

# Final Environmental Assessment

---

## Nooksack River – Sande-Williams Levee Rehabilitation of Flood Control Works Whatcom County, Washington



July 2004



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

**Nooksack River Sande-Williams Levee  
Rehabilitation of Flood Control Works  
Final Environmental Assessment  
July 2004**

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

**Abstract:**

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Sandy-Williams levee, located on the Nooksack River near Deming, Washington. This levee is on the right bank at approximately River Mile 33.0, approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads. The U.S. Army Corps of Engineers, Seattle District, is proposing the following project under the authority of Public Law 84-99 (33 USCA 701n). The proposed project consists of pulling the riverward slope back to 2 High: 1 Vertical, reshape the back slope, armoring the riverward slope, and incorporating willow plantings into the design.

The Nooksack River rose above the zero damage flood stage in October 2003, resulting in severe erosion to approximately 100 linear feet of the levee in this area. 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 100-foot breach in a flood control levee in Deming, Washington. The County and Corps fought the flood by dumping 4-ft minus rock into the scour hole and finally repaired the breach. The repair resulted in an oversteepened levee that is vulnerable to further erosion, and probably only has protection from further erosion from the 2-yr flood event. In November 2003, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location. The Corps has determined that the levee is in need of permanent repair and is proposing to repair approximately a 200-foot section of the levee. The entire levee including the back, top, and riverward slope is absent of any significant vegetation in the repaired area. Landward of the levee the vegetation consists of mature mixed species forest.

The proposed project will not constitute a major federal action significantly affecting the quality of the human environment.

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

Please send questions and requests for additional information to:

Mr. Chuck Ebel  
Environmental Resources Section  
U.S. Army Corps of Engineers  
P.O. Box 3755  
Seattle, Washington 98124-3755  
Charles.j.ebel@usace.army.mil  
206-764-3626

# TABLE OF CONTENTS

<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1 LOCATION AND SETTING .....	1
1.2 BACKGROUND .....	2
1.3 PROJECT PURPOSE AND NEED.....	3
1.4 AUTHORITY .....	3
1.5 ACTION AREA.....	3
<b>2. DESCRIPTION OF THE ALTERNATIVES .....</b>	<b>4</b>
2.1 PREFERRED ALTERNATIVE .....	4
2.2 NON-SELECTED ALTERNATIVES .....	4
2.2.1 <i>No Federal Action</i> .....	5
2.2.1.1 <i>Effects of No Federal Action</i> .....	5
2.2.2 <i>Non-Structural Alternative</i> .....	5
2.2.3 <i>Repair-the-Scour Alternative</i> .....	5
<b>3. AFFECTED ENVIRONMENT .....</b>	<b>5</b>
3.1 GENERAL.....	5
3.2 HYDROLOGY , SOILS AND TOPOGRAPHY .....	6
3.3 VEGETATION .....	6
3.4 FISH AND WILDLIFE.....	6
3.5 THREATENED AND ENDANGERED SPECIES.....	7
3.6 CULTURAL RESOURCES .....	9
3.7 WATER QUALITY.....	9
3.8 AIR QUALITY AND NOISE .....	10
3.9 UTILITIES AND PUBLIC SERVICES .....	10
3.10 LAND USE.....	10
3.11 RECREATION.....	10
3.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE.....	10
3.13 AESTHETICS.....	11
<b>4. EFFECTS OF THE ALTERNATIVES .....</b>	<b>11</b>
4.1 GENERAL.....	11
4.1.1 <i>Proposed Alternative</i> .....	11
4.1.2 <i>No-Action Alternative</i> .....	11
4.2 HYDROLOGY, SOILS AND TOPOGRAPHY .....	11
4.2.1 <i>Proposed Alternative</i> .....	11
4.2.2 <i>No-Action Alternative</i> .....	12
4.3 VEGETATION .....	12
4.3.1 <i>Proposed Alternative</i> .....	12
4.3.2 <i>No-Action Alternative</i> .....	12
4.4 FISH AND WILDLIFE.....	12
4.4.1 <i>Proposed Alternative</i> .....	12
4.4.2 <i>No-Action Alternative</i> .....	12
4.5 THREATENED AND ENDANGERED SPECIES.....	12
4.5.1 <i>Proposed Alternative</i> .....	12
4.5.2 <i>No-Action</i> .....	13
4.6 CULTURAL RESOURCES .....	13
4.6.1 <i>Proposed Alternative</i> .....	13
4.6.2 <i>No-Action Alternative</i> .....	14
4.7 WATER QUALITY.....	14
4.7.1 <i>Proposed Alternative</i> .....	14
4.7.2 <i>No-Action Alternative</i> .....	14
4.8 AIR QUALITY AND NOISE .....	14

4.8.1 Proposed Alternative.....	14
4.8.2 No-Action Alternative.....	15
4.9 UTILITIES AND PUBLIC SERVICES .....	15
4.9.1 Proposed Alternative.....	15
4.9.2 No-Action Alternative.....	15
4.10 LAND USE.....	15
4.10.1 Proposed Alternative.....	15
4.10.2 No-Action Alternative.....	15
4.11 RECREATION.....	15
4.11.1 Proposed Alternative.....	15
4.11.2 No-Action Alternative.....	15
4.12 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE.....	15
4.12.1 Proposed Alternative.....	15
4.12.2 No-Action Alternative.....	15
4.13 AESTHETICS.....	16
4.13.1 Proposed Alternative.....	16
4.13.2 No-Action Proposed Alternative Aesthetics .....	16
<b>5. UNAVOIDABLE ADVERSE EFFECTS .....</b>	<b>16</b>
<b>6. COORDINATION.....</b>	<b>16</b>
<b>7. CUMULATIVE EFFECTS.....</b>	<b>16</b>
<b>8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES.....</b>	<b>17</b>
<b>9. ENVIRONMENTAL COMPLIANCE .....</b>	<b>17</b>
9.1 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) (42 USC 4321 ET SEQ.) .....	17
9.2 ENDANGERED SPECIES ACT OF 1973, AS AMENDED (16 USC 1531-1544).....	17
9.3 CLEAN WATER ACT, AS AMENDED (33 USC 1251 ET SEQ.).....	17
9.4 RIVERS AND HARBORS ACT (33 U.S.C. 403).....	17
9.5 COASTAL ZONE MANAGEMENT ACT (16 U.S.C. 1451-1465).....	18
9.6 NATIONAL HISTORIC PRESERVATION ACT) (16 USC 470 ET SEQ., 110) .....	18
9.7 CLEAN AIR ACT AS AMENDED (42 USC 7401, ET SEQ.) .....	18
9.8 WILD AND SCENIC RIVERS ACT (16 U.S.C. 1271-1287) .....	19
9.9 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT (16 USC 701-715) .....	19
9.10 FISH AND WILDLIFE COORDINATION ACT, AS AMENDED (16 USC 661 ET SEQ.) .....	19
9.11 FEDERAL WATER PROJECT RECREATION ACT, AS AMENDED (16 USCA 4612 ET SEQ.) .....	19
9.12 WATERSHED PROTECTION AND FLOOD PREVENTION ACT, AS AMENDED (16 U.S.C. 1001 ET SEQ.).....	20
9.15 EXECUTIVE ORDER 11988, FLOODPLAIN MANAGEMENT (24 MAY 1977) .....	20
9.16 EXECUTIVE ORDER 12898, ENVIRONMENTAL JUSTICE.....	20
9.17 EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS, MAY 24, 1977 .....	21
<b>10. CONCLUSION .....</b>	<b>23</b>
<b>11. REFERENCES .....</b>	<b>24</b>
<b>13. APPENDICES.....</b>	<b>25</b>
<u>APPENDIX A</u> REQUESTS FOR CORPS ASSISTANCE	
<u>APPENDIX B</u> ESA CONSULTATION DOCUMENT	
<u>APPENDIX C</u> VEGETATION MONITORING	
<u>APPENDIX D</u> PROPOSED PROJECT DRAWING	
<u>APPENDIX E</u> FINDING OF NO SIGNIFICANT IMPACT	

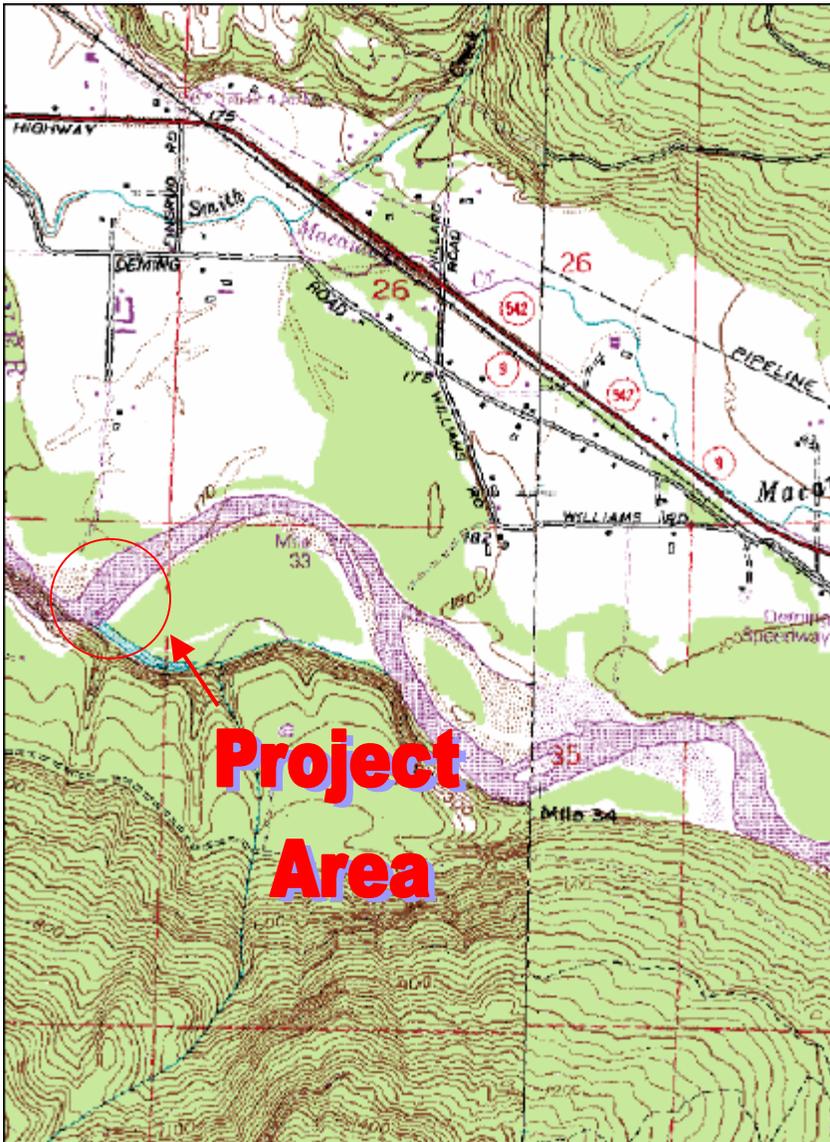
# 1. INTRODUCTION

This Environmental Assessment (EA) evaluates the environmental effects of the proposed repair and reconstruction of Sande-Williams Levee located on the Nooksack River near Deming, Washington. This levee is on the right bank (looking downstream) at approximately River Mile 33.0 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. The levee was temporarily repaired on 17 and 18 October 2003 following a 100-foot breach in the levee, which allowed floodwaters to enter adjacent property. The Corps project consisted of closing the breach at the Ordinary High Water Mark (OHWM), and providing a base course of material for Whatcom County to complete the repair on 18 and 19 October. The repair resulted in an oversteepened levee that is vulnerable to further erosion, and probably only has protection from further erosion from the 2-yr flood event. The Corps has determined that the levee is in need of permanent repair. The proposed project consists of pulling the riverward slope back to 2H: 1V, reshape the back slope, armor the riverward slope, remove a sharp bend on the downstream end of the project area and incorporate willow plantings into the design. One hundred lineal feet of the proposed levee will be set back from the pre-flood bank by a distance of 30-40 feet, and 100 lineal feet of the levee will have the above-water portion of the levee set back a distance of approximately 10-30 feet. The levee toe in this section will remain in the current location to avoid in-water work and the riverward bench above the water line will be pulled back. The total length of the proposed levee rehabilitation project will be approximately 200 feet.

The proposed work is not expected to significantly affect the quality of the human environment because the damaged section of shoreline will be returned to the pre-flood condition as built in place.

## 1.1 Location and Setting

The project is located on the right bank of the Nooksack River at approximately RM 33.0, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Washington, within Whatcom County, Washington at Range 4 East, Township 39 North, Sections 26 and 35. A location map can be found in Figure 1.



**Figure 1. Project Location**

## 1.2 Background

The project was originally constructed in the early 1900's by local farmers to protect crops, roads, and structures. Over the years, separate segments became interconnected to form a contiguous levee segment. The estimated completion of a contiguous segment is prior to 1936 when the Corps performed levee upgrades using Works Progress Administration (WPA) funding. After the WPA upgrades, Corps involvement has been limited to flood fights and levee rehabilitation.

The County performs annual maintenance including the removal of blackberries and thinning or removal of trees that would jeopardize levee integrity.

Moderately strong rains from a series of frontal systems from the eastern Pacific Ocean hit Western Washington on October 16 and 17, 2003. Flooding on the Nooksack River at Deming began on October 16 when the river rose above National Weather Service zero damage flood

stage of 12 feet (20,000 cfs) at Deming gage (USGS 12210500). On October 17, 2003, the river proceeded to rise to its eventual crest of 13.55 feet (40,400 cfs).

The Corps flood team was mobilized from the Corps on the morning of October 17, 2003. The County Flood Engineer was immediately contacted. A project was identified on the Sande-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 needed. The County was already engaged in a flood fight operation of which the Corps assumed control.

During this flood event the levee sustained significant damage by erosion for approximately 100 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.

In November 2003, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location (Appendix A). The Corps has determined that the levee is in need of permanent repair and is proposing to repair approximately a 200-foot section of the levee.

### **1.3 Project Purpose and Need**

The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in October 2003, was temporarily repaired, and is in need of permanent repair.

There is a high potential that during the upcoming flood season around October, the river would overflow the levee again, posing a major threat to community, if no action is taken to contain the floodwaters.

### **1.4 Authority**

The Sande-Williams Levee Rehabilitation is authorized by Public Law 84-99 (33 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.

### **1.5 Action Area**

The action area includes the 100-foot long and 35-foot wide right bank of the Nooksack River. The action area for the project extends from the project site on the right bank of the Nooksack River, downstream approximately 500 feet for aquatic species and includes a 3/4-mile radius from the project area for terrestrial species. Staging will be accomplished at the work site, and access will be obtained using existing levee access roads from existing paved roads

## **2. DESCRIPTION OF THE ALTERNATIVES**

### **2.1 Preferred Alternative**

The Corps proposes to permanently repair the section of the levee that was repaired during the October 2003 flood event emergency. The project will set back the 100-foot section of the levee that was repaired during the flood event approximately 30-40 feet from the pre-flood condition. In addition, an approximately 100-foot section of the levee immediately adjacent to the downstream end of repair will also be set back approximately 10-30 feet to remove a sharp corner from the existing levee to improve the hydraulics. However, the levee toe of this section will not be setback, only the above-water portion will be setback allowing the Corps to avoid in-water construction. This change in the hydraulic conditions will result in an increase in the structural stability of the levee. The project is located on the right bank of the Nooksack River at approximately RM 33.0, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Washington at Range 4 East, Township 39 North, Sections 26 and 35. The proposed project consists of armoring and pulling the riverward slope back to 2H: 1V. A three-foot thick blanket of class IV riprap will be placed for armor rock. The project also includes reshaping the back slope, adding willow plantings, and placing a few pieces of LWD on the right bank upstream of the project. To summarize, the proposed levee rehab will result in 100 lineal feet of the proposed levee will be set back from the pre-flood bank by a distance of 30-40 feet, and 100 lineal feet of the levee will have the above water portion of the levee setback a distance of approximately 10-30 feet, totaling 200 lineal feet of levee being rehabilitated. The project will be constructed between July 15- August 23, 2004.

A project drawing is located in Appendix D. Access to the site will not require the construction of a road as a road currently exists. However, during the October flood fight the dirt road that connects Deming Road to the levee was damaged. This road is approximately 1000 feet long and will need to have approximately 8-10 inches of gravel placed upon it to reduce erosion and provide stable access

### **2.2 Non-Selected Alternatives**

Several other alternative actions were considered before the recommended alternative was selected. These alternatives include:

- No Federal Action (the No-Action Alternative),
- the Non-Structural Alternative,
- the Repair the Scour Alternative

In order for any alternative to be acceptable for consideration it must meet certain objectives. The alternative must afford flood protection similar to the rest of the levee segment, it must be economically justified, it should be environmentally acceptable, and it should minimize costs for both the sponsor and the Federal government.

### 2.2.1 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.

#### 2.2.1.1 *Effects of No Federal Action.*

With no Corps assistance, the bank erosion would continue and could eventually reach Williams Road and Deming Road. Significant damage to commercial and residential structures, public utility infrastructure, and roads would occur.

### 2.2.2 Non-Structural Alternative

The Non-Structural alternative would buy out the existing residential and agricultural property and would also relocate any necessary public infrastructure. This alternative was discarded because the costs were deemed too high compared to the costs for other alternatives. In addition, the PL84-99 authority dictates that the levee will be repaired to its pre-flood condition.

### 2.2.3 Repair-the-Scour Alternative

The Repair-the-Scour Alternative would repair the erosion and return the levee to its pre-flood condition. Matching the pre-flood alignment and design of the levee would be extremely costly, because it would require filling the scour hole and would require substantial in-water work, which is much less desirable environmentally.

## 3. AFFECTED ENVIRONMENT

### 3.1 General

In the project area the Nooksack River is a confined, single channel, low gradient system. The river provides spawning and rearing for all salmon species utilizing the upper mainstem Nooksack. These species include Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), chum (*O. keta*), pink (*O. gorbuscha*), perhaps sockeye (*O. nerka*), steelhead (*O. mykiss*) and large numbers of coho (*O. kisutch*). Juvenile rearing could occur through the reach. The riparian zone adjacent to the levees is well developed with medium age cottonwoods, alders, and Douglas fir, however the existing levee is essentially void of any vegetation. 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 (2 essential stocks)
- Bull trout
- Bald Eagle

It is also anticipated that marbled murrelet could transit the area going to nesting areas in the upper watershed or feeding areas in Puget Sound.

### 3.2 Hydrology, Soils and Topography

Currently the river flows directly into this section of the levee due to a sharp bend in the river. This abrupt change in the river channel results in rapid water velocity changes and the high potential for scour to occur in this section of the levee.

Topography of the project site is flat river floodplain, bordered by high ridge features on both sides. The soils are Pilchuck loamy fine sand (SCS, 1987). Average precipitation is 50 inches, average air 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).

### 3.3 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.

### 3.4 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*), marbled murrelets (*Brachyramphus marmoratus marmoratus*), and chestnut-backed chickadee (*Parus rufescens*).

### 3.5 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 3-1.

**Table 3-1. 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

Information on known occurrences of candidate and threatened species in the project vicinity and the impacts of the proposed projects on these species are addressed in Appendix B, Nooksack River Sande-Williams Levee Repair ESA documentation, dated May 2004. This EA includes a revegetation plan requiring the vegetative plantings be monitored, maintained, and replanted if necessary, for up to five years. The plan also requires monitoring and maintenance for invasive species to ensure that the riparian plantings are able to survive and enable the damaged riparian area to recover back to its original pre-flood condition.

**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 approximately 3/4 mile away from a nest and the nest is not visible from the project area. Nesting territory extends along much of the Nooksack River, as far north as Pioneer Park.

**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.

**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 indicated on January 9, 2001 that Dolly Varden are being considered for listing 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. Existing habitat suitability for char along this length of shoreline is low as the water velocities are quite high and this reach would likely be used only as a transportation corridor in the immediate project area.

**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 Evolutionarily 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 late March and early August, migrate rapidly upstream to the forks, hold there until July through early August, and spawn generally from August through October (Williams et al. 1975). Fall-run Chinook enter the river beginning in mid-July, migrate upriver to the spawning grounds or hatchery of origin through end the of September, and generally spawn from mid-September through mid-November (Williams et al. 1975). Juvenile salmonid smolts and fry Chinook migrate downstream through the project reach from mid-March through mid-July (Williams et al. 1975). 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, high water velocities, and their migratory behavior, residence time of out-migrating Chinook fry in the project reach is likely less than a few hours. Existing habitat suitability for both juvenile and adult Chinook salmon along this length of shoreline is low as the water velocities are very high and this reach would likely be used only as a transportation corridor in the immediate project area

**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. In its ESA status review, the Biological Review Team stated that although many coho populations within this ESU are abundant and apparently stable, there are a number of factors (high harvest rates, habitat degradation, and hatchery production) that may lead to substantial risks to whatever native production remains. The Biological Review Team stated that if the population continues to decline, this ESU is likely to become endangered in the foreseeable future.

Coho salmon of the Nooksack are dominant Puget Sound contributors to U.S. and Canadian sport and commercial fisheries. Nooksack River coho salmon are harvested in pre-terminal fisheries, Bellingham Bay terminal fisheries, Lummi and Nooksack tribal river net fisheries, and river sport fisheries. The fish have been managed as a hatchery management unit under the Puget Sound Management Plan for nearly 27 years. Run size each year is large enough to provide both a harvestable surplus and a sufficient hatchery escapement. Between 1989 and 1999 the estimated total number of Nooksack coho salmon returning to Puget Sound has ranged from 43,300 to 244,600 with escapement estimates ranging from 7,950 to 99,000.

Three naturally spawning stocks of coho salmon were tentatively identified by WDFW (1992) in the Samish/Nooksack Basin region. These are the Nooksack, Samish, and North Puget Sound Tributary stocks. Stock separation was primarily based on geographic distribution. Life history timing or morphological differences between the groups of fish do not exist or have not been observed. Within the Nooksack Basin, it is uncertain whether a naturally spawning Nooksack coho population exists that is sufficiently distinct from the hatchery population to be considered

a native stock. In the Nooksack River Basin, natural escapement has been estimated to range from 500 to 5,500 since 1966. The highest escapement in this period (1987) corresponds to the second highest hatchery release to the system (6.2 million in 1985). Some biologists believe the native Nooksack coho stock is extinct, while others argue that there is high likelihood that a segment of the naturally spawning population retains sufficient genetic distinction to warrant its classification as a native stock. The NMFS has deferred any decisions on this ESU while additional information is gathered.

The Nooksack River coho stocks are typical of the Puget Sound/Strait of Georgia ESU with regard to their life history. Following emergence, the majority of stream-rearing juveniles spend eighteen months in fresh water before migrating downstream to saltwater as river flows increase with annual spring snowmelt and runoff. Following eighteen months in salt water, adult coho return to the Nooksack River and migrate upstream from August through early January. Spawning occurs in the upper mainstem and the accessible portions of the Forks from mid-November through January.

Coho habitat and life history functions in the Action Area are adult and juvenile migration and juvenile rearing (Whatcom County 1994). Neither coho spawning or extended juvenile rearing occur in the Action Area. Adults migrate through the project reach from mid July through mid-November (Williams et al. 1975). Juveniles migrate downstream through the reach from mid-April through mid-August (Williams et al. 1975). Although limited rearing may occur in the project reach, the habitat is generally not suitable for coho rearing and functions primarily as a transportation corridor to and from saltwater.

### **3.6 Cultural Resources**

There are no known cultural resources in the project area. The disturbed nature of the levee and bank material (imported fill, sediment deposited from the river, or dredged from the river) significantly reduces the chance of finding cultural resources. A cultural resources survey was conducted in the repair area and a cultural resource report was prepared as part of the Section 106 of the National Historic Preservation Act compliance process. A letter from the State Historic Preservation Officer concurring with the Corps finding of No Historic Properties Affected dated April 19, 2004 was received. The construction contract would contain a stop work clause to notify the appropriate officials if evidence of cultural or human artifacts were unearthed.

### **3.7 Water Quality**

Warm water temperatures are a problem in the mainstem Nooksack River. Water temperatures in the Nooksack River near North Cedarville (RM 30.9) were in the “poor” category (warmer than 16 C) for 54% of the samples in 1996 and 1997 (data from USGS 2001). Conditions worsen downstream near Everson (RM 23.2) where 65% of the samples are warmer than 16 degrees Celsius and the peak temperature was 19.0 degrees Celsius. Near the mouth (RM 3.4), 60% of the samples were warmer than 16 C in July and August of 1996 and 1997 (data from USGS 2001). The entire length of the mainstem Nooksack River has a severely degraded riparian, which contributes to water quality exceedances. Shade levels were remarkably poor with no mainstem reaches achieving more than 40% of target shade levels, and most reaches had percent canopy cover in the 0 to 20% range (Coe 2001). Other causes include the surrounding

agriculture, residential, and urban land use and the increased sedimentation from upstream sources. All of these water quality problems pose serious impacts to salmonids and result in a “poor” water quality rating for the mainstem Nooksack River.

### **3.8 Air Quality and Noise**

Air quality in the Nooksack Basin is generally good. However, urban areas experience moderately degraded air quality during certain times of the year. Motor vehicles are the largest source of air pollutants in Whatcom County, although wood-burning stoves also contribute. Particulates, sulfur dioxide, ozone, and carbon monoxide are the pollutants of concern. High concentrations of these pollutants generally occur during the dry, late summer months when minimal wind conditions persist for long periods of time or during mid-winter thermal inversions.

Carbon monoxide, a product of incomplete combustion, is generated by automobiles and other fuel burning activities (e.g. residential heating with wood). The highest ambient concentrations of carbon monoxide tend to occur in localized areas such as major roadways and intersections during periods of low temperatures, light winds, and stable atmospheric conditions. Ozone is a highly reactive form of oxygen created by sunlight-activated chemical reactions of nitrogen oxides and volatile organic compounds. Unlike high carbon monoxide concentrations which tend to occur close to emission sources, ozone problems tend to be regional since ozone precursors can be transported far from their sources. Ozone precursors are primarily generated by motor vehicle engines.

This rural area is typically quiet. Typical existing noise consists of those generated by farm machinery, trucks, automobiles, and other internal combustion engines.

### **3.9 Utilities and Public Services**

The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads.

### **3.10 Land Use**

Land use in the project area is primarily rural residential and agricultural. There are scattered homes and farms in the surrounding area.

### **3.11 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.

### **3.12 Hazardous, Toxic, and Radioactive Waste**

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

### **3.13 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.

## **4. EFFECTS OF THE ALTERNATIVES**

### **4.1 General**

#### **4.1.1 Proposed Alternative**

There will be short-term impacts from construction of the replacement levee. The primary impact will be a temporary increase in noise due to construction equipment. The proposed project will not require in water work, as the upper portions of the existing levee will be pulled back while retaining the toe. This will allow the Corps to begin the repair on the existing toe while setting back the levee as it is constructed upward and landward; therefore, it will not require in water work. Because the work will be accomplished during the established work window (June 15 – August 15), the potential disruption of salmonid movement in the area will be minimized. If present, adult and juvenile salmonids may be temporarily displaced from this area.

Due to the timing of construction (July 15-August 15) 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 occur during construction. A decrease in sediment loading to the river by arresting or slowing of bank erosion likely will have a positive effect to fish. Additional willow plantings added to the site may increase some fish habitat values. Overall effects, both adverse and favorable, are insignificant.

#### **4.1.2 No-Action Alternative**

The No-Action alternative would not create any noise, it would not disrupt salmonid movement, it would not result in willows being planted, and it would not provide the desired flood protection.

### **4.2 Hydrology, Soils and Topography**

#### **4.2.1 Proposed Alternative**

By removing the sharp corner of the existing levee, it will improve the hydraulics and increase the stability of levee. In addition, it will likely reduce the deflection of the river, reducing scour of the opposite bank downstream of the project.

Construction activities associated with the proposed project will result in the repositioning of approximately 2,500 cubic yards riprap at the project site. This material will be setback from the riverbank a distance that varies between 10-40 feet. Approximately 400 cubic yards of Class IV riprap will be added to the project area. In addition, soils will be compacted in areas where heavy machinery will be operating such as the access road.

#### 4.2.2 No-Action Alternative

The No-Action alternative will not remove the sharp corner and it will not improve the hydraulics. It would not result in any rock being repositioned or placed on the site and it would not provide the desired flood protection.

### 4.3 Vegetation

#### 4.3.1 Proposed Alternative

The Corps anticipates removing vegetation from the back slope of the 200-foot reach including two Douglas fir trees with approximately 6-8 diameter girth at the base, some grass, and other small vegetation. Currently very little vegetation is present on the riverward slope of the levee and the Corps anticipates that a few small willows will constitute the total vegetation to be removed from the riverward slope.

The repaired levee and disturbed areas will be hydro-seeded after construction. The riverward slope of the levee will incorporate willow cuttings into the design. Overall project effects to vegetation will be insignificant as the existing vegetation is very limited. In addition, our replanting efforts will increase vegetation in the project area.

#### 4.3.2 No-Action Alternative

The No-Action alternative would result in the levee being temporarily devoid of vegetation and would likely result in the project area being populated with Japanese knotweed and Himalayan blackberry.

### 4.4 Fish and Wildlife

#### 4.4.1 Proposed Alternative

Effects to fish and wildlife, if any, will be temporary and occur primarily during construction. The addition of the willow plantings that will be added to the site may increase some fish habitat values. Overall effects, both adverse and favorable, will be insignificant.

#### 4.4.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

### 4.5 Threatened and Endangered Species

#### 4.5.1 Proposed Alternative

##### **Bald Eagle**

The project impacts are not a concern to nesting behavior due to construction timing. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July. No construction activity restrictions are identified in the ESA documentation due to known bald eagle ground feeding or perch areas being within close proximity to the project area. The ESA document addressed the expected effect of the project on bald eagles and made a “May affect, not likely to adversely affect” determination.

### **Marbled Murrelet**

The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The ESA document addressed the expected effect of the project on marbled murrelet and made a “May affect, not likely to adversely affect” determination.

### **Bull Trout and Dolly Varden**

The Corps will not remove the few large rocks that remain in the channel from the previous levee, which may provide some habitat that could be utilized by native char. In addition, the Corps is proposing to place several pieces of large woody debris retained from the flood event on a dry section of the riverbank upstream of the project. The proposed repair will set back the levee a distance of 10-40 feet from the pre-flood condition and provide some limited habitat. The ESA document addressed the expected effect of the project on bull trout and Dolly Varden and made a “May affect, not likely to adversely affect” determination.

### **Puget Sound Chinook Salmon**

The procedure to repair the levee was designed to avoid or minimize potential "take" during construction, by setting the levee back 10- 40 feet while not conducting in water construction. Although limited rearing may occur in the project reach, the habitat is generally not suitable for Chinook rearing and functions primarily as a transportation corridor to and from saltwater. In the event that an excavator or dump truck allowed rock to fall into the river, the project is scheduled during the in-water construction period to avoid periods of greatest Chinook vulnerability and highest expected use. The ESA document addressed the expected effect of the project on Chinook salmon and made a “May affect, not likely to adversely affect” determination.

### **Coho Salmon**

The procedure to repair the levee was designed to avoid or minimize potential "take" during construction, including constructing the levee without requiring in-water work and scheduling the work to be conducted during the in-water construction period to avoid periods of greatest coho vulnerability and highest expected use.

The impact reduction measure of placing large woody debris upstream of the project area, followed by planting willows, and setting back the levee 10-40 feet, as previously described for Chinook salmon may also benefit coho adults or juveniles during upstream or downstream migration.

#### **4.5.2 No-Action**

No effects anticipated as a result of the No-Action alternative.

## **4.6 Cultural Resources**

### **4.6.1 Proposed Alternative**

A cultural resources survey was conducted in the repair area and a cultural resource report was prepared as part of the Section 106 of the National Historic Preservation Act compliance process. A letter from the State Historic Preservation Officer concurring with the Corps finding of No

Historic Properties Affected dated April 19, 2004 was received. The construction contract will contain a stop work clause to notify the appropriate officials if evidence of cultural or human artifacts are unearthed.

#### 4.6.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

### **4.7 Water Quality**

#### 4.7.1 Proposed Alternative

Water quality will not be significantly impacted by construction activities as no in-water construction is planned or anticipated. Equipment will not enter the water and would remain on dry ground at all times. During construction, best management practices for equipment operation and storage and use of hazardous materials would be employed. Therefore, no leakage or spills of hazardous materials are expected to occur.

The Sande-Williams Levee Rehabilitation Project does not require Section 404/401 certification, as the work will not occur in Waters of the United States. RM 26 is the upstream extent of Navigable Waters and the project is located at RM 33. In addition, a wetland investigation was conducted on July 23, 2004, which has determined that no wetlands are present and no wetlands will be impacted as a result of this project. Therefore, a section 401 Water Quality Certification is not required.

#### 4.7.2 No-Action Alternative

It is likely that if the project is not constructed the levee will fail during the upcoming flood season, resulting in an increase in turbidity in the Nooksack River.

### **4.8 Air Quality and Noise**

#### 4.8.1 Proposed Alternative

Air quality would meet the standards as set forth by the Washington Department of Ecology and would not be permanently affected by the construction of the project. Noise would be 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 would be temporary and localized reduction in air quality due to emissions from heavy machinery operating during fill placement and grading. These emissions would 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 would not be significant.

Ambient noise levels would increase slightly while construction equipment was operating. However, these effects would be temporary, localized, and occur only during daylight working hours. As a result, impacts would be insignificant.

#### 4.8.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

### **4.9 Utilities and Public Services**

#### 4.9.1 Proposed Alternative

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 would have a minimal disruption due to increased truck traffic merging, turning, and traveling together with local traffic. Such a disruption would be temporary and highly localized; and, therefore, impacts would be insignificant.

#### 4.9.2 No-Action Alternative

The No-Action alternative would not result in an increase in traffic on the local roads, and it would not result in providing the desired flood protection to public infrastructure.

### **4.10 Land Use**

#### 4.10.1 Proposed Alternative

The proposed project will not cause any unique effects or impacts to land use.

#### 4.10.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

### **4.11 Recreation**

#### 4.11.1 Proposed Alternative

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.

#### 4.11.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

### **4.12 Hazardous, Toxic, and Radioactive Waste**

#### 4.12.1 Proposed Alternative

There are no known sites at the project locations that have any hazardous, toxic, or radioactive waste; therefore, the Corps does not anticipate any effect.

#### 4.12.2 No-Action Alternative

No effects anticipated as a result of the No-Action alternative.

## **4.13 Aesthetics**

### 4.13.1 Proposed Alternative

Restoration of the constructed features of the project will not significantly affect the aesthetics of the site or the river.

### 4.13.2 No-Action Proposed Alternative Aesthetics

No effects anticipated as a result of the No-Action alternative.

## **5. UNAVOIDABLE ADVERSE EFFECTS**

Unavoidable adverse effects associated with this project include:

- (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

## **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)
- The Nooksack Tribe
- The Lummi Tribe
- Washington State Office of Archaeology and Historic Preservation
- Whatcom County
- Washington Department of Emergency Management

The U.S. Fish and Wildlife Service (USFWS), Whatcom County Public Works, and a biologist representing the Nooksack tribe have visited the site.

## **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 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, temporary and not significant.

## **8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

The irreversible and irretrievable 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.

## **9. ENVIRONMENTAL COMPLIANCE**

### **9.1 National Environmental Policy Act (NEPA) (42 USC 4321 et seq.)**

In accordance with the National Environmental Policy Act, Federal projects are required to declare potential environmental impacts and solicit public comment. The purpose of this document is to solicit public comment and fulfill the Corps of Engineers documentation requirements under the National Environmental Policy Act.

### **9.2 Endangered Species Act of 1973, as Amended (16 USC 1531-1544)**

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. Prior to construction, ESA documentation was prepared for the project. A finding of “May Effect, Not Likely to Adversely Effect” was determined for all potentially occurring threatened or endangered species. The National Marine Fisheries Service (NMFS) and USFWS were notified of the project location and action. The ESA documentation for this project was sent to the Services on June 15, 2004 requesting concurrence with a “may effect, not likely to adversely effect” determination. The ESA document is contained in Appendix B.

### **9.3 Clean Water Act, as Amended (33 USC 1251 et seq.)**

The Sande-Williams Levee Rehabilitation Project does not require Section 404/401 certification, as the work will not occur in Waters of the United States. RM 26 is the upstream extent of Navigable Waters and the project is located at RM 33. In addition, a wetland investigation was conducted on July 23, 2004, which has determined that no wetlands are present and no wetlands will be impacted as a result of this project. Therefore, a section 401 Water Quality Certification is not required.

### **9.4 Rivers and Harbors Act (33 U.S.C. 403)**

The Rivers and Harbors Act of 1899 prohibits the construction of any bridge, dam, dike, or causeway over or in navigable waters of the United States in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the Army. Under Section 10 of the Rivers and Harbors Act, a navigable waterway is defined as those waters that are subject to the ebb and flow of the tide shoreward to the mean high water mark. This act

is not applicable to the proposed project because the levee repair does not restrict navigation or access to navigable waters.

### **9.5 Coastal Zone Management Act (16 U.S.C. 1451-1465)**

The Coastal Zone Management Act of 1972 as amended (15 CFR 923) requires Federal agencies to carry out their activities in a manner which is consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Zone Management Program.

The proposed action will simply restore the Federal erosion control project to a state comparable to its original condition before damage by the elements occurred. Work will not extend beyond the footprint of the original project and will not cause substantial adverse effects to shore resources or the environment. Pursuant to Section 23.50.32 (b) of the Whatcom County Shoreline Management Program, the Corps believes this proposal is exempt from substantial development permit requirements, making it consistent to the maximum extent practicable with the Whatcom County Shoreline Management Program.

A Shorelines Administrator from Whatcom County Planning and Development Services has indicated that an exemption from a substantial development permit will be issued for this project in the near future.

### **9.6 National Historic Preservation Act) (16 USC 470 et seq., 110)**

Section 106 of the National Historic Preservation Act (36 CFR PART 800) requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. As required under Section 106 of the NHPA, the Corps is coordinating with the Washington State Office of Archeology and Historic Preservation (OAHP), the Nooksack Tribe, and other interested parties.

There are no known cultural resources in the project area. The disturbed nature of the levee and bank material (imported fill, sediment deposited from the river, or dredged from the river) significantly reduces the chance of finding cultural resources. A cultural resources survey was conducted in the repair area and a cultural resource report was prepared as part of the Section 106 of the National Historic Preservation Act compliance process. A letter from the State Historic Preservation Officer dated April 19, 2004 concurring with the Corps finding of No Historic Properties Affected was received.

### **9.7 Clean Air Act As Amended (42 USC 7401, et seq.)**

The Clean Air Act requires states to develop plans, called State Implementation Plans (SIP), for eliminating or reducing the severity and number of violations of National Ambient Air Quality Standards (NAAQS) while achieving expeditious attainment of the NAAQS. The act also required Federal actions to conform to the appropriate SIP. An action that conforms with a SIP is defined as an action that will not: (1) cause or contribute to any new violation of any standard in any area; (2) increase the frequency or severity of any existing violation of any standard in any area; or (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The Corps has determined that emissions associated with this project will not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone).

### **9.8 Wild and Scenic Rivers Act (16 U.S.C. 1271-1287)**

The Wild and Scenic Rivers Act (P.L. 90-542, as amended) selected rivers of the Nation, which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. The purpose of the Act is to preserve these rivers in their free-flowing condition and be protected for the benefit and enjoyment of present and future generations.

An inventory, the National Wild and Scenic Rivers System, was established in December 1, 1992 and is published by the Department of the Interior and the Department of Agriculture, Forest Service and can be found at web site <http://www.nps.gov/rivers/wildriverslist.html#w>. The Nooksack River is not one of the selected rivers.

The Nationwide Rivers Inventory (NRI) is another listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. This inventory is found at (<http://www.ncrc.nps.gov/programs/rtca/nri/STATES/wa2.html>). The Nooksack River is listed in the NRI but not the particular reach where the project is located.

### **9.9 Migratory Bird Treaty Act and Migratory Bird Conservation Act (16 USC 701-715)**

The proposed project would be conducted in such a manner that migratory birds would not be harmed or harassed. The proposed work would be outside the nesting season for most birds. Riparian vegetation suitable for nesting would be avoided where possible. Any shrub removal would be limited to after July 1 to reduce impacts to nesting birds. Where nesting vegetation is removed, adequate riparian vegetation for nesting sites exists upstream and downstream from the project site. Increased vegetative planting would mitigate for riparian vegetation that is removed.

### **9.10 Fish and Wildlife Coordination Act, as Amended (16 USC 661 et seq.)**

While the proposed project is a Federal water resources development project, private funds were originally used to construct the levee. Since the project is not a Civil Works activity, the Corps policy is that emergency PL84-99 projects do not require FWCA coordination. Given the size and scope of the project, fish and wildlife coordination issues were not expected, which would have resulted in a "No Action" determination by USFWS. Fish and wildlife coordination information and issues, if any, can be provided during the EA public review comment period. The project is in compliance with this act.

### **9.11 Federal Water Project Recreation Act, as Amended (16 USCA 4612 et seq.)**

The Federal Water Project Recreation Act (P.L. 89-72), as amended, requires that full consideration be given to opportunities for fish and wildlife enhancement in investigating and planning Federal water resources projects. The proposed project is consistent with this act.

### **9.12 Watershed Protection and Flood Prevention Act, as Amended (16 U.S.C. 1001 et seq.)**

The Watershed Protection and Flood Prevention Act (Public Law 83-566) is commonly known as the Small Watershed Program. USDA-Natural Resources Conservation Service (NRCS) administers this program. The program authorizes Federal assistance to local organizations for planning and carrying out projects in watershed areas for conservation and use of land and water and flood prevention. This project is not a product of the Small Watershed Program and, therefore this act is not applicable to this project.

### **9.13 Farmland Protection Policy Act (7 U.S.C. 4201, et seq.)**

The Farmland Protection Policy Act (Public Law 97-98, Sec. 1539-1549) requires identification of proposed actions that would affect any lands classified as prime and unique farmlands. The proposed project would not affect farmland classified as prime and unique. Repairing the levee would be consistent with this act.

### **9.14 Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.)**

RCRA was enacted in 1976 to address the issue of how to safely manage and dispose of municipal and industrial waste, regulate underground storage tanks (USTs) that store petroleum or hazardous substances, establish a system for managing solid (primarily nonhazardous) waste, including household waste, and set forth the framework for EPA's comprehensive waste management program. No abandoned waste has been observed during project site visits. If abandoned or buried hazardous waste or pesticides were discovered during construction, it would be managed in accordance with RCRA or CERCLA requirements, as applicable. Contractor hazardous materials and waste would be managed in accordance with RCRA requirements. The project is in compliance with this act.

### **9.15 Executive Order 11988, Floodplain Management (24 May 1977)**

Executive Order 11988 requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy of the floodplain, and avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by flood plains."

Section 8 of E.O. 11988 notes that the order does not apply to assistance provided for emergency work essential to save lives or protect public property, health, and safety. The project has not constructed a change that would affect occupancy of the floodplain. By repairing the levee breach, the project would be consistent with the act in reducing the risk of flood and minimize the impact of floods on human safety, health, and welfare, while not changing floodplain occupancy conditions.

### **9.16 Executive Order 12898, Environmental Justice**

Executive Order 12898 directs every Federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations. The project does not involve siting a facility that will

discharge pollutants or contaminants, so no human health effects would occur. Therefore, the project is in compliance with this act.

**9.17 Executive Order 11990, Protection of Wetlands, May 24, 1977**

The purpose of this project is to restore/enhance aquatic and riparian habitat. No wetlands would be impacted by this project.

**Table 9.1.** Summary of Consistency of Project With Applicable Laws, Regulations and Policies<sup>1</sup>

<b>LAWS AND REGULATIONS RELATING TO THE PROPOSED ALTERNATIVES</b>	<b>REQUIREMENT SUMMARIZED</b>	<b>CONSISTENCY OF PREFERRED ALTERNATIVE</b>
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
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.	Work will not occur in Waters of the United States
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.	Not in Section 10 jurisdiction
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.	Not Applicable
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.	Completed
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 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 classified as prime and unique farmlands.	Consistent
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.	Not Applicable
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.	Not Applicable

## 10. CONCLUSION

Based on the above analysis, the levee rehabilitation project is not a major Federal action significantly affecting the quality of the human environment; and, therefore, does not require preparation of an environmental impact statement.

## 11. REFERENCES

Coe, T. 2001. Nooksack River watershed riparian function assessment. Nooksack Indian Tribe Report #2001-001.

Corps of Engineers. November 13, 1986. *Final Rule for Regulatory Programs of the Corps of Engineers*. Federal Register 51(219): 41206-41254.

Corps of Engineers and Environmental Protection Agency. August 25, 1993. *Clean Water Act Regulatory Programs*. Federal Register 58(163): 45008-45038.

Environmental Protection Agency. November 30, 1993. *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. Federal Register 58(228): 63214

Environmental Protection Agency. 2000. *SITEINFO Query Form*. <<http://www.epa.gov/r10earth/r10gis/r10site.html>>.

U.S.G.S. 2001. Nooksack River Basin temperature sites.  
<http://wa.water.usgs.gov/pugt/nooksack/nookmap.html>

Washington Department of Ecology. 2000. *Ecology's Final 1998 List of Impaired and Threatened Waterbodies - the 303(d) List*. <<http://www.wa.gov/ecology/wq/303d/index.html>>.

Williams et al. (1975). A Catalog of Washington Streams and Salmon Utilization. Vol. 1, Puget Sound Region. Washington Department of Fisheries. Olympia, WA.

## 13. APPENDICES

*Appendix A*

*Requests for Corps Assistance*

WHATCOM COUNTY  
PUBLIC WORKS DEPARTMENT

JEFFREY M. MONSEN, P.E.  
Director



**River and Flood Division**

322 N. Commercial Street, Suite 120  
Bellingham, WA 98225  
Phone: (360) 676-6876, (360) 398-1310  
Fax: (360) 738-2468

November 14, 2003

Doug Weber  
US Army Corps of Engineers  
P.O. Box C-3755  
4735 E. Marginal Way S.  
Seattle, WA 98124-2255

Re: Levee Repair Work in Whatcom County

Dear Mr. Weber:

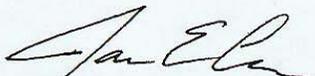
During the recent flooding in Whatcom County on October 17th – 21st, 2003, multiple levee breaches occurred along the Nooksack River and its tributaries. They include the following:

- The "Ritter Road Levee" - an approximately 150-foot section of this levee located on the left bank of the Nooksack River near Ferndale was damaged.
- The "Sande-Williams Levee" – an approximately 100-foot section of this levee located on the right bank of the Nooksack River near Deming was damaged.
- The "Right Bank Bertrand Creek Levee" – an approximately 100-foot section of this levee located on right bank of Bertrand Creek near Ferndale failed.
- The "Left Bank Bertrand Creek Levee" - two damaged sections, both approximately 25-feet in width, occurred on the left bank of Bertrand Creek near Ferndale.
- The "Hawley Levee" – an approximately 1,000-foot section of this levee located on the left bank of the Nooksack River near Lynden was damaged.

We are officially requesting assistance under the PL84-99 Program in implementing repair projects at these locations. The County will act as the local sponsor and provide all necessary lands, rights-of-way, and easements for these projects.

If you have any questions or need any additional information please don't hesitate to contact me at (360) 676-6876.

Sincerely,

  
James E. Lee, P.E.  
River & Flood Engineer

**Appendix B**

***ESA Consultation Document***

**NOOKSACK RIVER SANDE-WILLIAMS LEVEE**  
**Rehabilitation of Flood Control Works**  
**Whatcom County, Washington**  
**ESA Consultation Document**  
**May 2004**

## **1.0 Introduction**

This document evaluates the environmental effects of the proposed repair and reconstruction of Sande-Williams Levee located on the Nooksack River near Deming, Washington. This levee is on the right bank at River Mile 33.0 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. The levee was temporarily repaired on October 17 and 18, 2003 following a 100-foot breach in the levee, which allowed floodwaters 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 October 17 and 18, 2003. The repair resulted in an oversteepened levee that is vulnerable to further erosion, and probably only has protection from further erosion from the 2-yr flood event. The Corps has determined that the levee is in need of permanent repair. The proposed project consists of pulling the riverward slope back to 2H: 1V, reshape the back slope, armoring the riverward slope, removing a sharp bend on the downstream end of the project area, and incorporating willow plantings into the design. One hundred lineal feet of the proposed levee will be set back from the pre-flood bank by a distance of 30-40 feet, and 100 lineal feet of the levee will have the above-water portion of the levee set back a distance of approximately 10-30 feet. The levee toe in this section will remain in the current location to avoid in-water work and the riverward bench above the water line will be pulled back. The total length of the proposed levee rehabilitation project will be approximately 200 feet and it will be constructed between July 15-August 23.

The project is located on the right bank of the Nooksack River at approximately RM 33.0, 700 yards off Williams Road, to the south-southwest of Deming Road, near Deming, Washington, within Whatcom County, Washington at Range 4 East, Township 39 North, Sections 26 and 35.

The potential impacts to species listed under the Endangered Species Act (ESA) and candidate species as a result of the Nooksack River Sande-Williams Levee Repair project are addressed in this biological assessment. There are three species listed by the U.S. Fish and Wildlife Service (USFWS) under the ESA as threatened; bull trout (*Salvelinus confluentus*), bald eagles (*Haliaeetus leucocephalus*), and marbled murrelet (*Brachyramphus marmoratus*). The National Marine Fisheries Service (NMFS) identified one species under ESA listed as threatened; Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*), and one candidate species; Puget Sound/Georgia Strait ESU of coho salmon (*Oncorhynchus kisutch*) as utilizing the proposed project location.

---

## **2.0 Effects of the Proposed Action and Effects Determinations**

### **2.1 Chinook Salmon**

The proposed project **may affect, but is not likely to adversely affect** Chinook salmon or designated critical habitat for this species. The procedure to repair the levee was designed to avoid or minimize potential "take" during construction by setting the levee back 10-40 feet, while not conducting in-water construction. In the event that an excavator or dump truck allowed rock to fall into the river, the project is scheduled during the in-water construction period (June 15-August 15) to avoid periods of greatest Chinook vulnerability and highest expected use. In addition, the incorporation of willow plantings into the design along with placing LWD upstream of the project will minimize potential effects to Chinook salmon.

### **2.2 Bull Trout**

The proposed project **may affect, but is not likely to adversely affect** bull trout. Best management practices to reduce or eliminate the possibility of turbidity during construction will be implemented. This determination is based upon the low likelihood that bull trout would be present in the action area during construction activities and the potential positive benefits attributed to the added salmonid habitat features such as the large woody debris and willow plantings.

### **2.3 Bald Eagles**

The project area is approximately 3/4 mile away from the closest nest and the nest is not visible from the project area. The project impacts are not a concern to nesting behavior due to construction timing. WDFW eagle experts have indicated that the young in this nest have typically fledged by the middle of July therefore, the Corps will construct the project between July 15-August 15. Since construction activities will not occur during the nesting season, it will not affect nesting habitat or behaviors. Prey (salmonid) production may increase due to added habitat features, and only minor disruptions to foraging activities are expected during construction. The proposed project **may affect, but is not likely to adversely affect** the bald eagle.

### **2.4 Marbled Murrelet**

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. The project would not occur during marbled murrelet nesting season and would not have a detrimental effect on the species. The proposed project **may affect, but is not likely to adversely affect** the marbled murrelet.

---

*Appendix C*

*Vegetation Monitoring*

### **Nooksack River – Sande-Williams Levee Repair Rehabilitation of Flood Control Works Whatcom County, Washington**

#### **Revegetation Plan**

**Planting** – willow stakes will be planted on the riverward side of the levee as the levee repair is constructed in the summer of 2004. Approximately 500 willow cuttings will be planted on the riverward side of the levee.

**Monitoring to ensure survival** – when the project is turned over to the sponsor (Whatcom County Flood Control Zone District), there will be a maintenance agreement to ensure the levee is periodically inspected and maintained. Also in that agreement will be the requirement to monitor and maintain the vegetative plantings and replant, if necessary, for up to five years.

**Management of invasive species** – The monitoring and maintenance of invasive species will also be included in the maintenance agreement.

**Appendix D**

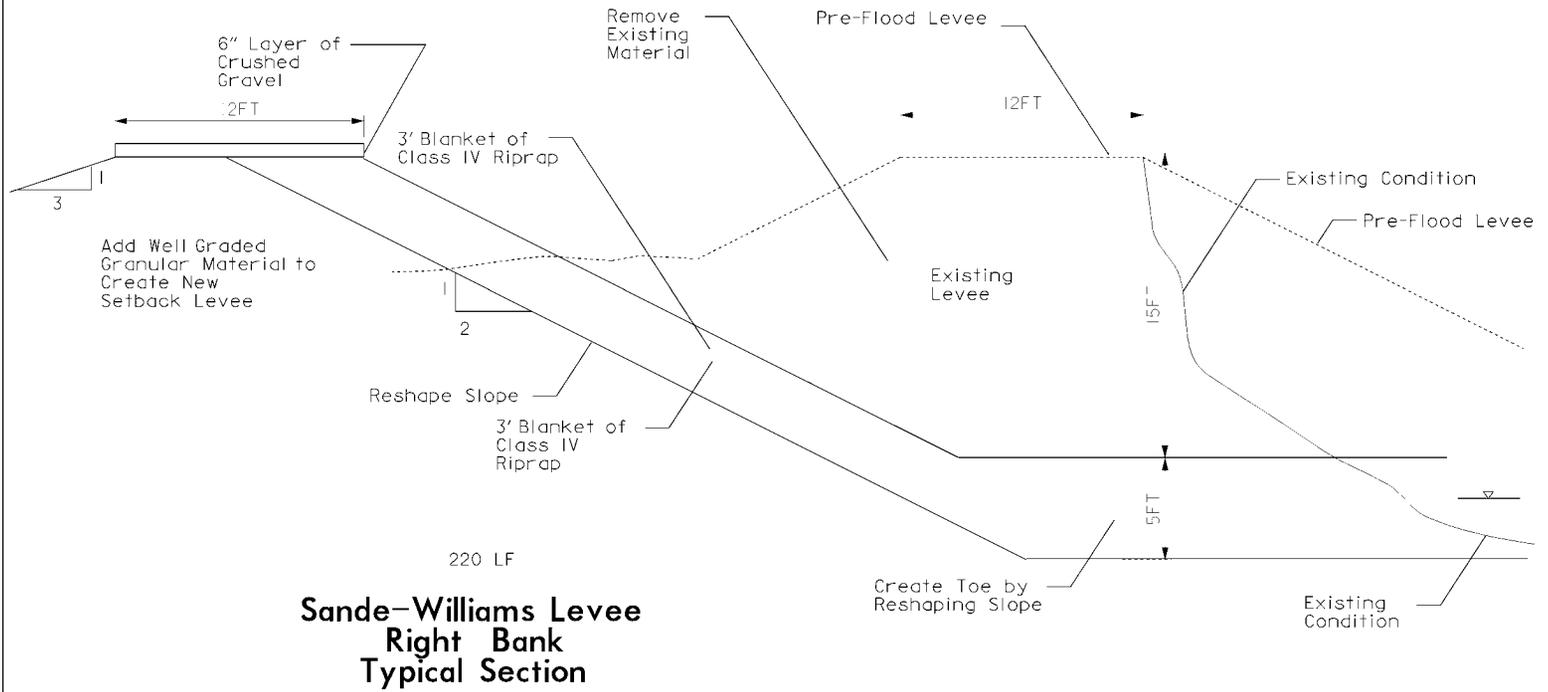
***Proposed Project Drawing***



U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT

PROJECT: Nooksack River Channel  
DRAWING NO: 1104-1-104

PROJECT: Nooksack Rehab 2004	COMPILED BY: DesJardin	DATE: 09 Feb 04
SUBJECT: Sande-Williams Levee Repair	CHECKED BY: Kaiser	SHT.   OF PART:



**Appendix E**

***Finding of No Significant Impact***

SEP 27 2004



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
SEATTLE DISTRICT. CORPS OF ENGINEERS  
P. O. BOX 3755  
SEATTLE, WASHINGTON 98124-3755

CENWS-PM-PL-ER

REHABILITATION OF FLOOD CONTROL WORKS SANDE-WILLIAMS LEVEE  
WHATCOM COUNTY, WASHINGTON

FINDING OF NO SIGNIFICANT IMPACT

**1. Background.** The Seattle District, U.S. Army Corps of Engineers (Corps) repaired and reconstructed Sande-Williams levee, located on the Nooksack River near Deming, Washington in August 2004. This levee is on the right bank at approximately River Mile 33.0, approximately 700 yards off Williams Road, to the south-southwest of Deming Road. The levee protects 320 acres of agricultural land, residential properties, and associated public infrastructure, such as roads. The U.S. Army Corps of Engineers, Seattle District, proposed the following project under the authority of Public Law 84-99 (33 USCA 701n).

The Nooksack River rose above the zero damage flood stage in October 2003, resulting in severe erosion to approximately 100 linear feet of the levee in this area. 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 100-foot breach in a flood control levee in Deming, Washington. The County and Corps fought the flood by dumping 4-ft minus rock into the scour hole and finally repaired the breach. The repair resulted in an oversteepened levee that is vulnerable to further erosion, and probably has protection from further erosion from only a 2-yr flood event. In November 2003, Whatcom County Public Works Department requested assistance under the PL84-99 Program in implementing a repair project at this location. The Corps has determined that the levee is in need of permanent repair and repaired approximately a 200-foot section of the levee.

**2. Purpose and Need.** The purpose of this project is to provide protection to the community and infrastructure from flood damage. This section of the levee sustained significant damage by erosion during a flood event in October 2003, was temporarily repaired and is in need of permanent repair.

There is a high potential that during the upcoming flood season around October, the river would overflow the levee again, posing a major threat to community, if no action is taken to contain the floodwaters.

**3. Action.** The project set back the 100-foot section of the levee that was repaired during the flood event approximately 30-40 feet from the pre flood condition. In addition, an approximately 100 foot section of the levee immediately adjacent to the downstream end of repair was also set back approximately 10-30 feet to remove a sharp corner from the existing levee to improve the hydraulics. However, the levee toe of this section was not set back. Only the above water portion was set back allowing the Corps to avoid in water construction.

CENWS-PM-PL-ER

SUBJECT: Rehabilitation of Flood Control Works Sande-Williams Levee, Whatcom County, Washington

**4. Summary of Environmental Impacts.** Pursuant to the National Environmental Policy Act, an Environmental Assessment (EA) has been prepared for the proposed work. This document describes the environmental consequences of the proposed work, which are briefly summarized below.

The Corps has coordinated with State and Federal resource agencies to assure careful consideration of fish and wildlife resources. No adverse impacts to threatened or endangered species are anticipated. Impacts of construction activities on salmonids were reduced and/or avoided through implementation of timing restrictions.

Unavoidable adverse impacts were generally localized in nature, short in duration, and minor in scope. None of these adverse impacts were significant either individually or cumulatively.

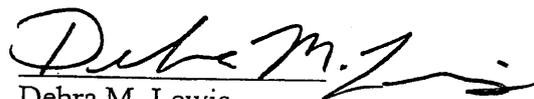
Construction during the June 15-August 23 window for in-water work minimized the likelihood of adverse construction impacts to Chinook, coho, sockeye, chum, and steelhead by allowing work when the abundance of these species is low. The proposed project may benefit all fish species that inhabit the area by setting the levee back from the river, by adding large woody debris in an area upstream of the project, and by planting willows along the repaired levee. Impacts to water quality were minimized as no in-water work was conducted. Impacts to vegetation were minimal as very little vegetation existed in the project area and willows were included in the repair. Additional impacts included a temporary increase in noise and road traffic. This impact was not significant because it was short-term and occurred over stretches of highway that regularly accommodate heavy truck traffic (e.g., logging trucks).

A cultural resources survey was conducted in the repair area and a cultural resource report was prepared as part of the Section 106 of the National Historic Preservation Act compliance process. A letter from the State Historic Preservation Officer concurring with the Corps finding of No Historic Properties Affected was received dated April 19, 2004.

**5. Finding.** Based on the analysis described above and provided in more detail in the EA, this project was not a major Federal action significantly affecting the quality of the human or natural environment, and therefore did not require preparation of an environmental impact statement.

27 Sept 04

Date



Debra M. Lewis

Colonel, Corps of Engineers

District Engineer