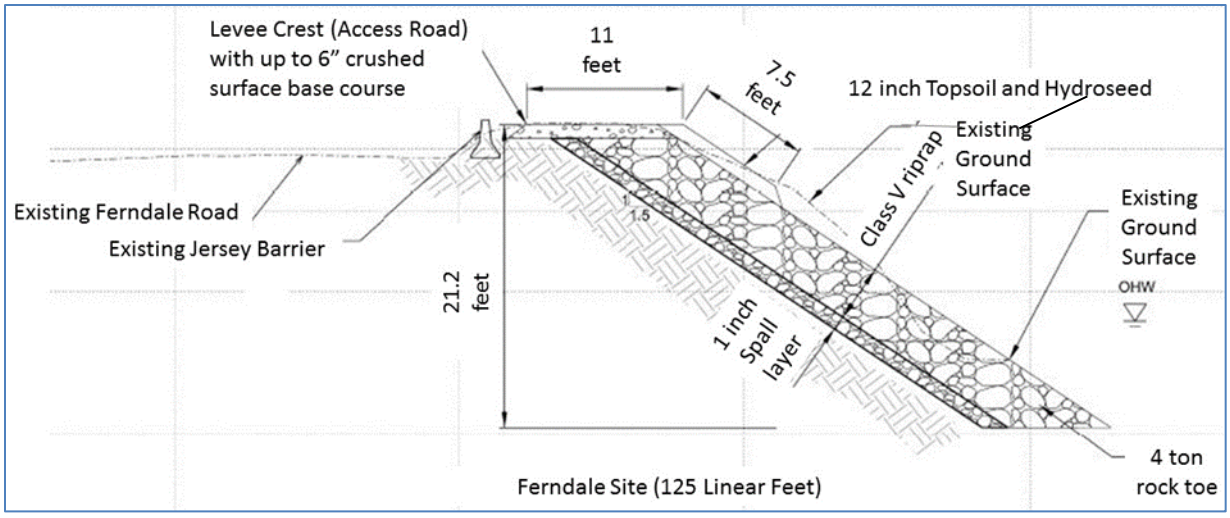
A-7. Repair Site Locations on the Sande-Williams Non-Federal Levee System.

Figure A-8. Sande-Williams Site 1 - Scour Pocket with Missing Rip Rap (foreground), Looking Upstream.

Figure A-9. Sande-Williams Site 2 – Looking Upstream at the Scour Pocket with Missing Toe and Slope Rock.

A-10. Photo looking downstream near the upstream end of Site 3. A scour hole is located here.

A-11. Photo looking downstream near the above photo near at the end of the flood event.



A-12. Cross Section View of the Ferndale Levee Rehabilitation.

Figure A-13. Ferndale Levee Rehabilitation Project Footprint Showing Site Access and Staging Area.

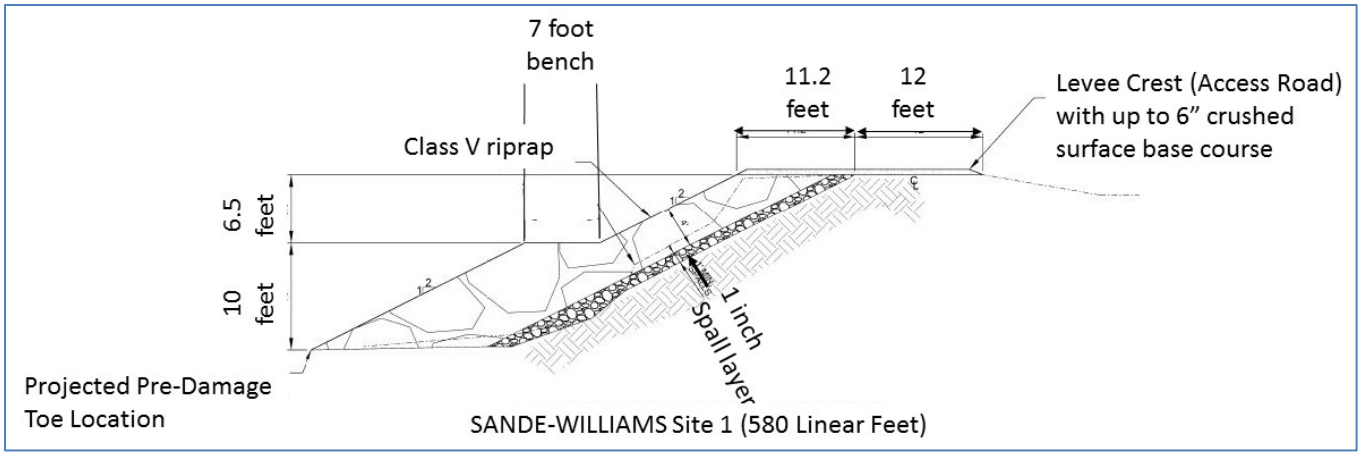


Figure A-14. Cross Section View of the Sande-Williams Site 1 Levee Rehabilitation.

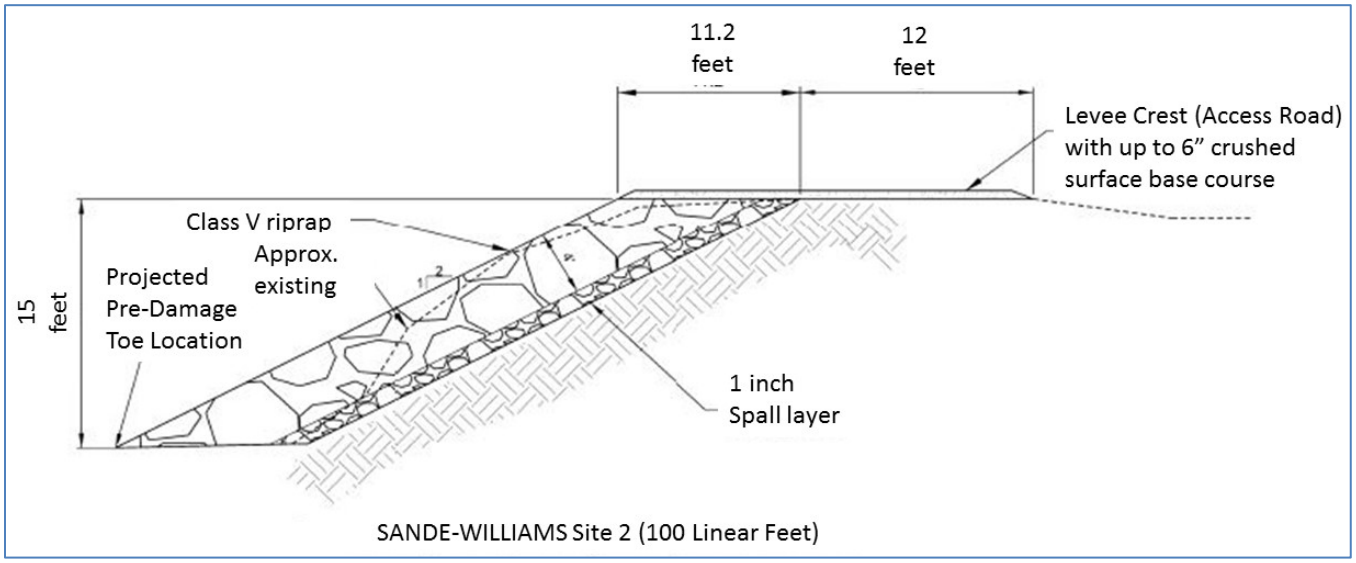


Figure A-15. Cross Section View of the Sande-Williams Site 2 Levee Rehabilitation.

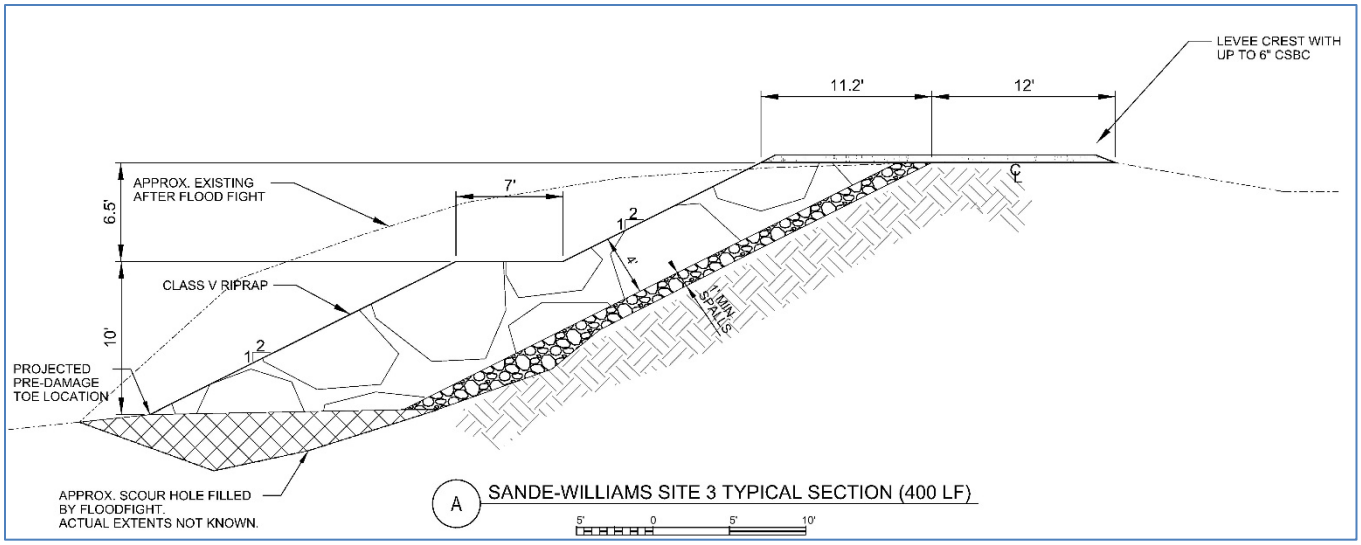


Figure A-16. Cross Section View of the Sande-Williams Site 3 Levee Rehabilitation.

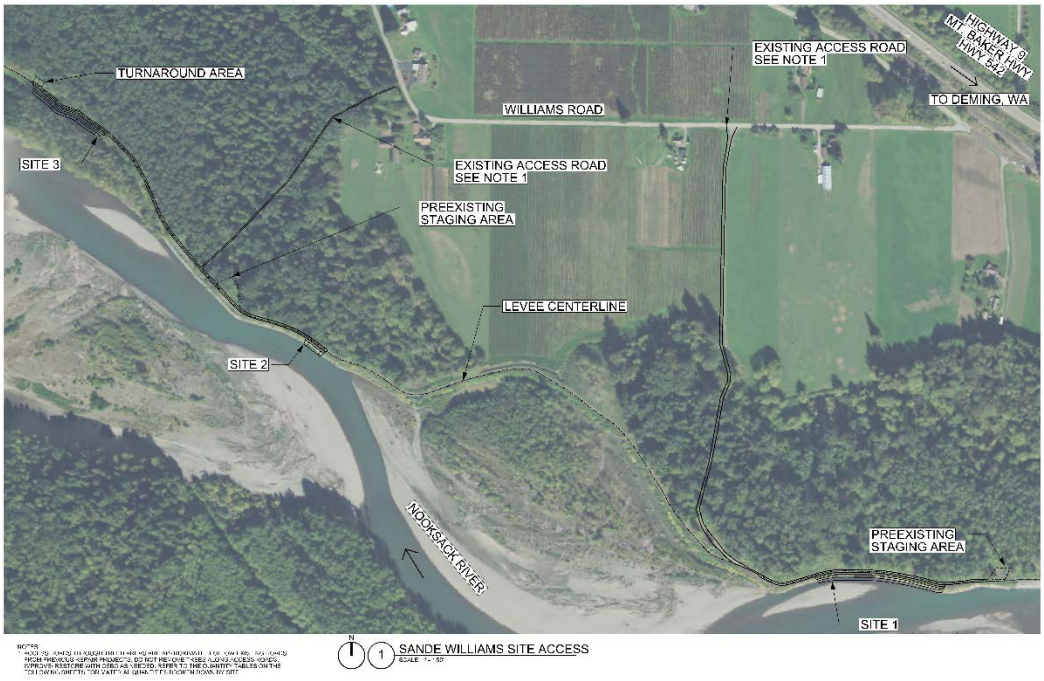
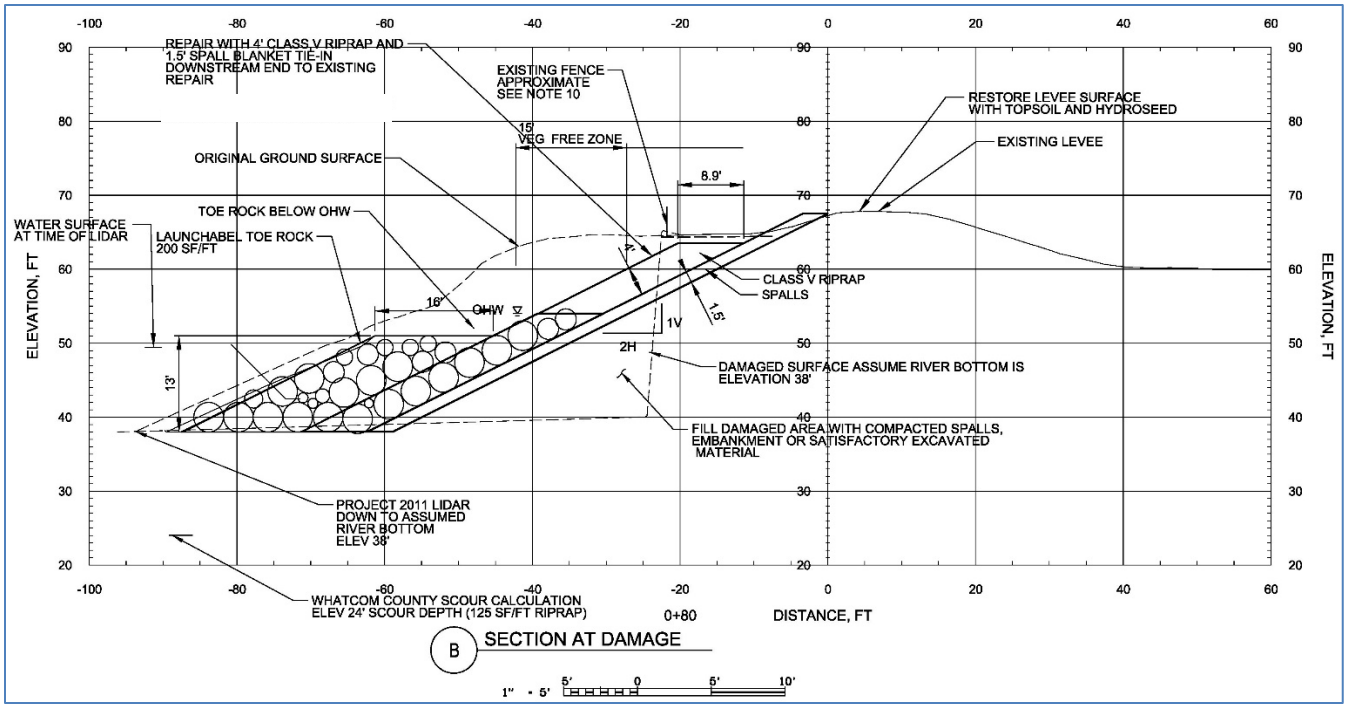
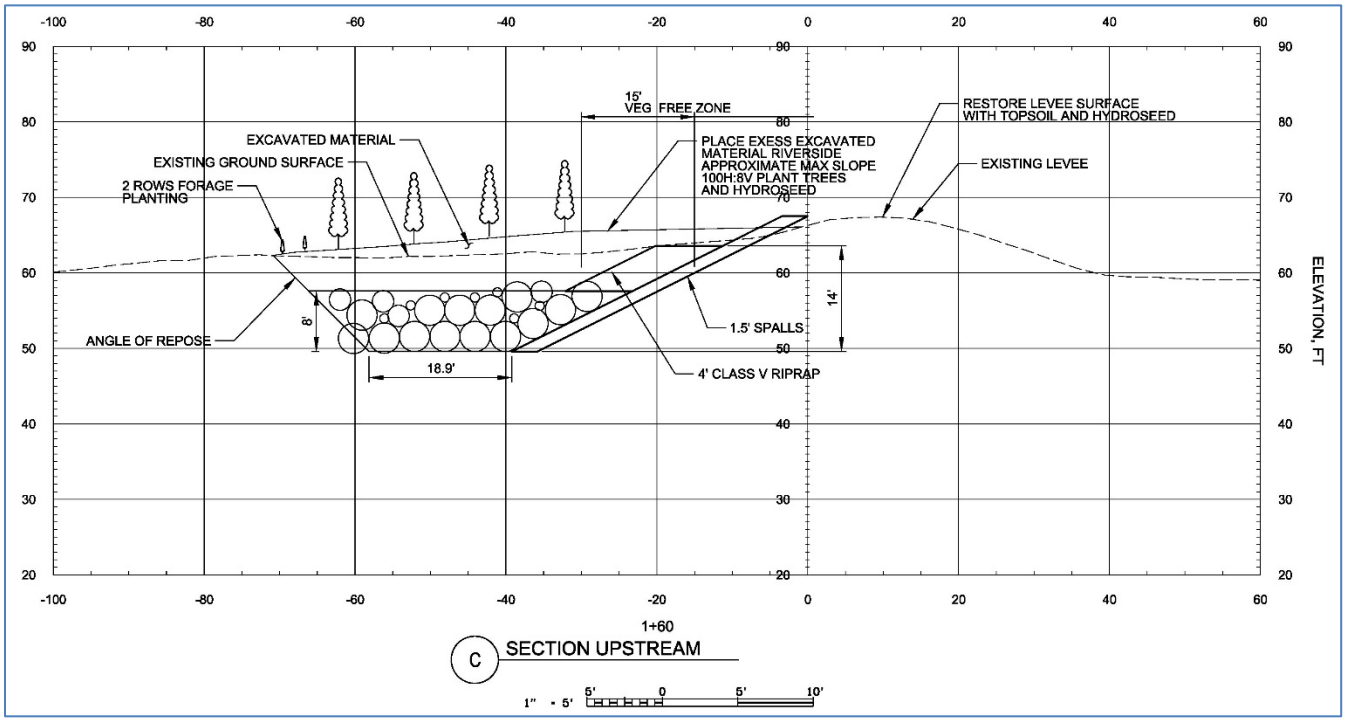


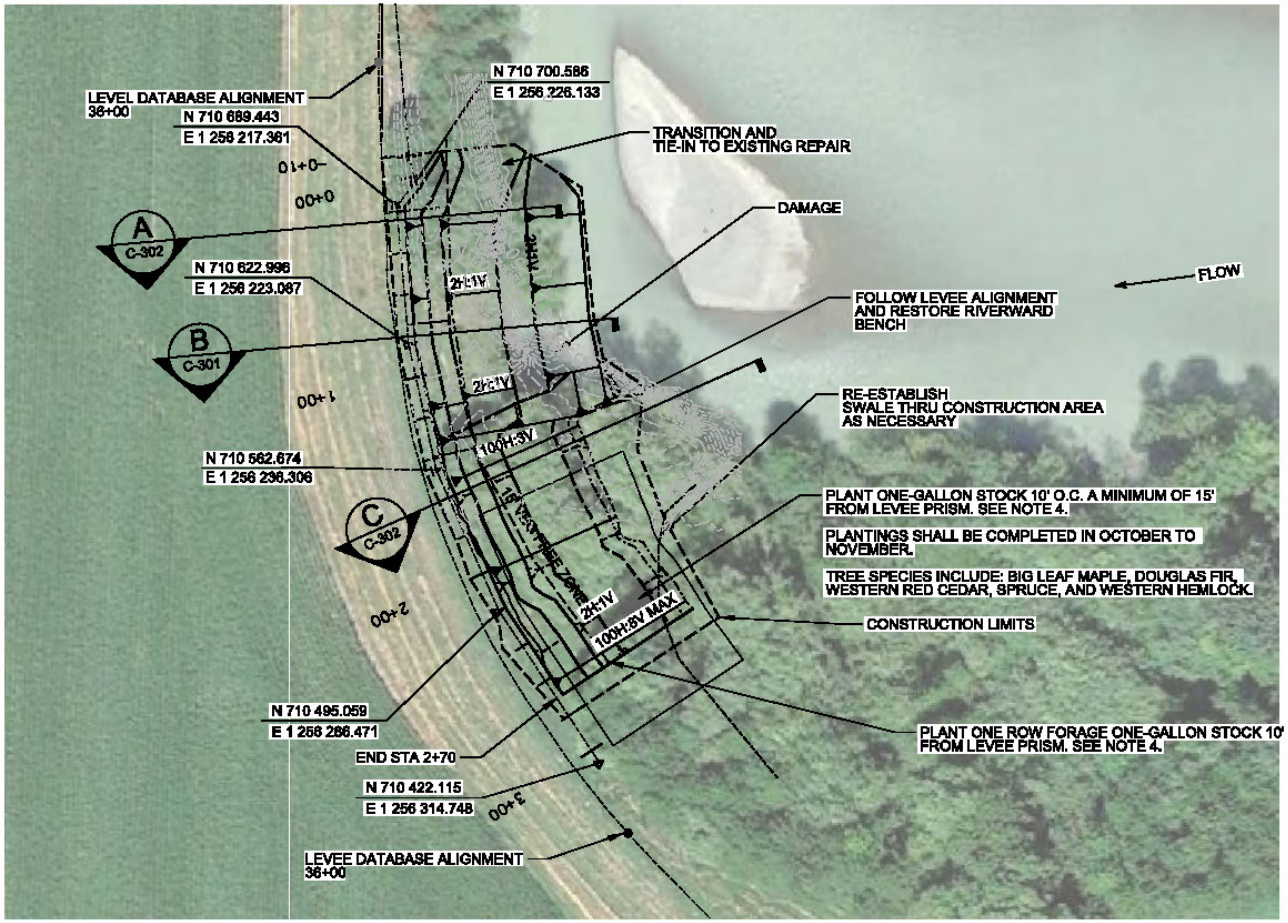
Figure A-17. Updated Sande-Williams Levee Repair Footprint Showing Site Access and Staging Areas.



A-18. Cross Section View of the Hannegan Levee Rehabilitation at the damaged section.



A-19. Cross Section View of the upstream buried toe section of the Hannegan Levee Rehabilitation.



1 HANNEGAN LEVEE SITE PLAN
1"=40'
1" = 40' 0 40' 80'

A-20. Locations of Hannegan Levee Base Realignment, Damaged Area, Riverward Bench Restoration, and Tree Plantings.