

# North Fork Newaukum Mitigation Bank Instrument

LEWIS COUNTY, WASHINGTON



**Washington State  
Department of Transportation**



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- Appendix A: North Fork Newaukum Mitigation Bank Monitoring Plan
- Appendix B: Memorandum of Agreement

**LIST OF ACRONYMS**

AEMRA – Advanced Environmental Mitigation Revolving Account  
BA – Biological Assessment  
BOC – Bank Oversight Committee  
BPJ – Best Professional Judgment  
CBMOA – Wetland Compensation Bank Memorandum of Agreement  
Corps – U.S. Army Corps of Engineers  
DPS – Distinct Population Segment  
Ecology – Washington State Department of Ecology  
EFH – Essential Fish Habitat  
EPA – Environmental Protection Agency  
FAC – Facultative  
FACW – Facultative Wetland  
FHWA – Federal Highway Administration  
HPA – Hydraulic Project Approval  
MBI – Mitigation Bank Instrument  
MBRT – Mitigation Bank Review Team  
MOA – Memorandum of Agreement  
NFN Bank – North Fork Newaukum Mitigation Bank  
NOAA – National Oceanic and Atmospheric Administration  
NRCS – Natural Resource Conservation Service  
NWP – Nationwide Permit  
OBL – Obligate Wetland  
SHPO – State Historic Preservation Officer  
USFWS – U.S. Fish and Wildlife Service  
WDFW – Washington State Department of Fish and Wildlife  
WFAM – Washington State Wetland Function Assessment Methods  
WQC – Water Quality Certification  
WRIA – Water Resource Inventory Area  
WRP – Wetland Reserve Program  
WSDOT – Washington State Department of Transportation

## **Executive Summary**

**Location:** The North Fork Newaukum Mitigation Bank (NFN Bank) is located adjacent to the North Fork and Middle Fork of the Newaukum River, east of the City of Chehalis, Lewis County, Washington. The project is located in the south half of Section 17 and the north half of Section 20, Township 13N, Range 1W.

**Size of Bank:** Construction of the NFN Bank will generate credits on 170.95 acres of the 230.41-acre bank site. The non-credited acreage includes previously developed mitigation and preservation areas and the acreage below the ordinary high water elevations of the Newaukum River channels.

**Land Owners:** The Natural Resources Conservation Service (NRCS) purchased a perpetual conservation easement on the bank site in 1999 under the Wetland Reserve Program (WRP). The Washington State Department of Transportation (WSDOT) purchased the underlying land rights to the property in 1999. As a result, the site is jointly owned by NRCS and WSDOT. The NFN Bank will be operated and maintained solely by WSDOT.

**Bank Operator:** The NFN Bank will be constructed and operated by WSDOT.

**Type of Bank:** The proposed NFN Bank will be a mitigation bank generating credits through restoration and enhancement of wetlands and riparian areas.

**Purpose, Goals and Objectives of the Bank:** The purpose of the NFN Bank is to provide compensation for impacts to wetlands and other aquatic resources resulting from highway construction projects. The ecological goals of this bank are to restore 2.06 acres of wetland, and enhance 89.23 acres of wetland, 7.5 acres of shoreline, 31.31 acres of riparian upland, and 40.85 acres of upland buffer adjacent to both the North Fork and Middle Fork of the Newaukum River. The overall strategy is to return agricultural lands to mixed conifer and deciduous forest. The proposed restoration and enhancement activities will improve water quality, augment summer flows, and create fish and wildlife habitat in the Newaukum River and Upper Chehalis River Basin (Water Resources Inventory Area [WRIA] 23).

**Use of Bank Credits:** WSDOT anticipates using credits from the NFN Bank for highway projects located within the service area (WRIA 23), primarily the proposed widening of Interstate 5, from Toutle Park to Maytown. Two interchange projects, Labree Road Interchange and North County Interchange, are targeted for construction in the 2005 to 2007 biennium. A total of 78.39 credits will be available once all performance standards are met. One credit may compensate for one acre of Category II wetland impact. However, credits required to compensate for Category I, III, or IV wetland impacts are adjusted per the conditions outlined in Chapter 4.

**WSDOT Wetland Compensation Bank MOA:** The *Washington State Department of Transportation Wetland Compensation Bank Program Memorandum of Agreement* (1994) provides the principles and procedures for establishing, implementing and maintaining the NFN Bank.

**Service Area:** The Upper Chehalis River Basin (Water Resources Inventory Area 23) is the service area of the NFN Bank. The service area location is depicted in Figure 5.

**Permits and Approvals:** Environmental documentation and permits associated with the NFN Bank are summarized in Section 1.4.

## **1.0 INTRODUCTION AND BACKGROUND INFORMATION**

The North Fork Newaukum Mitigation Bank Instrument (MBI) contains required information for approval of the North Fork Newaukum Mitigation Bank (NFN Bank). This document was prepared in accordance with the *Washington State Department of Transportation Wetland Compensation Bank Memorandum of Agreement* (1994) (WSDOT CBMOA), the *Federal Guidance for the Establishment, Use and Operation of Mitigation Banks* (Corps of Engineers et al., 1995) and negotiations with State and Federal wetland regulatory agencies.

### **1.1 PROJECT OVERVIEW**

The Washington State Department of Transportation (WSDOT) is establishing the NFN Bank in order to provide compensatory mitigation in advance of unavoidable impacts to wetlands and other aquatic resources from future highway construction projects within the Upper Chehalis River Basin, also referred to as Water Resource Inventory Area 23 (WRIA 23). The NFN Bank is located adjacent to the Newaukum River in Lewis County, Washington (Figure 1).

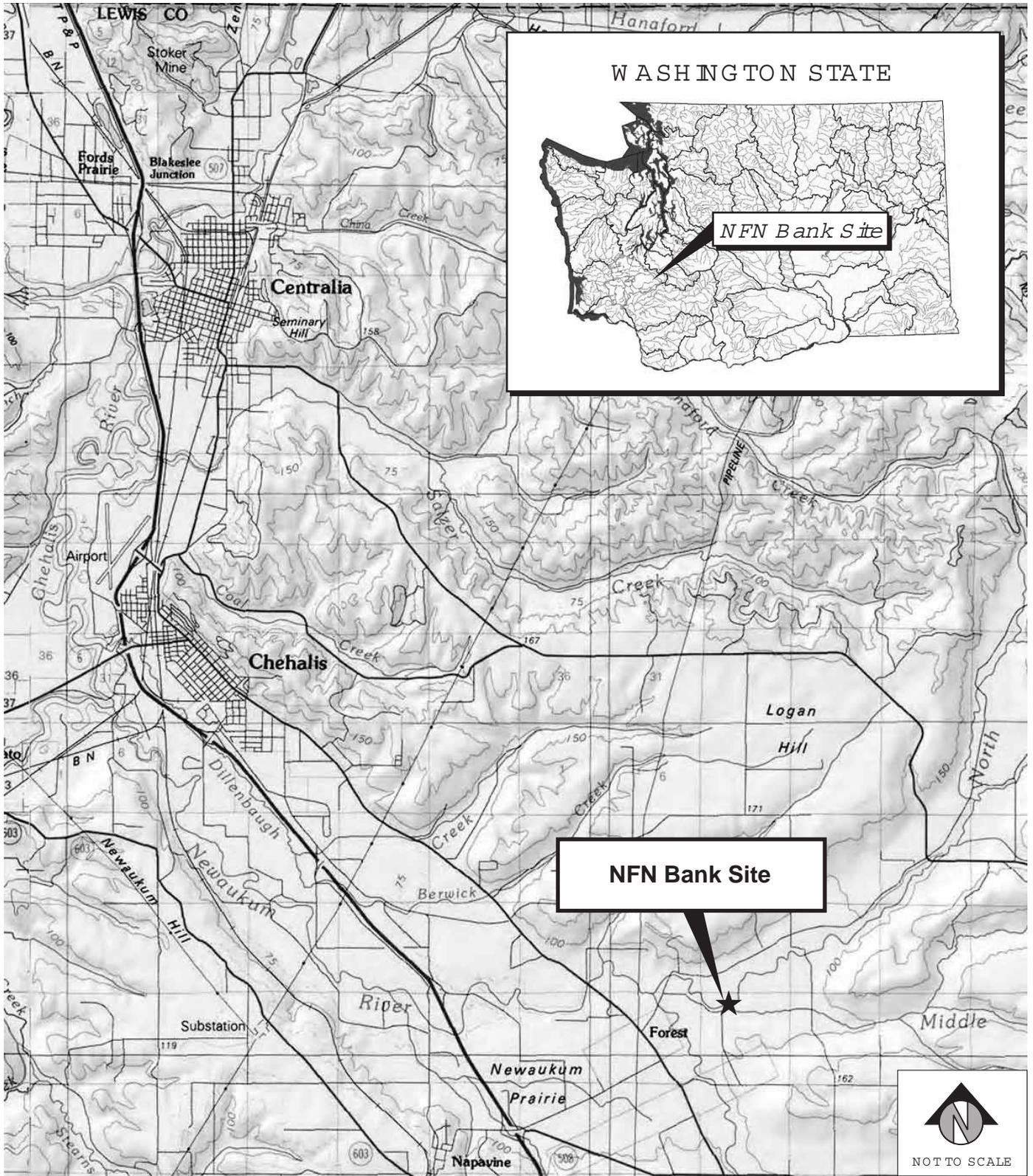
Construction and successful development of the mitigation bank as described in this MBI will potentially establish 78.39 credits of mitigation. These credits will become available for use by WSDOT, in increments, as the performance standards specified in Section 3.2 of this MBI are met and approved by the Bank Oversight Committee (BOC). The BOC is analogous to the Mitigation Bank Review Team (MBRT) established by the Federal Banking Guidance.

The proposed corridor expansion of Interstate 5 (I-5) between Toutle Park and Maytown is a candidate project to use mitigation credits from the bank site. This project could potentially utilize all available mitigation credits at the NFN Bank. The I-5 corridor expansion includes two interchange projects, Labree Road Interchange and North County Interchange, that are targeted for construction in the 2005 to 2007 biennium. Other WSDOT projects within WRIA 23 are also eligible to apply for use of bank credits.

#### **1.1.1 General Mitigation Bank Goals and Objectives**

Project goals are to restore and enhance degraded wetlands and other aquatic resources, improve fish and wildlife habitat, restore water quality and quantity functions, and other stream and wetland functions. These goals will be achieved through hydrologic enhancement and reforestation in the Newaukum River floodplain. Project objectives are to restore 2.06 acres of wetlands, and to enhance 89.23 acres of wetlands, 31.31 acres of riparian upland, 7.5 acres of shoreline, and 40.85 acres of upland buffer. Achieving the project goals and objectives will significantly increase wetland and riparian functions in the degraded floodplain.

# Vicinity Map



G 50709

Source: map created with TOPO! 2002 National Geographic

Figure 1

### 1.1.2 Project Area Setting

The NFN Bank site contains portions of, and is adjacent to, the North and Middle Forks of the Newaukum River, approximately 12 miles upstream from their confluence with the Chehalis River. Properties in the vicinity consist of old farms, many of which are slowly being converted to rural residential home sites. The forested foothills above the Newaukum River Valley primarily consist of privately owned commercial timberlands.

#### *1.1.2a Current Use and Zoning*

The Lewis County zoning designation is Class B Agricultural Land for the majority of the NFN Bank (adopted April 4, 2002). Smaller portions of the site are designated as Class A Agricultural Land, Rural Development District 5, and Rural Development District 10.

### 1.1.3 Site Selection Rationale

The 230.41-acre site provides an excellent opportunity to improve ecological functions in WRIA 23. Past farming practices, such as installation of drain tiles, grading, plowing, and grazing have altered hydrology and removed native vegetation over most of the site. Reforestation and some minor grading can restore and improve the ecological functioning of the site.

Opportunities for successful restoration at the NFN Bank site are high, given: 1) the North and Middle Forks of the Newaukum River provide excellent “corridors” for re-colonization by wildlife; 2) relatively minor fragmentation of habitat has occurred in the adjacent landscape and upper watershed; 3) native Chinook salmon stocks spawn on site (although this run of Chinook is not listed under the Endangered Species Act); and 4) the proposed ecological restoration strategy focuses on ecological functions historically provided at the site.

Ecological restoration activities at NFN Bank will address limiting factors in the watershed identified by both the U.S. Fish and Wildlife Service (1999) and Washington Department of Fisheries (Phinney and Buckness, 1975), including degraded streambed quality, riparian vegetation loss, bank erosion, elevated water temperature, and low summer flows. Moreover, the NFN Bank site meets the following site selection criteria supported by the WSDOT CBMOA:

- Restoring and enhancing ecological functions of agriculturally degraded wetlands and riparian areas would have regional significance.
- Salmonid habitat and other riparian functions associated with the Newaukum River can be improved.
- Wildlife habitat, water quality, and water quantity functions at the site can also be improved.
- The site is in the same WRIA and in close proximity to the proposed highway projects likely to use the majority of credits in the bank.

### 1.1.4 Bank Site Description

#### *1.1.4a Historic Condition*

The site is located in the Puget Trough Province (Franklin and Dyrness, 1988) on a relatively level valley floor where elevation ranges between 280 and 300 feet. Native plant communities

that occurred in the valley prior to European settlement are not known with complete certainty, but both available documentation and present-day conditions indicate that pre-settlement vegetation at the NFN Bank site consisted of mixed coniferous and deciduous forest. Natural vegetation elsewhere in the watershed presently ranges from mixed coniferous and deciduous riparian forest along the middle and upper portions of the watershed to Oregon white oak (*Quercus garryana*) savanna in the lower portion. The Lewis County Soils Survey (Soil Conservation Service [SCS], 1987) states that soil types found on the NFN Bank site naturally support a variety of forested habitats, with dominant trees ranging from Douglas-fir (*Pseudotsuga menziesii*) and red alder (*Alnus rubra*) in well-drained areas, to red alder and Oregon ash (*Fraxinus latifolia*) in poorly drained areas.

Further supporting evidence is provided by a 1921 photograph showing the remains of snags, stumps, and second growth Douglas-fir growing on the NFN Bank site (Figure 2). Moreover, the Washington Natural Heritage Program suggested that Oregon ash forest had probably been common in both seasonally flooded wetlands and wet riparian areas along the Newaukum River (Chris Chappel, pers. comm., 2001). Franklin and Dyrness (1988) also indicate that Oregon ash is characteristic of wetlands and seasonally flooded riparian areas of the region and that understory vegetation can vary from almost nothing to herbaceous vegetation or dense shrubs. Soil probe samples taken in the western portion of the site on August 29, 2000 by WSDOT biologists revealed charred wood fragments at a depth of 2 to 3 feet. These fragments probably represent the remains of tree stumps that were formerly common in this area (Ted Teitzel, pers. comm., 2000).

### 1.1.4b Baseline Conditions

#### Vegetation

The NFN Bank site consists largely of former agricultural fields dominated by forbs and grasses typical of prolonged agricultural disturbance (Figure 3). Dominant species in open fields include soft rush (*Juncus effusus*), creeping buttercup (*Ranunculus repens*), bentgrass (*Agrostis* sp.), and Canada thistle (*Cirsium arvense*). Patches of reed canarygrass (*Phalaris arundinacea*) cover approximately 35 acres, comprising 15 percent of the 230.14-acre site. Approximately 65 acres of the site are forested along the Middle Fork Newaukum River in the southeast corner of the farm. Dominant species in forested areas include red alder, Douglas-fir, and western redcedar (*Thuja plicata*).

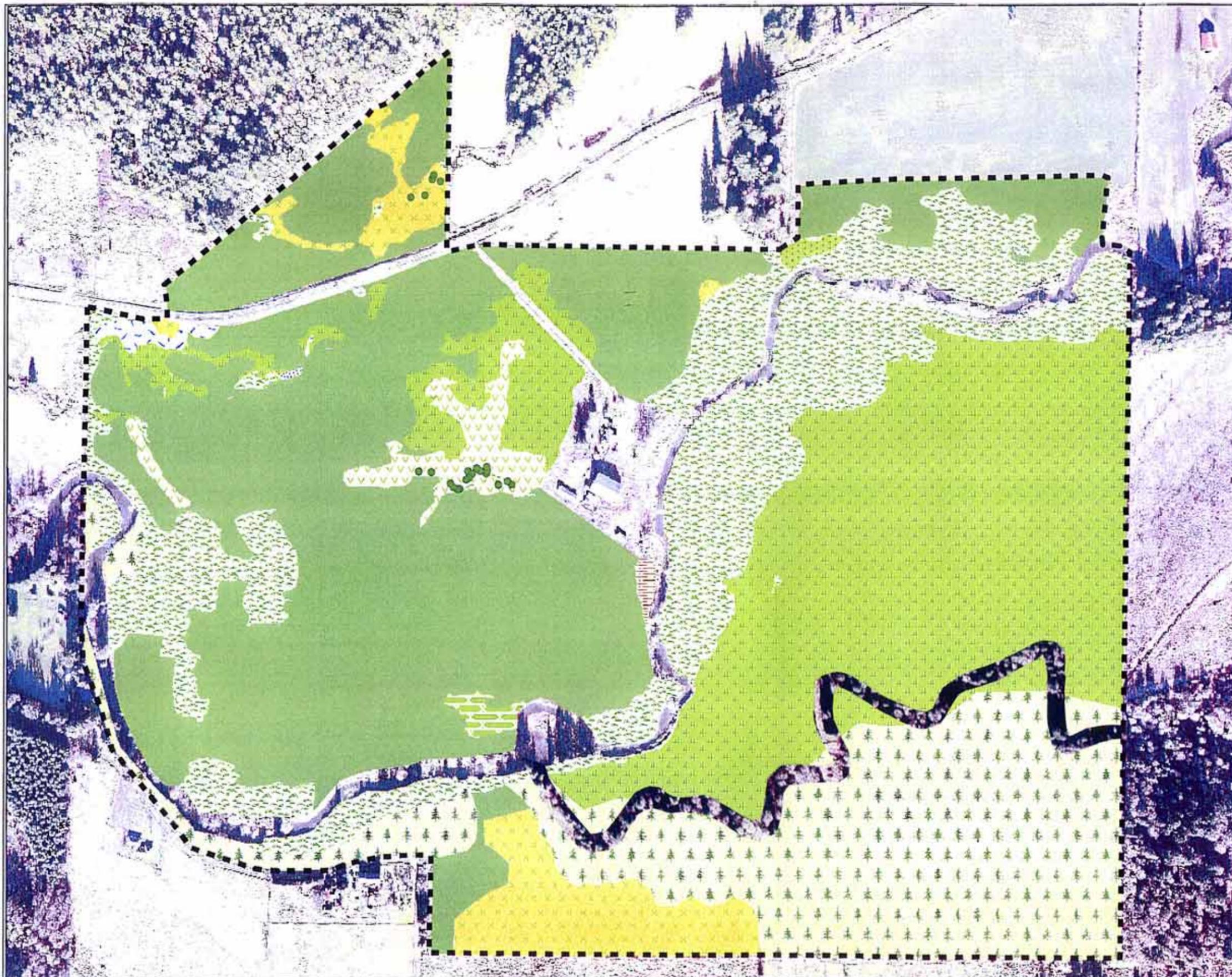
#### Soils

The Lewis County Soil Survey describes seven soil types at the NFN Bank site: Alvor silty clay loam; Chehalis silty clay; Newberg fine sandy loam; Lacamas silt loam; Reed silty clay loam; Reed silty clay loam, channeled; and Scamman silty clay loam. The Alvor, Reed, and Lacamas series are listed as hydric soils (SCS, 1991). The native plant communities for all but one of the soil units are identified in the Lewis County Soils Survey (SCS, 1987) as being mixed coniferous and deciduous forests. The exception is the Reed silty clay loam, channeled, which is identified as being naturally vegetated by shrubs, grasses, sedges, and a few mixed deciduous and coniferous trees.

## Circa 1921 Photograph of the NFN Bank Site



The view is looking due east from the old Schagger Mill, approximately 0.25 mi. east of the present-day North Fork Bridge. North Fork Road is visible behind the Ford Model Ts and the barn in the background still stands at the site today. In the lower left, steam can be seen rising off an old mill pond. (Photo courtesy of Ted Teitzel)



**Figure 3**  
**NFN Bank Existing**  
**Conditions Vegetation Map**

**Legend**

- Reed Canarygrass
- Reed Canarygrass
- Grasses/Rushes
- Grasses/Thistle
- Grasses/Plantain
- Teasel
- Sedges/Rushes
- Bentgrass
- Forested
- Dogwood
- Cattail/Bullrush
- Cattail/Willow
- Approximate Bank Site Boundary



0 200 400 800 Feet

**Notes:**  
 This map is based on GPS data and aerial photointerpretation. The mapped vegetation types reflect baseline conditions. The site is 230.41 acres in size. The area of reed canarygrass covers approximately 15% of the site.

### *Hydrology*

Hydrology at the NFN Bank site originates from groundwater inflow, over-bank flooding, and precipitation. Groundwater inflow is provided by lateral flow from the foothills adjacent to the North Fork, and down-gradient flows associated with the hyporheic zone of both the North and Middle Forks of the Newaukum River. A clay lens, located between 0 and 30 inches below the ground surface, results in a seasonally high water table in some areas.

Evidence of over-bank flooding events includes the presence of flood-borne debris up to 6.5 feet high in the branches of trees and tall shrubs within the floodplain. The majority of the site is within the 100-year floodplain (Figure 8). Although over-bank flooding from the North and Middle Forks of the Newaukum River is relatively common during winter, it has little or no influence on hydrology of existing wetlands on the site because they are primarily groundwater-fed systems. Drain tiles installed in the East and West Units helped lower groundwater levels for agricultural purposes. The mitigation bank is divided into North, South, East, and West units as shown in Figure 6.

WSDOT will monitor hydrology with shallow wells installed at several locations throughout the site (Figure 7). Hydrology will be monitored for a period of 10 years after construction of the mitigation site is complete. Electronic readings are collected twice per day at 12-hour intervals to calculate a daily average. Daily averages will be recorded and documented on annual hydrographs.

Figures 4a and 4b provide a graphical representation of baseline hydrologic conditions by showing the height of the water table relative to the soil surface between November 1999 and April 2002. The capillary fringe is the zone of soil saturation above the water table. The height of the capillary fringe is commonly assumed to be between 10 and 18 inches for non-sandy soils. Wells 1, 5, and 6 are located in wetlands where non-sandy soils occur. The water table was located between 10 and 18 inches of the soil surface at each of these wells for the majority of the monitoring period. Therefore, saturation to the soil surface through capillary rise can be assumed during these portions of the monitoring period. Wells 2, 3, and 4 were placed in upland areas to provide information about hydrologic conditions in non-wetland areas within and adjacent to the floodplain.

#### *1.1.4c Wetlands*

Thirteen jurisdictional wetlands occur on-site and comprise a total of 99.95 acres (Figure 7). Each wetland was delineated and subsequently rated using the Washington State Department of Ecology (Ecology) Rating System (1993). Ecology uses a wetland rating system that divides wetlands into four categories based upon an analysis of their ecological condition and ability to perform wetland-related functions. Category I wetlands are of the highest quality while Category IV wetlands are severely degraded and hydrologically isolated. Two wetlands (M and N) totaling 80.60 acres were rated as Category II; two wetlands (F and L) totaling 0.57 acre were rated as Category IV; and the remaining nine wetlands totaling 18.78 acres were rated as Category III. Both wetlands and riparian areas have been significantly degraded by past logging and agricultural activities.

The two methods used for assessing functions and values of wetlands include the Wetlands Functions Characterization Tool for Linear Projects (WSDOT, 2000), and the Method for Assessing Wetland Functions, Volume 1 & 2 (Hruby et al., 1999). These assessment methods are based on the Hydrogeomorphic (HGM) Approach, described by Brinson (1993) and Smith et al. (1995). Three HGM classes are included within the site including slope, flat, and depressional (depressional includes two sub classes). The HGM class is determined primarily by landscape position, topography, and hydrology source.

In Spring 2000, the depressional wetlands at the NFN Bank site were classified and assessed using the methodology detailed in the *Method for Assessing Wetland Functions Volumes 1 & 2* (WFAM) (Hruby et al., 1999). The WFAM method measures on-site indicators of various wetland functions to produce numerical indices of wetland functions, scaled from 1-10, with a margin of error of  $\pm 1$ . These indices only address a wetland's potential to provide assessed functions, and are therefore only relevant when comparing wetlands of the same HGM class that share similar opportunities to perform functions. The on-site depressional wetlands occur in the west and north units, which include the most ecologically degraded areas on site. As a result, these wetlands tend to provide lower level habitat functions.

In Spring 2001, all existing wetlands were evaluated based on the *Wetland Functions Characterization Tool for Linear Projects* (WSDOT, 2000). Similar to WFAM, this method characterizes wetland functional performance based on the presence of on-site indicators. However, the *Wetland Functions Characterization Tool for Linear Projects* is less detailed than WFAM, and does not produce a numeric score for wetland function. Instead, this method identifies provided functions, and guides the user in identifying "principal functions". A principal function is one where the evaluated wetland has both high potential and opportunity to perform relative to other functions.

Flood flow alteration is the principal function provided by most of the on-site wetlands based on this functions assessment, primarily due to their proximity to the North and Middle forks of the Newaukum River. This is particularly true where the wetlands are depressional and located along reaches of the Newaukum River that are less incised, primarily in the western portion of the site. Many of the on-site wetlands have been impacted by agriculture, limiting their potential to provide wildlife habitat functions.

Principal functions of wetlands in the North, East, and South Units include habitat for wetland-associated birds, aquatic invertebrates, amphibians, sediment retention, shoreline stabilization, as well as native plant richness. In these areas, the Newaukum River is more incised which limits the opportunity for wetlands to provide flood flow alteration functions. The wetlands in these units typically include more vegetation structure and have better connectivity to other habitat areas. Wetland classes and primary functions determined by these assessment methods for existing wetlands on-site are summarized in Table 1.

**Table 1.  
Existing Wetland Functions Summary**

Wetland	Acreeage	Wetland Class*	Principle Function**	Wetland Category***
A	2.57	Depressional outflow	Flood flow alteration.	III
B	0.75	Depressional closed	Flood flow alteration.	III
C	0.16	Depressional closed	Flood flow alteration.	III
D	1.07	Depressional closed	Flood flow alteration; amphibian habitat.	III
E	2.05	Depressional closed	Flood flow alteration; amphibian habitat.	III
F	0.10	Depressional closed	Flood flow alteration.	IV
I	7.11	Flat	General habitat suitability.	III
J	0.87	Flat	General habitat suitability.	III
K	0.35	Depressional closed	General habitat suitability; flood flow alteration; habitat for wetland-associated birds, aquatic invertebrates, and amphibians.	III
L	0.47	Depressional closed	Flood flow alteration.	IV
M	37.04	Slope	Sediment removal; erosion control & shoreline stabilization; organic matter production/export; general habitat suitability; habitat for aquatic invertebrates and amphibians; native plant richness.	II
N	43.56	Flat	Habitat for amphibians.	II
O	3.85	Depressional outflow	General habitat suitability; habitat for amphibians.	III

\* Based on Washington State Wetland Function Assessment Methods (Hruby et al., 1999)

\*\* Based on Wetland Functions Characterization Tool for Linear Projects (WSDOT, 2000)

\*\*\* Based on Ecology Rating System (Ecology, 1993)

Note: Wetlands G and H were determined to be non-wetland and removed from the list of wetlands.

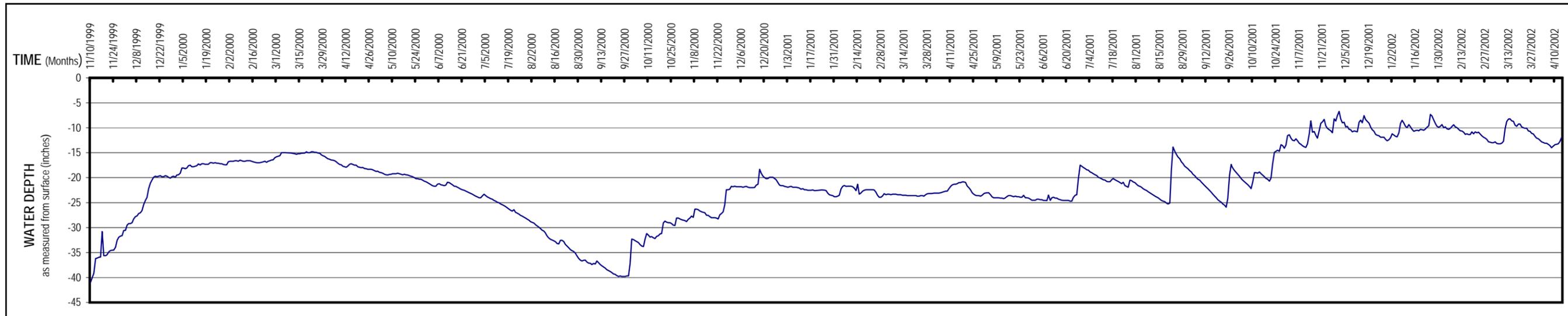
#### *1.1.4d Habitat and Wildlife Use*

The North and Middle Forks of the Newaukum River provide salmonid rearing, migration, and spawning habitat. On-site river reaches include degraded stream channel with excessive lateral scour and little shade, sections with marginal shade, deeply incised reaches, as well as well forested reaches that appear to be in good functional condition.

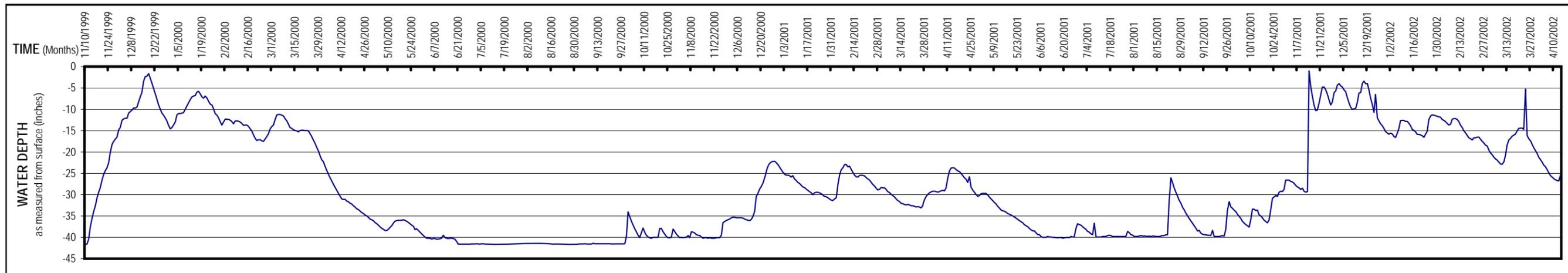
The mitigation bank site is situated in a valley bottom, with well-forested uplands situated along its northern edge. The site likely serves as a wildlife migration route from the forested uplands to the North and Middle Forks of the Newaukum River. The site includes high quality forested wetland areas, riparian forests, and upland and wetland pastures.

A small herd of elk utilizes a portion of the site. Deer, coyote, red-tailed hawk, bald eagle, great blue heron, mallard duck, chorus frog, and killdeer have been observed on the site.

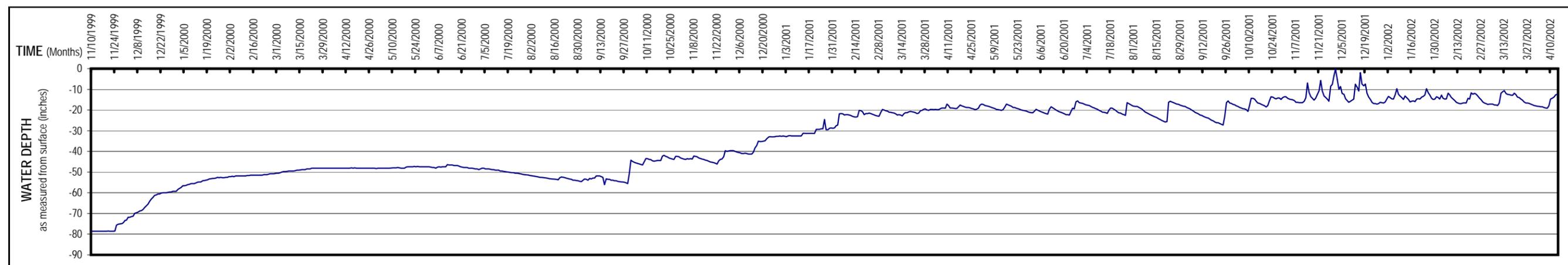
Well 1



Well 2

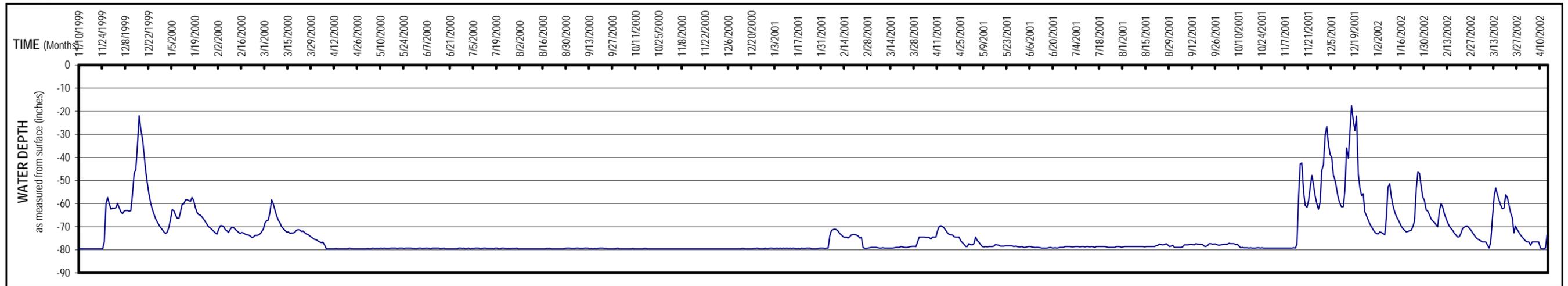


Well 3

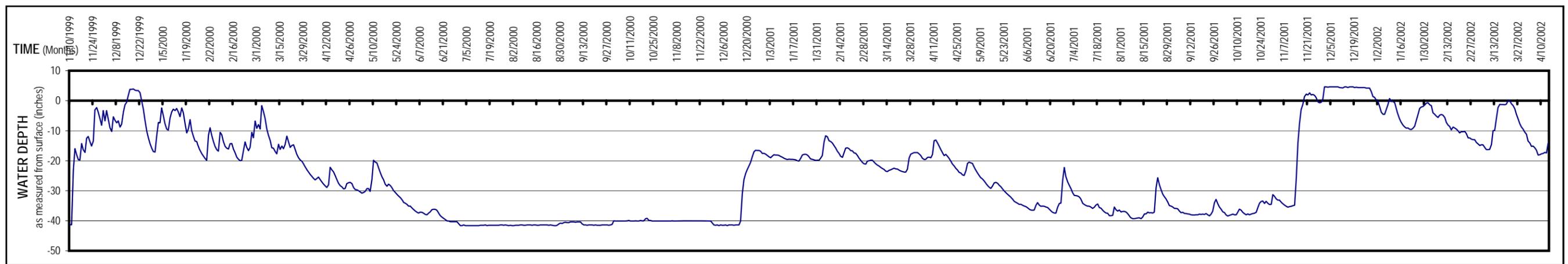


BASELINE HYDROLOGY AT THE NORTH FORK NEWAUKUM BANK  
(Refer to Figure 7 for well location)  
FIGURE 4a

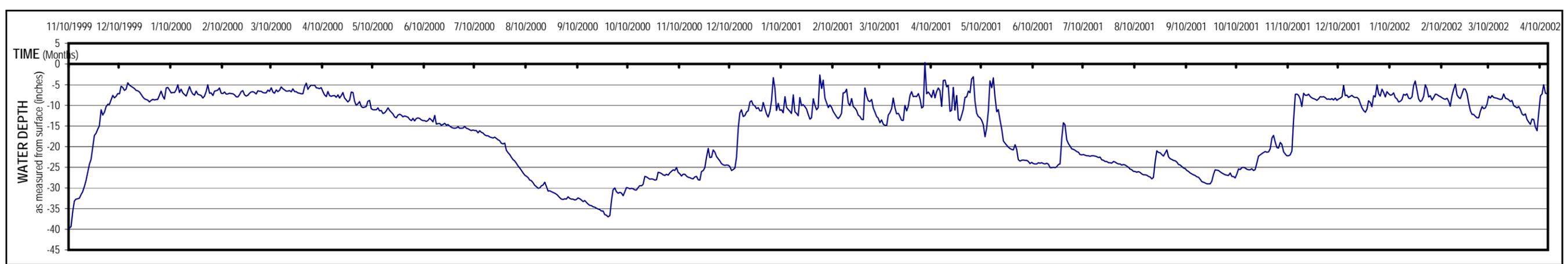
Well 4



Well 5



Well 6



BASELINE HYDROLOGY AT THE NORTH FORK NEWAUKUM BANK

(Refer to Figure 7 for well location)

FIGURE 4b

## **1.2 LEGAL AUTHORITY AND RESPONSIBILITIES OF BANK SPONSOR AND PARTNERS**

The bank is established in accordance with the following Federal and State statutes, regulations, guidelines, and policies:

- Clean Water Act (33 USC 1251 et seq.)
- Regulatory Programs of the Corps of Engineers (33 CFR Parts 320-331)
- Guidelines for the Specification of Disposal Sites for Dredged and Fill Material (a.k.a. 404(b)(1) Guidelines), (40 CFR Part 230)
- Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (February 6, 1990)
- Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (60 FR 58605-58614, November 28, 1995)
- National Environmental Policy Act (42 USC 4321 et seq.)
- Council on Environmental Quality Procedures for Implementing the National Environmental Policy Act (40 CFR Part 1500-1508)
- Executive Order 11990 (Protection of Wetlands)
- Fish and Wildlife Coordination Act (16 USC 661 et seq.)
- Fish and Wildlife Service Mitigation Policy (46 FR 7644-7663, 1981)
- Alternative Mitigation Policy Guidance Interagency Implementation Agreement between WSDOT, Ecology, and the Washington State Department of Fish and Wildlife (WDFW) (February, 2000)
- Endangered Species Act (16 USC 1531 et seq.)
- National Historic Preservation Act, as amended (16 USC 470)
- Washington State Draft Rule on Wetland Mitigation Banking (WAC 173-700)

Nothing in the MBI shall be construed as altering the requirements and agency responsibilities as specified in existing law, regulation, and policy.

### **1.2.1 WSDOT Memorandum of Agreement and the Bank Oversight Committee**

WSDOT entered into a Memorandum of Agreement for wetland banking with State and Federal wetland regulatory agencies in 1994. The WSDOT CBMOA provides the principles and procedures for establishing, implementing, and maintaining WSDOT wetland mitigation banks. Signatories to the WSDOT CBMOA include U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency (EPA), U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) Fisheries, Federal Highway Administration (FHWA), Ecology, WDFW, and WSDOT. Some deviations from the CBMOA have been made and agreed to by the signatory agencies to reflect the current science and policy changes enacted since the CBMOA was developed. WSDOT also entered into an MOA with the Bank Oversight Committee, specifically for the establishment, use, operation, and maintenance of the NFN Bank (Appendix B).

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The WSDOT CBMOA establishes a Bank Oversight Committee (BOC) to review and approve WSDOT mitigation bank proposals. WSDOT is responsible for convening and facilitating meetings of the committee. The BOC is made up of one representative from each signatory agency to the Agreement plus a representative of the local government where the bank site is located. The committee meets quarterly, and provides a venue for project review and coordination between WSDOT and State, Federal, and local governments. The BOC reviews and comments on all phases of WSDOT bank site development.

### **1.2.2 Responsibility of WSDOT and NRCS**

WSDOT is responsible for developing, operating and managing the NFN Bank in accordance with the terms of this MBI. WSDOT is also responsible for the preparation and distribution of monitoring reports and maintaining and submitting an accounting ledger, as required.

WSDOT has partnered with the Natural Resource Conservation Service (NRCS) to protect and improve the aquatic ecosystem functions provided at the NFN Bank. NRCS purchased a conservation easement on the site and WSDOT purchased the underlying property deed. Because the conservation easement protects the entire NFN Bank site from development, WSDOT will not be requesting any credit for wetland preservation because the site is already preserved by the conservation easement.

The NRCS established a 70-foot-wide riparian forest buffer along portions of the North and Middle Forks of the Newaukum River in 1999. The area is comprised of 22.15 acres. Monitoring of the site by NRCS includes a yearly site visit to check for violations, verify fee title ownership, evaluate practices installed, and assess compatible use of the WSDOT managed portion of the site. NRCS issued WSDOT a compatible use authorization stating that the restoration and enhancement work proposed by WSDOT is compatible with the NRCS activities at the site. The NRCS reserves the right to revise its restoration plan or compatible use plan, if needed, in accordance with the terms of the conservation easement and consistent with the goals and objectives outlined in this MBI. WSDOT will not receive credit for any riparian restoration activities already conducted by the NRCS.

### **1.3 SERVICE AREA**

The service area of the NFN Bank is WRIA 23 – Upper Chehalis River Basin (Figure 5). The following rationale based on criteria outlined in the WSDOT CBMOA, Federal Guidance for the Establishment, Use and Operation of Mitigation Banks, and the Washington State Draft Rule on Wetland Mitigation Banking were used to define the bank's service area:

1. The proposed corridor expansion of I-5 may be the primary project that will use most of the credits from the NFN bank.
2. The majority of wetlands impacted by the I-5 project are Category II and III wetlands located adjacent to the existing highway right-of-way.
3. The I-5 project is located in the same watershed and ecoregion as the bank site.

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Projects located within the service area (Figure 5) are eligible to apply to use credits from the NFN Bank for mitigation per the terms of this MBI. Projects outside of the service area will only be eligible with special approval of the bank instrument signatories in limited circumstances where it is determined to be practicable and environmentally desirable.

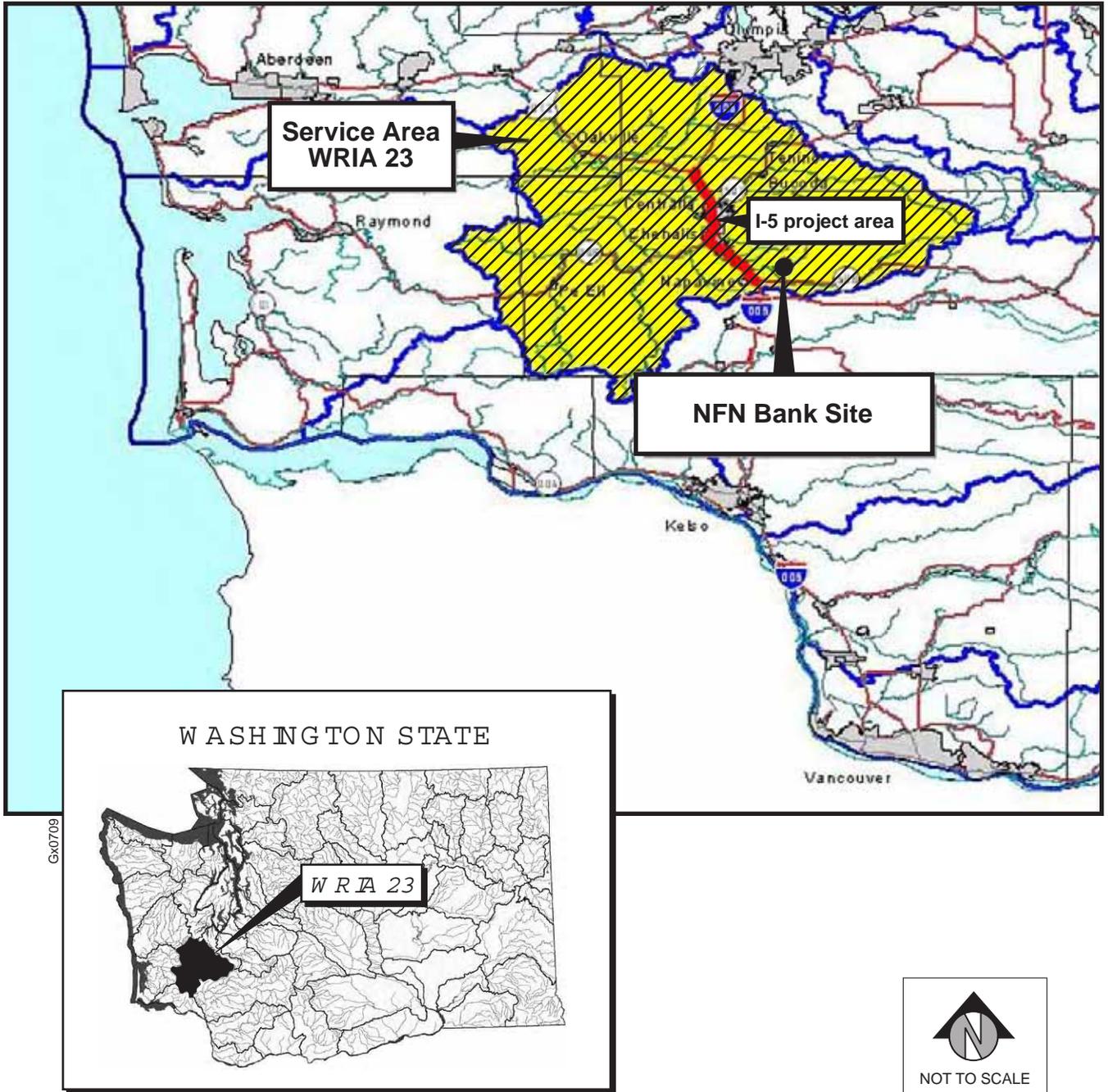
### 1.4 PERMITS AND APPROVALS

Environmental documentation and permits received for this project are summarized in Table 2 and described below.

**Table 2.  
Permit Activities and Environmental Documentation**

Permit/Concurrence Letter	Agency	Reference #	Date Received
Nationwide Permit (NWP) #27	Corps	2001-4-00182	7/9/2001
Water Quality Certification	Ecology	Corps # 2001-4-00182	6/30/2001
Concurrence on Biological Assessment	USFWS	1-3-01-I-0943; and 1-3-01-IC-0944	7/16/2001
Concurrence on Cultural Resources Assessment	SHPO	022801-13-COE-S	3/7/2001
Exemption From Shoreline Management Act Substantial Development Permit	Lewis County	WAC 173-27-040(2)(o)(i)(A)	9/21/2000
Compatible Use Authorization	NRCS	66-0546-8-07	11/8/2001
Environmental Documentation			Date Completed
Wetland Biology Report			2/2001
Determination of Non Significance under SEPA			2/2001
Biological Evaluation			2/2001
Cultural Resources Assessment			5/2001
Joint Aquatic Resources Permit Application			2/2001
Public Notification			Date
Corps Public Notice (as part of Federal mitigation bank approval process)			10/3/2003

# North Fork New aukum Mitigation Bank Service Area



### **1.4.1 Nationwide Permit**

A Nationwide Permit (NWP) 27 verification was issued by the Corps on July 9, 2001. The project was required to comply with the Endangered Species Act, National Historic Preservation Act, Water Quality Certification, and the Coastal Zone Management Act prior to beginning work at the bank site. Once this MBI has been signed, the existing authorization under NWP 27 will be re-verified and will include additional conditions that incorporate the provisions of this MBI.

### **1.4.2 Water Quality Certification**

The project meets state Water Quality Certification (WQC) conditions for NWP 27, thus individual WQC is not required. Consistency with Washington's Coastal Zone Management Program is not required for construction of the NFN Bank because the project is not located in Washington's Coastal Zone.

### **1.4.3 Endangered Species Act**

The WSDOT prepared a biological evaluation that addresses the potential effect of the NFN Bank on the threatened coastal/Puget Sound bull trout (*Salvelinus confluentus*) Distinct Population Segment (DPS) and the bald eagle (*Haliaeetus leucocephalus*). Both species may occur in the vicinity of the project area. WSDOT biologists concluded that construction of the NFN Bank project may affect, but is not likely to adversely affect bull trout and bald eagle based on review and analysis of the project site, pertinent literature, conservation measures, and the type of work being proposed. WSDOT is the non-Federal designee for the Corps and FHWA and the effect determination was made on their behalf. WSDOT received concurrence with these effect determinations from the USFWS on July 7, 2001.

Every 6 months during construction, WSDOT will review the project activities as described in the Biological Assessment and review the updated WDFW Priority Habitat and Species data to ensure that the original consultation is still valid. If new species are listed or new species move into an area, WSDOT is prepared to reinitiate consultation with USFWS and/or initiate consultation with NOAA Fisheries.

WSDOT also evaluated the need to assess Essential Fish Habitat (EFH). As the non-Federal designee, WSDOT made the determination that activities associated with the NFN Bank will have no adverse effect on EFH. The Corps concurred with this determination.

### **1.4.4 Hydraulic Project Approval (HPA)**

WDFW determined that an HPA is not required for the project because the work would not occur in fish-bearing waters or adversely affect fish or fish habitat (Alex Uber, WDFW, pers. comm., 2001). Minor modifications to project design occurred since this initial determination so confirmation that an HPA is not required was obtained for a second time based upon final site design (Bob Bicknell, WDFW, pers. comm., 2003).

### **1.4.5 Shoreline Management Act**

Lewis County Department of Community Development, Planning Division, determined on September 21, 2000 that the project does not require a Shoreline Substantial Development

Permit because the project is a public watershed restoration project [WAC 173-27-040(2)(o)(i)(A)].

#### **1.4.6 Lewis County Critical Areas and Resource Lands Review**

Lewis County Department of Community Development, Planning Division issued its approval of the NFN Bank on September 21, 2000.

#### **1.4.7 National Historic Preservation Act, Section 106 Compliance**

A cultural resources survey was conducted to identify and determine the probability of occurrence of archaeological resources and traditional cultural places in the project area. The survey revealed that there is a low probability for historic period archaeological deposits to occur and that no traditional cultural places exist at the bank site (Larson Anthropological Archaeological Services, 2001). However, excavation will be monitored, especially within the vicinity of an isolated find that included a hunter-fisher-gatherer artifact recovered during a field visit. Monitoring will occur in accordance with the *Teitzel Wetland Mitigation Bank Project Cultural Resources Monitoring Plan* (WSDOT, 2001). WSDOT received letters of concurrence from the State Historic Preservation Officer (SHPO), Chehalis Tribe, and the Corps.

## 2.0 BANK ESTABLISHMENT

### 2.1 MITIGATION BANK PLAN OVERVIEW

The mitigation bank plan focuses on reestablishing important functions of wetlands and riparian areas along the North and Middle forks of the Newaukum River. The mitigation efforts will address limiting factors for salmon in the watershed in addition to water quantity and hydrologic functions, augment existing habitats on-site, improve habitat connectivity with surrounding landscape, as well as establish valuable habitat in areas that previously had little value to fish and wildlife species.

Much of the historic forested lands in the lowland areas surrounding the site have been replaced with a highly fragmented patchwork of habitat types and land uses. In-stream and riparian habitats have been reduced and degraded along much of the Newaukum River, resulting in much of the river being in disequilibrium. Reforestation of the site will result in an almost continuous forest cover across the floodplain and confluences of the North and Middle Fork Rivers and will allow natural ecological processes to occur as unimpeded as possible greatly benefiting the ecological functions of aquatic resources and uplands.

The site design incorporates upland, wetland, and riparian components due to its large size, inclusion of numerous habitat types, and location within the floodplain of the Newaukum River, and confluence of the North and Middle Forks of the Newaukum River. All of these elements are important in providing meaningful functional improvements to watershed health. Specific restoration efforts on-site include the restoration of historic hydrologic regimes and connectivity, augmentation of wetland function through improving existing wetland hydrology, reforestation of uplands, wetlands, and riparian areas, and installation of woody debris to provide immediate improvement of habitat structure. These efforts are described in detail below:

- Restoration of areas by removing fill to restore the historical hydrologic regime of previously existing wetland within the West Unit. This effort will restore wetland functions such as flood storage, habitat for amphibians, aquatic invertebrates, and other wildlife species.
- Installation of a culvert to reestablish a hydrologic connection between wetlands separated by North Fork Road (see Wetland Restoration areas on Figure 8b). The installation will allow this wetland to export organic matter to the Newaukum River.
- Enhancement of existing degraded wetlands through planting native vegetation, reducing cover of non-native species, and installing large woody debris. These efforts improve wildlife habitat functions, habitat connectivity, amphibian and invertebrate habitat, organic matter production, native plant diversity, water quality improvement, and flood de-synchronization functions.
- Hydrologic enhancement of wetlands by creating seasonally ponded habitat, disabling drain tiles, plugging drain tile outlets, and removing a culvert to reestablish contours of a natural channel (see Wetland Enhancement areas on Figures 8a-8d). These efforts improve wildlife habitat functions, habitat connectivity, amphibian and invertebrate habitat, organic matter export, native plant diversity, water quality improvement, and flood storage functions.

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- Enhancement of riparian and shoreline areas along the North and Middle Forks of the Newaukum River by reestablishing native vegetation and structural diversity (see Riparian Forest Enhancement and Shoreline Enhancement areas on Figures 8a-8d). These efforts will provide woody debris recruitment, improved habitat and connectivity, flood de-synchronization functions, shoreline stability, and decrease of water temperature within the Newaukum River and its North and Middle Forks.
- Enhancement of adjacent uplands by establishing native forests (see Upland Buffer Enhancement areas on Figures 8a-8d). This effort will provide improved habitat and connectivity, flood de-synchronization functions during severe flooding, and establishment of micro-climates that will encourage volunteer native understory.

The mitigation area units are shown in Figure 6 and Figure 7 shows the existing site conditions, including wetlands. Figure 8 shows the mitigation areas for the entire site, and Figures 8a to 8d show mitigation areas for the individual units. The Grading Plan is provided as Figure 9.

### **2.2 CONSTRUCTION SCHEDULE**

Excavation and other earthwork are scheduled to occur between summers 2002 and 2003. Plant material will primarily be installed during winter 2002/2003. Additional planting will occur during winter 2003/2004. Drain tiles will be plugged and large woody debris installed during summer 2003.

As-built plans documenting post-construction site conditions will be submitted to the bank instrument signatories by March 31, 2004. These plans will document planting, grading, construction of ponds and culverts, location of disabled drain tile systems, and installation of large woody debris.

### **2.3 PLANTING PLAN**

WSDOT will plant native species that are known to occur in the area and are appropriate for the site. Trees will include bare root plant material 24 to 36 inches tall or 10 cubic inch tubelings installed 10 feet on center (O.C.). Shrubs will include bare root plant material 36 inches tall installed 2 to 3 feet O.C. Tables 3 and 4 provide a list of plant materials, spacing, quantities, and size of stock to be planted on-site. The planting plan (Figure 10) indicates the location of each area to be planted. The herbaceous seeding plan (Figure 11) indicates where seed mix application will occur.

**Table 3.  
Proposed Planting List**

Species	Plant Height	Spacing	Quantity
<b>Shoreline Enhancement Planting (7.50 acres)</b>			
Willow ( <i>Salix</i> sp.)	36" bare root	2-3' O.C.	17,300
Red-osier Dogwood ( <i>Cornus sericea</i> )	36" bare root	2-3' O.C.	17,300
<b>Oregon Ash Forest (81.34 acres)</b>			
Oregon Ash ( <i>Fraxinus latifolia</i> )	24-36" bare root	10' O.C.	43,000
<b>Mixed Coniferous Forest (40.85 acres)</b>			
Douglas-fir ( <i>Pseudotsuga menziesii</i> )	24-36" bare root	10' O.C.	7,420
Grand fir ( <i>Abies grandis</i> )	24-36" bare root	10' O.C.	2,121
Western Redcedar ( <i>Thuja plicata</i> )	24-36" bare root	10' O.C.	3,180
Western Hemlock ( <i>Tsuga heterophylla</i> )	24-36" bare root	10' O.C.	2,121
Red Alder ( <i>Alnus rubra</i> )	24-36" bare root	10' O.C.	3,180
Big Leaf Maple ( <i>Acer macrophyllum</i> )	24-36" bare root	10' O.C.	3,180
<b>Mixed Hardwood Forest (37.15 acres)</b>			
Western Redcedar ( <i>Thuja plicata</i> )	24-36" bare root	10' O.C.	6,520
Red Alder ( <i>Alnus rubra</i> )	24-36" bare root	10' O.C.	2,445
Big Leaf Maple ( <i>Acer macrophyllum</i> )	10 cubic inch tubelings *	10' O.C.	2,445
Black cottonwood ( <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> )	10 cubic inch tubelings *	10' O.C.	3,260
Quaking Aspen ( <i>Populus tremuloides</i> )	24-36" bare root	10' O.C.	1,630
<b>Estate Buffer Plantings (1.80 acres)</b>			
Western Redcedar ( <i>Thuja plicata</i> )	24-36" bare root	5' O.C.	1,250
Black Gooseberry ( <i>Ribes lacustre</i> )	24-36" bare root	3' O.C.	4,900
Sitka Spruce ( <i>Picea sitchensis</i> )	24-36" bare root	5' O.C.	1,250
Black cottonwood ( <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> )	10 cubic inch tubelings *	5' O.C.	1,250
Swamp Rose ( <i>Rosa pisocarpa</i> )	24-36" bare root	3' O.C.	4,900
<b>Type IV Enhancement Areas (2.30 acres)</b>			
Western Redcedar ( <i>Thuja plicata</i> )	24-36" bare root	10' O.C.	500
Black cottonwood ( <i>Populus balsamifera</i> ssp. <i>trichocarpa</i> )	10 cubic inch tubelings *	10' O.C.	500

\*Refers to volume of container instead of plant height.

**Table 4.  
Seed Mixes**

Seed Mix Species	Seeding Rate	Planting Area
<b>Wetland Prairie Seed Mix*</b>	10 lbs/acre	Wetland Restoration Area
Meadow Barley ( <i>Hordeum brachyantherum</i> )		
Timber Oatgrass ( <i>Danthonia intermedia</i> )		
Western Mannagrass ( <i>Glyceria occidentalis</i> )		
Tufted Hairgrass ( <i>Deschampsia caespitosa</i> )		
Blue Eyed Grass ( <i>Sisyrinchium idahoense</i> )		
Camas ( <i>Camassia quamash</i> )		
Native Red Fescue ( <i>Festuca rubra</i> )		
Slough Sedge ( <i>Carex obnupta</i> )		
American Sloughgrass ( <i>Beckmannia syzigachne</i> )		
<b>Emergent Seed Mix</b>	15 lbs/acre	Type I Wetland Enhancement
Slough Sedge ( <i>Carex obnupta</i> )		
Creeping Spike Rush ( <i>Eleocharis palustris</i> )		
Western Mannagrass ( <i>Glyceria occidentalis</i> )		
Meadow Barley ( <i>Hordeum brachyantherum</i> )		
Hardstem Bulrush ( <i>Scirpus acutus</i> )		
<b>Upland Seed Mix</b>	40 lbs/acre	Disturbed Upland Areas
Blue Wildrye ( <i>Elymus glaucus</i> )		
Native Red Fescue ( <i>Festuca rubra</i> )		
California Brome ( <i>Bromus carinatus</i> )		

\*Commercially prepared seed mix.

## 2.4 MITIGATION BANK PLAN

Each mitigation element is discussed in depth below and summarized in Table 5.

**Table 5.  
Mitigation Type and Acreage Summary**

Mitigation Activity	Description	Acreage
Wetland Restoration	Removal of fill from historic wetland and planting native tree species in the West Unit.	2.06
Wetland Enhancement Type I	Tree planting, creating seasonal pond habitat to increase native species and habitat diversity, installing large woody debris, and disabling drain tiles in the West Unit.	2.73
Wetland Enhancement Type II	Tree planting and disabling of drain tiles in East Unit.	20.31
Wetland Enhancement Type III	Tree planting in degraded wetlands in all units.	63.89
Wetland Enhancement Type IV	Underplanting along edge of preservation area as well as removal of a culvert and contouring a natural channel in South Unit.	2.30
Shoreline Enhancement	Shrub planting along North and Middle Forks of Newaukum River.	7.50
Riparian Enhancement	Tree planting in non-wetland areas within 100-year floodplain and/or within shoreline management area.	31.31
Upland Buffer Enhancement	Tree planting in degraded upland areas.	40.85
<b>Total Affected Acreage (for mitigation credit)</b>		<b>170.95</b>
Not-For-Credit Acreage (Estate Buffer, NRCS preservation/riparian enhancement areas, river channel, and Lewis County's mitigation area)		59.46
<b>Total Site Acreage</b>		<b>230.41</b>

### 2.4.1 Wetland Restoration (2.06 acres)

Two wetland restoration activities are planned for the West Unit. The first activity includes removing fill to create seasonally inundated ponds in previous wetland areas. The total area of seasonal ponds is approximately 3.24 acres. However, only 1.53 acres of these ponds is comprised of wetland restoration. The remaining portions (1.71 acres) were created in existing wetlands and are considered part of Wetland Enhancement Type I (see Figure 8 and Topographic Enhancement Areas “A” and “B” on Figure 9).

The second activity includes reconnecting a seasonal creek with its historic channel just north of Topographic Enhancement Area “A” (Figure 9). The unnamed creek conveys surface water southward across the North Unit, through a ditch along the north side of North Fork Road, then under the road and westward to the Newaukum River. Connectivity will be restored by installing a 24-inch PVC culvert beneath North Fork Road so that the creek flows under the road east of its existing location, then through a series of swales to the Newaukum River. This will be accomplished by removing fill from 0.53 acre of previous wetland.

#### 2.4.1a Construction Elements

Lewis County Public Works Department will use an excavator to install the culvert beneath the North Fork Road. WSDOT will use an excavator and bulldozer to remove fill from a total of 2.06 acres of previously existing wetland areas in the West Unit. The excavated material will be spread out on adjacent uplands.

#### *2.4.1b Planting*

Oregon ash will be planted in each wetland restoration area (Table 3). Wetland Prairie seed mix will be sowed on restored wetland areas, and an upland seed mix will be planted in the adjacent disturbed upland areas (Table 4).

#### *2.4.1c Functional Gain*

Fill removal activities will result in greater wetland area on the site. Wetland functions including flood flow alteration and sediment, toxicant, and nutrient removal will result from the increase in wetland area.

Reestablishment of the historic channel will provide slow-moving water, which is beneficial habitat for aquatic plant and animal species. Habitat improvement will also be achieved as Oregon ash plantings increase the species and structural diversity of the plant community. Restoring forested conditions will further benefit functions associated with erosion control and organic matter production and export.

#### *2.4.1d Monitoring*

A WSDOT wetland biologist will monitor excavation activities. Restored acreage will be verified by visual observation and photography. WSDOT will conduct a wetland delineation for the Year 5 monitoring period to demonstrate that each wetland area has been successfully restored. Water flow through the culvert will be monitored and documented in monitoring reports. Sampling methods, as outlined in the Monitoring Plan (Appendix A), will be used to determine the number of living trees per acre in the Oregon Ash planting area.

### **2.4.2 Type I Wetland Enhancement Area (2.73 acres)**

Deepening seasonally ponded areas in the West Unit will increase the extent and duration of seasonal inundation of several existing wetlands. The locations of these areas are shown on Figure 8b and labeled on the Grading Plan as Topographic Enhancement Areas “B” and “C” (Figure 9).

#### *2.4.2a Construction Elements*

Seasonally ponded depressions will be expanded using a small bulldozer and an excavator. These seasonal ponds occur partially in Type I enhancement areas and partially in Wetland Restoration areas and will comprise a total of 3.24 acres. Approximately 350 cubic yards of large woody debris will be installed along the perimeters of the ponded areas.

#### *2.4.2b Planting*

Planting will occur throughout the entire Type I Wetland Enhancement area. Seasonally ponded areas will be planted with a native emergent seed mix and other locations will be planted in with Oregon ash (Figures 10 and 11). Tables 3 and 4 describe the amount and type of plant material to be installed.

#### *2.4.2c Functional Gain*

Excavation will result in ponds with depths sufficient to maintain surface water into mid-June during most years. The presence of long-duration seasonal ponding will provide amphibian-breeding habitat. Large woody debris will increase habitat function. Emergent seeding and tree planting will increase species and structural diversity of the wetland while helping to prevent the

establishment of invasive species such as reed canarygrass.

Microtopography in much of the floodplain consists of smooth, flat soil surfaces as a result of agricultural land use. Excavation activities will increase variation of microtopography and is thereby likely to increase flood storage by reducing outflow rates and increasing duration of outflow events. Varying topography will provide greater potential for species-richness and increased flood storage is likely to enhance surface/groundwater interflow.

#### *2.4.2d Monitoring*

A WSDOT wetland biologist will observe excavation activities and document post-construction conditions with photographs and as-built plans. Photographs will verify inundation in excavated areas after June 15th of each year these areas are monitored. Vegetation sampling methods are outlined in the Monitoring Plan (Appendix A).

### **2.4.3 Type II Wetland Enhancement Area (20.31 acres)**

Areas in the East Unit will be reforested and functioning drain tiles will be disabled in the Type II Wetland Enhancement Area (Figure 8c). Open water habitat will be created in Wetland N with explosives, which will produce 1- to 6-foot deep depressions with a small earthen berm around the perimeter (Figure 9, Topographic Enhancement Area “D”).

#### *2.4.3a Construction Elements*

WSDOT will use explosives to construct ponds that comprise 0.26 acre. Deep trenching or tilling will be conducted to disable drain tiles. Three drain tile system outlets located in the banks on the North and Middle Forks Newaukum River will be plugged with concrete (Figure 9).

#### *2.4.3b Planting*

The East Unit will be planted with Oregon ash and mixed hardwood species (Figure 10). Plants will be installed approximately 10 feet O.C. to achieve a target density of 250 stems per acre at the end of a 10-year period. Plant materials included in the Oregon ash and mixed hardwood communities are outlined in Table 3.

#### *2.4.3c Functional Gain*

Creating long-duration, seasonally-ponded areas will provide breeding habitat for amphibians. Reforestation will provide additional habitat structure and shade for open water areas, increase vegetative diversity, and provide a source of organic nutrients and cover associated with leaf litter. Establishment of trees in these areas will significantly affect organic matter production through increased detritus development and vegetative diversity and abundance. A subsequent increase in organic matter export is anticipated given the presence of the Newaukum River and the expected increase of wildlife use on the site due to improved habitat and food sources.

Drain tiles in the East Unit impact wetland functions by reducing base flow and water quality functions. Disabling the tiles will enhance floodwater attenuation and sediment/toxicant removal functions of the wetland. Blasting activities in combination with trenching or tilling to disable drain tiles will restore topographic heterogeneity and hydrologic variability that was once characteristic of the wetland. These actions will increase the residence time of floodwater in these areas of the site thus enhancing naturalized surface/groundwater interflow.

#### *2.4.3d Monitoring*

Visual observation and photographic documentation will be used to monitor the effectiveness of the drain tile disabling activities targeting the existing drain tile outfalls and other areas where persistent tile system discharges could develop. Monitoring will be conducted periodically following rain events and when the seasonal water table is likely to be above the elevation of the existing tile system. Vegetation sampling methods are outlined in the Monitoring Plan (Appendix A).

### **2.4.4 Type III Wetland Enhancement Area (63.89 acres)**

#### *2.4.4a Planting*

Type III enhancement occurs in all four units. Degraded wetland areas, currently dominated by pasture grasses, will be planted with Oregon ash and mixed hardwood species (Figure 10). Plant material and spacing is outlined in Table 3.

A 30- to 50-foot wide band around the perimeter of an existing sedge meadow and isolated islands within the sedge meadow will be planted with Oregon ash to create a mosaic of sedge and ash patches similar to the forested wetland preservation area. The development of significant areas of Oregon ash will add complexity and vertical structure to the sedge meadow.

#### *2.4.4b Functional Gain*

Reforestation will increase habitat structure and provide habitat connectivity, food and cover for wildlife, shade to cool temperature of open water areas, and a source of organic nutrients associated with leaf litter. Organic matter from riparian vegetation is an important source of energy to the Newaukum River food chain. Establishing trees on the site will have a significant benefit to the production, storage, and export of organic matter, which is important to several downstream processes, and is critical for forest dependent wildlife species, such as neo-tropical migratory birds, who have declined due to habitat fragmentation and loss of forested areas.

#### *2.4.4c Monitoring*

Sampling methods, as outlined in the Monitoring Plan (Appendix A), will be used to determine the number of living native trees per acre in the Oregon Ash and mixed hardwood planting areas.

### **2.4.5 Type IV Wetland Enhancement Area (2.30 acres)**

Openings in the tree canopy of the South Unit's forested wetland preservation area will be planted with native trees (Figure 8d). A culvert in the South Unit will be removed and the channel will be restored to match upstream and downstream portions of the channel (Figure 9).

#### *2.4.5a Construction Elements*

WSDOT will use an excavator to remove the culvert that carries surface flow under an old farm road in the South Unit and restore contours to match those of the existing natural channel.

#### *2.4.5b Planting*

Western redcedar and black cottonwood will be planted in gaps within the existing tree canopy. These locations are labeled as Enhancement Areas on Figure 10. Plant material will be installed 10 feet O.C.

#### *2.4.5c Functional Gain*

Plant installation will accelerate the development of a mature native forest in Wetland M and deter the influx of invasive plant species from nearby sources. This will improve habitat value by increasing species and structural diversity of the plant community, which are beneficial attributes of wildlife habitat. The removal of the farm road culvert will provide improved hydrologic and biologic connectivity.

#### *2.4.5d Monitoring*

Plant survival will be determined one year and five years after installation. Planting areas will be marked in the field and installed plants will be tagged for identification. Sampling methods are outlined in the Monitoring Plan (Appendix A).

### **2.4.6 Newaukum River Shoreline Enhancement (7.50 acres)**

Native shrubs will be planted along degraded sections of the upper stream banks between the top of the bank and ordinary high water mark (Figures 8b through 8d). Shoreline enhancement activities will take place adjacent to the NRCS Riparian Enhancement Area, which extends only to the top of the bank.

#### *2.4.6a Planting Plan*

Native willow and red-osier dogwood stakes will be installed (Table 3) along the North (9,940 linear feet) and Middle (3,670 linear feet) Forks of the Newaukum River (Figure 10). The average width of the planting zone is 25 feet, although it varies throughout.

#### *2.4.6b Functional Gain*

Stream bank plantings will provide shoreline stabilization, food and cover for fish and wildlife, and will establish potential woody debris recruitment as the plantings mature and a more naturalized channel disturbance regime is established. Overall biomass (organic matter production and export) will increase through greater vegetation density and production levels. Export of organic carbon will provide a direct source of nutrients to the Newaukum River. Concentrations of nutrients and stream water chemistry increase food availability for aquatic invertebrates, stream-dwelling fishes, amphibians, and other insect feeders (Cedarholm et al., 2000).

Shoreline stabilization will be improved by increasing vegetation density bordering the Newaukum River. Much of the existing shoreline is characterized by reed canarygrass and other herbaceous plants (Figure 3). Tree and shrub plantings are likely to withstand major flood events and minimize impacts from erosive forces during high flow velocities in the Newaukum River.

#### *2.4.6c Monitoring*

Sampling methods, as outlined in the Monitoring Plan (Appendix A), will be used to determine the number of living native trees and shrubs per acre in the Shoreline Enhancement planting areas.

### **2.4.7 Riparian Forest Enhancement (31.31 acres)**

Riparian forest enhancement areas, located in the North, East and West Units, include areas within 200 feet of the Newaukum River and low-lying areas associated with the floodplain. These low-lying areas do not meet criteria of a wetland, but occur in areas of low topography

associated with wetlands and are likely to convey surface water during major flood events. All of these areas are hydrologically continuous with the river and provide functions that include the buffering of hill slope runoff, nutrient entrapment, sediment removal, shading, and/or habitat connectivity. A portion of the Riparian Forest Enhancement area located within 200 feet of the River in the South Unit was not included due to its high topography and limited ability to provide riparian functions.

### *2.4.7a Planting Plan*

Riparian forest enhancement areas will be planted to achieve mixed hardwood and mixed conifer plant communities (Table 3). Tree species will be planted approximately 10 feet O.C. to achieve a target density of 250 stems per acre at the end of a 10-year period.

### *2.4.7b Functional Gain*

Riparian plantings will provide food and cover for fish and wildlife as well as contribute to sediment, nutrient and toxicant removal functions of adjacent wetlands. Restoring forested conditions will further benefit functions associated with erosion control by stabilizing soil in the floodplain and increasing transpiration rates at the site, thus decreasing stormwater runoff. Establishing these forested areas will also provide habitat connectivity between wetlands on-site.

Shade provided by the restored riparian forest can moderate water temperature in the Newaukum River thus improve habitat for fish and aquatic macro-invertebrates. Establishing trees on the site will benefit the production, storage and export of organic matter. Organic carbon supplied by leaves, branches, animals and insects that originate from the riparian forest is an important part of the food chain that will further enhance habitat for fish and aquatic macro-invertebrates.

### *2.4.7c Monitoring*

Sampling will be used to determine the number of living native deciduous and coniferous trees per acre. Sampling methods are outlined in the Monitoring Plan (Appendix A).

## **2.4.8 Upland Buffer Enhancement Area (40.85 acres)**

Upland buffer areas are located in the North, West and South units. These areas will be planted with mixed coniferous tree species. Uplands occur in both Riparian Enhancement Areas and Upland Buffer Enhancement Areas. However, Upland Buffer Enhancement Areas are in locations of higher topography with less potential to provide riparian and floodplain functions.

### *2.4.8a Planting Plan*

Tree species will be planted approximately 10 feet O.C. to achieve a target density of 250 stems per acre at the end of a 10-year period (Figure 10). Plant species, quantities, and spacing are outlined in Table 3.

### *2.4.8b Functional Gain*

Upland buffer plantings will provide food and cover for wildlife, reduce sedimentation of wetlands, and provide an area of dense planting that may provide a barrier to invasive plant species.

### *2.4.8c Monitoring*

Statistical sampling will be used to determine tree density within planted areas. Sampling

methods are outlined in the Monitoring Plan (Appendix A).

### **2.4.9 Estate Buffer Planting Area (1.80 acres)**

The NFN Bank site surrounds property that will be retained by the Teitzel Estate (Figure 6). A fence and buffer plantings will be installed around the vicinity of a house and barn to protect the bank site. The buffer is 50 feet wide and is not part of the credit generating area at the Bank.

#### *2.4.9a Construction Elements*

A wire fence (Figure 9) will be installed along the perimeter of the bank site around the Estate Buffer planting area to control access where residential land use will occur adjacent to the site (Figure 10).

#### *2.4.9b Planting Plan*

Black gooseberry, swamp rose, western redcedar, Sitka spruce, and black cottonwood will be planted along the fence in areas labeled as Buffer Planting (Figure 10). The planting will occur within mitigation areas already designated as wetland, upland buffer, and riparian enhancement areas. Plantings will be compatible with the existing mitigation areas in which they are located.

#### *2.4.9c Functional Gains*

The buffer area will provide food, cover, and nesting opportunities for wildlife. Dense plant spacing (of approximately 5 feet O.C.) will occur in order to shield the site from potential disturbances. The fence will protect the plantings from human disturbances by discouraging entry into the buffer.

#### *2.4.9d Monitoring*

Plant survival will be determined by counting surviving plants one year after installation. The aerial cover of plantings will be determined in following years based on the methods outlined in the Monitoring Plan (Appendix A). The fence around the Estate Buffer will be monitored for its effectiveness, and replaced if necessary.

## **2.5 INVASIVE SPECIES MANAGEMENT**

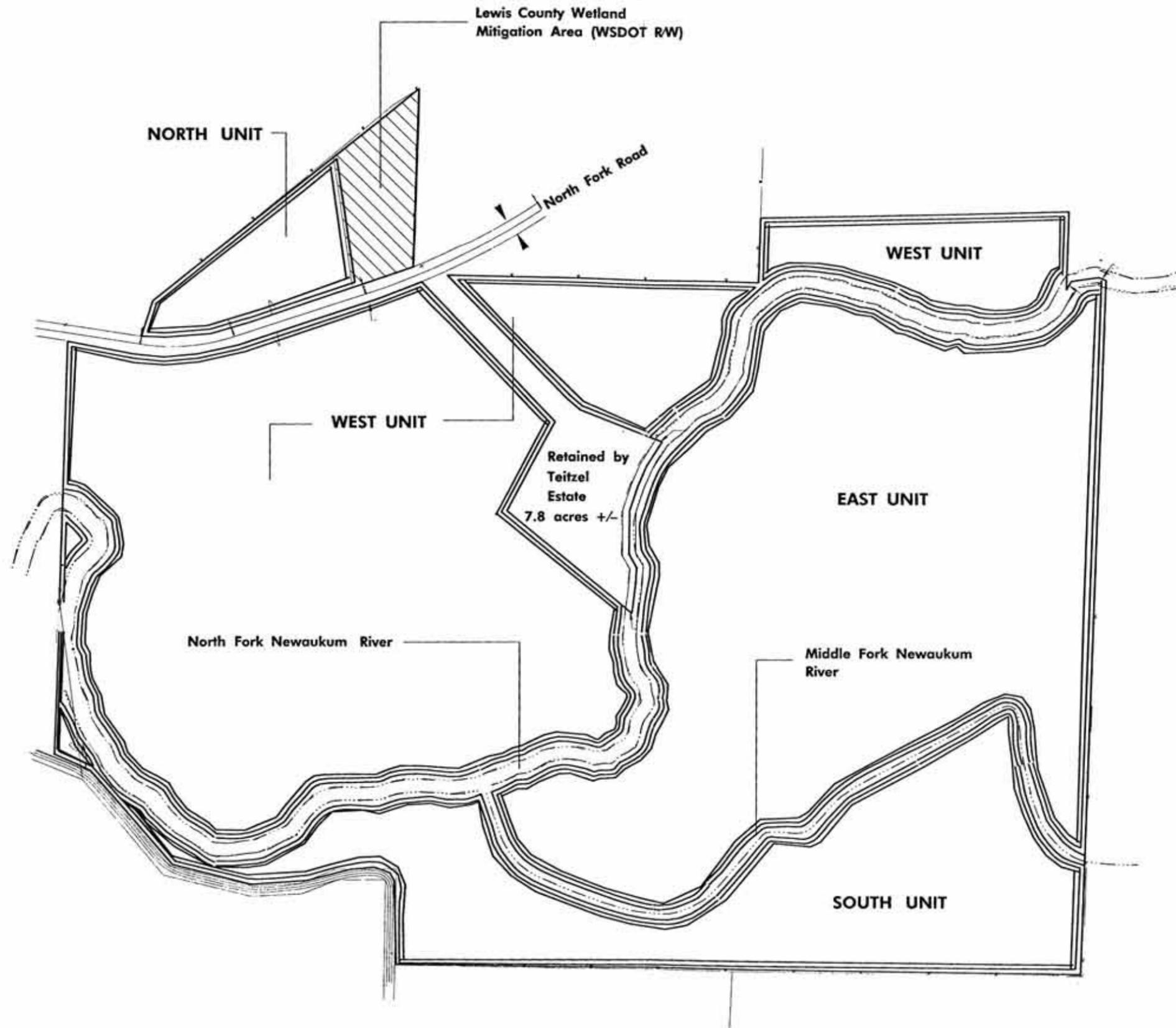
Invasive species at the NFN Bank will be managed by preventing the spread of invasive species on-site while establishing native woody plant communities. Reed canarygrass is the invasive species of primary concern at the NFN Bank. Pre-construction site conditions, because of frequent disturbance from flooding and large seed/population source, favored the persistence and spread of reed canarygrass. WSDOT anticipates that mitigation activities will prevent the spread of existing reed canarygrass populations, prevent the establishment of new populations, and reduce the coverage of the grass in the long-term through establishing a self-sustaining native woody plant community. This shall include dense native shrub planting along the shoreline of the Newaukum River where reed canarygrass primarily occurs, and installing native trees and/or emergent seed in all other locations.

Eradication of reed canarygrass is not a goal of mitigation activities on-site. In the absence of an established woody community, reed canarygrass has the potential to provide water quality functions such as nutrient uptake and soil-stabilization, as well as cover, nesting material, and browse for a broad range of fish and wildlife species. This is usually the case when structural diversity of vegetation and hydrologic features are present as opposed to the lack of such

diversity that can result in monotypic stands of reed canarygrass.

Direct control methods may often not be appropriate for the NFN bank because each control method poses a risk to installed mitigation plantings: injuring desirable plants with machinery, soil disturbance from machinery that may allow germination of other non-desirable species in the seed bank, plant mortality from herbicide over-spray, and degradation of water quality in the Newaukum River from herbicide application. However, under certain circumstances, direct control methods may be deemed appropriate. Monitoring will document reed canarygrass coverage and reforestation success. If reed canarygrass populations increase, appropriate contingency measures will be established based on the conditions observed during monitoring and through consultation with the BOC.

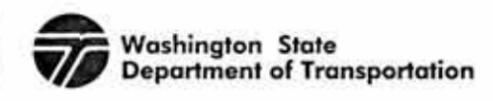
Monitoring for the presence of other invasive species that may pose a threat to mitigation success will also occur. Occurrence of these species and management or maintenance activities conducted to control these species will be documented in annual monitoring reports throughout the monitoring period.



DESIGNED BY	ENTERED BY	CHECKED BY	PROJ. ENGR.	REGIONAL ADM.	DATE	DATE	REVISION	BY
D.R. CORLETT, LA	D.R. CORLETT, LA	D.R. CORLETT, LA	D.R. CORLETT, LA	D. WAGNER, PE	1/2001	6/2003	32004 BOC revisions	
						6/2003	32004 BOC revisions	
						6/2003	32004 BOC revisions	
							32004 BOC revisions	

REGION NO.	STATE	FED. AID PROJ. NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		

ENVIRONMENTAL AND ENGINEERING SERVICE CENTER



NORTH FORK NEWAUKUM MITIGATION BANK

FIGURE 6: MITIGATION UNIT AREAS

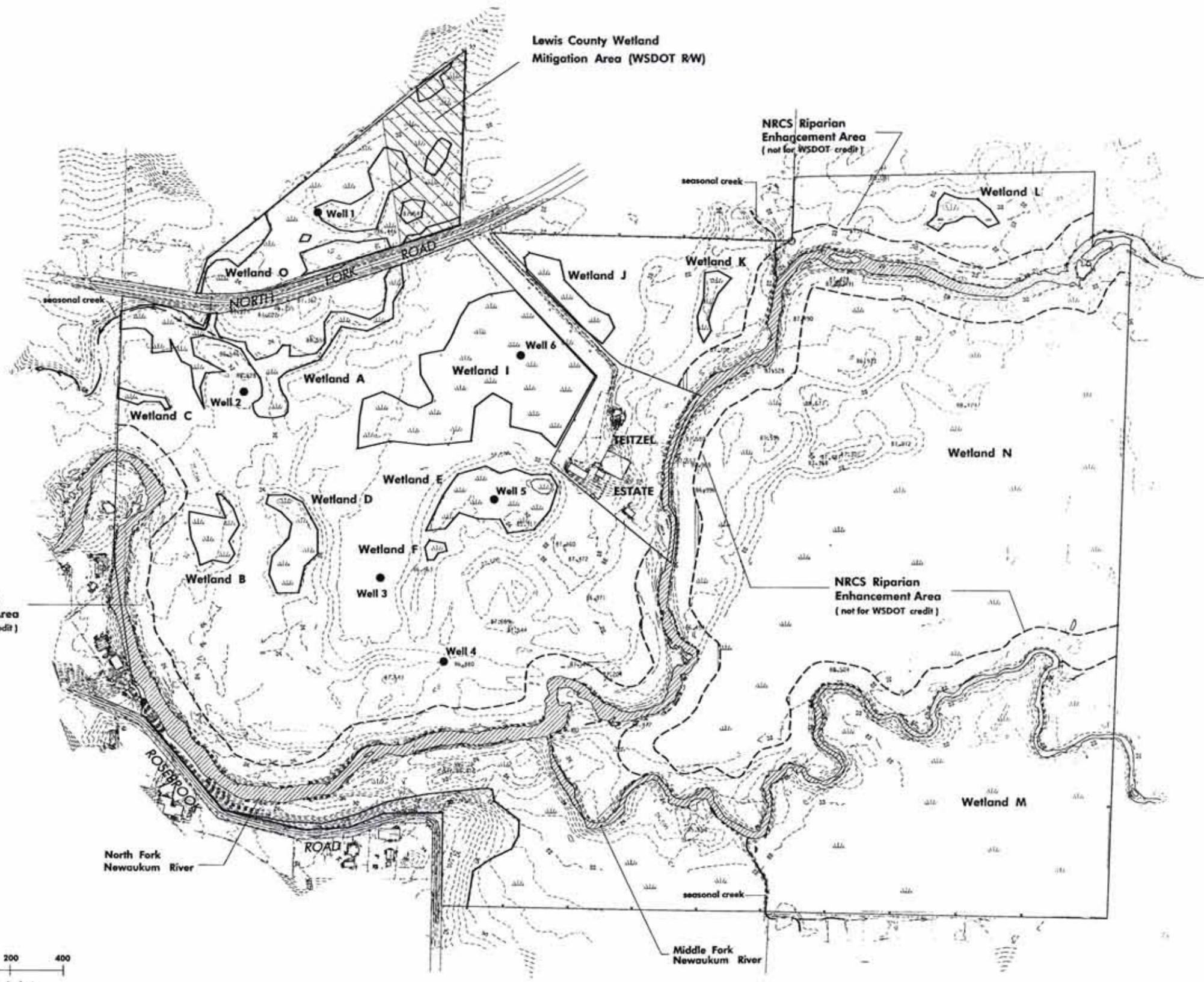


Lewis County Wetland Mitigation Area (WSDOT R/W)

NRCS Riparian Enhancement Area (not for WSDOT credit)

NRCS Riparian Enhancement Area (not for WSDOT credit)

NRCS Riparian Enhancement Area (not for WSDOT credit)

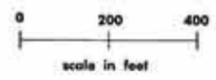


**EXISTING WETLAND SUMMARY**

Wetland A	2.57 acres
Wetland O	3.85 acres
Wetland B	0.75 acres
Wetland C	0.16 acres
Wetland D	1.07 acres
Wetland E	2.05 acres
Wetland F	0.10 acres
Wetland I	7.11 acres
Wetland J	0.87 acres
Wetland K	0.35 acres
Wetland L	0.47 acres
Wetland M	37.04 acres
Wetland N	43.56 acres
<b>Total Wetland Area</b>	<b>99.95 acres</b>

**River Area 17.21 acres**  
(river area includes open water, river bars, terraces located within the active channel system, and bank areas)

Note: Wetlands G and H were determined to be non-wetland and removed from the project.



final 604				
PROJECT LANDSCAPE ARCH	D.A. CORLETT, L.A.	92000	6/2003	
ENTERED BY	D.A. CORLETT, L.A.	92000	6/2003	
CHECKED BY	D.A. CORLETT, L.A.	92000	6/2003	
REGION LANDSCAPE ARCH	D.A. CORLETT, L.A.			
REG. ADMIN	D. WAGNER, P.E.			
	DATE	DATE	REVISION	BY

STATE OF WASHINGTON  
 REGISTERED LANDSCAPE ARCHITECT  
 D.A. CORLETT  
 LICENSE NO. 728  
 DATE: 7-6-04

CONTRACT NO. \*\*\*\*\*DCS\FILENAME\*\*\*\*\*

ENVIRONMENTAL AND ENGINEERING SERVICE CENTER

Washington State Department of Transportation

NORTH FORK NEWAUKUM MITIGATION BANK

FIGURE 7: EXISTING SITE CONDITIONS INCLUDING WETLANDS

REFERENCE SHEET NUMBER

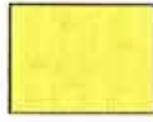
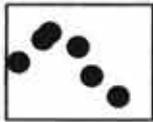
SHEET 2 OF 10 SHEETS



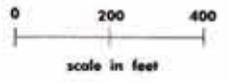
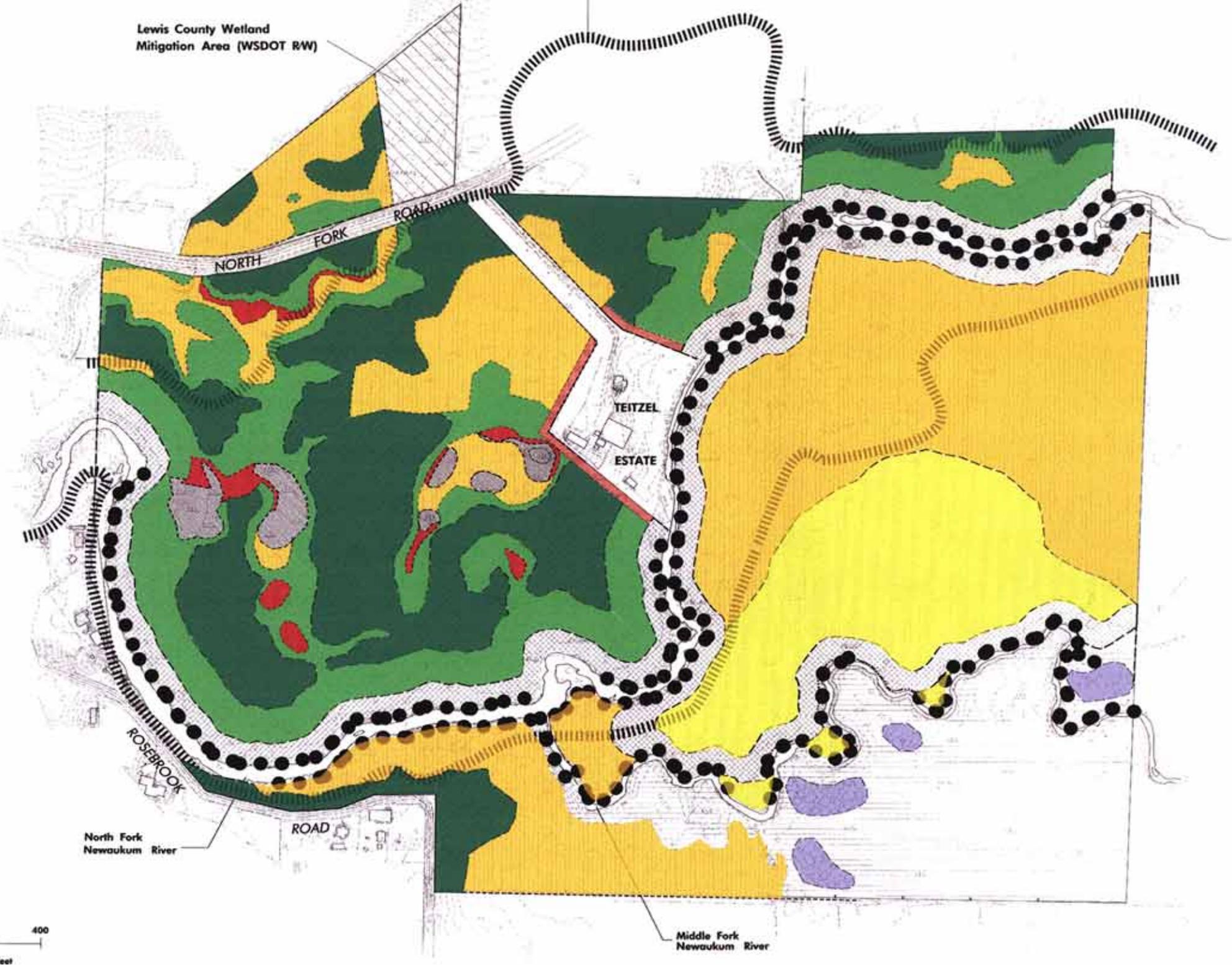
Lewis County Wetland Mitigation Area (WSDOT RW)

100 year floodplain  
(from FEMA flood map and WSDOT GIS datalayer)

**LEGEND**

- 
**WETLAND RESTORATION**  
 2.06 total acres  
 Removal of fill from historic wetland.
- 
**WETLAND ENHANCEMENT TYPE I**  
 2.73 total acres  
 Excavation of long-duration seasonal pond habitat.
- 
**WETLAND ENHANCEMENT TYPE II**  
 20.31 total acres  
 Disabling of all drain tiles, reforestation with Oregon Ash mix, and creating long-duration seasonal pond habitat.
- 
**WETLAND ENHANCEMENT TYPE III**  
 63.89 total acres  
 Tree planting in degraded wetland areas (i.e. agricultural fields).
- 
**WETLAND ENHANCEMENT TYPE IV**  
 2.30 total acres  
 Underplanting of Western Red Cedar and Black Cottonwood in Forested Wetland Preservation Area.
- 
**SHORELINE ENHANCEMENT**  
 7.50 total acres  
 Shrub planting along North and Middle Fork Newaukum Rivers.
- 
**UPLAND BUFFER ENHANCEMENT**  
 40.85 total acres  
 Tree planting in degraded upland areas (i.e. agricultural fields).
- 
**RIPARIAN FOREST ENHANCEMENT**  
 31.31 total acres  
 Tree planting in non-wetland areas within 200 feet of the river or low lying areas associated with the floodplain.
- NOT FOR CREDIT AREAS**


**FORESTED WETLAND PRESERVATION AREA**  
 (27.04 acres - not for wsdot credit)
- 
**ESTATE BUFFER**  
 (1.80 acres - not for wsdot credit)  
 Tree and shrub planting to create dense buffer around existing structures. 50' width.
- 
**NRCS RIPARIAN ENHANCEMENT AREA**  
 (21.49 acres - not for wsdot credit)



PROJECT	LANDSCAPE ARCH	D.K. CORLETT, L.A.	93008	47003	37004 BOC revisions
ENTERED BY	D.K. CORLETT, L.A.	93008	47003	37004 BOC revisions	
CHECKED BY	D.K. CORLETT, L.A.	93008	47003	37004 BOC revisions	
REGION	LANDSCAPE ARCH	D.K. CORLETT, L.A.	93008	47003	37004 BOC revisions
REG. ADMIN	D. WAGNER, P.E.				
DATE	DATE	REVISION	BY		

REGION: TO WASH STATE: WASH. FED. AID PROJ. NO. ENVIRONMENTAL AND ENGINEERING SERVICE CENTER

DATE: 7-6-04

Washington State Department of Transportation



100 year floodplain  
(from FEMA flood map and WSDOT GIS datalayer)

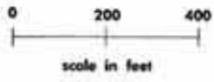


### LEGEND

- WETLAND RESTORATION**  
 2.06 total acres  
 Removal of fill from historic wetland.
- WETLAND ENHANCEMENT TYPE I**  
 2.73 acres this sheet  
 Excavation of long-duration seasonal pond habitat.
- WETLAND ENHANCEMENT TYPE II**  
 0.0 acres this sheet  
 Disabling of all drain tiles, reforestation with Oregon Ash mix, and creating long-duration seasonal pond habitat.
- WETLAND ENHANCEMENT TYPE III**  
 13.38 acres this sheet  
 Tree planting in degraded wetland areas (i.e. agricultural fields).
- WETLAND ENHANCEMENT TYPE IV**  
 0.0 acres this sheet  
 Underplanting of Western Red Cedar and Black Cottonwood in Forested Wetland Preservation Area.
- SHORELINE ENHANCEMENT**  
 3.07 acres this sheet  
 Shrub planting along North and Middle Fork Newaukum Rivers.
- UPLAND BUFFER ENHANCEMENT**  
 35.46 acres this sheet  
 Tree planting in degraded upland areas (i.e. agricultural fields).
- RIPARIAN FOREST ENHANCEMENT**  
 31.14 acres this sheet  
 Tree planting in non-wetland areas within 200 feet of the river or low lying areas associated with the floodplain.
- NOT FOR CREDIT AREAS**

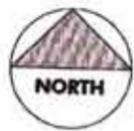
**NRCS RIPARIAN ENHANCEMENT AREA**  
 (not for wsdot credit)
- ESTATE BUFFER**  
 (1.80 acres - not for wsdot credit)  
 Tree and shrub planting to create dense buffer around existing structures. 50' width.

North Fork Newaukum River



PROJECT LANDSCAPE ARCH ENTERED BY CHECKED BY REGION LANDSCAPE ARCH REG. ADMIN	D.K. CORLETT, L.A. D.K. CORLETT, L.A. D.K. CORLETT, L.A. D.K. CORLETT, L.A. D. WAGNER, P.E.	92000 82003 92000 82003 92000 82003	42003 82003 42003 82003 42003 82003	32004 BOC 32004 BOC 32004 BOC 32004 BOC 32004 BOC	32004 BOC 32004 BOC 32004 BOC 32004 BOC 32004 BOC	REGION NO. STATE FED. AID PROJ. NO. ENVIRONMENTAL AND ENGINEERING SERVICE CENTER WASHINGTON STATE DEPARTMENT OF TRANSPORTATION ENVIRONMENTAL AND ENGINEERING SERVICE CENTER DATE: 7-6-04	<b>Washington State Department of Transportation</b>	<b>NORTH FORK NEWAUKUM MITIGATION BANK</b>  <b>FIGURE 8b: MITIGATION AREAS - WEST UNIT</b>	REFERENCE SHEET NO. 11 SHEET 5 OF 10 SHEETS
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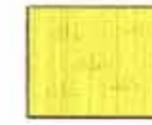
# LEGEND



**WETLAND RESTORATION**  
0.0 acres this sheet  
Removal of fill from historic wetland.



**WETLAND ENHANCEMENT TYPE I**  
0.0 acres this sheet  
Excavation of long-duration seasonal pond habitat.



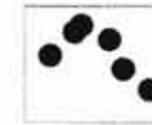
**WETLAND ENHANCEMENT TYPE II**  
0.0 acres this sheet  
Disabling of all drain tiles, reforestation with Oregon Ash mix, and creating long-duration seasonal pond habitat.



**WETLAND ENHANCEMENT TYPE III**  
10.37 acres this sheet  
Tree planting in degraded wetland areas (i.e. agricultural fields).



**WETLAND ENHANCEMENT TYPE IV**  
1.68 acres this sheet  
Underplanting of Western Red Cedar and Black Cottonwood in Forested Wetland Preservation Area.



**SHORELINE ENHANCEMENT**  
0.56 acres this sheet  
Shrub planting along North and Middle Fork Newaukum Rivers.



**UPLAND BUFFER ENHANCEMENT**  
3.48 acres this sheet  
Tree planting in degraded upland areas (i.e. agricultural fields).

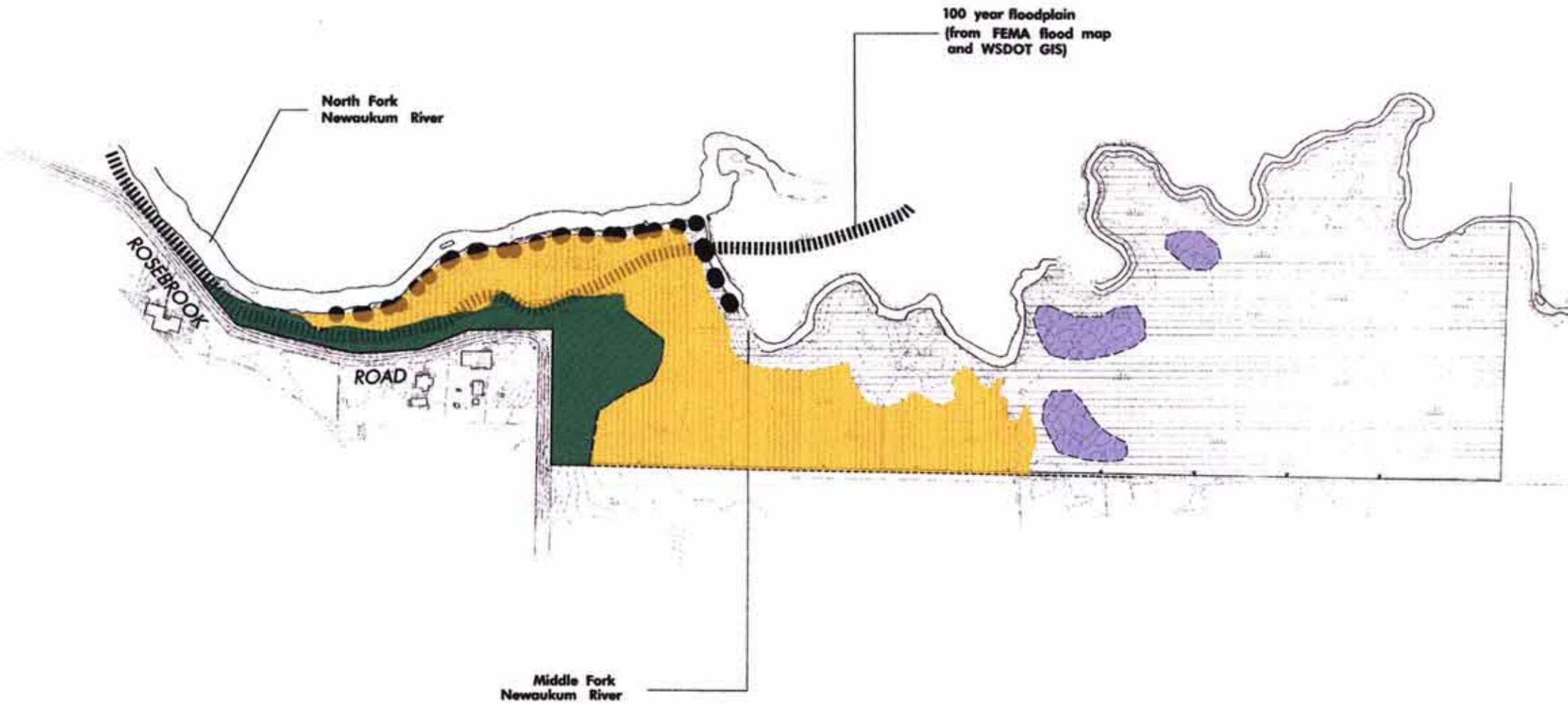


**RIPARIAN FOREST ENHANCEMENT**  
0.0 acres this sheet  
Tree planting in non-wetland areas within 200 feet of the river or low lying areas associated with the floodplain.

### NOT FOR CREDIT AREAS



**FORESTED WETLAND PRESERVATION AREA**  
(not for wsdot credit)



<table border="1"> <tr> <td>PROJECT LANDSCAPE ARCH</td> <td>D.A. CORLETT, L.A.</td> <td>95000</td> <td>45003</td> <td>30994 BOC revisions</td> </tr> <tr> <td>ENTERED BY</td> <td>D.A. CORLETT, L.A.</td> <td>95000</td> <td>45003</td> <td>30994 BOC revisions</td> </tr> <tr> <td>CHECKED BY</td> <td>D.A. CORLETT, L.A.</td> <td>95000</td> <td>45003</td> <td>30994 BOC revisions</td> </tr> <tr> <td>REGION LANDSCAPE ARCH</td> <td>D.A. CORLETT, L.A.</td> <td></td> <td></td> <td>30994 BOC revisions</td> </tr> <tr> <td>REG. ADMIN</td> <td>D. WAGNER, P.E.</td> <td></td> <td></td> <td></td> </tr> </table>				PROJECT LANDSCAPE ARCH	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions	ENTERED BY	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions	CHECKED BY	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions	REGION LANDSCAPE ARCH	D.A. CORLETT, L.A.			30994 BOC revisions	REG. ADMIN	D. WAGNER, P.E.				REGION NO. 10 STATE WASH FEDERAL AID PROJ. NO. 76-04 ENVIRONMENTAL AND ENGINEERING SERVICE CENTER Washington State Department of Transportation CONTRACT NO. 6440000003 DATE 7-6-04 BY <i>David K. Gault</i>	NORTH FORK NEWAUKUM MITIGATION BANK FIGURE 8d: MITIGATION AREAS - SOUTH UNIT	REFERENCE SHEET NUMBER SHEET 7 OF 10 SHEETS
PROJECT LANDSCAPE ARCH	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions																											
ENTERED BY	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions																											
CHECKED BY	D.A. CORLETT, L.A.	95000	45003	30994 BOC revisions																											
REGION LANDSCAPE ARCH	D.A. CORLETT, L.A.			30994 BOC revisions																											
REG. ADMIN	D. WAGNER, P.E.																														



New culvert under North Fork Road installed by Lewis County, spring 2002. Reconnects seasonal creek currently flowing through a ditch with its historic drainage to the south. Plug ditch west of culvert to increase flow under road.

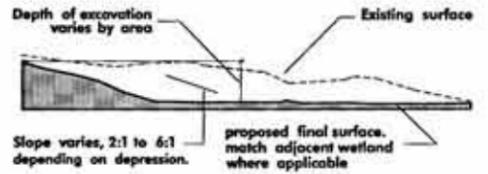
Topographic Enhancement Area "A"  
Average Depth - 18 inches  
Minimal Side Slopes Along Seasonal Creek

Topographic Enhancement Area "C"  
Five Units, Average Depth - 30 inches  
Minimal Side Slopes

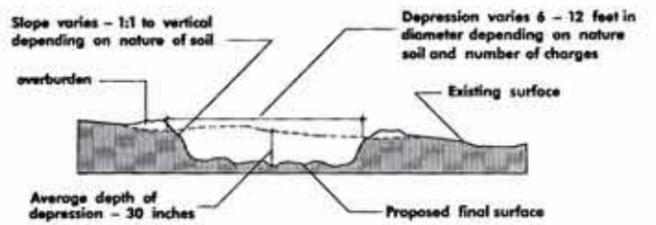
Topographic Enhancement Area "B"  
Three Units, Average Depth - 30 inches  
Minimal Side Slopes

Topographic Enhancement Area "D"  
Five Units, Average Depth - 30 inches  
Steep Sided Depressions - 6 to 12 feet across.

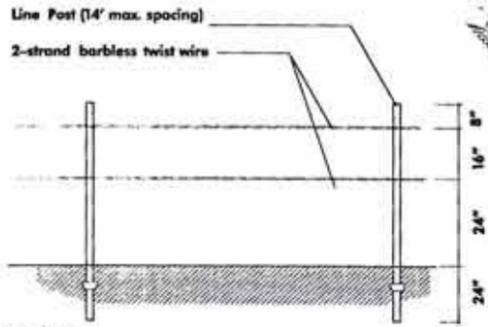
Notes:  
Topographic enhancement areas are designed to create areas of ponding or increase duration of water retention in existing wetlands.  
Excavated material to be placed adjacent to pond areas and revegetated.



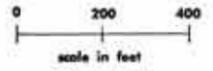
SECTION A - A  
minimal side slopes using traditional methods of excavation



SECTION B - B  
steep side slopes using blasting techniques



Wire Fence  
adjacent to Teitzel Estate for access control - to be installed 2004



PROJECT	DATE	DATE	REVISION	BY
final 604				
PROJECT LANDSCAPE ARCH	D.A. CORLETT, L.A.	92000	42003	32004 BOC revisions
ENTERED BY	D.A. CORLETT, L.A.	92000	42003	32004 BOC revisions
CHECKED BY	D.A. CORLETT, L.A.	92000	42003	32004 BOC revisions
REGION LANDSCAPE ARCH	D.A. CORLETT, L.A.			32004 BOC revisions
REG. ADMIN	D. WAGNER, P.E.			

REGION NO.	STATE	FED. AID PROJ. NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.		

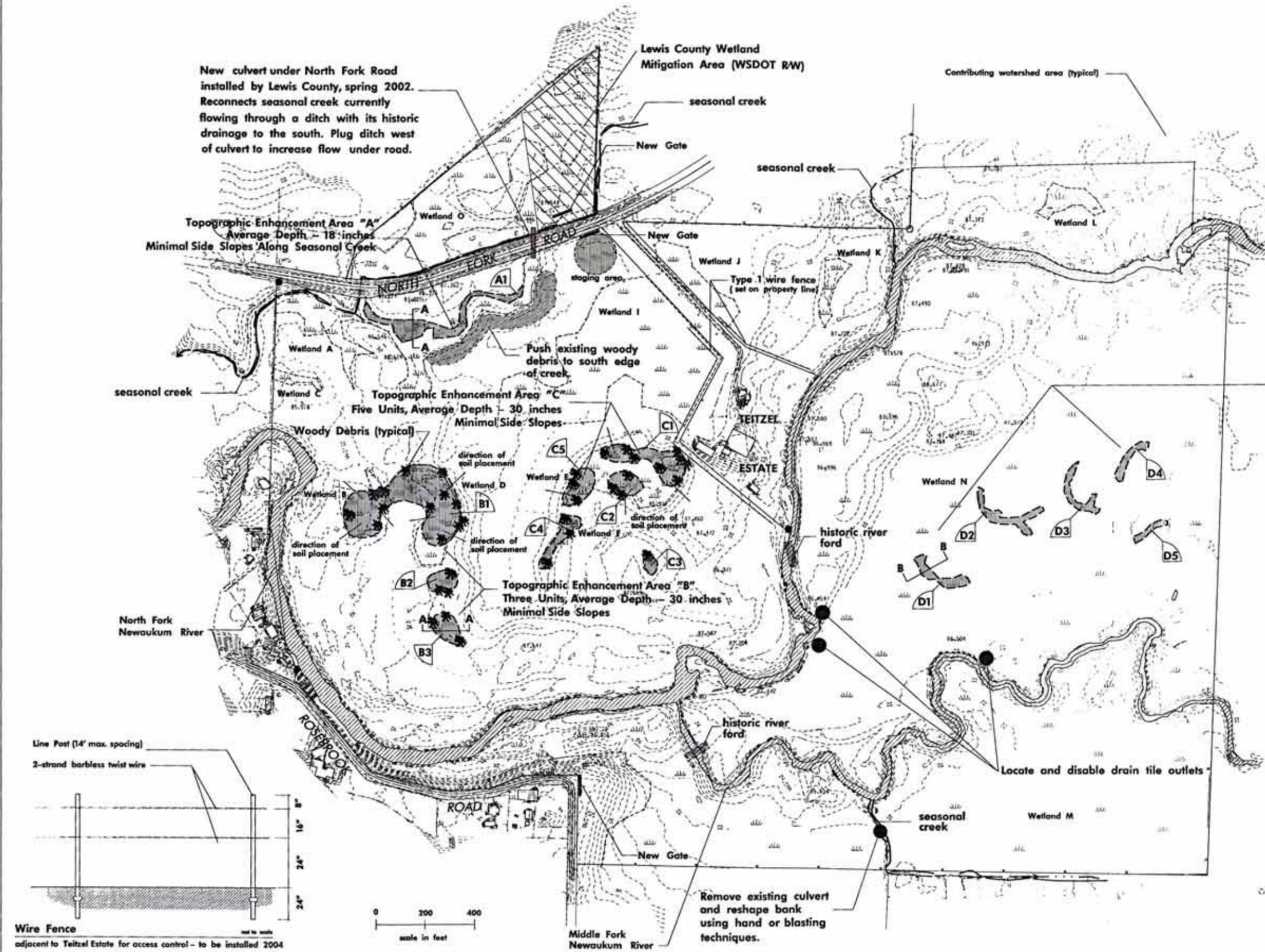
ENVIRONMENTAL AND ENGINEERING SERVICE CENTER

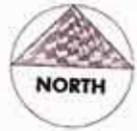
Washington State Department of Transportation

NORTH FORK NEWAUKUM MITIGATION BANK

FIGURE 9: SITE GRADING PLAN

REFERENCE SHEET NUMBER: SHEET 8 OF 10 SHEETS





Lewis County Wetland Mitigation Area (WSDOT RW)

North Fork Newaukum River

Middle Fork Newaukum River

TEITZEL ESTATE

0 200 400  
scale in feet

**LEGEND**

	<b>SHORELINE ENHANCEMENT</b>		MIXED CONIFER FOREST
	<b>ESTATE BUFFER</b>		MIXED HARDWOOD FOREST
	<b>OREGON ASH FOREST</b>		FORESTED WETLAND PRESERVATION AREA (not for wsdot credit)
	<b>TYPE IV ENHANCEMENT AREAS</b>		NRCS RIPARIAN ENHANCEMENT AREA (not for wsdot credit)
	<b>EMERGENT AREAS</b>		

**WOODY SPECIES PLANT MATERIAL SCHEDULE**

Plant Material	Size	Spacing	Quantity
<b>Emergent Area</b>			<b>1.81 acres</b>
<b>Shoreline Enhancement</b>			<b>7.50 acres</b>
Willow ( <i>Salix sp.</i> )	24-36" BR	2-3' O.C.	20,970
Redosier Dogwood ( <i>Cornus sericea</i> )	24-36" BR	2-3' O.C.	20,970
<b>Oregon Ash Forest</b>			<b>81.34 acres</b>
Oregon Ash ( <i>Fraxinus latifolia</i> )	24-36" BR	10' O.C.	39,470
<b>Mixed Conifer Forest</b>			<b>40.85 acres</b>
Douglas Fir ( <i>Pseudotsuga menziesii</i> )	24-36" BR	10' O.C.	7,420
Grand Fir ( <i>Abies grandis</i> )	24-36" BR	10' O.C.	2,055
Western Red Cedar ( <i>Thuja plicata</i> )	24-36" BR	10' O.C.	3,090
Western Hemlock ( <i>Tsuga heterophylla</i> )	24-36" BR	10' O.C.	2,121
Red Alder ( <i>Alnus rubra</i> )	24-36" BR	10' O.C.	3,085
Big Leaf Maple ( <i>Acer macrophyllum</i> )	10 cu in tubelings	10' O.C.	3,180
<b>Mixed Hardwood Forest</b>			<b>37.15 acres</b>
Western Red Cedar ( <i>Thuja plicata</i> )	24-36" BR	10' O.C.	7,440
Red Alder ( <i>Alnus rubra</i> )	24-36" BR	10' O.C.	2,790
Black Cottonwood ( <i>Populus balsamifera ssp. Trichocarpa</i> )	10 cu in tubelings	10' O.C.	3,720
Big Leaf Maple ( <i>Acer macrophyllum</i> )	10 cu in tubelings	10' O.C.	2,790
Quaking Aspen ( <i>Populus tremuloides</i> )	24-36" BR	10' O.C.	1,865
<b>Estate Buffer</b>			<b>1.80 acres</b>
Western Red Cedar ( <i>Thuja plicata</i> )	24-36" BR	5' O.C.	1,250
Black Gooseberry ( <i>Ribes lacustre</i> )	24-36" BR	3' O.C.	4,900
Sitka Spruce ( <i>Picea sitchensis</i> )	24-36" BR	5' O.C.	1,250
Black Cottonwood ( <i>Populus balsamifera ssp. Trichocarpa</i> )	10 cu in tubelings	5' O.C.	1,250
Swamp Rose ( <i>Rosa pisocarpa</i> )	24-36" BR	3' O.C.	4,900
<b>Type IV Enhancement Areas</b>			<b>2.30 acres</b>
Western Red Cedar ( <i>Thuja plicata</i> )	24-36" BR	5' O.C.	600
Black Cottonwood ( <i>Populus balsamifera ssp. Trichocarpa</i> )	10 cu in tubelings	5' O.C.	600

PROJECT LANDSCAPE ARCH	D.K. CORLETT, L.A.	\$2000	6/2003
ENTERED BY	D.K. CORLETT, L.A.	\$2000	6/2003
CHECKED BY	D.K. CORLETT, L.A.	\$2000	6/2003
REGION LANDSCAPE ARCH	D.K. CORLETT, L.A.		
REG. ADMIN	D. WAGNER, P.E.		
DATE	DATE	REVISION	BY

STATE WASH FED. AID PROJ. NO. 10 WASH

STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

*Daniel R. Corlett*

7-6-04

ENVIRONMENTAL AND ENGINEERING SERVICE CENTER

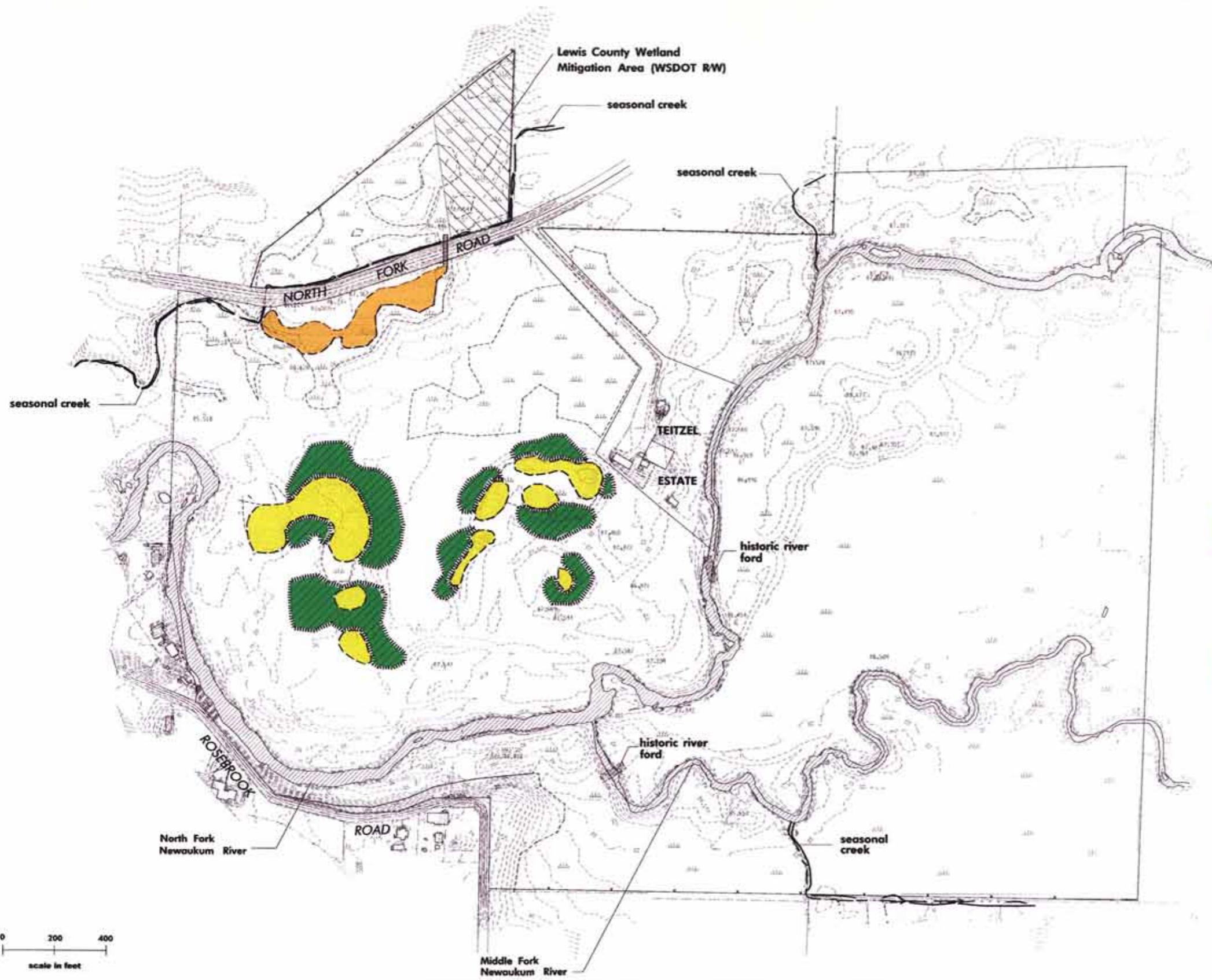
Washington State Department of Transportation

NORTH FORK NEWAUKUM MITIGATION BANK

FIGURE 10: PLANTING PLAN

REFERENCE SHEET NUMBER

SHEET 9 OF 10 SHEETS

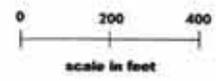


**Herbaceous Seeding Plant Material Schedule**

	<p><b>Wetland Prairie Seed Mix</b> Seeded at 10 pounds/acre in Wetland Restoration Area</p> <p>Meadow Barley (<i>Hordeum brachyantherum</i>)          Timber Oatgrass (<i>Danthonia intermedia</i>)          Western Mannagrass (<i>Glyceria occidentalis</i>)          Tufted Hairgrass (<i>Deschampsia caespitosa</i>)          Blue Eyed Grass (<i>Sisyrinchium idahoense</i>)          Camas (<i>Camassia quamish</i>)          Native Red Fescue (<i>Festuca rubra</i>)          Slough Sedge (<i>Carex obnupta</i>)          American Sloughgrass (<i>Beckmannia syzigachne</i>)</p>
	<p><b>Emergent Seed Mix</b> Seeded at 15 pounds/acre in Type 1 Enhancement Areas</p> <p>Slough Sedge (<i>Carex obnupta</i>)          Creeping Spike Rush (<i>Eleocharis palustris</i>)          Western Mannagrass (<i>Glyceria occidentalis</i>)          Meadow Barley (<i>Hordeum brachyantherum</i>)          Hardstem Bulrush (<i>Scirpus acutus</i>)</p>
	<p><b>Upland Seed Mix</b> Seeded at 40 pounds/acre in Disturbed Upland Areas</p> <p>Blue Wildrye (<i>Elymus glaucus</i>)          Native Red Fescue (<i>Festuca rubra</i>)          California Brome (<i>Bromus carinatus</i>)</p>

All seed mixes installed by hand or by hydroseeder depending on site or weather conditions.

Tree planting will occur within all portions of the herbaceous seeding zones except areas identified as Emergent Zones in Figure 10.



PROJECT LANDSCAPE ARCH		D.R. CORLETT, L.A.	67003	REGION NO.	10	STATE	WASH	FED. AID PROJ. NO.	ENVIRONMENTAL AND ENGINEERING SERVICE CENTER		Washington State Department of Transportation	NORTH FORK NEWAUKUM MITIGATION BANK	REFERENCE SHEET NUMBER
ENTERED BY		D.R. CORLETT, L.A.	67003	JOB NUMBER			CONTRACT NO.		*****	FIGURE 11: HERBACEOUS SEEDING PLAN			SHEET 10 OF 10 SHEETS
CHECKED BY		D.R. CORLETT, L.A.	67003	DATE	DATE	REVISION	BY	*****					
REGION LANDSCAPE ARCH		D.R. CORLETT, L.A.											
REG. ADMIN		D. WAGNER, P.E.											

### 3.0 PROJECT OBJECTIVES AND PERFORMANCE STANDARDS

#### 3.1 OBJECTIVES OF THE ECOLOGICAL RESTORATION PLAN

1. Reestablish the hydrologic connection between Wetland O and Wetland A by installing a culvert beneath the North Fork Road. Wetland locations are shown in Figures 7 and 9.
2. Restore 2.06 acres of former wetland by removing fill material and restoring hydrology to a previously existing wetland in the West Unit.
3. Enhance hydrology in Wetland N by disabling an existing drain tile system.
4. Enhance habitat for amphibians and aquatic invertebrates by deepening portions of approximately 3.24 acres of existing wetland in the West Unit, creating 0.26 acre of depressions in the East Unit, and planting a mosaic of thin-stemmed emergent vegetation in the West Unit.

Note: Planting of emergent vegetation was deemed unnecessary given the natural recruitment that occurred once the water table dropped. Planting may never need to occur in the West Unit, but it could be warranted in the future depending on the success of the volunteer emergent vegetation that has naturally established.

5. Enhance wetland and riverine functions by reforesting wetlands, buffer zones, and riparian areas; under-planting existing forested areas; and installing large woody debris.
6. Promote the development of native plant communities by suppressing reed canarygrass for a period of 10 years.
7. Permanently protect aquatic ecosystem functions at the NFN Bank by purchasing the property and establishing a conservation easement.

#### 3.2 PERFORMANCE STANDARDS

The performance standards below provide benchmarks for measuring the success of the ecological restoration and enhancement efforts at the NFN Bank. Mitigation activities were designed to meet these benchmarks within a specified time frame based on the number of years since construction. Year 0 is 2003, Year 1 is 2004, and so forth.

**Objective 1:** Reestablish a hydrologic connection between Wetland O and Wetland A by placing a culvert beneath the North Fork Road.

Performance Standards	Monitoring Methods
1A. As-built plans documenting that the culvert was successfully installed will be submitted to the MBI signatories by March 31, 2004.	Observe culvert installation and document post-construction conditions with as-built plans.
1B. Photos documenting that the culvert is functioning as intended, without unacceptable amounts of erosion or impedance of normal flows, will be included in the monitoring reports for Years 1, 3, 5, 7, and 10.	Document hydrologic flow through the culvert by visual observation and photography during the growing season of Years 1, 3, 5, 7, and 10.

## North Fork Newaukum Mitigation Bank Instrument

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate deficient installation, unacceptable erosion, or impedance of normal flows, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the new performance standards are approved by the BOC.

**Objective 2:** Restore 2.06 acres of wetland by removing fill material and restoring hydrology to previously existing wetland areas in the West Unit.

Performance Standards	Monitoring Methods
<p><b>2A.</b> As-built plans and photographs demonstrating that 2.06 acres of fill was removed from Wetland Restoration areas (Figure 8) will be submitted to the MBI signatories by March 31, 2004.</p>	<p>Observe excavation of Wetland Restoration areas to ensure re-establishment of historic contours and document post-construction conditions with photographs and as-built plans.</p>
<p><b>2B.</b> A wetland delineation of Wetland Restoration areas will be conducted by a qualified wetland biologist during the growing season 5 years after fill has been removed to demonstrate that the restored area meets the definition of a wetland according to the 1987 Corps of Engineers Wetland Delineation Manual and the 1997 Washington State Wetland Identification and Delineation Manual. The results of the delineation will be included in the next monitoring report following the delineation.</p>	<p>Conduct a wetland delineation of Wetland Restoration areas during Year 5 to provide additional documentation of wetland acreage.</p> <p>Conduct visual observation and photography of Wetland Restoration areas during the early part of the growing season of Years 1 and 2 to add supplemental documentation of the restored wetland hydrology.</p>

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate improper fill removal or failure to satisfy wetland delineation standards, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. In the alternative, the BOC, following consultation with WSDOT, may decline to direct or authorize any action to correct wetland hydrology deficiencies, and may instead delay, reduce, or deny credit under performance standards 2A and 2B. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the

new performance standards are approved by the BOC.

**Objective 3:** Enhance wetland hydrology in Wetland N by disabling an existing drain tile system.

Performance Standards	Monitoring Methods
3A. As-built plans and photographs documenting that the drain tile system was successfully disabled will be submitted to the MBI signatories by March 31, 2004.	Observe drain tile system disabling and document post-construction conditions with photographs and as-built plans.
3B. In Years 1, 3, 7, and 10, photographs of drain tile outfalls will document that water is no longer being discharged from the drain tile system.	Monitor the effectiveness of the drain tile disabling through visual observation and photographic documentation. Target the vicinity of the existing tile system outfalls and other areas where persistent tile system discharges could develop. Monitoring will occur in Years 1, 3, 7, and 10 during winter and spring when the likelihood of heavy precipitation is greatest.

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate deficient disabling of the drain tile system or persistent functioning of the drain system elements, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the new performance standards are approved by the BOC.

## North Fork Newaukum Mitigation Bank Instrument

**Objective 4:** Enhance habitat for amphibians and aquatic invertebrates by deepening portions of approximately 3.24 acres of existing wetland in the West Unit, creating depressions that comprise 0.26 acre in the East Unit (Figure 8), and promoting the establishment of native emergent vegetation.

Performance Standards	Monitoring Methods
<p><b>4A.</b> As-built plans documenting that approximately 3.24 acres of long-duration seasonal pond habitat have been excavated in the West Unit and that depressions providing 0.26 acre of additional pond habitat have been created in the East Unit will be submitted to the MBI signatories by March 31, 2004.</p>	<p>Observe excavation activities of Topographic Enhancement Areas B, C, and D and document post-construction conditions with photographs and as-built plans.</p>
<p><b>4B.</b> Photographs documenting that the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9) include areas of inundation during years of normal rainfall* until at least June 15<sup>th</sup> will be included in the monitoring reports for Years 3, 5, and 7.</p>	<p>Conduct visual observations and take photographs of inundation in Topographic Enhancement Areas B, C, and D shortly after June 15<sup>th</sup> during Years 3, 5, and 7.</p>
<p><b>4C.</b> A list and aerial cover of dominant plant species and photographs documenting vegetation establishment in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9) will be included in the monitoring reports for Years 1, 3, 5, 7, and 10. The aerial cover of bare ground in the seasonal pond habitat will also be included in the reports.</p>	<p>Conduct visual observations and take photographs from established photopoints in Topographic Enhancement Areas B, C, and D during Years 1, 3, 5, 7, and 10.</p>

\* Normal rainfall will be based on the definition for "most years" provided in the 1987 Corps Wetland Delineation Manual (i.e., annual precipitation in a normal year must be the same as or greater than precipitation in 5 years out of 10) or the average precipitation for a time period plus or minus 1 standard deviation of the mean. Based on data from the Western Regional Climate Center, normal rainfall is between 38 and 55 inches (total precipitation between January 1<sup>st</sup> and December 31<sup>st</sup>).

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate deficient pond habitat establishment or insufficient seasonal inundation, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. In the alternative, the BOC, following consultation with WSDOT, may decline to direct or authorize any action to correct pond habitat deficiencies, and may instead delay, reduce, or deny credit under performance standards 4A and 4B. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the new performance standards are approved by the BOC.

## North Fork Newaukum Mitigation Bank Instrument

**Objective 5:** Enhance wetland and riverine functions by reforesting wetlands, buffer zones, and riparian areas, under-planting existing forested areas, and installing large woody debris.

Performance Standards	Monitoring Methods
<p>5A. As-built plans documenting that the site has been planted as planned will be submitted to the MBI signatories by March 31, 2004. Locations of woody debris installed within the West and North Units will also be documented in as-built plans.</p>	<p>Conduct verification inspection of planting and large woody debris installation and document post-construction conditions with photographs and as-built plans.</p>
<p>5B. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>West</i> Unit, excluding Emergent Areas and Estate Buffer Areas (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival in said area.</p>	<p>For Performance Standards 5B through 5I, determine living native tree species richness per unit and density (the number of living native trees per acre) at Years 1, 3, 5, 7, and 10 using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000), or using other methods as determined appropriate for the site and approved by the BOC. Transects will be randomly placed along a perpendicular baseline, so that the long axis of each transect runs parallel to the strongest environmental gradient.</p> <p>Determine if the required number of species is present to achieve 10% survival threshold values in each unit. These values are listed in the Monitoring Plan (Appendix A). Count the number of individuals per tree species until the threshold values are met.</p>
<p>5C. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>West</i> Unit, excluding Emergent Areas (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival in said area.</p>	
<p>5D. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>North</i> Unit (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	
<p>5E. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>North</i> Unit (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	
<p>5F. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest and Mixed Hardwood Forest in the <i>East</i> Unit (Figure 10), excluding Topographic Enhancement Areas (Figure 9). At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	

## North Fork Newaukum Mitigation Bank Instrument

Performance Standards	Monitoring Methods
<p>5G. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest and Mixed Hardwood Forest in the <i>East</i> Unit (Figure 10), excluding Topographic Enhancement Areas (Figure 9). At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	
<p>5H. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre, in the areas identified on the Planting Plan as Mixed Conifer Forest and Oregon Ash Forest in the <i>South</i> Unit (Figure 10). Areas not suitable for planting (patches of <i>Carex</i> and <i>Rosa</i> species shown on as-built plans) will be excluded. At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	
<p>5I. At Year 10 there will be a minimum density of 250 living native trees* per acre, in the areas identified on the Planting Plan as Mixed Conifer Forest and Oregon Ash Forest in the <i>South</i> Unit (Figure 10). Areas not suitable for planting (patches of <i>Carex</i> and <i>Rosa</i> species shown on as-built plans) will be excluded. At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.</p>	
<p>5J. At Year 1, the areas identified on the Planting Plan as Shoreline Enhancement Planting Area, excluding areas not appropriate for planting (cut banks, rip-rap, high existing native cover, etc.), will have a minimum density of 2,000 native trees and shrubs per acre (Figure 10).</p>	<p>At Year 1, 5, and 10, determine living native tree and shrub density per acre in the Shoreline Enhancement Planting Area, using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000), or using other methods as determined appropriate for the site. Transects will be randomly placed along a perpendicular baseline, so that the long axis of each transect runs parallel to the strongest environmental gradient.</p>
<p>5K. At Year 5 and 10, the areas identified on the Planting Plan as Shoreline Enhancement Planting Area, excluding areas not appropriate for planting (cut banks, rip-rap, high existing native cover, etc.), will have a minimum density of 1,750 native trees and shrubs per acre (Figure 10).</p>	
<p>5L. At Year 1 there will be a minimum of 80% survival of plantings in the Estate Buffer Planting Area (Figure 10).</p>	<p>Determine percent survival of plantings in the Estate Buffer Planting Area one year after installation.</p>
<p>5M. At Year 5 the Estate Buffer Planting Area will have a minimum of 50% aerial cover by native woody vegetation (Figure 10).</p>	<p>Determine percent aerial cover of plantings in the Estate Buffer Planting Area at Years 5 and 10. Visually inspect Estate Buffer wire fence for adequacy of repair.</p>
<p>5N. At Year 10 the Estate Buffer Planting Area will have a minimum of 80% aerial cover by native woody vegetation (Figure 10). The Estate Buffer wire fence will remain in satisfactory repair to adequately control access to residential land use areas.</p>	
<p>5O. At Year 1, 90% survival will be achieved for plantings installed in Type IV Wetland Enhancement Areas (Figure 10).</p>	<p>Determine percent survival of plantings in Type IV Wetland Enhancement Areas at Years 1 and 5.</p>
<p>5P. At Year 5, 80% survival will be achieved for plantings installed in Type IV Wetland Enhancement Areas (Figure 10).</p>	

\* "Trees" refers to any native woody vegetation capable of growing into a tree as defined by Cowardin, et al. (1979). This includes natural recruitment.

## North Fork Newaukum Mitigation Bank Instrument

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate insufficient establishment and/or survival of vegetation, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. New plantings conducted on an adaptive management basis will consist of 10-foot on center plantings, unless otherwise directed. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the new performance standards are approved by the BOC.

**Objective 6:** Promote the development of native plant communities by suppressing reed canarygrass for a period of 10 years.

Performance Standard	Monitoring Methods
<p><b>6A.</b> The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.</p>	<p>Conduct an estimate of the area occupied by reed canarygrass in Years 5 and 10. Qualitatively assess reed canarygrass populations during Years 1, 3, and 7 to document changes since previous estimates. Baseline area is depicted in Figure 3. The presence of other non-native species that could pose a threat to mitigation success will also be documented and managed.</p>
<p><b>6B.</b> The aerial extent of invasive species will comprise less than 15% of the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9) at the NFN Bank site during the 5th and 10th growing seasons following initial planting.</p>	<p>Conduct a quantitative estimate of the area occupied by invasive species in Years 5 and 10. Qualitatively assess aerial cover of invasive species during Years 1, 3, and 7 to document changes since previous estimates. The presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success will also be documented and managed.</p>

**Contingency:** If the monitoring reports, or inspection by representatives of the BOC agencies, indicate that the aerial extent of reed canarygrass site-wide, or the aerial extent of invasive species in the seasonal pond habitat, exceeds the performance standard threshold, WSDOT shall propose adaptive management actions to correct the shortcomings. The BOC may also direct adaptive management actions, following consultation with WSDOT, if the BOC identifies the need for corrective action and no adaptive management plan is submitted within a reasonable period of time. The adaptive management plan shall specify the corrective activities to be conducted, the schedule of completion of those activities, and a monitoring plan for assessing the effectiveness of the adaptive management. The objective of the adaptive management plan shall be to attain the originally prescribed performance standards, unless the BOC expressly establishes replacement performance standards, following consultation with WSDOT, in light of circumstances and conditions observed at the site. In addition to the specified performance standards, the BOC will also evaluate the general nature and extent of non-native plant species throughout the site and develop, in consultation with WSDOT, any supplemental adaptive management activities deemed necessary to the adequate control of invasive species at the Bank

## North Fork Newaukum Mitigation Bank Instrument

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site. If WSDOT proposes to institute replacement performance standards, WSDOT may not initiate activities designed to achieve those replacement standards until the new performance standards are approved by the BOC. Beside reed canarygrass, non-native species that could pose a threat to mitigation success and will be documented and managed shall include, but are not limited to, purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), giant knotweed (*Polygonum sachalinense*), Himalayan blackberry (*Rubus procerus*), scotch broom (*Cytisus scoparius*), tansy ragwort (*Senecio jacobaea*), and English ivy (*Hedera helix*).

**Objective 7:** Permanently protect aquatic ecosystem functions at the NFN Bank site by purchasing the property and establishing a conservation easement.

Performance Standard	Monitoring Methods
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.	Submit documentation showing that the site has been purchased by WSDOT and that the entire NFN Bank is protected in perpetuity by an appropriate NRCS WRP conservation easement.

## 4.0 BANK OPERATION

### 4.1 CREDIT DETERMINATION

Credits are the “currency” of a mitigation bank. The value of the credits generated by a mitigation bank is commensurate with its net ecological benefit. For the NFN Bank, the 78.39 credits generated represent the number of acres of Category II wetlands that could be fully compensated for by the 170.95 creditable acres in the bank (Table 6). These 78.39 credits will become available as performance standards are met (see Section 4.3), with the exception that no credits will be released in recognition of meeting the Year 10 performance standards until performance standards representing 60% of the total Year 10 credits have been achieved.

**Table 6.  
Credit Potential**

Mitigation Activity	Activity Acreage	Acre : Credit Ratio*	Credits**
Wetland Restoration	2.06 acre	1 : 1.00	2.06
Enhancement Type I	2.73 acres	1 : 0.83	2.27
Enhancement Type II	20.31 acres	1 : 0.67	13.61
Enhancement Type III	63.89 acres	1 : 0.50	31.95
Enhancement Type IV	2.30 acres	1 : 0.20	0.46
Riparian Enhancement	31.31 acres	1 : 0.33	10.33
Shoreline Enhancement	7.5 acres	1 : 1.00	7.5
Upland Buffer Enhancement	40.85 acres	1 : 0.25	10.21
<b>TOTAL</b>	<b>170.95 acres</b>	-	<b>78.39</b>

\* Acre: Credit Ratio is the number of credits established per acre of mitigation activity in first column.

\*\* Number of credits generated by the NFN Bank for each mitigation activity. Each credit can compensate for the loss of a typical acre of Category II wetland.

The 230.41-acre NFN Bank includes 170.95 acres that qualify for bank credit. The remaining 59.46 non-credit acres consist of the NRCS preservation/riparian enhancement areas, Lewis County mitigation area, and streambeds of the Newaukum River. They will be protected and managed as part of the bank.

### 4.2 USE OF CREDITS

NFN Bank credits were developed to compensate at a 1:1 ratio for adverse impacts (including direct loss or indirect impacts) to a typical Category II wetland. The number of credits required to compensate for each acre of Category I, III, or IV wetland impact will differ because wetland categories have a different level of function on a per-acre basis. Therefore, regulatory agencies will normally require 1.50 credits to compensate for each acre of Category I wetland impact, 0.85 credit per acre of Category III wetland impact, and 0.70 credit per acre of Category IV wetland impact (Table 7). These credit requirements are guidance and apply to typical conditions. Regulatory agencies with jurisdiction over projects that utilize the NFN Bank as compensation may require lower or higher credit requirements as appropriate on a per-project basis.

**Table 7.  
Credits Required for Wetland Impacts**

Category of Impacted Wetland	Credit Required per Impact Acre
I	1.5
II	1.0
III	0.85
IV	0.70

For example, if a proposed project would impact 3 acres of Category II wetlands, 3 credits would be withdrawn from the bank to compensate for that impact. If a proposed project would impact 2 acres of Category III wetlands and 1 acre of Category IV wetlands, 2.4 credits would be withdrawn. Credits may be used as compensation for Category I wetland impacts only in exceptional circumstances and with the specific approval of the bank instrument signatories.

Credits could also be used as compensation for impacts to non-wetland waters of the U.S. with specific approval of the bank instrument signatories. Credits required per impact acre would be determined on a per-project basis given the potential variability and the lack of a classification system for these non-wetland areas.

### **4.3 CREDIT RELEASE SCHEDULE**

The 78.39 credits in the NFN Bank were allocated among the bank’s performance standards. These credits are eligible for release as the associated performance standards are met (Table 8), with the following exception: no credits will be released in recognition of meeting the Year 10 performance standards until performance standards representing 60% of the total Year 10 credits have been achieved. If a performance standard is not met during the targeted year, the associated credits will be released once the performance standard is met. Partial credit release is at the discretion of the bank instrument signatories. If the institution of an adaptive management plan as described in Section 3.2 causes delay in the achievement of a performance standard, the timeline for achievement of each subsequent milestone for that performance standard will be deferred for a like interval, unless otherwise specifically approved. If the Bank is determined to be operating without prior written approval at a deficit at any time, debiting of credits will immediately cease. The BOC, in consultation with the Sponsor, will determine what remedial actions are necessary to correct the situation and direct their performance prior to the release of any additional mitigation credits.

#### **4.3.1 Credit Release Flexibility**

If exceptional circumstances unforeseen during the development and implementation of this bank arise such that the public interest would be better served by earlier than scheduled release of credits in the bank, WSDOT may request the bank instrument signatories to approve a modification in the credit release schedule. In such a circumstance, WSDOT must submit a written request that clearly explains the nature of the exceptional circumstances and demonstrates how the requested change in the credit release schedule would serve the public interest. If the bank instrument signatories concur that the early release of credits would serve the public interest and not violate existing mitigation banking rules and regulations, they may

## **North Fork Newaukum Mitigation Bank Instrument**

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approve the banker's request. This approval shall be in writing and shall become a part of the MBI. In such an event, the bank instrument signatories will only release the minimum number of credits necessary to address impacts.

## North Fork Newaukum Mitigation Bank Instrument

### Table 8. Credit Release Schedule for the NFN Bank

Performance Standard	Number Of Credits Released Since Time of Implementation							Mitigation Type
	Year 0*	Year 1	Year 3	Year 5	Year 7	Year 10***	Total	
	2003	2004	2006	2008	2010	2013		
1A. As-built plans documenting that the culvert was successfully installed will be submitted to the MBI signatories by March 31, 2004.	0.31						0.31	Wetland Restoration (2.06 Total Credits)
1B. Photos documenting that the culvert is functioning as intended, without unacceptable amounts of erosion or impedance of normal flows, will be included in the monitoring reports for Years 1, 3, 5, 7, and 10.		0.31		0.31			0.62	
2A. As-built plans and photographs demonstrating that 2.06 acre of fill was removed from Wetland Restoration areas (Figure 8) will be submitted to the MBI signatories by March 31, 2004.	0.31						0.31	
2B. A wetland delineation of Wetland Restoration areas will be conducted by a qualified wetland biologist during the growing season 5 years after fill has been removed to demonstrate that the restored area meets the definition of a wetland according to the 1987 Corps of Engineers Wetland Delineation Manual and the 1997 Washington State Wetland Identification and Delineation Manual. The results of the delineation will be included in the next monitoring report following the delineation.				0.62			0.62	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.06		0.04	0.10	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.10						0.10	
3A. As-built plans and photographs documenting that the drain tile system was successfully disabled will be submitted to the MBI signatories by March 31, 2004.	4.90						4.90	Wetland Enhancement Type II (13.61 Total Credits)
3B. In Years 1, 3, 7, and 10, photographs of drain tile outfalls will document that water is no longer being discharged from the drain tile system.			2.45		3.27	1.63	7.35	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.41		0.27	0.68	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.68						0.68	
4A. As-built plans documenting that approximately 3.24 acres of long-duration seasonal pond habitat have been excavated in the West Unit and that depressions providing 0.26 acre of additional pond habitat have been created in the East Unit will be submitted to the MBI signatories by March 31, 2004.	0.88						0.88	Wetland Enhancement Type I (2.27 Total Credits)
4B. Photographs documenting that the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9) include areas of inundation during years of normal rainfall* until at least June 15th will be included in the monitoring reports for Years 3, 5, and 7. A list and aerial cover of dominant plant species and photographs documenting vegetation establishment in the seasonal pond habitat (Topographic Enhancement Area B, C, and D on Figure 9) will be included in the monitoring reports for Years 1, 3, 5, 7, and 10. The aerial cover of bare ground in the seasonal pond habitat will also be included in the reports.			0.15	0.15	0.15		0.45	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.07		0.04	0.11	
6B. The aerial extent of invasive species will comprise less than 15% of the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9) at the NFN Bank site during the 5th and 10th growing seasons following initial planting.				0.44		0.28	0.72	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.11						0.11	

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Performance Standard	Number Of Credits Released Since Time of Implementation							Mitigation Type
	Year 0*	Year 1	Year 3	Year 5	Year 7	Year 10***	Total	
	2003	2004	2006	2008	2010	2013		
5A. As-built plans documenting that the site has been planted as planned will be submitted to the MBI signatories by March 31, 2004. Locations of woody debris installed within the West and North Units will also be documented in as-built plans.	13.68						13.68	Wetland Enhancement Type III: Upland Buffer Enhancement, & Riparian Enhancement (52.49 Total Credits)
5B. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>West</i> Unit, excluding Emergent Areas and Estate Buffer Areas (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival in said area.		1.24	2.49	2.49	3.11		9.33	
5C. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>West</i> Unit, excluding Emergent Areas (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival in said area.						1.24	1.24	
5D. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>North</i> Unit (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival threshold values in said area.		1.24	2.49	2.49	3.11		9.33	
5E. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest, Mixed Hardwood Forest, and Mixed Conifer Forest in the <i>North</i> Unit (Figure 10). At least 4 planted tree species will each achieve at least 10 percent survival threshold values in said area.						1.24	1.24	
5F. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest and Mixed Hardwood Forest in the <i>East</i> Unit (Figure 10), excluding Topographic Enhancement Areas (Figure 9). At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.		0.62	1.24	1.87	1.87		5.60	
5G. At Year 10 there will be a minimum density of 250 living native trees* per acre in the areas identified on the Planting Plan as Oregon Ash Forest and Mixed Hardwood Forest in the <i>East</i> Unit (Figure 10), excluding Topographic Enhancement Areas (Figure 9). At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.						0.62	0.62	
5H. At Years 1, 3, 5, and 7 there will be a minimum density of 300 living native trees* per acre, in the areas identified on the Planting Plan as Mixed Conifer Forest and Oregon Ash Forest in the <i>South</i> Unit (Figure 10). Areas not suitable for planting (patches of <i>Carex</i> and <i>Rosa</i> species shown on as-built plans) will be excluded. At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.		0.62	1.24	1.87	1.87		5.60	
5I. At Year 10 there will be a minimum density of 250 living native trees* per acre, in the areas identified on the Planting Plan as Mixed Conifer Forest and Oregon Ash Forest in the <i>South</i> Unit (Figure 10). Areas not suitable for planting (patches of <i>Carex</i> and <i>Rosa</i> species shown on as-built plans) will be excluded. At least 2 planted tree species will each achieve at least 10 percent survival threshold values in said area.						0.62	0.62	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				1.57		1.04	2.61	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	2.62						2.62	

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Performance Standard	Number Of Credits Released Since Time of Implementation							Mitigation Type
	Year 0*	Year 1	Year 3	Year 5	Year 7	Year 10***	Total	
	2003	2004	2006	2008	2010	2013		
5J. At Year 1, the areas identified on the Planting Plan as Shoreline Enhancement Planting Area, excluding areas not appropriate for planting (cut banks, rip-rap, high existing native cover, etc.), will have a minimum density of 2,000 native trees and shrubs per acre (Figure 10).		1.13					1.13	Shoreline Enhancement (7.50 Total Credits)
5K. At Year 5 and 10, the areas identified on the Planting Plan as Shoreline Enhancement Planting Area, excluding areas not appropriate for planting (cut banks, rip-rap, high existing native cover, etc.), will have a minimum density of 1,750 native trees and shrubs per acre (Figure 10).				4.51		1.13	5.64	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.22		0.14	0.36	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.37						0.37	
5L. At Year 1 there will be a minimum of 80% survival of plantings in the Estate Buffer Planting Area (Figure 10).							0.00	Estate Buffer (0.00 Total Credits)
5M. At Year 5 the Estate Buffer Planting Area will have a minimum of 50% aerial cover by native woody vegetation (Figure 10).							0.00	
5N. At Year 10 the Estate Buffer Planting Area will have a minimum of 80% aerial cover by native woody vegetation (Figure 10).							0.00	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.00		0.00	0.00	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.00						0.00	
5O. At Year 1, 90% survival will be achieved for plantings installed in Type IV Wetland Enhancement Areas (Figure 10).		0.21					0.21	Wetland Enhancement Type IV (0.46 Total Credits)
5P. At Year 5, 80% survival will be achieved for plantings installed in Type IV Wetland Enhancement Areas (Figure 10).				0.21			0.21	
6A. The aerial extent of reed canarygrass will comprise less than 15% of the NFN Bank site during the 5th and 10th growing seasons following initial planting.**				0.01		0.01	0.02	
7. Protect aquatic ecosystem functions by purchasing the site and establishing a conservation easement through a partnership with NRCS.**	0.02						0.02	
Percent of Total	31%	7%	13%	22%	17%	11%		
Running Percent of Total	-	37%	50%	72%	89%	100%		
<b>Total Credits Released By Increment</b>	<b>23.98</b>	<b>5.37</b>	<b>10.06</b>	<b>17.30</b>	<b>13.38</b>	<b>8.30</b>	<b>78.39</b>	

\* Year 0 indicates As built site conditions based on work conducted through the 2003 calendar year.

\*\* Performance Standards 6 and 7 apply to the entire site as a whole, with credits from both standards making up a total of 10% of the total credits available for the site.

\*\*\* No credits will be released in recognition of meeting the Year 10 performance standards until performance standards representing at least 60% of the total Year 10 credits have been achieved.

#### **4.4 ACCOUNTING PROCEDURES AND LEDGER MANAGEMENT**

WSDOT will maintain a ledger of the credits that are released and debited (Figure 12). WSDOT will provide the bank instrument signatories with a copy of the NFN ledger annually by March 31<sup>st</sup> until all credits are expended. The ledger will be accompanied by a monitoring report.

#### **4.5 SITE COMPLIANCE MONITORING**

WSDOT will prepare and submit annual monitoring reports to signatory agencies by March 31st following each monitoring year listed in Table 9. These reports will document the progress that has been made towards achieving the performance standards, adaptive management actions, and an overview of site progress.

A combination of formal and informal monitoring of the bank site will occur during the initial 10-year period following site construction or until all performance standards are met, whichever occurs later. Informal monitoring will occur periodically during an additional 20 years. Formal monitoring will consist of quantitative sampling techniques, while informal monitoring will consist of a visual inspection of the mitigation area to identify necessary maintenance and adaptive management actions. Formal monitoring will occur once per given year between June and September while informal monitoring may occur periodically throughout the year. Informal monitoring will occur in addition to formal monitoring in some years. The monitoring plan provides specific details about methods and reporting requirements (Appendix A).

During interim years that neither formal nor informal monitoring is scheduled, internal site inspections will take place. The site inspections will focus on detecting vandalism or other adverse modifications to the site.

**Table 9.  
Monitoring Schedule**

<b>Monitoring Year</b>	<b>Formal Monitoring</b>	<b>Informal Monitoring</b>	<b>Frequency</b>
Year 1 (2004)	Yes	Yes	Quarterly site visits
Year 2 (2005)	No	Yes	Quarterly site visits
Year 3 (2006)	Yes	Yes	Quarterly site visits
Year 4 (2007)	No	Yes	Quarterly site visits
Year 5 (2008)	Yes	Yes	Quarterly site visits
Year 7 (2010)	Yes	Yes	Annual site visit
Year 10 (2013)	Yes	Yes	Annual site visit
Year 15 (2018)	No	Yes	Annual site visit
Year 20 (2023)	No	Yes	Annual site visit
Year 30 (2033)	No	Yes	Annual site visit

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WSDOT's Wetland Mitigation Monitoring Program staff will conduct most of the site monitoring at the NFN Bank. The Monitoring Program conducts compliance monitoring for many of WSDOT's compensatory wetland mitigation projects. Compliance monitoring provides a means for tracking the development of WSDOT mitigation projects over time, and for determining compliance with permits issued by federal, state, local, or tribal jurisdictions. The Monitoring Program also provides an important internal feedback role in mitigation site management and maintenance that serves as an essential link in the internal adaptive management process, which increases the overall success of mitigation sites.

WSDOT's Monitoring Program uses a variety of monitoring methods. Quantitative data collection techniques are based on standard ecological and biostatistical methods. The configuration, placement, and number of sample units (e.g., belt transects, plots, lines, point-lines, point frames) required to address site-specific performance objectives will be based on characteristics observed in the vegetative community and patterns of plant distribution. Sample size analysis will be used to ensure data from an adequate number of sample units has been obtained to meet the sampling objectives. Monitoring reports will include a description of the methods and sampling designs used to monitor the bank site.

WSDOT will obtain the approval of the bank instrument signatories prior to altering any element of the monitoring plan. The signatories may require additional monitoring if necessary to demonstrate that certain performance standards have been met.



## **5.0 MANAGEMENT AND MAINTENANCE**

### **5.1 PROTECTION MECHANISMS**

WSDOT and NRCS have taken actions to ensure that NFN Bank wetland and riparian functions and values will be protected in perpetuity. These actions include establishing a conservation easement, fee simple acquisition of the land, and encumbering the deed with the signed MBI.

#### **5.1.1 Conservation Easement**

The NRCS conservation easement specifies that the intent of the easement is to restore, protect, manage, maintain, and enhance the functional values of the wetlands and other lands and to conserve functions and values including fish and wildlife habitat, water quality improvement, flood water retention, groundwater recharge, open space, aesthetic values, and environmental education. Use prohibitions listed in the easement prevent the site from being used for activities that would be incompatible with the intent of the easement.

WSDOT purchased the underlying land rights to the property, which includes control of access, recreational uses, and subsurface resources. NRCS issued WSDOT a compatible use permit, which states that the plan for restoration outlined in the NFN Bank MBI is compatible with the intent of the NRCS Conservation Easement. The Easement applies to the entire NFN Bank site.

WSDOT intends to maintain ownership of the property. However, once the bank site has achieved all of the performance standards, and (1) all available credits are expended or the Sponsor has informed the BOC that it has terminated banking activity, and (2) the BOC has determined that the Bank ecosystem is self-sustaining over time to the extent possible, WSDOT may seek to turn over its property rights to another public natural resource agency or private non-profit conservation agency whose mission is consistent with the NFN Bank goals and NRCS conservation easement.

Approval by the bank instrument signatories and NRCS will be required in order for WSDOT to transfer ownership of the property. Notwithstanding any transfer of interest to a third party, WSDOT retains ultimate responsibility for the timely performance of all long-term maintenance and management responsibilities..

#### **5.1.2 Financial Assurances**

Funding for WSDOT banks is secured through WSDOT's Advance Environmental Mitigation Revolving Account (AEMRA). AEMRA funds acquisition, design, development, and monitoring and maintenance for the NFN Bank. In addition, WSDOT's wetland remediation account funds are available and will be used for unanticipated actions necessary to ensure the ecological success of the NFN Bank. The AEMRA and wetland remediation account funds will be used as necessary to ensure that maintenance, management and remedial actions are implemented. Management and maintenance required after performance standards are met will also be funded by AEMRA. WSDOT will seek additional funding through its periodic budget requests, if the level of funding in the AEMRA is insufficient to satisfy the obligations under the Instrument.

### **5.1.3 Site Access**

The bank instrument signatories will be able to access and inspect the bank site at any time. WSDOT recommends that reasonable notice be given so that WSDOT can inform the Teitzel estate of visitation.

## **5.2 SHORT-TERM AND LONG-TERM MAINTENANCE GUIDELINES**

Maintenance of the NFN Bank includes those activities carried out on the site to protect it from conditions that may inhibit ecological goals and objectives. WSDOT is responsible for all site maintenance activities for a period of 10 years or until all performance standards are met, whichever occurs later. Maintenance activities include, but are not limited to, weed control, trash removal, and vandalism repair. These activities are considered short-term maintenance. After performance standards are met WSDOT will continue to maintain the bank.

Long-term maintenance (Year 10 through Year 30) will be conducted by WSDOT despite the lack of regulatory connections to maintenance activities after performance standards are met. The following guidelines are established to assist in long-term maintenance of the site:

- The culvert installed beneath North Fork Road will remain functional to facilitate surface water flow between Wetlands A and O.
- Disabled drain tiles will not regain function for removing water from Wetland N.
- Oregon ash, mixed-hardwood, and mixed-coniferous forested areas will remain dominated by target species included in the planting plan (Figure 10).
- Native woody vegetation appropriate for the site will dominate the shoreline enhancement area.
- Seasonal open water pond habitat in the West Unit will stay inundated through June 15th during years of normal rainfall as defined in Section 3.2. Encroachment of non-native species or invasive native species will not be allowed to substantively limit open water habitat functions.
- Weed control activities at the site will meet requirements of the Lewis County Noxious Weed Control Board as well as short- and long-term weed control requirements specified in the MBI.
- All structures and facilities within the bank, including fences and roads, shall be properly maintained in perpetuity or for as long as each is needed to accomplish the goals of the bank and achieve the requirements of the MBI. Replacement fencing will include only the minimum necessary for site protection and will allow wildlife permeability.

After the 30-year period ends, WSDOT will continue to manage the site by fulfilling landowner obligations defined in the Conservation Easement to maintain the ecological function on the site. These obligations include prohibiting activities that may convert the bank site to vacant land such as grazing, haying, burning, dumping or harvesting wood. Landowner obligations also include noxious weed control, emergency control of pests, and maintaining fences to exclude livestock.

### **5.3 FORCE MAJEURE**

Management of the bank includes administrative actions taken by WSDOT to ensure protection of the site. Any mitigation bank is vulnerable to acts of nature such as wildfires, climatic instability, and disease that are beyond the control of the WSDOT. The occurrence of such an act may necessitate changes to the bank, including revision of the MBI, to allow for activities that would offset and counteract the negative environmental impacts of that act. Depending upon the circumstances, however, it may be appropriate to let nature take its course, particularly when acceptable environmental conditions would be expected to eventually reestablish. The BOC, in coordination with WSDOT, shall determine what changes to the bank will be in the best interest of the bank and the aquatic environment. Any change to the bank necessitated by an act of nature beyond the control of WSDOT to prevent or mitigate shall be specified in a revised MBI or other appropriate document and require the approval of the BOC.

## 6.0 REFERENCES

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### **PROJECT COMMUNICATIONS**

- Bob Bicknell, Washington Department of Fish and Wildlife Area Habitat Biologist. Personal communication on August 11, 2003.
- Chris Chappel, Washington Natural Heritage Program. Personal Communication on February 19, 2001.
- Ted Teitzel, former landowner. Personal communication on August 29, 2000.
- Alex Uber, Washington Department of Fish and Wildlife Area Habitat Biologist. Personal communication on February 16, 2001.

## **Appendix A**

### **North Fork Newaukum Mitigation Bank Monitoring Plan**

# North Fork Newaukum Mitigation Bank Monitoring Plan

## 1.0 INTRODUCTION

The North Fork Newaukum Mitigation Bank (NFN Bank) will provide advance compensatory mitigation for unavoidable impacts to wetlands from proposed highway construction projects within the service area established for the bank (WRIA 23). The Washington Department of Transportation (WSDOT) is required to monitor the NFN Bank to document how well the site is performing in relation to project objectives and performance standards listed in the North Fork Newaukum Mitigation Bank Instrument (MBI).

## 2.0 WSDOT WETLAND MITIGATION MONITORING PROGRAM

WSDOT's Wetland Mitigation Monitoring Program staff will conduct the majority of site monitoring at the NFN Bank. The Monitoring Program conducts compliance monitoring for many of WSDOT's compensatory wetland mitigation projects statewide. Compliance monitoring provides a means for tracking the development of WSDOT mitigation projects over time, and for determining compliance with permits issued by federal, state, local, or tribal jurisdictions. The Monitoring Program also provides an important internal feedback role in mitigation site management and maintenance serving as an essential link in the internal adaptive management process, which increases the overall success of the mitigation sites.

### 2.1 Monitoring Protocols used by WSDOT

WSDOT's Monitoring Program uses both formal and informal monitoring methods. Formal monitoring may include qualitative monitoring and/or quantitative monitoring that is submitted to bank instrument signatories. Informal monitoring will usually be conducted during years for which there are no performance standards, will intend to provide a general idea of how the site is doing, and may only include qualitative monitoring. Informal monitoring may quantitatively address some performance standards, but may be less statistically rigorous than formal monitoring. Results of both formal and informal monitoring will be summarized in Monitoring Reports and submitted to bank instrument signatories. During some interim years that neither formal nor informal monitoring is scheduled, internal site inspections will take place. The results of internal site inspections will be used only guide WSDOT management and maintenance activities.

Quantitative data collection techniques are based on standard ecological and biostatistical methods. The configuration, placement, and number of sample units (e.g., belt transects, plots, lines, point-lines, point frames) required to address site-specific performance objectives will be based on characteristics observed in the vegetative community and patterns of plant distribution. Sample size analysis will be used to ensure data from an adequate number of sample units has been obtained to meet the sampling objectives. Monitoring reports will include a description of the methods and sampling designs used to monitor the bank site.

Further information on WSDOT monitoring methods can be found at  
<http://www.wsdot.wa.gov/environment/biology/docs/MethodsWhitePaper052004.pdf>

## **2.2 Submission of Annual Reports**

WSDOT will prepare and submit annual monitoring reports to bank instrument signatories during a 10-year period or until all performance standards have been met. The reports will be submitted by March 31 after each monitoring year for which a report is required. These reports will document the progress that has been made towards achieving the performance standards specified in the MBI. Reports will also include descriptions of adaptive management actions that have been taken when standards are not being met.

## **3.0 GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS**

Performance standards outlined in the MBI are intended to gauge the success of the site in meeting the overall project goals and objectives. The goals of the mitigation bank include improvement of fish and wildlife habitat as well as water quality and quantity functions identified as limiting factors for fish in the Upper Chehalis River Basin. The mitigation strategy is to improve aquatic ecosystem functions in the Newaukum River floodplain through the restoration, and enhancement of degraded wetlands.

The project will restore 2.06 acre; enhance 89.23 acres of wetlands, 31.31 acres of riparian forest, 7.50 acres of shoreline, and 40.85 acres of upland buffer; and result in significant improvements for fish and wildlife habitat, water quality, and other stream and wetland functions in the Upper Chehalis River Basin. The mitigation design includes converting agricultural pastures to native coniferous and deciduous forest habitats. Existing wetland areas will be expanded through restoration of the ground and surface water flows. Performance standards establish specific parameters that the site must meet in order to determine that the goals and objectives have been met.

## **4.0 MONITORING SCHEDULE**

A combination of formal and informal monitoring of the Bank site will occur during the initial 10-year period following site construction. Informal monitoring will occur periodically during an additional 20 years to document changes in the site over time and to provide information to the natural resource entity responsible for long-term site management. Formal monitoring will occur once per given year between June and September, while informal monitoring may occur periodically throughout the year. Informal monitoring will occur in addition to formal monitoring in some years. More frequent monitoring may be warranted because of specific site conditions or site-specific goals. For example, more frequent monitoring may be necessary to track the cover of invasive weeds or report results from management treatments that are needed. Poor site conditions may also require implementing contingency actions as outlined in Section 3.2 of the MBI. The NFN Bank will be monitored according to the schedule listed below.

## North Fork Newaukum Mitigation Bank Instrument

Monitoring Year	Tasks (Corresponding Performance Standard)	Expected Site Visits
Year 0	<ul style="list-style-type: none"> <li>• Observe culvert installation and document post-construction conditions in as-built plans. (1A)</li> <li>• Conduct verification inspection of plant and large woody debris installation and document post-construction conditions with photographs and as-built plans. (5A)</li> <li>• Conduct an estimate of the area occupied by reed canarygrass. Qualitatively assess other non-native plant populations that could pose a threat to mitigation success and develop a management strategy. (6A)</li> <li>• Observe excavation of Wetland Restoration Areas to ensure re-establishment of historic contours and document post-construction conditions with photographs and as-built plans. (2A)</li> <li>• Observe drain tile system disabling and document post-construction conditions with photographs and as-built plans. (3A)</li> <li>• Observe excavation activities in Topographic Enhancement Areas B, C, and D and document post-construction conditions with photographs and as-built plans. (4A)</li> <li>• Submit documentation showing that the site has been purchased by WSDOT and that the entire NFN Bank is protected in perpetuity by an appropriate NRCS WRP conservation easement. (7)</li> <li>• Submit above required materials to signatories.</li> </ul>	<p>Several times during site construction. Once upon completion of site construction/plant installation (2003).</p>
Year 1	<ul style="list-style-type: none"> <li>• Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)</li> <li>• Conduct visual observation and photography of Wetland Restoration Areas during the early part of the growing season of Years 1 and 2 to add supplemental documentation of the restored wetland hydrology. (2B Supplemental)</li> <li>• Monitor the effectiveness of the drain tile disabling through visual observation and photographic documentation. (3B)</li> <li>• Conduct visual observations of dominant plant species and bare ground and take photographs from established photopoints in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D). (4C)</li> <li>• Determine living native tree and shrub density per acre in the Shoreline Enhancement Planting Area, using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000), or using other methods as determined appropriate for the site. Transects will be randomly placed along a perpendicular baseline, so that the long axis of each transect runs parallel to the strongest environmental gradient. (5J)</li> <li>• Determine percent survival of plantings in Estate Buffer Planting Area. Inspect fence around the Estate Buffer to determine its effectiveness. (5L)</li> <li>• Determine percent survival of plantings in Type IV Wetland Enhancement Areas. (5O)</li> <li>• In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5B, 5D, 5F, 5H)</li> <li>• Qualitatively assess reed canarygrass and other non-native plant populations on the entire bank site that could pose a threat to mitigation success and develop a management strategy. (6A)</li> <li>• Qualitatively assess aerial cover of invasive species in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9). Include the presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success in this documentation. (6B)</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	<p>Quarterly site visits (2004). Monitoring activities will occur in appropriate seasons during quarterly site visits.</p>

## North Fork Newaukum Mitigation Bank Instrument

Monitoring Year	Tasks (Corresponding Performance Standard)	Expected Site Visits
Year 2	<ul style="list-style-type: none"> <li>• Conduct informal monitoring.</li> <li>• Conduct visual observation and photography of Wetland Restoration Areas during the early part of the growing season of Years 1 and 2 to add supplemental documentation of the restored wetland hydrology. (2B Supplemental)</li> <li>• Reassess performance standards, which were not met in prior years in order to release credits for those standards (if necessary).</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	Quarterly site visits (2005)
Year 3	<ul style="list-style-type: none"> <li>• Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)</li> <li>• Monitor the effectiveness of the drain tile outfalls disabing through visual observation and photographic documentation. (3B)</li> <li>• Conduct visual observations and take photographs of inundation in Topographic Enhancement Areas B, C, and D shortly after June 15th. (4B)</li> <li>• Conduct visual observations of dominant plant species and bare ground and take photographs from established photopoints in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D). (4C)</li> <li>• In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5B, 5D, 5F, 5H)</li> <li>• Qualitatively assess reed canarygrass and other non-native plant populations on the entire bank site that could pose a threat to mitigation success and develop a management strategy. (6A)</li> <li>• Qualitatively assess aerial cover of invasive species in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9). Include the presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success in this documentation. (6B)</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	Quarterly site visits (2006). Monitoring activities will occur in appropriate seasons during quarterly site visits.
Year 4	<ul style="list-style-type: none"> <li>• Conduct informal monitoring.</li> <li>• Reassess performance standards, which were not met in prior years in order to release credits for those standards (if necessary).</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	Quarterly site visits (2007)
Year 5	<ul style="list-style-type: none"> <li>• Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)</li> <li>• Conduct a wetland delineation of the Wetland Restoration Areas to provide documentation of wetland acreage. (2B)</li> <li>• Conduct visual observations and take photographs of inundation in Topographic Enhancement Areas B, C, and D shortly after June 15th. (4B)</li> <li>• Conduct visual observations of dominant plant species and bare ground and take photographs from established photopoints in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D). (4C)</li> <li>• Determine density of living native tree and shrub species in Shoreline Enhancement Planting Areas. (5L)</li> <li>• Determine percent aerial cover of native tree and shrub species in the Estate Buffer Planting Area. Visually inspect fence around the Estate Buffer to determine its effectiveness and adequacy of repair. (5M)</li> <li>• Determine percent survival of plantings in Type IV Wetland Enhancement Areas. (5P)</li> <li>• In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5B, 5D, 5F, 5H)</li> <li>• Conduct an estimate of the area occupied by reed canarygrass on the entire site.</li> </ul>	Quarterly site visits (2008)

## North Fork Newaukum Mitigation Bank Instrument

Monitoring Year	Tasks (Corresponding Performance Standard)	Expected Site Visits
	<p>Qualitatively assess other non-native plant populations that could pose a threat to mitigation success and develop a management strategy. (6A)</p> <ul style="list-style-type: none"> <li>• Conduct a quantitative estimate of the aerial cover of invasive species in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9). Include the presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success in this documentation. (6B)</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	
Year 6	<ul style="list-style-type: none"> <li>• Conduct internal site inspection</li> <li>• Reassess performance standards, which were not met in prior years in order to release credits for those standards (if necessary).</li> </ul>	Annual site visit (2009)
Year 7	<ul style="list-style-type: none"> <li>• Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)</li> <li>• Monitor the effectiveness of the drain tile outfalls disabling through visual observation and photographic documentation. (3B)</li> <li>• Conduct visual observations and take photographs of inundation in Topographic Enhancement Areas B, C, and D shortly after June 15th. (4B)</li> <li>• Conduct visual observations of dominant plant species and bare ground and take photographs from established photopoints in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D). (4C)</li> <li>• In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5B, 5D, 5F, 5H)</li> <li>• Qualitatively assess reed canarygrass and other non-native plant populations on the entire bank site that could pose a threat to mitigation success and develop a management strategy. (6A)</li> <li>• Qualitatively assess aerial cover of invasive species in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9). Include the presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success in this documentation. (6B)</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	Annual site visit (2010)
Year 8	<ul style="list-style-type: none"> <li>• Conduct internal site inspection</li> <li>• Reassess performance standards, which were not met in prior years in order to release credits for those standards (if necessary).</li> </ul>	Annual site visit (2011)
Year 9	<ul style="list-style-type: none"> <li>• Conduct internal site inspection</li> </ul>	Annual site visit (2012)
Year 10	<ul style="list-style-type: none"> <li>• Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)</li> <li>• Monitor the effectiveness of the drain tile disabling through visual observation and photographic documentation. (3B)</li> <li>• Conduct visual observations of dominant plant species and bare ground and take photographs from established photopoints in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D). (4C)</li> <li>• Determine density of living native tree and shrub species in Shoreline Enhancement Planting Areas. (5L)</li> <li>• Determine percent aerial cover of native tree and shrub species in the Estate Buffer Planting Area. Visually inspect fence around the Estate Buffer to determine its effectiveness and adequacy of repair. (5N)</li> <li>• In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5C, 5E, 5G, 5I)</li> <li>• Conduct an estimate of the area occupied by reed canarygrass on the entire site. Qualitatively assess other non-native plant populations that could pose a threat to mitigation success and develop a management strategy. (6A)</li> </ul>	Annual site visit (2013)

## North Fork Newaukum Mitigation Bank Instrument

Monitoring Year	Tasks (Corresponding Performance Standard)	Expected Site Visits
	<ul style="list-style-type: none"> <li>• Conduct a quantitative estimate of the aerial cover of invasive species in the seasonal pond habitat (Topographic Enhancement Areas B, C, and D on Figure 9). Include the presence of other species, such as <i>Typha</i> (cattail), that could pose a threat to mitigation success in this documentation. (6B)</li> <li>• Complete Monitoring Report and submit to signatories with materials outlined above.</li> </ul>	
Years 11-30	<ul style="list-style-type: none"> <li>• Conduct informal monitoring in Years 15, 20, and 30.</li> <li>• Reassess performance standards, which were not met in prior years in order to release credits for those standards (if necessary).</li> <li>• Complete Annual Monitoring Reports in Years 15, 20, and 30 and submit to signatories with materials outlined above.</li> </ul>	Annual site visits (2018, 2023, 2033)

### 5.0 MONITORING METHODS

#### 5.1 Conduct formal monitoring (Years 1, 3, 5, 7, and 10)

Formal monitoring addresses the site’s fulfillment of project goals, objectives, and performance standards. It may include qualitative and/or quantitative monitoring that is summarized in a monitoring report and submitted to signatories. Quantitative formal monitoring will attempt to approach a confidence level of 80 percent and confidence interval of 20 percent. Formal monitoring will be conducted during Years 1, 3, 5, 7, and 10 for which there are performance standards.

#### 5.2 Conduct informal monitoring (Years 1-5, 7, 10, 15, 20, and 30)

In contrast to formal monitoring, informal monitoring is intended to provide a general overview of site progress. A qualitative visual inspection of the mitigation area will be conducted to identify concerns associated with meeting project goals and objectives. Informal monitoring may also quantitatively addresses some performance standards of coming years, but may be less statistically rigorous than formal monitoring. Informal monitoring will be the only monitoring method during years 2, 4, 15, 20, and 30 for which there are no performance standards, although it will also be employed during years of formal monitoring.

#### 5.3 Complete monitoring report and submit to signatories (Years 1-5, 7, 10, 15, 20, and 30)

Monitoring reports will provide a description of site conditions observed during the past year. Reports will also include results from formal and informal monitoring, along with a discussion of site conditions as they relate to the performance standards in the MBI. Current aerial photography will be included in monitoring reports in Years 0, 5, and 10. Results of monitoring will lead to recommendations for any maintenance and contingency actions that may be necessary to ensure that the objectives and goals of the NFN Bank are met. The monitoring report will also describe adaptive management activities that may be necessary to meet performance standards. Monitoring reports will be submitted to signatories in Years 1-5, 7, 10, 15, 20, and 30.

**5.4 Observe and document post-construction conditions with photographs and as-built plans. (1A, 3A, 4A)**

Take photographs and write simple text description of post-construction conditions of culvert installation (1A) drain tile system disabling (3A) excavation activities of Topographic Enhancement Areas B, C, and D (4A) to be included in the first year monitoring report.

**5.5 Document hydrologic flow through the culvert by visual observation and photography during the growing season. (1B)**

The culvert installed beneath the North Fork Road will be inspected and photographed during the growing season to document hydrologic flow between Wetlands O and A. These photos will be included in Years 1, 3, 5, 7 and 10 monitoring reports.

**5.6 Observe excavation of Wetland Restoration Areas to ensure re-establishment of historic contours and document post-construction conditions with photographs and as-built plans. (2A)**

Excavation of fill material and reestablishment of historic contours in the West Unit will occur during site construction to restore natural hydrology. The majority of fill material will be removed from the seasonal creek channel located in this area. Both as-built plans and photographs documenting post-construction conditions will be submitted to the bank instrument signatories.

**5.7 Conduct a wetland delineation of the Wetland Restoration Areas to provide documentation of wetland acreage. (2B)**

During Year 5, a wetland delineation will be conducted of areas identified on the Overall Site Map as Wetland Restoration (Figure 8). The restored area is in the vicinity of the fill removal that occurred in the seasonal creek located in the West Unit and in the southern section of Topographic Enhancement Area B. The wetland delineation will be performed using the 1987 Corps of Engineers Wetland Delineation Manual. The results, including a wetland boundary map and acreage, will be included in the Year 5 monitoring report.

**5.8 Conduct visual observation and photography of Wetland Restoration Areas during the early part of the growing season. (2B Supplemental)**

Hydrology will be documented in the areas where fill has been removed from the seasonal creek located in the West unit. Photographs taken during the early growing season in Years 1 and 2 will serve as documentation of hydrology.

**5.9 Monitor the effectiveness of the drain tile disabling through visual observation and photographic documentation. (3B)**

Drain tile outfalls in the East Unit will be monitored for any signs of discharge during winter and spring when the likelihood of heavy precipitation is greatest. Any signs of discharge will be documented with photographs that will be included in the Years 1, 3, 7, and 10 monitoring reports.

**5.10 Conduct visual observations and take photographs of inundation in Topographic Enhancement Areas B, C, and D shortly after June 15th. (4B)**

Seasonally ponded depressions will be expanded as part of Type I wetland enhancement located in the West Unit. Standing water in excavated wetland areas will be documented with

photographs that will be included in the Years 3, 5, and 7 monitoring reports. Standing water should be present until June 15th during years of normal rainfall. Normal rainfall will be based on the definition for “most years” provided in the 1987 Corps Wetland Delineation Manual (i.e., annual precipitation in a normal year must be the same as or greater than precipitation in 5 years out of 10) or the average precipitation for a time period plus or minus 1 standard deviation of the mean.

**5.11 Conduct internal monitoring (Years 6, 8, and 9)**

Internal monitoring will only be used to guide WSDOT management activities and will not be included in monitoring reports to signatories. Internal monitoring will be conducted with an emphasis on the performance standards of coming years. Like informal monitoring, quantitative internal monitoring may be less statistically rigorous than formal monitoring.

**5.12 List and estimate aerial cover of dominant plants and bare ground in the seasonal pond habitat, topographic enhancement areas B, C, and D, Document plant communities with photographs. (4C)**

Develop a list and estimate aerial cover of the dominant plant species and bare ground present in the excavated wetland areas (topographic enhancement areas B, C and D) in Years 1, 3, 5, 7 and 10 and include in the monitoring reports along with photographs of these areas.

**5.13 Conduct verification inspection of plant and large woody debris installation and document post-construction conditions with photographs and as-built plans. (5A)**

Document site conditions within 6 months after planting activities are complete with a description and photographs. As-built plans will include the location, species, and number of plantings installed, as well as the location of large woody debris installation.

**5.14 In the west, north, east, and south units, determine living native tree species richness per unit and number of living native trees per acre. (5B – 5I)**

The number of living trees per acre will be determined using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000) or using other methods as determined appropriate for the site. Trees are any native woody vegetation capable of growing into a tree as defined by Cowardin, et al. (1979) including natural recruitment. Transects will be randomly placed along a perpendicular baseline, so that the long axis of each transect runs parallel to the strongest environmental gradient.

Sampling objectives for this type of monitoring include two components related to the precision of the estimate:

- The confidence level. How confident do you want to be that your confidence interval will include the true value?
- The confidence interval width. How wide of a range are you willing to accept around your estimated value? Is +/- 20 percent of the estimated mean or total value adequate or do you want to be within +/- 10 percent?

The sampling objective is to be 80 percent confident the true number of trees (stems) per acre at the NFN Mitigation Bank is within 20 percent of the estimated density. Density estimates will approach the targeted sampling objective of 80 percent confidence level and 20 percent confidence interval width. This estimate is then compared to the performance standard to

## **North Fork Newaukum Mitigation Bank Instrument**

determine if the monitoring objective is met. In the South Unit, areas not suitable for planting (patches of *Carex* and *Rosa* species shown on as-built plans) will be excluded from these measurements.

In order to count toward the species richness portion of standards 5B-5I each species must meet the 10% survival thresholds listed in Table 1. Four of the species listed below must meet these thresholds in the West and North Units, while only two are required in the East and South Units.

**Table 1: 10% survival threshold numbers of individual trees**

Species	10% Survival Threshold			
	North Unit	West Unit	East Unit	South Unit
Big Leaf Maple	17	505	40	26
Black Cottonwood	7	312	54	-
Douglas Fir	25	635	-	62
Grand Fir	7	181	-	18
Oregon Ash	203	683	2,540	522
Quaking Aspen	4	156	27	26
Red Alder	17	505	40	18
Western Hemlock	7	181	-	-
Western Red Cedar	26	894	107	27

### **5.15 Determine density per acre of living native tree and shrub vegetation in Shoreline Enhancement Areas. (5J and 5K,)**

The density per acre of native tree and shrub vegetation will be determined during the summer of Years 1, 5 and 10 using randomly placed unequal-area belt transects as described by Stehman and Salzer (2000), or using other methods as determined appropriate for the site. Transects will be randomly placed along a perpendicular baseline, so that the long axis of each transect runs parallel to the strongest environmental gradient. The location and technique of each sampling area will be identified in monitoring reports. Density per acre estimates will approach the targeted sampling objective of 80 percent confidence level and 20 percent confidence interval width. Years 1, 5 and Year 10 results will be measured against performance standards and included in monitoring reports. Internal monitoring may occur in Years 3, 4, 7, and/or 9 if there is concern over meeting the performance standard. Internal monitoring results may be less statistically rigorous, may focus on areas of concern, and will only be used internally to steer WSDOT management and maintenance activities.

### **5.16 Determine percent survival of plantings in Estate Buffer Planting Area. (5O and 5P)**

Stem counts or other methods as appropriate will be conducted one year after plants have been installed in the Estate Buffer Planting Area. Stem-counts will be used to report the percent survival in the first year.

### **5.17 Determine aerial cover of native tree and shrub species in the Estate Buffer Planting Areas. (5L, 5M and 5N)**

## **North Fork Newaukum Mitigation Bank Instrument**

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In years 5 and 10 determine the aerial cover of native trees and shrubs in the Estate Buffer Planting Area using appropriate sampling methods. Visually inspect Estate Buffer wire fence for adequacy of repair.

### **5.18 Determine percent survival of plantings in Type IV Wetland Enhancement Areas. (5P)**

Stem counts or other methods as appropriate will be conducted in planting areas of the Forested Wetland Preservation Area at Years 1 and 5. Stem counts will be compared to the number of trees planted to report the percent survival.

### **5.19 Conduct an estimate of the area occupied by reed canarygrass. (6)**

The aerial extent of reed canarygrass will be estimated based on GPS data, aerial photointerpretation, visual observation, and/or other methods as seen appropriate. An estimate of the location and size of populations will be documented on a site map. Baseline area will be determined during Year 0, and population size will be documented in Years 5 and 10 monitoring reports.

### **5.20 Submit documentation showing that the site has been purchased by WSDOT and that the entire NFN Bank is protected in perpetuity by an appropriate NRCS WRP conservation easement. (7)**

Copies of the WSDOT-owned property deed and NRCS conservation easement will be submitted to signatories

### **5.21 Conduct internal site inspection (Years 6, 8, and 9)**

As a form of internal monitoring, a general visual inspection of the mitigation area will be conducted to identify concerns associated with meeting project goals, objectives, and performance standards. Internal site inspection will also focus on detecting vandalism or other adverse modifications to the site as outlined in the CBMOA (Appendix E) (WSDOT, 1994). Results will be used internally by WSDOT to guide management and maintenance activities.

**5 REFERENCES**

Cowardin, L.M., and V. Cargter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service. FWS/OBS 79/31.

Stehman, Stephen V. and Daniel W. Salzer. 2000. Estimating Density From Surveys Employing Unequal-Area Belt Transects. *WETLANDS*. Vol. 20. No. 3. pp. 512-519. The Society of Wetland Scientists. Ann Arbor.

## **Appendix B**

### **Memorandum of Agreement**

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**MEMORANDUM OF AGREEMENT  
NORTH FORK NEWAUKUM MITIGATION BANK**

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This Memorandum of Agreement regarding the establishment, use, operation, and maintenance of North Fork Newaukum Mitigation Bank (hereinafter, the Bank) is made and entered into by and among Washington State Department of Transportation (hereinafter, Sponsor), the U.S. Army Corps of Engineers (Corps), the Washington State Department of Ecology (Ecology), the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), Natural Resources Conservation Service (NRCS), the Washington State Department of Fish and Wildlife, and Lewis County, with reference to the following:

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**I. PREAMBLE**

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A. Purpose: The purpose of this Memorandum of Agreement is to establish guidelines and responsibilities for the establishment, use, operation, and maintenance of the Bank. The Bank will be used for compensatory mitigation for unavoidable impacts to waters of the United States, including wetlands, which result from activities authorized under Section 404 and Section 401 of the Clean Water Act, and RCW ch. 90.48, provided such use has met all applicable requirements and is authorized through valid permits issued by the Corps and Ecology, and by other applicable authorities.

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B. Location and Ownership of Parcel: Whereas, the Sponsor owns 230.41 acres of land located adjacent to the confluence of the North Fork and Middle Fork of the Newaukum River, Lewis County, Washington, and the NRCS owns a perpetual conservation easement for the same parcel. The Sponsor has developed a mitigation plan to restore and/or enhance 170.95 acres of wetland, riparian, upland riparian, and upland buffer habitat, all as further described at Section 1.1.1 of the Mitigation Banking Instrument (hereinafter, Instrument) appended to, and hereby fully incorporated into, this Agreement.

C. Project Description: Whereas, pursuant to this Memorandum of Agreement, the Sponsor will restore and/or enhance 170.95 acres of aquatic and associated habitat in accordance with the provisions of this Agreement and the Instrument, and shall then maintain the Bank in such condition for an operational life of a minimum of 10 years and, following (1) the exhaustion of available mitigation credits or termination of banking activity, and (2) the development of a self-sustaining Bank ecosystem, and shall maintain the Bank for an additional long-term management period of 20 years, in accordance with Chapter 5.0 of the Instrument. The Bank area is projected to consist of 2.06 acres of restored wetlands, 85.25 acres of enhanced wetlands, 37.67 acres of riparian forest, 6.2 acres of shoreline, and 42.15 acres of upland buffer, as detailed in Section 2.4 of the Instrument. The Bank is intended to, among other purposes, improve water quality and hydrology, enhance summer flows, and create fish and wildlife habitat in uplands, wetlands, and riparian areas.

D. Baseline Conditions: Whereas, the Bank area consists largely of former agricultural lands, and the Bank site currently comprises thirteen jurisdictional wetlands encompassing a total

1 of 99.95 acres, with soils, hydrology, wetlands, wildlife and habitat baseline conditions all as  
2 further detailed in Section 1.1.4 of the Instrument.  
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4 E. Establishment and Use of Credits: Whereas, upon satisfaction of the performance  
5 standards contained in the Instrument, credits will be determined in accordance with the  
6 procedures outlined in this Agreement and the Instrument, presently projected to total 78.39  
7 credits, and will be made available to be used as mitigation in accordance with all applicable  
8 requirements for permits issued under Sections 401 and 404 of the Clean Water Act (33 U.S.  
9 Code §§ 1341, 1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code § 403),  
10 and the Washington State Water Pollution Control Act (Chapter 90.48, RCW). The final number  
11 of acquired credits will be determined in accordance with the procedures specified in Sections  
12 4.1 and 4.3 of the Instrument, following achievement of the project objectives and performance  
13 standards delineated in Chapter 3.0 of the Instrument, and released for mitigation use pursuant to  
14 Sections 4.2 and 4.3, and Table 8, of the Instrument.  
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16 F. Bank Oversight Committee. Whereas, the Bank Oversight Committee (BOC)  
17 consists of:

- 18 1. Chair: U.S. Army Corps of Engineers, Seattle District (Corps).
  - 19 2. Chair: Washington Department of Ecology (Ecology).
  - 20 3. U.S. Environmental Protection Agency, Region X (EPA).
  - 21 4. U.S. Fish and Wildlife Service.
  - 22 5. Washington Department of Fish and Wildlife.
- 23

24 G. Disclaimer: Whereas, this Agreement does not in any manner affect statutory  
25 authorities and responsibilities of the signatory parties. This Agreement is not intended, nor may  
26 it be relied upon, to create any rights in third parties enforceable in litigation with the United  
27 States or the State of Washington.  
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## 29 **II. AUTHORITIES**

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31 The establishment, use, operation and maintenance of the Bank is carried out in accordance with  
32 the following authorities:

### 33 A. Federal:

- 34 1. Clean Water Act (33 USC §§ 1251 et seq.)
- 35 2. Rivers and Harbors Act (33 USC § 403)
- 36 3. Fish and Wildlife Coordination Act (16 USC §§ 661 et seq.)
- 37 4. Regulatory Programs of the Corps of Engineers, Final Rule (33 CFR Parts 320-  
38 330)
- 39 5. Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40  
40 CFR Part 230)
- 41 6. Memorandum of Agreement between the Environmental Protection Agency  
42 and the Department of the Army concerning the Determination of Mitigation Under the  
43 Clean Water Act, Section 404(b)(1) Guidelines (February 6, 1990)
- 44 7. Federal Guidance for the Establishment, Use, Operation of Mitigation Banks  
45 (60 F.R. 58605 et seq.)
- 46 8. Regulatory Guidance Letter No. 02-02, U.S. Army Corps of Engineers,  
47 December 26, 2002

1  
2 B. State of Washington:

- 3 1. Washington State Department of Transportation, Wetland Compensation Bank  
4 Program, Memorandum of Agreement, September 15, 1994  
5 2. Washington Water Pollution Control Act, RCW 90.48 et seq.  
6  
7

8 NOW, THEREFORE, the parties agree to the following:  
9

10 **III. ESTABLISHMENT OF THE BANK**  
11

12 A. Scope of Work. The Sponsor agrees to perform all necessary work, in accordance  
13 with the provisions of this Memorandum of Agreement, to restore and/or enhance aquatic and  
14 upland habitat and buffers, until it is demonstrated to the satisfaction of the agencies represented  
15 on the BOC (acting through the Chairs) that the project complies with all conditions contained  
16 herein.  
17

18 B. Permits. The Sponsor will obtain all appropriate environmental documentation,  
19 permits or other authorizations needed to establish and maintain the Bank, prior to debiting any  
20 mitigation credits. This Agreement does not fulfill the requirement, or substitute, for such  
21 authorization. Prior to acquiring any mitigation credits pursuant to this Agreement, the Sponsor  
22 must obtain a modification to the existing nationwide permit pertaining to the Bank site,  
23 expressly incorporating as a special condition the terms and provisions of this Agreement and the  
24 Instrument.  
25

26 C. Bank Establishment. Establishment of the Bank will be performed in phases as  
27 described in Sections 3.2 and 4.3, and in Table 8 of the Instrument, and the credits will become  
28 available in accordance with the procedures and schedules referenced in Articles IV.D. through  
29 IV.H. of this Agreement. In the event the Sponsor determines that modifications must be made  
30 in the Bank development plan contained in the Instrument to ensure successful establishment of  
31 habitat within the Bank, the Sponsor shall submit a written request for such modification to the  
32 BOC, through the Chairs, for approval. Documentation of implemented modifications shall be  
33 made consistent with Article III.F. of this Agreement, and Section 3.2 and Table 8 of the  
34 Instrument.  
35

36 D. Financial Assurance Requirements: The Sponsor intends to satisfy its obligations  
37 under this Agreement by obtaining sufficient funding to carry out all its acquisition, design,  
38 development, monitoring, and maintenance responsibilities. The Sponsor provides the following  
39 financial assurances for the work described in this Agreement. The State of Washington has  
40 appropriated funding through the Sponsor's WSDOT Advance Environmental Mitigation  
41 Revolving Account (AEMRA). To the extent, if any, that these funds are insufficient to fully  
42 and timely fund the Sponsor's obligations as delineated in this Agreement, the Sponsor shall  
43 include in its budget request for each fiscal period appropriations sufficient to cover the  
44 Sponsor's obligations under this Agreement for that fiscal period, and will use all reasonable and  
45 lawful means to fulfill its obligations hereunder. In the event the legislature of the State of  
46 Washington does not provide funds in sufficient amounts to discharge these obligations, the  
47 Sponsor shall use its best efforts to procure funding in order to satisfy its obligations under this

1 Agreement from any other source of funds legally available for this purpose. Nothing herein  
2 shall constitute, nor be deemed to constitute, an obligation of future appropriations by the  
3 legislature of the State of Washington, where creating such an obligation would be inconsistent  
4 with the Constitution of the State of Washington.

5  
6 E. Real Estate Provisions: The Sponsor's fee title to the Bank property is subject to a  
7 conservation easement established for the wetlands and habitat protection purposes enumerated  
8 in Section 5.1.1. The Sponsor agrees that the property will be held subject to this Agreement and  
9 the Instrument and in accordance with the restrictions contained in the aforesaid conservation  
10 easement. Throughout its ownership of fee title, the Sponsor further agrees to adhere to, and to  
11 enforce against third parties, the terms and limitations of the conservation easement as that  
12 easement exists on the effective date of this Agreement.

13  
14 F. As-built Report. The Sponsor agrees to submit an as-built report for the Bank within  
15 30 days following completion of the establishment of that phase of the Bank, or following entry  
16 into effect of this Agreement, whichever is later. The as-built report must describe in detail any  
17 deviation from that described in the Instrument, and must show finished grades, and surface and  
18 groundwater elevations, as appropriate.

#### 19 20 **IV. OPERATION OF THE BANK**

21  
22 A. Service Area: The Bank is established to provide mitigation to compensate for  
23 impacts to the Waters of the United States including wetlands within Water Resources Inventory  
24 Area 23, "Upper Chehalis River Basin," as shown in Figure 5 of the Instrument. Projects outside  
25 of the Service Area will be eligible to utilize and rely upon credits from the Bank with express  
26 approval of the applicable regulatory agency(ies) with jurisdiction over that beneficiary site, and  
27 upon approval of the BOC, where the BOC determines that it is practicable and environmentally  
28 desirable to compensate for impacts beyond the Service Area.

29  
30 B. Access to the Bank Site. The Sponsor will allow, or otherwise provide for, access to  
31 the site by members of the BOC or their agents or designees, as reasonably necessary, for the  
32 purpose of inspection, compliance monitoring, and remediation consistent with the terms and  
33 conditions of this Agreement and the Instrument, throughout the period of Bank establishment,  
34 operational life, monitoring, and long-term management and maintenance. Inspecting parties  
35 shall provide reasonable notice, of not less than 24 hours, to the Sponsor, prior to inspection of  
36 Bank, shall use their best efforts to consolidate access requirements for BOC representatives, and  
37 shall not unreasonably disrupt or disturb activities on the property.

38  
39 C. Projects Eligible to Use the Bank. All Sponsor activities regulated under Section 10  
40 of the Rivers and Harbors Act of 1899, and/or Sections 401 and 404 of the Clean Water Act, and  
41 RCW ch. 90.48, located within the Service Area of this Bank may be eligible to use the Bank as  
42 mitigation for unavoidable impacts. The Sponsor's projects outside of the Service Area will be  
43 eligible to utilize credits from the Bank with the express approval of the BOC, where the BOC  
44 determines that it is practicable and environmentally desirable to do so.

45 For projects requiring authorization through either a Nationwide Permit or Individual  
46 Permit under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors

1 Act of 1899, the Corps and Ecology, in consultation with the other regulatory and resource  
2 agencies, will determine the appropriateness of use of the Bank for specific projects on a case-by  
3 case basis. Projects undertaken by public or private entities other than the Sponsor may also be  
4 eligible to utilize the Bank as mitigation for unavoidable impacts, subject to regulatory approval.  
5

6 D. Project Objectives and Performance Standards: The criteria to be utilized by the  
7 Corps and Ecology, in consultation with the BOC, in determining the Sponsor's success in  
8 meeting the Bank's designated objectives are contained in the performance standards delineated  
9 in Section 3.2 of the Instrument.

10  
11 E. Schedule of Credit Availability: Upon submittal by the Sponsor of all documentation  
12 required under Section 3.2 and Table 8 of the Instrument, and subsequent concurrence by the  
13 Corps and Ecology in consultation with the other members of the BOC and with the Sponsor that  
14 the performance standards have been achieved, it is agreed that credits will become available for  
15 use by the Sponsor, or for transfer to a third party as may be specifically approved. Upon  
16 attainment of each particular performance standard, credits will be released for use by the  
17 Sponsor in accordance with the schedule delineated in Table 8 of the Instrument.  
18

19 F. Conditions on Debiting: Credits may be released prior to the schedule expressed in  
20 Table 8 of the Instrument, under exceptional circumstances not foreseen during the development  
21 and implementation of the Bank, upon request by the Sponsor and approval of the BOC in  
22 accordance with the procedures, criteria, and limitations expressed in Section 4.3.1 of the  
23 Instrument.  
24

25 G. Accounting Procedure: The Sponsor shall maintain a ledger of the credits that are  
26 acquired through the achievement of specified performance standards as well as credits that are  
27 released and debited. The Sponsor shall submit an annual ledger to the Corps and Ecology, for  
28 distribution to all members of the BOC, showing a cumulative tabulation of all transactions at the  
29 Bank to date, as specified in Section 4.4 of the Instrument. The ledger shall be submitted in  
30 conjunction with the annual monitoring report, until all credits are expended or the Sponsor has  
31 informed the BOC that it has terminated banking activity.  
32

33 H. Credit Deficit: If the Corps and/or Ecology determine at any point that the Bank is  
34 operating without prior written approval at a deficit, debiting of credits will immediately cease,  
35 and the Corps and/or Ecology, in consultation with the BOC and the Sponsor, will determine  
36 what remedial actions are necessary to correct the situation and direct their performance prior to  
37 the release of any additional mitigation credits.  
38

39 I. Provisions For Use of the Mitigation Bank Area: The Sponsor shall not:  
40

41 1. Grant additional easements, rights of way, or any other property interest in or to  
42 the project areas without the written consent of the Corps and Ecology, in consultation  
43 with the BOC.  
44

45 2. Use or authorize the areas within the Bank for any purpose other than those  
46 specified in the Instrument which interferes with its conservation purposes.  
47

1 **V. MAINTENANCE AND MONITORING OF THE BANK**

2  
3 A. Maintenance Provisions: The Sponsor agrees to perform all necessary work to  
4 achieve and maintain the performance standards as specified in Section 3.2 of the Instrument.  
5 These maintenance activities conducted during the operational life of the Bank shall also include,  
6 but not be limited to, the short-term maintenance objectives detailed in Section 5.2 of the  
7 Instrument. The “operational life” of the Bank shall extend following establishment of the Bank  
8 as described in Article III of this Agreement, and terminate when the Bank complies with all  
9 performance standards expressed in Section 3.2 of the Instrument, and (1) all available credits  
10 are expended or the Sponsor has informed the BOC that it has terminated banking activity, and  
11 (2) the Corps and Ecology, in consultation with the Sponsor and the BOC members, have  
12 determined that the Bank ecosystem has achieved a self-sustaining state.

13  
14 B. Monitoring Provisions: The Sponsor agrees to perform all necessary work to monitor  
15 the Bank to demonstrate compliance with the performance standards established in Section 3.2 of  
16 the Instrument. Monitoring shall include all formal and informal monitoring activities specified  
17 in Sections 3.2 and 4.5 of the Instrument, and as further amplified in Appendix A to the  
18 Instrument.

19  
20 C. Reports: The Sponsor shall submit to the Corps and Ecology, for distribution to the  
21 other members of the BOC, monitoring reports describing the conditions of Bank and relating  
22 those conditions to the project objectives and performance standards. Reports will contain the  
23 information specified in, and be submitted in accordance with the schedule established in,  
24 Sections 3.2 and 4.5 of the Instrument.

25  
26 D. Contingency Plans/Remedial Actions: In the event the Bank fails to achieve on the  
27 specified date one or more of the performance standards delineated in Section 3.2 of the  
28 Instrument, the Sponsor shall develop necessary contingency plans and implement appropriate  
29 remedial and monitoring actions for the Bank pursuant to the requirements specified for each  
30 project objective in Section 3.2 of the Instrument. Prior to their execution, proposals for the  
31 contingency plans and remediation and monitoring activities shall be submitted to the BOC via  
32 the Chairs, and must be approved by the Corps and Ecology, in consultation with the Sponsor  
33 and the BOC. In the event the Sponsor fails to implement necessary remedial actions within the  
34 prescribed period, the Corps and/or Ecology, following consultation with the Sponsor and the  
35 BOC, will direct remedial, corrective, and/or sanctioning action in accordance with the  
36 procedures specified in Section 3.2 of the Instrument for each project objective.

37  
38 E. Default: Should the Corps and/or Ecology, in consultation with the BOC, determine  
39 that the Sponsor is in material default of any provision of this Agreement and the Instrument, the  
40 Corps and/or Ecology may notify the Sponsor that the debiting, sale, and/or transfer of mitigation  
41 credits is suspended until the delineated deficiencies are rectified. Upon written notification of  
42 suspension, the Sponsor agrees to immediately cease any debiting, sale, or transfer transactions  
43 not yet finally completed, until informed by the Corps and/or Ecology that debiting, sale, or  
44 transfer of credits may be resumed. Should the Sponsor remain in default for a period of 90  
45 days, the Corps and/or Ecology, following consultation with the BOC, may terminate this  
46 Agreement, the Instrument, and any subsequent banking operations. Upon such termination, the  
47 Sponsor agrees to fulfill its pre-existing obligations to perform all establishment, monitoring,

1 maintenance, management, and remediation responsibilities relating to credits that were debited,  
2 sold, or transferred prior to termination.

3  
4 F. Termination of Operational Life of the Bank: At the request of the Sponsor, the BOC  
5 will perform a final compliance visit to evaluate whether all performance standards have been  
6 satisfied. Upon determination that all performance standards have been met, the Corps and  
7 Ecology will jointly issue a certification letter confirming that the operational life of the Bank  
8 has terminated, and that the period of long-term maintenance and management has commenced,  
9 when (1) all available credits are expended or the Sponsor has informed the BOC that it has  
10 terminated banking activity, and (2) the Corps and Ecology, in consultation with the Sponsor and  
11 the BOC members, have determined that the Bank ecosystem has achieved a self-sustaining  
12 state.

13  
14 G. Long-Term Maintenance and Management: Upon termination of the operational life  
15 of the Bank, the Sponsor shall implement the long-term maintenance and management  
16 guidelines, and provide associated monitoring measures and reports, as established in Section 5.2  
17 of the Instrument. These long-term management and maintenance activities shall be executed for  
18 a period of 20 years commencing with the date of issuance of the closure letter certifying  
19 termination of the operational life of the Bank. The Sponsor may only deviate from the  
20 approved Bank maintenance and management guidelines expressed in the Instrument upon  
21 written approval of the Corps and Ecology, following consultation with the Sponsor and the  
22 BOC.

23  
24 H. Transfer of Ownership of the Bank Site: The Sponsor agrees to retain fee ownership  
25 of the Bank site throughout the operational life of the Bank. Following issuance of the  
26 certification letter confirming that the operational life of the Bank has terminated, the Sponsor  
27 may elect to transfer all or a portion of its interest to a third party public natural resource agency  
28 or a non-profit conservation agency, whose mission is consistent with the Bank objectives and  
29 the use limitations of the conservation easement. The Sponsor agrees to take no action that  
30 would result in, or have the effect of, nullification or extinguishment of the conservation  
31 easement. Approval of the BOC must be obtained prior to any transfer of title; such approval  
32 may be withheld only upon a determination by the BOC that the transferee holds insufficient  
33 financial resources to carry out the obligations inherent in maintaining and enforcing the  
34 conservation easement. The Sponsor may transfer title or other interest only following approval  
35 by the BOC of the transferee's financial assurances. Notwithstanding any transfer of interest to a  
36 third party, pursuant to reference II.B.1. of this Agreement, the Sponsor shall retain ultimate  
37 responsibility for the timely performance of all long-term maintenance and management  
38 responsibilities prescribed in Article V.G. of this Agreement. Notwithstanding any transfer of  
39 interest to a third party, the Sponsor shall ensure that its successor provides access to agents or  
40 representatives of the members of the BOC as provided in Article IV.B. of this Agreement.

## 41 42 **VI. RESPONSIBILITIES OF THE BOC**

43  
44 A. The agencies represented on the BOC agree to provide appropriate oversight in  
45 carrying out provisions of this Agreement.

1 B. The agencies represented on the BOC agree to review and provide comments on all  
2 project plans, scheduled monitoring reports, contingency plans, contingency and remediation  
3 proposals, and permits for the Bank construction and operation in a timely manner. As Chairs,  
4 the Corps and Ecology will coordinate review with the members of the BOC so that comments  
5 will be provided within a reasonable timeframe from the date of complete submittal.  
6

7 C. The agencies represented on the BOC agree to review requests for modification of the  
8 terms of the Instrument, for transfer of title or interest in the Bank, or for determination of  
9 satisfaction of performance standards in order to evaluate the release of credits within each phase  
10 of the Bank. As Chairs, the Corps and Ecology will coordinate review with the members of the  
11 BOC so that approval is rendered or comments detailing deficiencies are provided within a  
12 reasonable timeframe from the date of complete submittal. The Corps and the agencies  
13 represented on the BOC agree to not unreasonably withhold or delay approval of such requests  
14 for modification or determination.  
15

16 D. The agencies represented on the BOC shall conduct compliance inspections, at  
17 necessary times as determined in consultation with the Sponsor, to verify credits available in the  
18 mitigation bank, evaluate achievement of performance standards, and recommend any corrective  
19 measures, until the terms and conditions of the Bank Development Plan have been determined to  
20 be fully satisfied or until all credits have been used, throughout the operational life of the Bank.  
21

22 E. Upon satisfaction of the requirements of Article V.F. of this Agreement, the Corps  
23 and Ecology shall certify, following consultation with the Sponsor and the BOC, that the  
24 operational life of the Bank has terminated, and that the period of long-term maintenance and  
25 management has commenced.  
26

## 27 **VII. OTHER PROVISIONS**

28

29 A. Force Majeure: In the event of a natural catastrophe (such as flood, drought, disease,  
30 wildfire, or regional pest infestation) that the Corps and Ecology, in consultation with the  
31 Sponsor and the BOC, determine is beyond the control of the Sponsor to prevent or mitigate, the  
32 Sponsor may request and the Corps and Ecology, in consultation with the BOC, may approve  
33 changes to the construction, operation, project objectives, performance standards, or crediting  
34 formula of the Bank, pursuant to the standards and procedures specified in Section 5.3 of the  
35 Instrument.  
36

37 B. Decision Making by Consensus: The BOC will strive to achieve consensus regarding  
38 issues that arise pertaining to the establishment, operation, maintenance, and management of the  
39 Bank. As Chairs, the Corps and Ecology shall coordinate the review and oversight activities of  
40 the BOC so as to best facilitate opportunity to reach the desired consensus. Review and  
41 oversight decisions shall take into account the views of the Sponsor to the maximum extent  
42 practicable. Where consensus cannot otherwise be reached within a reasonable timeframe,  
43 following full consideration of the comments of the members of the BOC and following  
44 consultation with the Sponsor, the Corps holds the responsibility and authority under Section 404  
45 of the Clean Water Act, and Ecology holds independent authority under Section 401 of the Clean

1 Water Act and RCW ch. 90.48, to make final decisions regarding the application of the terms of  
2 this Agreement and the Instrument.

3  
4 C. Dispute Resolution: Resolution of disputes regarding application of this Agreement  
5 shall be in accordance with those stated in the Federal Guidance for the Establishment, Use and  
6 Operation of Mitigation Banks (60 F.R. 58605 et seq., November 28, 1995).

7  
8 D. Entry into Effect, Modification or Amendment, and Termination of the Agreement:  
9 This Agreement will enter into effect on the date of signature by the authorized representative of  
10 the Corps, Ecology, or the Sponsor, whichever is later. This Agreement may be amended or  
11 modified only with the written approval of the Sponsor, Ecology, and the Corps, and any such  
12 modifications or amendments will take effect following consultation with the BOC. This  
13 Agreement may be terminated by the mutual agreement of the Sponsor, Corps, and Ecology,  
14 following consultation with the BOC, or under the terms of Article V.E. of this Agreement in the  
15 case of default by the Sponsor. Upon any such termination, the Sponsor agrees to fulfill its pre-  
16 existing obligations to perform all establishment, monitoring, maintenance, management, and  
17 remediation responsibilities relating to credits that were debited, sold, or transferred prior to  
18 termination.

19  
20 E. Specific Language of Agreement Shall Be Controlling: To the extent that specific  
21 provisions of this Agreement change, modify, obviate or delete terms and conditions contained  
22 in the Instrument or other documents that are incorporated into this Agreement by reference, and  
23 that are not legally binding, the specific language within this Agreement shall be controlling.

24  
25 F. Notice: Any notice required or permitted hereunder shall be deemed to have been  
26 given either (i) when delivered by hand, or (ii) three (3) days following the date deposited in the  
27 United States mail, postage prepaid, by registered or certified mail, return receipt requested, or  
28 (iii) sent by Federal Express or similar next day nationwide delivery system, addressed as  
29 follows (or addressed in such other manner as the party being notified shall have requested by  
30 written notice to the other party):

31  
32 Washington State Department of Transportation  
33 Mitigation Banking Specialist  
34 Environmental Services Office  
35 Biology Branch  
36 310 Maple Park Avenue SE  
37 Olympia, WA 98504-7331  
38 360-705-7406

39  
40 U.S. Army Corps of Engineers, Seattle District  
41 Mitigation Banking Specialist/Co-chair of the BOC  
42 Regulatory Branch  
43 Seattle District, Corps of Engineers  
44 4735 E. Marginal Way South  
45 P.O. Box 3755  
46 Seattle, WA 98124-3755

1 206-764-3495

2  
3 Washington State Department of Ecology  
4 Mitigation Banking Specialist/ Co-chair of the BOC  
5 Shorelands and Environmental Assistance Program  
6 PO Box 47600  
7 300 Desmond Drive  
8 Olympia, WA 98504-7600  
9 360-407-7045

10  
11 U.S. Environmental Protection Agency  
12 Wetlands Mitigation Banking Specialist  
13 Environmental Tribal and Public Affairs Office  
14 ETPA-083  
15 EPA Region 10  
16 1200 6<sup>th</sup> Ave  
17 Seattle, WA 98101  
18 206 -553-7369

19  
20 U.S. Fish and Wildlife Service  
21 Transportation Planning Branch Manager  
22 510 Desmond Dr SE – Suite 102  
23 Lacey, WA 98503-1263  
24 360-753-6044

25  
26 Washington State Department of Fish and Wildlife  
27 Habitat Biologist – Lewis County  
28 WDFW, Region 5  
29 2108 Grand Blvd.  
30 Vancouver, WA 98661  
31 360-748-2189

32  
33 Lewis County  
34 Public Works Director/County Engineer  
35 350 N. Market Blvd  
36 Chehalis, WA 98532-2626  
37 360-740-1123

38  
39 G. Entire Agreement: This Agreement, incorporating the provisions of the Instrument as  
40 indicated, constitutes the entire agreement between the parties concerning the subject matter  
41 hereof.

42  
43 H. Invalid Provisions: In the event any one or more of the provisions contained in this  
44 Agreement are held to be invalid, illegal or unenforceable in any respect, such invalidity,  
45 illegality or unenforceability will not affect any other provisions hereof, and this Agreement

1 shall be construed as if such invalid, illegal or unenforceable provision had not been contained  
2 herein.

3  
4 I. Headings and Captions: Any paragraph heading or caption contained in this  
5 Agreement shall be for convenience of reference only and shall not affect the construction or  
6 interpretation of any provision of this Agreement.

7  
8 J. Counterparts: This Agreement may be executed by the parties in any combination, in  
9 one or more counterparts, all of which together shall constitute one and the same instrument.

10  
11 K. Binding: This Agreement shall be immediately, automatically, and irrevocably  
12 binding upon the Sponsor and its heirs, successors, assigns and legal representatives upon  
13 execution by the Sponsor, Ecology, and the Corps, even though it may not, at that time or in the  
14 future, be executed by the other potential parties to this Agreement. The execution of this  
15 Agreement by representatives of members of the BOC shall cause the executing agency to  
16 become a party to this Agreement upon execution, even though all or any of the other potential  
17 parties have not signed the Agreement. Execution does not signify an agency's agreement with  
18 the application of credits in the North Fork Newaukum Mitigation Bank in connection with any  
19 specific permit or project. Any of the BOC members, excepting the Corps and Ecology, may  
20 terminate their participation in this Agreement upon 30 days written notice to all signatory  
21 parties, without invalidating this Agreement or the Instrument.  
22