

Draft Environmental Assessment & Biological Assessment

Nooksack River – Sandy-Williams Levee Emergency Repair of Flood Control Works Whatcom County, Washington

October, 2003



**US Army Corps
of Engineers®**
Seattle District

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Responsible Agency: The responsible agency for the emergency repair of flood control works is the U.S. Army Corps of Engineers, Seattle District.

Abstract:

On 17 October 2003, the Seattle District U.S. Army Corps of Engineers responded to a request for emergency assistance from Whatcom County Washington to repair a 125-foot breach in a flood control levee in Deming, Washington. Beginning at approximately 1700 on 17 October, and continuing until 2230 on 18 October, the Corps placed approximately 1172.71 tons of 4-foot minus rock in the breach, to close the opening to the Ordinary High Water Mark (OHWM). Work was performed around the clock, with Corps personnel directing placement. Environmental supervision and coordination was provided from the site by Corps Biologists. Large woody debris was removed from the breach as it was repaired, and stockpiled adjacent to the breach for use in future projects. Whatcom County completed the repair between 18 and 20 October, such that the levee form was restored, and flood protection was returned to the structure.

The project did not constitute a major Federal action and did not significantly affect the quality of the human or natural environment. The Corps used best management practices to minimize potential adverse effects to aquatic and terrestrial resources. The project was determined to not significantly affect the quality of the human or natural environment, and was determined to have a **may affect, but did not likely adversely affect** condition for federally endangered, threatened and candidate species.

This document is also available online at:
<http://www.nws.usace.army.mil/ers/envirdocs.html>

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1. INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental effects of the emergency repair of the Sandy-Williams levee section along the Nooksack River in Deming Washington. The repair was undertaken 17 and 18 October 2003 following a 125 foot breach in the levee, which allowed flood waters to enter adjacent property. The Corps project consisted of closing the breach at the OHWM, and providing a base course of material for Whatcom County to complete the repair on 18 and 19 October. When inspected by Corps flood response personnel on 21 October, 2003, the repair was still in place, and functioning as designed.

The work did not significantly affect the quality of the natural environment because the damaged section of shoreline was returned to the pre-flood condition as built in place. Construction employed best management practices to minimize potential adverse effects to aquatic and terrestrial resources.

1.1 Location and Setting

The Sandy-Williams repair site is along the right river bank in Deming, Washington. The repair is located approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The area is within the historic floodplain of the Nooksack river, and contains several small farms, single family residences, a log home builder and various small commercial businesses.

1.2 Background

Moderately strong rains from a series of frontal systems from the eastern Pacific Ocean hit Western Washington on 16 and 17 October, 2003. Flooding on the Nooksack River at Deming began on 16 October when the river rose above National Weather Service zero damage flood stage of 12 feet (20,000 cfs) at Deming gage (USGS 12210500). On 17 October, 2003, the river proceeded to rise to its eventual crest of 13.55 feet (40,400 cfs).

The Corps flood team was mobilized from Seattle District the morning of 17 October. The County Flood Engineer was immediately contacted. A project was identified on the Sandy Williams levee where the rock armorment was failing and threatened to breach the levee. Corps personnel traveled to the site to evaluate the situation. Upon arrival it was determined that a flood response to this problem area was probable and needed. The county was already engaged in a flood fight operation which the Corps assumed control of.

During this flood event the levee sustained significant damage by erosion for approximately 125 linear feet along the river right or outside bend of the Nooksack in this location. The armor rock was lost and the levee was scoured completely through in the damaged segment.

1.3 Project Purpose and Need

The purpose of this project is to repair and reconstruct a portion of Sandy-Williams levee to prelude imminent flooding danger to numerous houses, roads and other infrastructure in Deming Washington. There is a high potential that during the upcoming flood seasons, the river would widen the breach again, posing a major threat to the community, if no action is taken to contain the floodwaters.

1.4 Authority

The Sandy-Williams Levee Repair is authorized by Public Law 84-99 (USCA 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by flood. The rehabilitated structure will normally be designed to provide the same degree of protection as the original structure. This project has been authorized as having *emergency* status as stated under the PL 84-99 regulations. The Corps has determined that if the levee is not repaired by the next flood event, an *imminent threat* of loss of private and/or public property exists.

2. DESCRIPTION OF THE FEDERAL ACTION

The Corps placed 4 foot minus rock to close the breach reinforce the remaining rock armorment. The levee top however, was slowly being eroded. The Corps worked toward the erosion but the deterioration was too fast. The levee finally breached as work continued. The primary and most direct access was flooded so a secondary access further down the levee was obtained using Mariotta Road. The Corps continued to place rock and stabilized the levee erosion. The upstream levee continued to erode but was significantly slowed by the riprap armorment and a large snag of debris. By this time it was evident that the river level was starting to drop. Work continued through the night in an effort to bridge the breach gap. Progress was slow due to the depth of the scour and the debris that had to be removed from the scour hole. The access road conditions were good and improved as the soil dried out. Had the wet conditions continued, it would have been necessary to initiate access road improvements. By 2200 hours Saturday 18 October, The Corps completed the rock foundation for the levee replacement. All rock placed in our operation was in the footprint of the existing breached levee. The Corps placed 1172.21 tons of rock; Whatcom County placed an additional 2300 tons to complete the repair.

3. NON-SELECTED ALTERNATIVES

3.1 No Federal Action

The No-Action alternative would provide no federal action and leave the levee in its currently damaged condition with no further action to repair the levee damage. This alternative was quickly discarded because of the high potential of additional flood damages.

3.1.1 Effects of No Federal Action.

With no Corps assistance, the breach would widen, reaching Williams Road and Deming Road. Significant damage to commercial and residential structures, public utility infrastructure, and roads would occur.

4. EXISTING ENVIRONMENT AND ENVIRONMENTAL EFFECTS

In the Deming area, the Nooksack River is a confined, braided channel, low gradient system. The river serves mainly as a transportation zone for all salmon species utilizing the upper watershed. Some spawning occurs within this reach, principally above Deming, with a few Chinook, pink, and chum using the increasing number of riffle areas. Juvenile rearing could

occur through the reach. The riparian zone adjacent to the levees is well developed with medium age cottonwoods and Douglas Firs, however in the immediate project area the vegetation consists primarily of willows, Himalayan blackberry and some cottonwood. The riparian vegetation serves as habitat for a variety of raptors, woodpeckers, passerines and water-oriented mammals.

The following threatened species are expected to be found in the project area:

Puget Sound Chinook salmon
Bull trout
Bald Eagle

It is also anticipated that marbled murrelet could transit the area going to feeding areas in Puget Sound. It is anticipated that there will be no adverse effect to any threatened or endangered species.

There were short-term impacts from construction of the breach repair. The primary impact was a temporary increase in turbidity due to rock placement. If present, adult and juvenile salmonids were expected to avoid this area.

Due to the timing of construction and design of the levee, no long-term impacts to the environment are anticipated. Any effects to fish and wildlife will be temporary and primarily occurred during construction. Additional woody material was stockpiled on the site to increase some fish habitat values during subsequent permanent reconstruction. Overall effects, both adverse and favorable, are insignificant.

The National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), Dept of Ecology (DOE), Whatcom County Public Works and Washington Department of Fish and Wildlife were regularly consulted and updated during the emergency work.

4.1 Action Area

The Sandy Williams site is located in Deming Washington in Township 39 North, Range 4 East, Section 35. Access was obtained through Sections 26 and 27, and flooding appeared to cover portions of all sections. Deming is a small town, and is surrounded by limited agricultural operations, small family residences, a log home building business, and a small dirttrack speedway. The site lies within the natural flood plain. The action area would normally be defined by the downstream extent of turbidity. However, with the flood flows experienced during construction, it is hard to determine the limits of effect from turbidity. Staging was accomplished at the work site, and access was obtained using existing levee access roads from existing paved roads.

4.2 Hydrology , Soils and Topography

Topography of the project site is flat river floodplain, bordered by high ridge features on both sides. The soils are Pilchuck loamy fine san (SCS, 1987) Average precipitation is 50 inches, average temperature is 49 degrees F. The soils are well drained, and usually deposited on river alluvium. Erosion can be severe when exposed to flooding, and permeability is rapid (SCS, 1987).

4.3 Vegetation

The project site is located in a coastal upland agricultural area. Vegetation at and near the vicinity of the project site is limited to that which occurs near the river. These include:

- Cottonwood (*Populus angustifolia*)
- red-osier dogwood (*Cornus sericea*),
- Nootka rose (*Rosa nutkana*),
- salmonberry (*Rubus spectabilis*),
- snowberry (*Magnoliopsida dilleniida*),
- red alder (*Alnus rubra*),
- Alaskan cedar (*Chamaecyparis nootkatensis*),
- Himalayan blackberry (*Rubus discolor*),
- Evergreen blackberry (*Rubus laciniatus*),
- Douglas fir (*Pseudotsuga menziesii*)
- Willow (*Salix spp.*) and
- a variety of native and non-native grasses.

The most prominent species at the project site are Douglas Fir, Himalayan blackberry, Cottonwood, and Willow.

4.4 Fish and Wildlife

The Nooksack River supports several species of salmon and trout. Trout species occasionally present include bull trout, dolly varden, steelhead and cutthroat trout. The salmon species are chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), and perhaps sockeye (*O. nerka*).

The agricultural area surrounding the project site along the Nooksack River is frequented by a variety of wildlife species. Mammals include raccoon (*Procyon lotor*), Douglas squirrel (*Tamiasciurus douglasi*), little brown myotis (*Myotis lucifugus*), mink (*Carnivora mustelidae*) and Columbia black-tailed deer (*Odocoileus hemionus*). Bird species could include bald eagles (*Haliaeetus leucocephalus*) and chestnut-backed chickadee (*Parus rufescens*).

Effects to fish and wildlife, if any, were temporary and occurred primarily during construction. Overall effects, both adverse and favorable, were insignificant.

4.5 Threatened and Endangered Species

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 and proposed threatened or endangered species. Three species listed as either threatened or endangered are potentially found in the area of the project, and are listed in Table 1. The effects of the federal emergency action are analyzed within this combined EA/BA.

Table 4-1. Endangered Species in the Project Vicinity

Scientific Name	Common Name	Status
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
<i>Oncorhynchus tshawytscha</i>	Puget Sound Chinook Salmon	Threatened
<i>Salvelinus confluentus</i>	Bull Trout	Threatened
<i>Brachyramphus marmoratus marmoratus</i>	Marbled Murrelet	Threatened

Bald eagle is listed as threatened in Washington pursuant to the Endangered Species Act and can be found in coastal areas. The project area is more than 1 mile away from any bald eagle nesting territory, and the closest nest is not visible from the project area. Nesting territory extends along much of the Nooksack River, as far north as Pioneer Park. The project impacts are not a concern to nesting behavior due to construction timing. One bald eagle overflew the site on 18 October, but appeared uninterested in construction activities. The federal action **may affect but is not likely to adversely affect** bald eagles in the area.

Marbled murrelet is listed as threatened and is found in coastal Old-growth forest areas of Washington. Marbled murrelets do not nest or feed in the project area. The project site lacks old-growth forest and does not contain suitable marbled murrelet habitat. Thus the project **has no effect on** marbled murrelet.

Bull trout and Dolly Varden have been found to co-exist in streams in this region. Because these two species are closely related and have similar biological characteristics, the WDFW manages bull trout and Dolly Varden in the Nooksack together as "native char." Bull trout and Dolly Varden are very difficult to distinguish based on physical features and share similar life history traits and habitat requirements. Dolly Varden were not listed as a threatened species in the Coastal/Puget Sound Distinct Population segment when the USFWS listed bull trout in November 1999. However, the USFWS on January 9, 2001 listed Dolly Varden as threatened due to their similarity of appearance to bull trout.

Bull trout was designated on June 10, 1998, as threatened in the contiguous U.S.A. (lower 48 states). Anadromous and resident bull trout spawn in the upper Forks of the Nooksack River. As the site is located on the outside bend of the channel, and the adjacent area is already rip-rapped, there is no bull trout habitat within the footprint of the breach. The repair returned the levee to its pre-flood condition. Therefore, the repair **may affect, but is not likely to adversely affect** bull trout and Dolly Varden.

Puget Sound Chinook Salmon, an anadromous fish run in the Nooksack River area, is listed as threatened under the ESA. Chinook salmon in the Nooksack Basin are considered part of the Puget Sound Chinook salmon Evolutional Significant Unit (ESU) that was listed as threatened in March 1999. Three Chinook stocks have been identified in the Nooksack River basin; the North Fork spring-run, the South Fork spring-run and the Samish/Mainstem fall-run. The two spring-runs are distinct wild stocks of native origin while the Samish/Mainstem fall-run is a non-native introduced hatchery stock from the Green River.

Spring-run chinook generally enter the Nooksack River between April and June, migrate rapidly upstream to the forks and hold there until July through early August, and spawn generally from July through October. Fall-run chinook enter the river beginning in early June and migrate upriver through mid-October, migrate to the spawning grounds or hatchery of origin, and generally spawn from early September through December. Juvenile and fry chinook migrate downstream through the project reach from early April through mid June. Available feeding and predator avoidance habitat in the lower river, during downstream migration to the estuary and marine environment, is usually associated with slow velocities along the shoreline or around woody debris and along shallow margin habitats of cobble and gravel bars. Given the general lack of rearing habitat and their migratory behavior, residence time of out-migrating chinook fry

in the project reach is likely less than a few days. Repairing the levee may affect, but is not likely to adversely affect chinook salmon.

Coho salmon within the Puget Sound/Strait of Georgia ESU are presently classified as a "candidate" for ESA listing. Candidate species are species that may be proposed or are under review for possible listing as a threatened or endangered species in the future.

No effect determination is made for species with Candidate status.

4.6 Cultural Resources

There are no known cultural resources in the project area. The disturbed nature of the levee and bank material (imported rock, sediment deposited from the river, or dredged from the river) significantly reduces the chance of finding cultural resources. The State of Washington GIS database of known culturally significant sites was queried by Corps Archeologist; the closest known culturally significant site is approximately 3 miles northwest of the project site.

4.7 Water Quality

Water quality was not significantly impacted by construction activities. While a temporary increase in turbidity may have occurred during the placement of rock, turbidity in the river was very high due to the flood event. Equipment did not enter the water and remained on dry ground at all times. During construction, best management practices for equipment operation and storage and use of hazardous materials were employed. Therefore, no leakage or spills of hazardous materials occurred.

According to the Code of Federal Regulations, Title 33, Section 323.4 (a) (2) levee repair is an activity that does not require a Section 404 permit.

4.8 Air Quality and Noise

Air quality met the standards as set forth by the Washington Department of Ecology and was not permanently affected by the construction of the project. Noise was intermittent at the site and varied depending on the frequency of trucks arriving with the material and construction of the identified features. Noise disruption factors were considered for their effect on threatened and endangered species in the ESA document.

During construction, there was a temporary and localized reduction in air quality due to emissions from heavy machinery operating during fill placement, and grading. These emissions did not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone) or affect the implementation of Washington's Clean Air Act implementation plan. Therefore, impacts were significant.

Ambient noise levels increased slightly while construction equipment was operating. However, these effects were temporary and localized. As a result, impacts were insignificant.

4.9 Utilities and Public Services

Failure to repair the levee could have a serious impact on local commercial and private citizens through increased flood damage to homes, agricultural operations, roads, and other commercial

and residential infrastructure. Construction vehicles associated with the project had a minimal disruption due to increased truck traffic merging, turning and traveling together with local traffic. Such a disruption was temporary and highly localized, and therefore impacts were insignificant.

4.10 Land Use

Land use in the project area is primarily rural residential and agricultural. There are scattered homes and farms in the surrounding area. The project caused no unique effects or impacts to land use.

4.11 Recreation

Recreational uses of the Nooksack River at the project site are seasonal and moderate. They include, but are not limited to, sightseeing, wildlife observation, camping, photography, hiking, fishing and boating.

Effects to recreation values are insignificant because the site has been in a degraded condition compared with other nearby locations. Recreational resource and value uses are not changed.

4.12 Hazardous, Toxic, and Radioactive Waste

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste.

4.13 Aesthetics

Along the Nooksack River, the landscape elements of landform, vegetation, water, color, and related factors have been impaired by the levees and agricultural use of adjacent land. Scenery and visual attractions are limited to the river corridor over this reach of the river. Restoration of the constructed features of the project did not significantly affect the aesthetics of the site or the river.

5. UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with this project included:

- (1) a temporary and localized increase in noise, which may disrupt wildlife in the area,
- (2) a temporary and localized disruption of local traffic by construction vehicles, and

6. COORDINATION

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

- Washington Department of Ecology (Ecology)
 - National Marine Fisheries Service (NMFS)
 - U.S. Fish and Wildlife Service (USFWS)
 - Washington Department of Fish and Wildlife (WDFW)
 - Washington State Office of Archaeology and Historic Preservation
 - Whatcom County
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7. CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this evaluation. Future federal actions would require additional NEPA and ESA evaluation at the time of their development.

There are no significant cumulative effects that can be identified from implementation of this project. Because of frequent flooding in the area, the adjacent property is expected to remain agricultural and no development is anticipated in the vicinity of the project. There are no known plans to raise the levees to provide an increased level of flood protection. The levees would continue to be maintained at their current level. The Corps knows of no other actions that are reasonably certain to occur within the action area.

Cumulative impacts from local, short-term disturbances caused by the construction project (noise, emissions, traffic disruptions, etc.) would be minor and not significant.

8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The irreversible and irretreivable commitment of resources is the use of materials, resources, or land during implementation of an alternative that makes these resources unavailable for other uses, given known technology and reasonable economics.

Industrial resources required during implementation of the selected alternative included fossil fuels, construction-related materials, as well as labor and capital. The majority of the levee and the alignment of the access road occupy land that was not in use. The levee repairs returned most of the land back to its pre-flood agricultural land use.

9. ENVIRONMENTAL COMPLIANCE

Table 9.1. Summary of Consistency of Project With Applicable Laws, Regulations and Policies¹

LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES	REQUIREMENT SUMMARIZED	CONSISTENCY OF PREFERRED ALTERNATIVE
National Environmental Policy Act (NEPA)	Requires all federal agencies to consider the environmental effects of their actions and to seek to minimize negative impacts.	Consistent
State Environmental Policy Act (SEPA) RCW 43.21	Requires state agencies to consider the environmental effects of their actions and actions of permit applicants.	Consistent; NEPA takes precedence
Clean Air Act	Requires federal agencies to consult with state air pollution control agencies to assure that construction plans conform with local air quality standards	Consistent

Clean Water Act (CWA)	Requires federal agencies to protect waters of the United States. Disallows the placement of dredged or fill material into waters (and excavation) unless it can be demonstrated there are no reasonable alternatives. Requires federal agencies to comply with state water quality standards.	Consistent
Rivers and Harbors Act	Prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waters of the U.S. in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army.	Consistent
Fish and Wildlife Coordination Act	Requires federal agencies to consult with the US Fish & Wildlife Service on any activity that could affect fish or wildlife.	Consistent
Endangered Species Act	Requires federal agencies to protect listed species and consult with US Fish & Wildlife or NMFS regarding the proposed action.	Consistent
National Historic Preservation Act	Requires federal agencies to identify and protect historic properties.	Consistent
Wild and Scenic Rivers Act	Requires that "In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas."	Consistent
Executive Order 12898 Environmental Justice	Requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects on minority and low-income populations.	Consistent
Executive Order 11988, Floodplain Management	Requires federal agencies to consider how their activities may encourage future development in floodplains.	Consistent
Migratory Bird Treaty Act and Migratory Bird Conservation Act	Requires not harming or harassing migratory birds.	Consistent
Federal Water Project Recreation Act, as Amended	Requires full consideration for fish and wildlife enhancement opportunities when planning Federal water resources projects.	Consistent
Watershed Protection and Flood Prevention Act, as Amended	Authorizes Federal assistance for implementing projects in watershed areas and use of land and water and flood prevention.	Consistent
Farmland Protection Policy Act	Requires identification of proposed actions that would affect any lands	Consistent

	classified as prime and unique farmlands.	
Resource Conservation and Recovery Act (RCRA)	Requires managing hazardous materials and waste in accordance with RCRA requirements.	Consistent
Executive Order 11990, Protection of Wetlands	Requires federal agencies to protect wetland habitats.	Consistent
Coastal Zone Management Act (CZMA)	Requires federal agencies to comply with state and local plans to protect and enhance coastal zones and shorelines.	Consistent to the maximum extent practicable
Washington Hydraulic Code	Requires proponents of developments, etc. to protect state waters, wetlands and fish life.	Would be consistent with permit requirements
Whatcom County Flood Hazard Reduction Plan	Requires implementing projects that would result in innovative, comprehensive and permanent solutions to flooding problems using environmentally sensitive techniques.	Consistent

10. CONCLUSION

Based on the above analysis, the emergency response action was not a major Federal action significantly affecting the quality of the human or natural environment. Furthermore, the proposed project would not be a major Federal action significantly affecting the quality of the human or natural environment, and therefore does not require preparation of an environmental impact statement. The emergency repair action **May affect but did not likely adversely affect** federally endangered, threatened and candidate species in the project vicinity.

11. REFERENCES

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12. PREPARERS

The following Corps personnel prepared and/or reviewed this EA:

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