BIOLOGICAL ASSESSMENT

FOR JORDAN SITE

HYLEBOS CREEK OFF-CHANNEL HABITAT RESTORATION PROJECT

FIFE, WASHINGTON

PREPARED FOR THE

COMMENCEMENT BAY
NATURAL RESOURCE DAMAGE ASSESSMENT
AND RESTORATION TRUSTEES

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Prepared for the

Commencement Bay
Natural Resource Damage Assessment and Restoration Trustees

Prepared by

RIDOLFI Inc.

May 9, 2003

EXECUTIVE SUMMARY

In compliance with the Section 7(c) of the Endangered Species Act (ESA), this Biological Assessment (BA) evaluates the potential impacts to listed species resulting from construction and rehabilitation of stream and wetlands habitat at the Jordan Site near Commencement Bay, Washington. The Commencement Bay Natural Resource Trustees (Trustees) propose to create new habitat and enhance existing habitat along Hylebos Creek in Fife for a variety of plants and animals, providing particular benefit for juvenile salmonids.

This BA will be used in informal consultation with the Trustees, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service.

Project Site Description

The Jordan Site is a 15.3-acre parcel, adjacent to a tidally-influenced reach of Hylebos Creek, and has served in the past for gravel mining operations, dairy farming, and storage of truck parts and metal scrap. The Site is characterized as moderately disturbed and generally does not provide optimum habitat for aquatic or terrestrial species.

Project Description

The purpose of the project is to create off-channel habitat creation for juvenile salmonids and native plant revegetation. This will be accomplished by regrading a portion of the site along Hylebos Creek to increase habitat complexity and diversity, create rearing and feeding habitat (channels and pools) adjacent to Hylebos Creek for juvenile salmon out-migrating in the Hylebos Creek, enhance existing wetlands, and enhance existing vegetation to create wildlife habitat for birds and small mammals in buffer areas. The project will provide approximately six acres of enhanced wetland and riparian habitat by regrading the site to create permanently flooded backwater pools and salt water marshes. Native vegetation will be planted on gently sloping surfaces fringing the pools and on the upland portions of the site. In Phase 2 of the project, channels will be excavated on the adjacent Milgard Mitigation Wetland Site to complete a system of fully migrating channels.

Affected Species

Three species provided protection under the ESA are cited as possibly present in the vicinity of Hylebos Creek: Puget Sound Evolutionarily Significant Unit (ESU) chinook salmon (*Oncorhynchus tshawytscha*), bald eagle (*Haliaeetus leucocephalus*), and Puget Sound coastal bull trout (*Salvelinus confluentus*). Additionally, this BA considers potential impacts to Puget Sound / Straight of Georgia ESU coho salmon (*Oncorhynchus kisutch*) a candidate species under ESA provisions, and to western pond turtle (*Clemmys marmorata*) as a federal species of concern and a State-listed endangered species.

An analysis of the proposed habitat restoration project, including construction sequence and habitat safeguards, concludes that this project may affect, but is not likely to adversely affect, Puget Sound ESU chinook salmon, bald eagle, coastal bull trout, Puget Sound / Strait of Georgia ESU coho salmon, and western pond turtles.

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LIST OF ABBREVIATIONS AND ACRONYMS

BA	Biological Assessment
BMP	best management practice
CO-OPS	Center for Operational Oceanographic Products and Services
EA	Environmental Assessment
Ecology	Washington Department of Ecology
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
MHHW	mean higher high water
MHW	mean high water
MLLW	mean lower low water
MLW	mean low water
MSL	mean sea level
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NRDA	Natural Resource Damage Assessment and Restoration
TESCP	Temporary Erosion and Sedimentation Control Plan
Trustees	Commencement Bay Natural Resource Damage Assessment and Restoration Trustees
USFS	U.S. Fish and Wildlife Service
USFWS	U.S. Department of the Interior, Fish and Wildlife Service
USGS	U.S. Geological Survey
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1.0 INTRODUCTION

The National Oceanic and Atmospheric Administration (NOAA) issued Task Order No. T0008 under Contract 50ABNF-2-00013 to Ridolfi Inc. (Ridolfi) to perform planning and design services for a habitat restoration project at a property formerly owned by the Jordan family in Fife, Washington (the Site). The general location of the Site is depicted on Figure 1: Site Location Map. The project is intended to create off-channel habitat for juvenile salmonids adjacent to the Hylebos Creek. NOAA is one of the Commencement Bay Natural Resource Damage Assessment and Restoration Trustees (Trustees) and is responsible for managing the restoration projects in Commencement Bay and watersheds draining into Commencement Bay. Ridolfi prepared this Biological Assessment (BA) of the Site as part of the permitting process for the project.

1.1 Purpose of the Study

The Trustees intend to use the Site for stream habitat restoration to be conducted under the Commencement Bay Natural Resource Damage Assessment and Restoration Program. The Site was annexed by the City of Fife (the City) in February 2003, with the intention of promoting this effort and actively participating in the project.

1.2 Background Information

Project Name:	Jordan Site, Hylebos Creek Off-Channel Habitat Restoration Project
Project Location:	Northwest corner of 8th Street East and 62nd Avenue East, City of Fife, Pierce County, Washington, Section 6, Township 20 North, Range 4 East
Project Proponent:	National Oceanic and Atmospheric Administration NOAA Damage Assessment and Restoration Center NW 7600 Sand Point Way NE Seattle, WA 98115
Contact:	Jennifer Steger, NOAA Phone: (206) 526-4363

Proposed timing or schedule:	Work will begin no earlier than August 1, 2003. The first phase of project work will be completed in 85 days or less. A second phase of the project, on the adjacent Milgard Mitigation Wetland Site, is tentatively scheduled for the summer of 2004. The start of Phase 1 may be delayed until summer 2004 if work cannot commence before August 30, 2003.
Project Engineer:	Ridolfi Inc. 1411 Fourth Ave., Suite 770 Seattle, Washington 98101
Contact:	Colin Wagoner, P.E. Phone: (206) 682-7294

2.0 DESCRIPTION OF PROJECT AREA

2.1 The Jordan Site

The Site is located in the southeast 1/4 of the northwest quadrant of Section 6, Township 20 North, Range 4 East. More specifically, the Site is located at the northwest corner of 8th Street East and 62nd Avenue East, City of Fife, Pierce County, Washington. The legal description of the property was obtained from the Pierce County Assessor-Treasure Office and is available in Appendix A (Pierce County, 2003).

The Site is an irregularly shaped 15.30-acre parcel (see Figure 1). According to the 1961 (revised 1994) United States Geological Survey (USGS) Poverty Bay, Washington Quadrangle 7.5 Minute Series topographic map, the Site is at an elevation of between 10 and 160 feet above mean sea level (MSL). The eastern portion of the Site slopes steeply down towards the west. The central and western portions of the Site are relatively flat with a slight slope towards the west. Hylebos Creek runs along the western boundary of the Site and flows towards the northwest. The centerline of Hylebos Creek defines the western property line. Hylebos Creek drains into the Hylebos Waterway, which is located 3,600 feet northeast of the Site. Hylebos Creek is tidally influenced in the project reach.

Man-made structures are present in Hylebos Creek in the project reach. These include a wood plank wall that runs for approximately 1000 ft along the western bank, and wooden pilings aligned in two rows parallel to the creek banks. The original purposes of these structures have not been ascertained. In one location, erosion behind the wooden wall has allowed the stream to carve a notch between the bank and the wall.

The Site is accessed from a gate located near the intersection of 8th Street East and 62nd Avenue East. A dirt track, wide enough for one lane of vehicular traffic, runs through the Site from the site access gate to 4th Street. No buildings or structures are currently known to exist on site.

A steep bluff runs along the entire length of the eastern portion of the Site. The bluff ranges between 100 to 200 feet in height and is nearly vertical in some areas near the southern portion

of the Site. Exposed soil along the bluff was observed during site visits and appeared to consist of gravelly sand. The ground surface is covered with thick low-lying vegetation in most of the flat area below the bluff.

In February 2003, a site cleanup was conducted at the time of the site annexation by the City of Fife; various debris and mechanical parts, observed in earlier visits (Ridolfi, 2001) were hauled off-site.

2.2 Water Quality and Quantity in Hylebos Creek

The Hylebos Creek watershed drains an area of approximately 18 square miles through 25 miles of streams (Federal Way and King County, 1990). At the upstream boundary of the site, the drainage area of the stream is approximately 16.7 square miles (Kresch and Prych, 1989). Hylebos Creek is tidally influenced in the project reach. Historically, Hylebos Creek may have been one of the most productive small, fish-spawning streams in the Puget Sound basin. The system may have supported annual returns of several thousand coho and chum salmon and hundreds of chinook, steelhead and cutthroat trout (Federal Way, 1990). More recently, small runs of coho and chum have been reported along with rare chinook observations (Mobrand, 2001).

Hylebos Creek is classified by the Washington Department of Ecology (Ecology) as a Class A water body. This corresponds to “excellent” water quality, meeting or exceeding the requirements for all or substantially all uses (WAC 173-201A-030 (2).) However, Hylebos Creek is listed by Ecology among waters in which beneficial uses have been assessed to be impaired due to water quality problems, as required under Section 303(d) of the federal Clean Water Act. Specifically, the segment of Hylebos Creek for Section 5, Township 20 North, Range 4 East, is listed for fecal coliform levels, as is another segment in the West Fork Hylebos Creek. The Jordan Site is not situated in a listed reach.

The U.S. Geological Survey (USGS), King County, and Ecology have installed several temporary and permanent water monitoring stations in the watershed over the years (USGS, 2003; King County, 2003). Of these, USGS station 12103025 is closest to the project site, situated

immediately upstream at the 8th Street Bridge. However, the only data available for this station are water quality samples obtained from 1983-08-12 to 1984-08-10. For USGS station 12103020, the second closest upstream, peak streamflow values are available for 1996-02-08 to 1998-11-26, and daily streamflow values are available for 1995-05-01 to 1999-09-30.

The reach of Hylebos Creek encompassing the site is characterized by low gradients (0.2%) and is highly channelized. USGS modeling was available for Hylebos Creek at the 8th Street Bridge (upstream boundary of the Site). Based on this information, summer baseflows are estimated around 6 to 7 cubic feet per second (cfs), mean annual discharge is estimated at 21 cfs, bankfull flow (one-day, two-year flow) is about 117 cfs, and the 100-year discharge is estimated at 455 cfs (Kresch and Prych, 1989).

To obtain site-specific data, a transducer was installed under the 4th St. Bridge at the downstream edge of the site in November 2002. The transducer was a multi-parameter Troll, capable of measuring water temperature, pH, dissolved oxygen, conductivity, and pressure, with the pressure data correlated to stream elevation readings from a staff gauge. Information was gathered under the 4th St. Bridge from November 5, 2002, through March 4, 2003. The transducer was then moved to the upstream end of the site and installed under the 8th St. Bridge, where it has been collecting data since March 4, 2003.

Analysis of the 4th St. Bridge data, and comparison to tide data obtained from the NOAA Center for Operational Oceanographic Products and Services (CO-OPS) Web site for Tacoma station 9446484 for the same period (NOAA, 2003), revealed that Hylebos Creek was tidally influenced at downstream end of the Jordan site. Salinity in the Hylebos at that location reaches almost undiluted seawater levels at high tide, then returns to freshwater levels at low tide. Temperature is more influenced by tide than by diel (daily) cycles.

At the 8th St. Bridge (upstream end of the site), data collected indicate that the Hylebos is also tidally influenced but salinity remains in the freshwater range and temperature is more influenced by diel cycles than by tide. The differences between these limited upstream and downstream data sets suggest that the project reach is one of transition between two sets of aquatic habitat conditions.

2.3 Local and Regional Context

The site is part of the Puget Sound Lowland Ecobasin (NMFS, 1998). The Trustees have been conducting and coordinating habitat restoration efforts at multiple sites in or around Commencement Bay, including several in the Hylebos watershed (NOAA, 2002). In addition, other entities have undertaken various habitat conservation, restoration, or enhancement projects in the Hylebos watershed (Friends of the Hylebos Wetlands, 2000, 2001). Project proponents include local governments such as King County, the City of Federal Way, and the City of Milton; volunteer groups such as Friends of the Hylebos Wetlands; the Puyallup Tribe; and federal and state agencies.

However, most of these projects are situated in the upper reaches of the watershed, in Milton and Federal Way, upstream of the confluence of the East and West Forks of Hylebos Creek at the Porter Way Bridge. The only projects identified as currently in progress or completed between the Porter Way Bridge and the mouth of Hylebos Creek into the Hylebos Waterway are the Trustees' Mowitch Estuary project, the Washington State Department of Transportation (WSDOT)'s SR-509 Mitigation Wetland, and Milgard Manufacturing Inc.'s Mitigation Wetland. The Mowitch Estuary site and the WSDOT SR-509 Mitigation Wetland are situated near the mouth of the Hylebos Creek, while the Milgard Mitigation Wetland is situated between 4th Street and 8th Street East in Fife, right across Hylebos Creek from the Jordan site. The proposed project at the Jordan Site will provide a link between other restoration sites, and contribute to habitat connectivity, quality, and diversity in the watershed.

3.0 PROJECT DESCRIPTION

The restoration activities proposed by the Trustees and the City for the site include off-channel habitat creation for juvenile salmonids, adjacent to the Hylebos Creek, and native plant revegetation.

Although the parcel on which the project is to be constructed covers approximately 15.3 acres, the area that can usefully be enhanced, the portion below the bluff, covers roughly 7 acres. The reach of Hylebos Creek that can be modified, between the City of Fife drinking water wells and the 4th St. Bridge, is approximately 1,300 ft long (see Figure 1).

The proposed action entails regrading a portion of the site along Hylebos Creek to increase habitat complexity and diversity, create rearing and feeding habitat (channels and pools) adjacent to Hylebos Creek for juvenile salmon out-migrating in the Hylebos Creek, enhance existing wetlands, and enhance existing vegetation to create wildlife habitat for birds and small mammals in buffer areas.

The proposed regrading will preserve existing wetland areas and larger trees as much as possible, while controlling depth to extend the transition zone between stream and wetland, and between less saline and more saline areas.

Seven alternatives were considered for implementation at the Jordan property on the Hylebos Creek. These alternatives included the No-Action Alternative, a meandering side channel alternative, an off-channel wetlands alternative, a dendritic marsh alternative, and three hybrid alternatives that combine features of these basic habitat-focused alternatives.

3.1 The No-Action Alternative

The No-Action Alternative is provided to be consistent with NEPA guidance for project evaluation, and provides a basis for comparing the proposed action alternatives. Under the No Action alternative, current regional land management plans would continue to guide management of the project Site. No restoration, revegetation, channel, or off-channel wetlands

would be implemented to accomplish project goals. No nature trail or park would be constructed, and the area would not be available for public access.

3.2 Alternative 1: Meandering Side Channels

Alternative 1 creates meandering side channels, recalling the more sinuous nature of lower Hylebos Creek prior to human intervention. The side channels are connected to the main channel in several locations and are installed so that they drain to avoid stranding fish in puddles at low tide.

3.3 Alternative 2: Off-Channel Wetlands

Alternative 2 focuses on developing off-channel wetlands habitat. This alternative creates side pools which take advantage of the salinity gradient along the reach to provide habitat suitable for different plant, invertebrate, and aquatic communities. Deeper areas of the pools remain permanently flooded, while the rest drains at lower flows.

3.4 Alternative 3: Dendritic Marsh

Alternative 3 creates a finger-like dendritic marsh habitat along the stream. This alternative connects to the existing Hylebos Creek channel at both ends of the reach and attempts to reflect the natural geometry of historic fringe wetlands along the edge of the bay. This geometry works to maximize the area and complexity of available habitat for various communities by adjusting gradients and geometry. There are deeper pools and shallower marshy areas.

3.5 Alternative 4: Rerouted Meandering Creek with Dendritic Marsh

Alternative 4 is a combination of Alternatives 1 and 3, which was created in response to comments from the Trustees, the City of Fife, and the public. It combines the meanders and additional flow-through connections from Alternative 1 with the dendritic marsh geometry of Alternative 3. It outlines possible future work on the opposite side of the stream, to tie the Jordan Habitat Restoration Project with the Milgard Mitigation Wetland Site. Part of the existing channel is abandoned to force flow through the new channel and marsh.

3.6 Alternative 5: Meandering Creek with Backwater Pools and Dendritic Marsh

Alternative 5 is a combination of Alternatives 1 and 3, which was created in response to comments from the Trustees, the City of Fife, and the public. It combines the meanders and additional flow-through connections from Alternative 1 with the dendritic marsh geometry of Alternative 3. It outlines possible future work on the opposite side of the stream, to tie in the Jordan Habitat Restoration Project with the Milgard Mitigation Wetland Site. The current channel remains active, but boulders are placed in strategic locations to control flow and create riffles.

3.7 Alternative 6: Meandering Creek Transition to Dendritic Marsh

Alternative 6 is a combination of Alternatives 1 and 3, which was created in response to comments from the Trustees, the City of Fife, and the public. It combines the meanders and additional flow-through connections from Alternative 1 with the dendritic marsh geometry of Alternative 3. Alternative 6 is based upon the difference in aquatic conditions (salinity, temperature, water level) between the boundaries of the Site. It emphasizes the meandering character in the upstream part of the site, and the dendritic character in the downstream portion. It outlines possible future work on the opposite side of the stream, to tie in the Jordan Habitat Restoration Project with the Milgard Mitigation Wetland Site. The current channel remains active.

After consulting with the City of Fife and with the public, the Trustees have selected Alternative 6, the Meandering Creek Transition to Dendritic Marsh, for full development for the Jordan Site Habitat Restoration Project.

Phase 1 of the Habitat Restoration Project is proposed for construction during the 2003 building season. It comprises:

- Removal of the wall and pilings from within Hylebos Creek
- Excavation of existing wetland and upland areas at the upstream end of the Site to form meandering side-channels

- Excavation of existing wetland and upland areas at the downstream end of the Site to form a dendritic marsh
- Excavation of some deeper pool areas
- Placement of boulders and large woody debris to provide cover, increase habitat complexity, and direct flow
- Grading to prevent stranding of pools and meanders at low water levels
- Preservation of as many existing trees as possible
- Revegetation using native emergent marsh plants, herbaceous plants, shrubs, and trees
- Conversion of an existing dirt road into a nature trail
- Construction of nature viewing platforms
- Posting of interpretive signs

Except for the removal of the in-stream wall and pilings, all the work will take place on the Jordan Site itself.

A conceptual grading plan (Figure 2) and typical cross-sections (Figure 3) were developed. The excavation volumes were estimated at 30,000 cubic yards. Approximately 0.2 acres of existing wetlands will be affected by the changes in geometry, but the project will result in a net wetland increase of approximately one acre. Some 1.8 acres of new side-channel aquatic habitat will also become available. Approximately 1,700 feet of nature trail and three viewing platforms will be constructed.

The optional Phase 2 of the project, currently under consideration, has only been advanced to the conceptual stage. There are on-going discussions with the property owner and the U.S. Army Corps of Engineers to clarify the extent of permit modifications that would be needed, and to identify monitoring requirements. Phase 2 would likely include the following elements:

- Excavation on the Milgard Mitigation Wetland Site to form counter-meanders and additional side-channels

- Placement of boulders and large woody debris to provide cover, increase habitat complexity, and direct flow
- Grading to prevent stranding of pools and meanders at low water levels
- Revegetation using native emergent marsh plants, herbaceous plants, shrubs, and trees at the Milgard Mitigation Wetland Site, compatible with previous planting, to increasing shade along the riparian corridor

4.0 SPECIAL STATUS SPECIES AND CRITICAL HABITAT

Information obtained from the National Marine Fisheries Service (NMFS, 1998, 2000, 2002), the U.S. Fish and Wildlife Service (USFWS, 2003), and the Washington Department of Fish and Wildlife (WDFW, 2003) indicates that the project is within the general range of the following species:

Table 1: Special-Status Species at the Jordan Site

Common Name	Scientific Name	Regulatory Agency / Status*
Chinook salmon	*Oncorhynchus tshawytscha*	NMFS / Threatened
Bald eagle	*Haliaeetus leucocephalus*	USFWS / Threatened
Bull trout	*Salvelinus confluentus*	USFWS / Threatened
Coho salmon	*Oncorhynchus kisutch*	NMFS / Candidate
Western pond turtle	*Clemmys marmorata*	USFWS / Concern WDFW / Endangered

4.1 Puget Sound ESU Chinook Salmon

Chinook salmon have a historic range extending from the Ventura River in California to Point Hope, Alaska in North America, and from Hokkaido, Japan to Anadyr River in Russia. The Puget Sound Evolutionarily Significant Unit (ESU) chinook salmon is listed by NMFS as a threatened species. The ESU includes "all naturally spawned populations of chinook salmon from rivers and streams flowing into the Puget Sound including the Strait of Juan de Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound and the Strait of Georgia in Washington" (NMFS, 2000).

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* See Glossary for category definitions.

4.1.1 Critical Habitat

Although NMFS issued a critical habitat designation for this and 18 other ESUs in February 2000, on April 30, 2002, the U.S. District Court for the District of Columbia approved a NMFS consent decree withdrawing this designation. As a result, there is currently no critical habitat designated for Puget Sound ESU chinook salmon. However, the Hylebos watershed would be part of the areas designated as critical habitat under the vacated February 2000 designation (NMFS, 2002)

4.1.2 Life History

Chinook require varied habitats during different phases of their life cycle. Spawning habitat typically consists of riffles and the tailouts of pools with clean substrates dominated by gravel located in the mainstem of rivers and large tributaries. Adult summer and fall chinook salmon in the Puyallup Basin spawn in freshwater streams in the late summer and fall, and fry emerge in the late winter and early spring. Juvenile chinook rear from three months to two years in the lower mainstem of rivers before entering the estuary and salt marshes. Chinook generally migrate to salt water as smolt in the spring and summer, and thereafter spend from two to four years feeding in the North Pacific Ocean before returning to spawn (WDFW, 1994; NMFS, 1998).

4.1.3 Environmental Baseline

Hylebos Creek is tidally influenced at the Jordan site, and water temperatures are thought to be too warm for suitable spawning, although there may be some rearing and adult foraging. Both fall and spring chinook have been noted in the nearby Puyallup River (WDFW, 2003). A fall run of chinook salmon inhabits the Hylebos Creek system and its tributaries during its life cycle (WDFW, 2003).

4.2 Bald Eagle

The occurrence of bald eagles in the Puget Sound region has been documented since pre-settlement times. Eagle populations decreased within the region because of hunting and the

widespread use of DDT, but their numbers have been increasing since the early 1970s. USFWS is currently considering de-listing the bald eagle (USFWS, 2003).

4.2.1 Critical Habitat

No critical habitat has been established or identified for bald eagles.

4.2.2 Life History

Bald eagles generally perch, roost, and build nests in mature trees near water bodies where they spot prey while soaring or from perches. They build large nests constructed of sticks, lined with soft materials like grasses and shredded bark. Bald eagles can be found in all the forested parts of Washington throughout the year, but they are substantially more abundant in the cooler, maritime region west of the Cascade Mountains. The wintering distribution of bald eagles is similar to the nesting distribution, but more concentrated at salmon spawning grounds. Bald eagles eat a wide variety of food but fish are their most common prey (Stinson et al., 2000).

Bald eagles are both residents in, and migrants through, Pierce County where populations are generally highest in January, as birds that had moved north to feed in late summer return to the region. Bald eagles breed in mid- to late-winter, usually returning to one of several nests, located within an established nesting territory. As bald eagles are primarily fish eaters, they usually nest within one mile of open water, where their home range can extend up to eight miles. Eggs laid in March or April will hatch within one and a half months, and the young eagles fledge in mid-summer, around August (Adolfson Associates, 1999).

4.2.3 Environmental Baseline

The Hylebos Waterway and Hylebos Creek provide foraging habitat for both nesting and wintering bald eagles, though sightings are uncommon. There are almost no large trees at the Jordan Site save for one 44-in. red cedar, nor stands of mature trees in the immediate area, although the nearby Milgard Mitigation site includes bird perches intended to simulate snags.

There are no eagle nest sites, perches, or roosts known to occur within one mile of the project (WDFW, 2003).

4.3 Coastal Bull Trout

The historical distribution of bull trout extends from northern California to Alaska. In Washington, bull trout are found throughout coastal and inland streams and lakes (WDFW, 1998), and are listed by the USFWS as threatened.

4.3.1 Critical Habitat

Critical has been proposed by the USFWS for the Klamath River and Columbia River distinct population segments of bull trout but not for the Puget Sound population (USFWS, 2003).

4.3.2 Life History

Bull trout have a complex life history with two primary life history types: a resident form and a migratory form. Bull trout considered migratory may be stream dwelling (fluvial), lake-dwelling (adfluvial), or ocean- or estuarine-dwelling (anadromous) (Behnke, 2002; USFWS, 2003). Individuals of each form may be represented in a single population, though migratory populations may dominate where migration corridors and subadult rearing habitats are in good condition (USFWS, 2003). Most inland populations of bull trout are either fluvial or adfluvial, migrating from larger rivers and lakes to spawn in smaller tributary streams in August through October (Wydoski and Whitney, 1979). Bull trout spawn in streams with clean gravel substrates and cold (less than 9°C) water temperatures (Behnke, 2002; USFWS, 2003). Spawn timing is relatively short, occurring from late October through early November. Redds are dug by females in water eight to 24 inches deep, in substrate gravel 0.2 to 2 inches in diameter (Wydoski and Whitney, 1979), and emergence generally occurs in the spring. Bull trout are opportunistic feeders, consuming fish in the water column and insects on the bottom (WDFW, 1998).

The main environmental factor limiting distribution of bull trout is water temperature. They prefer temperatures of about 10 to 12°C, with maximum summer temperatures not above 15°C.

In rivers draining from the Cascade Range to the Columbia River, they are typically found in the coldest headwater tributaries (Behnke, 2002). Bull trout also require stable stream channels, clean spawning gravel, complex and diverse cover, and unblocked migration routes (Behnke, 2002; USFWS, 2003).

4.3.3 Environmental Baseline

Low stream temperatures and clean substrates are essential features of bull trout habitat. This species is most commonly associated with pristine or only slightly disturbed basins (Behnke, 2002), conditions that do not exist in Hylebos Waterway and Hylebos Creek. WDFW has no record of bull trout presence in Hylebos Creek (WDFW, 2003).

Bull trout have been found in the Puyallup River, though in low numbers and only in the upper reaches (above river mile 43). Little is known of this species occurrence in Commencement Bay, though it is conceivable that the anadromous form could feed in, migrate through, or rear within, Hylebos Creek. The WDFW identifies the project reach as offering "limited trout and steelhead habitat" (WDFW, 2003). However, bull trout are unlikely to spawn in the reach encompassing the Jordan Site because of the lack of cover, spawning gravel, and complex habitat, though there may be some rearing and adult foraging.

4.4 Puget Sound/Strait of Georgia ESU Coho Salmon

The Puget Sound / Strait of Georgia ESU coho salmon is designated by NMFS as a candidate for listing, due to concerns over specific risk factors. The ESU includes all naturally spawned populations of coho salmon from drainages of Puget Sound and Hood Canal, the eastern Olympic Peninsula (east of Salt Creek), and the Strait of Georgia from the eastern side of Vancouver Island and the British Columbia mainland (north to and including the Campbell and Powell Rivers), excluding the upper Fraser River above Hope (NMFS, 2002).

As a candidate species, no specific protections are afforded under the ESA, and Section 7 consultation or conference with NMFS is not required for anticipated impacts to these species. Summary information for this candidate species is included here in the event these candidate species become "listed" or "proposed" before project completion.

4.4.1 Critical Habitat

No critical habitat has been proposed for Puget Sound / Straight of Georgia ESU coho salmon.

4.4.2 Life History

Coho salmon occur in most major river basins around the Pacific Rim from central California to Korea and northern Hokkaido, Japan. Adult coho salmon spawn in freshwater streams in the late fall and early winter. Coho typically spawn in low gradient riffles with clean substrates ranging from pea-sized gravel to orange-sized cobbles. Rearing juveniles prefer off-channel pools with complex cover including both large and small woody debris. Juvenile coho rear in freshwater for a year to 18 months, and smolts migrate to the ocean in the spring of their second year. Most male coho, and all female coho, spend from 16 to 20 months rearing in the ocean and return to spawn in fresh water as three-year old adults. The spawner distribution of the Puyallup coho salmon stock includes the upper reaches of Hylebos Creek (WDFW, 1994).

4.4.3 Environmental Baseline

Natural coho populations in the Puget Sound / Strait of Georgia ESU have been influenced by hatchery introductions and harvests focused on exploiting hatchery augmented stocks. Coho escapement data are the most comprehensive in Puget Sound, and indicate that the Puyallup Basin coho salmon stock in the Puget Sound / Strait of Georgia ESU is depressed (WDFW, 1994).

Hylebos Creek upstream of the SR-509 (Marine View Drive) bridge provides coho salmon rearing habitat, though the project reach provides limited cover or other suitable habitat. Coho salmon presence has been recorded by WDFW in Hylebos Creek (WDFW, 2003).

4.5 Western Pond Turtle

The Jordan site is within 1.5 miles of a Priority Wildlife Heritage Point, the location where an adult female western pond turtle was found in 1992 (WDFW, 2003). The western pond turtle is both a State Endangered Species and a Federal Species of Concern. The Priority Wildlife Heritage Point is situated in the adjacent basin, the Wapato Creek watershed.

Because they spend much of their lives in water but nest on land, the turtles require an environment with both meadows and ponds that is relatively free of human disturbance. Habitat loss (more than 92 percent of south Puget Sound's wetlands and native prairie land have been lost and Columbia River Gorge turtle habitat has been altered and isolated by development), predation from non-native species such as bullfrogs and largemouth bass, and a 1990 pneumonia-like disease outbreak sent the pond turtle into a sharp decline. In 1991, a captive breeding program was created at the Woodland Park Zoo in Seattle. Since then 600 turtles have been headstarted and released, including nearly 50 in the Puget Sound area (WDFW, 2002).

As a species of concern, no specific protections are afforded under the ESA, and Section 7 consultation or conference with USFWS is not required for anticipated impacts to these species. Summary information for this candidate species is included here in the event these candidate species become “listed” or “proposed” before project completion.

4.5.1 Critical Habitat

No critical habitat has been proposed for the western pond turtle.

4.5.2 Life History

The western pond turtle is a Washington native. Historically, the species was once well-distributed in southern Puget Sound lowland lakes and ponds and in the Columbia River Gorge. Its range extends down the west coast into California. In Oregon, where the species is listed as sensitive, there are an estimated 2,000 turtles remaining. Current population in Washington was estimated at 600 in 2002, up from 150 in 1992 (WDFW, 2002).

The western pond turtle lives up to 50 years, but reproduces relatively infrequently. Females take an average of eight to 10 years to reach sexual maturity and when mature, lay only six to 10 eggs a year. As a result, pond turtle populations can decline rapidly with the loss of only a few adults. Mature turtles weigh up to two pounds and measure up to 8 in. They feed on tadpoles, snails, leeches, aquatic beetles, and dragonfly larvae. Their habitat use includes

basking on logs in areas of slow-moving water; females lay their eggs in underground nests on land (WDFW, 2002).

The western pond turtle is associated with a variety of aquatic habitats, both permanent and intermittent. They are found from sea level to approximately 1,375 m (4,500 ft), but all records for Washington are below 300 m (985 ft) in elevation. The name western "pond" turtle is something of a misnomer, as ponds are relatively scarce throughout most of the range of this species, and the turtles are more often associated with rivers and streams. They are usually rare or absent in reservoirs, impoundments, canals, or other bodies of water heavily altered by humans. However, in Washington and many areas of Oregon the species is found in ponds and small lakes (Hays et al., 1999).

Western pond turtles inhabit some of the larger rivers within their range (e.g., the Sacramento, Klamath, and Willamette), but are usually restricted to areas near the banks or in adjacent backwater habitats where the current is relatively slow and abundant emergent basking sites and refugia exist. They may be found in slower moving streams where emergent basking sites are available, but generally avoid heavily shaded areas. In some areas of California, intermittent streams hold sizeable populations. Turtles are also known to use ephemeral pools. They tolerate brackish water, and along the California coast they often coexist with brackish-water fish species such as sculpins (*Leptocottus armatus* and *Cottus* sp.) (Holland 1991b, as cited in Hays et al., 1999).

4.5.3 Environmental Baseline

No emergent basking sites were observed at the Jordan site, which is relatively shaded, although some may exist at nearby less shaded sites such as the Milgard wetland mitigation site. Hylebos Creek is highly channelized at the site, offering little suitable pond turtle habitat except for the wetland areas. However, that habitat appears very marginal in its current condition. Banks are steep and offer little access to possible basking sites, and refugia (such as rocks of various sizes, submerged logs or branches, submerged vegetation, or holes or undercut areas along the bank) are very limited.

4.6 State Priority Habitats and Species

Both the riparian area of the Jordan site proposed for the project, and the bluff area of the site where no work is proposed are identified by WDFW as priority habitats (Riparian and Urban Natural Open Space, respectively). The riparian area is described by WDFW as providing "general habitat for a variety of birds and mammals, protection of limited trout and steelhead habitat"; the bluff is described as providing "raptor habitat and refugia for many bird and mammal species" (WDFW, 2003).

The reach encompassing the Jordan site is identified by WDFW for "Priority Anadromous Fish Presence" and "Other Fish Presence" (WDFW, 2003). The WDFW Priority Anadromous Fish Presence Report records observations of chum salmon (*Oncorhynchus keta*), coho salmon, searun cutthroat (*Oncorhynchus clarki*), and winter steelhead (*Oncorhynchus mykiss*) in Hylebos Creek.

5.0 EFFECTS OF THE PROPOSED ACTION

Currently, the habitat value of the Site to species of concern is moderate to negligible. Heavy equipment will be used during construction, which will generate noise for a period of a few weeks. The total construction period is planned for 10 to 12 weeks for Phase 1 and 4 to 6 weeks for Phase 2, including activities which do not generate high levels of noise, such as planting. There is a potential for water quality impacts associated with construction activities, but Best Management Practices (BMPs) will be used to avoid or minimize these impacts.

There are no rearing, feeding, nesting or spawning areas at the Site for any of the species of concern.

5.1 Direct Effects

5.1.1 Potential Direct Effects on Aquatic Species

Puget Sound ESU Chinook

Vicinity use by chinook juveniles during project construction is expected to be low, as the substrate conditions provide limited forage. Clearing and grading will commence after the period when chinook smolt migrate to ocean waters.

The proposed work window lies within the period that adult Puyallup River Puget Sound ESU Chinook are migrating to the spawning grounds. It is possible that these chinook could enter the Hylebos Waterway, and these fish are not precluded from accessing the project site.

Bull Trout

The level of use by bull trout within the Jordan project areas is expected to be minimal to nonexistent. No bull trout spawning or rearing is known to occur within Hylebos Creek. Bull trout use, if any, within the habitat restoration area during construction is expected to be limited to foraging anadromous bull trout adults straying from other drainages or basins, particularly at high tide.

Puget Sound/Straight of Georgia ESU Coho Salmon

Vicinity use by coho juveniles during project construction is expected to be low. Coho juveniles smolt and move from natal streams from mid-April to mid July (WDFW, 1994), so any overlap with in-water construction work would be minimized.

Western Pond Turtle

The level of use by western pond turtles within the Jordan project areas is expected to be minimal. Basking sites, refugia, and backwater pools are very marginal. However, the site will be examined and if any turtle specimens are found, they will be examined by a biologist to determine whether they belong to a sensitive species, particularly western pond turtles. In the event of discovery a western pond turtle on site, work will be immediately stopped and WDFW and USFWS will be notified.

5.1.2 Potential Direct Effects on Bald Eagles

The potential of the project to directly affect bald eagles is expected to be negligible. Hylebos Waterway and Hylebos Creek provide foraging habitat for both nesting and wintering bald eagles, though sightings are uncommon. There are no large trees at the Site, except for one large red cedar. Nevertheless, no eagle nest sites, perches or roosts are known to occur within one mile of the project (the northern limit of the Priority Habitat and Species data maps). Transient bald eagles may occur within the vicinity of the Hylebos Waterway during project construction, but eagle use in the project area is unlikely.

Adverse effects to bald eagles due to construction and temporary increases in noise levels are not anticipated due to limited potential for use of the project area, and the existing level of ambient industrial-based noise.

5.2 Indirect Effects

5.2.1 Potential Indirect Effects on Aquatic Species

Cleared riparian vegetation will be replaced with vegetation suitable to an undisturbed freshwater/riparian habitat. This will stimulate positive indirect effects to aquatic species due to increased habitat suitability and riparian complexity.

Soils disturbed by grading will be protected to prevent bank erosion until vegetation is established. Additional soft shoreline bank protection measures including toe logs, root wads and boulders will be installed to reduce erosion and to provide habitat for fish prey.

5.2.2 Potential Indirect Effects on Bald Eagles

Bald eagles prefer fish in their diet, and there are no long-term adverse impacts to fish anticipated because of these projects. Clearing will generally result in the temporary loss of a few small trees (diameter less than 12 inches) and riparian shrubs, but these shrub-dominated areas do not provide optimum foraging habitat for bald eagles, and these impacts are not expected to result in a significant indirect effect on this species.

No upland forest will be disturbed by the project and, therefore, no present or future nesting habitat for bald eagles will be impacted.

5.3 Interrelated and Interdependent Actions

The Jordan Site Habitat Restoration project is not anticipated to result in any interrelated or interdependent deleterious effects to any listed species.

5.4 Cumulative Effects

USFWS and NMFS (1998) define cumulative effects as actions that are reasonably certain to occur, and not involving a federal action that would be evaluated through a separate Endangered Species Section 7 review.

This restoration project is part of an overall Commencement Bay Final Restoration Plan and will, on a cumulative basis, contribute to Commencement Bay's overall environmental health, particularly in combination with other Commencement Bay remediation and habitat enhancement projects.

5.5 Beneficial Effects

USFWS and NMFS (1998) define beneficial effects as actions which "are contemporaneous positive effects without any adverse effects." The proposed project will improve off-channel habitat, and marsh and riparian vegetation. These improvements will have beneficial effects not only to Commencement Bay salmon stocks in particular, but also to other Puget Sound anadromous fish stocks, which may have a beneficial effect for the listed bird species.

6.0 RECOMMENDED CONSERVATION MEASURES

The following measures are recommended to avoid or minimize potential direct impacts and minimize or compensate for indirect impacts. No interrelated or interdependent impacts have been identified associated with the proposed habitat rehabilitation.

1. To avoid potential direct impacts to chinook, coho, and bull trout, as well as other aquatic species, construction should only occur within the work-window specified for the project. This will limit the sedimentation in Hylebos Creek to summer months after the peak smolt migration, and before coho and bull trout spawning, and intragravel development periods for chinook, coho, and bull trout in the fall (Table 2).

2. The contractor should implement the Temporary Erosion and Sedimentation Control Plan (TESCP) as shown in the contract documents and construction drawings. The TESCP should be implemented before the start of any ground disturbing activities. The TESCP should be based on the proponents current Best Management Practices (BMPs) and should include measures such as silt fences, straw bale dikes, and dewatering to allow excavation to proceed in unsaturated conditions.

3. The Trustees should identify a responsible party to monitor in-water conditions within the project area. This representative should periodically inspect the site during construction to verify that the contractor is effectively implementing the TESCP. Work procedures that are out of compliance should be terminated and an acceptable solution should be developed before work is allowed to continue.

4. To minimize the potential for direct impacts to listed and candidate aquatic species, the proponents should require that no hazardous materials or toxic materials be transferred or stored within 50 feet of the MHHW of Hylebos Creek.

5. To minimize the potential for direct impacts to listed and candidate aquatic species, the proponents should require that no equipment is refueled or maintained within 50 feet of the MHHW of Hylebos Creek. Equipment should be serviced or maintained in

designated areas where stormwater runoff can be prevented from directly entering the water.

6. To minimize the potential for accidents resulting in direct effects to listed or candidate aquatic species, an emergency spill kit should be stored at the work site and construction crews trained in their proper use.

7. To minimize the potential for accidents that may result in direct effects to listed, proposed, or candidate aquatic species, the proponents or their agent should inform and educate all crew members and all onsite personnel, to environmental precautions. These precautions must include: clearly marking the work area, clearly marked clearing limits, specifically identifying riparian vegetation to be removed, and all applicable laws and permit conditions.

Table 2: Life History of Puyallup Basin Chinook Salmon, Coho Salmon, and Bull Trout, and Project Timing

Month	J	F	M	A	M	J	J	A	S	O	N	D
Construction activity work window												
Adult migration – chinook												
Adult migration – coho												
Adult migration – bull trout												
Adult spawning – chinook												
Adult spawning – coho												
Adult spawning – bull trout												
Intragravel development – chinook												
Intragravel development – coho												
Intragravel devel. – bull trout												
Rearing – chinook												
Rearing – coho												
Rearing – bull trout												
Smolting & migration – chinook												
Smolting & migration – coho												

Notes: If necessary, work may resume in late June 2004.
Information in this graph is specific to Puyallup Basin chinook and coho stocks (WDFW, 1994).
Information on bull trout is generic (Behnke, 2002; USFWS, 2003).

7.0 INCIDENTAL TAKE

7.1 Aquatic Species

While clearing riparian vegetation and the potential to temporarily increase sedimentation in Hylebos Creek are likely adverse effects, the relationship of incidental take to these two effects is currently unknown. On a qualitative level, the potential direct effect of clearing and grading on the aquatic environment is expected to be minimized by the proposed conservation measures. Similarly, the proposed conservation measures are anticipated to reduce potential effects to chinook, bull trout, and coho in Hylebos Creek to negligible levels.

7.1.1 Chinook Salmon

Comprehensive studies have not yet been published documenting chinook and coho fry densities in Hylebos Creek or Hylebos Waterway. Chinook salmon representing a vestigial population introduced to Hylebos Creek are unlikely to occur at the Jordan Site during construction due to the timing of migrations. There are no natural or constructed barriers to exclude Puget Sound ESU chinook from Hylebos Creek, though it is unlikely that these fish would occur in the project vicinity due to migration timing and a tendency to avoid construction disturbance. It is highly unlikely that juvenile or adult chinook will be subject to an incidental take.

7.1.2 Bull Trout

It is expected that anadromous adult bull trout, if present, would be unlikely to use the waters of Hylebos Creek during construction, and would not be directly harmed by this habitat rehabilitation project. The potential to take adult bull trout because of the work at Hylebos Creek is expected to be discountable.

7.1.3 Coho Salmon

Because coho salmon spawn in Hylebos Creek, adult and juvenile coho migrate through the project areas. The likelihood of an incidental take, however, is minimized by the construction

window, and by habitat suitability. The construction window for these projects coincides with seasonal periods when coho are least likely to be present. Utilization of the near-shore habitat is directly related to water quality, food availability, and the presence of predatory refuge. These qualities are only marginal at the Jordan Site. It is highly unlikely that juvenile or adult coho will be subject to an incidental take.

7.1.4 Western Pond Turtle

It is expected that western pond turtles, if present, would be unlikely to use the project reach of Hylebos Creek, and would not be directly harmed by this habitat rehabilitation project. The potential to take western pond turtles because of the work at Hylebos Creek is expected to be discountable.

7.2 Bald Eagle

The potential for the incidental take of bald eagles is expected to be negligible. Adverse effects to bald eagles due to construction and temporary increases in noise levels are not anticipated due to limited potential for use of the project area, and the existing level of ambient industrial-based noise.

8.0 DETERMINATION OF EFFECT

8.1 Threatened Species

8.1.1 Puget Sound ESU Chinook Salmon

The proposed habitat restoration projects may affect, but is not likely to adversely affect, Puget Sound ESU chinook salmon.

A "may affect" determination is warranted based on the following rationale:

- Puget Sound ESU chinook salmon are present in the Puget Sound and Puyallup River Basin, and are not precluded from rearing and migrating downstream of the project (Hylebos Waterway).
- Puget Sound ESU chinook salmon have not been documented in Hylebos Creek, but there exists a reproducing population of introduced chinook in that drainage. Given the gregarious nature of salmon, the probability that an adult or juvenile Puget Sound ESU chinook could mingle with the stock of chinook introduced to Hylebos Creek cannot be discounted.

A "may affect, not likely to adversely affect" determination is warranted for chinook because:

- The level of use by chinook adults or juveniles within the work areas is expected to be low since project construction will occur outside the migration timing of adult chinook returns and juvenile outmigration.
- Daily construction monitoring will ensure that turbidity levels are maintained within allowable limits as determined by WDFW and other permitting agencies. If water quality monitoring indicates excessive or chronic turbidity, remediation actions will be immediately implemented as directed by the project engineer with support from the on-call biologist.
- Other indirect impacts to Hylebos Creek and Hylebos Waterway will be mitigated in large part by the implementation of BMPs and other specific mitigation measures as

described and detailed in the Recommended Conservation Measures, and construction drawings for this project.

- No chinook mortality is expected as a result of the proposed habitat rehabilitation.

8.1.2 Bald Eagle

Based on the information referenced in this report and project information provided in the construction drawings, this project "may affect" and is "not likely to adversely affect" bald eagles.

A "may affect" determination is warranted based on the following rationale:

- Bald eagles have been documented in the area.

A "may affect, not likely to adversely affect" determination is warranted for bald eagles because:

- There is no bald eagle habitat identified within one mile of the project area.
- No potential nesting, roosting, or perching habitat trees will be impacted by the project.
- Bald eagles are not likely to forage along the lower Hylebos Creek due to extensive industrial activity. Any foraging activity is expected during the fall when mature salmon return to Hylebos Creek. The project will be completed before the peak return spawning period for salmon in October. Eagles, however, are not precluded from the project area during the construction window for this project.
- Impacts to the eagles prey base are expected to be negligible.

8.1.3 Coastal Bull Trout

The proposed habitat restoration projects may affect, but is not likely to adversely affect, bull trout.

A "may affect" determination is warranted based on the following rationale:

- Populations of bull trout have been identified in the Puyallup River system.

- Adult bull trout straying from other Water Resource Inventory Area (WRIA) basins are not specifically precluded from the Hylebos Waterway.

A "may affect, not likely to adversely affect" determination is warranted for coastal bull trout because:

- Puyallup River bull trout are limited to the upper drainages, and have not been identified in the Hylebos Waterway.
- No bull trout spawning or rearing is known to occur within Hylebos Creek. Bull trout use, if any, within Hylebos Creek during construction is expected to be limited to foraging anadromous adults.
- Adult anadromous bull trout will not be adversely affected, as they will likely avoid the site during construction.
- No bull trout mortality is expected as a result of the proposed habitat rehabilitation.

8.2 Candidate Species

8.2.1 Puget Sound/Strait of Georgia ESU Coho Salmon

Puget Sound / Straight of Georgia ESU Coho Salmon are currently a candidate species. No protection for candidate species is afforded under the ESA, and Section 7 consultation or conference with NMFS is not required for anticipated impacts. Summary information for this candidate species is included here in the event Puget Sound / Straight of Georgia ESU coho salmon become listed or proposed before project completion. It is expected that further consultation would result in a "may affect, not likely to adversely affect" determination for coho salmon.

A "may affect" determination is warranted based on the following rationale:

- Multiple sources document coho usage in Hylebos Creek and the Puyallup River.

A "may affect, not likely to adversely affect" determination is warranted for coho salmon because:

- The Hylebos Creek within the project vicinity does not contain habitat suitable to support spawning and rearing by coho salmon.
- The project has been scheduled to avoid work during periods of coho spawning, egg incubation, and the peak outmigration of juveniles.
- No coho salmon mortality is expected as a result of the proposed habitat rehabilitation.

8.3 Species of Concern/State-Listed Endangered Species

8.3.1 Western Pond Turtle

Western pond turtles are currently a federal species of concern. No protection for species of concern is afforded under the ESA, and Section 7 consultation or conference with USFWS is not required for anticipated impacts. Summary information for this species of concern is included here in the event western pond turtles become listed or proposed before project completion, and to allow consultation at the State level, where they are a State-listed endangered species. It is expected that further consultation would result in a "may affect, not likely to adversely affect" determination for western pond turtle.

A "may affect" determination is warranted based on the following rationale:

- One western pond turtle specimen has been found in the adjacent watershed, within 1.5 miles of the project site.
- The project site is situated within the historical range of the western pond turtle.

A "may affect, not likely to adversely affect" determination is warranted for western pond turtle because:

- The Hylebos Creek within the project vicinity is not thought to contain habitat suitable to support western pond turtles.
- No western pond turtle mortality is expected as a result of the proposed habitat rehabilitation.

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10.0 GLOSSARY

Biological Assessment: A document required under Section 7 of the Endangered Species Act whereby all federal agencies consult with USFWS and NMFS if they determine that any action they fund, authorize, or carry out, may affect a listed species or designated critical habitat.

Conservation Measures: Actions that, when implemented by the applicant, would reduce or eliminate the adverse impacts of the proposed activity.

Critical Habitat: For listed species, consists of: (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of Section 4 of the Act, on which are found those physical or biological features (constituent elements) (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Cumulative Effects: those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation. Note that this definition applies only to Section 7 analyses and should not be confused with the broader use of this term in NEPA or other environmental laws.

Determination of Effect: The finding or determination of effect is the conclusion of the biological assessment and indicates the overall effect of the proposed activity to listed species or critical habitat. This finding must be supported by documentation in the biological assessment.

Evolutionarily Significant Unit: A population within an ESU is both reproductively isolated and genetically unique.

Federal Status:

Endangered: Species is in danger of extinction within the near future throughout all or a significant portion of its range.

Threatened: Species is likely to become endangered within the near future.

Proposed Threatened: Species is likely to be listed as threatened unless a recovery plan is developed and implemented.

Candidate: Species is on waiting list for federal listing consideration.

Fingerling: Young fish, usually in its first or second year and generally between 1 and 10 inches long.

Incidental Take: Harm that may come to a listed species indirectly, through acts not intended to maliciously or purposely harm the species.

Indirect Effects: Those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur.

Interdependent Actions: Actions having no independent utility apart from the proposed action.

Interrelated Actions: Actions that are part of a larger action and depend on the larger action for their justification.

Puget Sound ESU Chinook: Includes all naturally spawned populations of chinook salmon from rivers and streams flowing into Puget Sound including the Straits of Juan De Fuca from the Elwha River, eastward, including rivers and streams flowing into Hood Canal, South Sound, North Sound and the Strait of Georgia in Washington. Chinook salmon (and their progeny) from the following hatchery stocks are considered part of the listed ESU: Kendall Creek (spring run); North Fork Stillaguamish River (summer run); White River (spring run); Dungeness River (spring run); and Elwha River (fall run).

Puget Sound/Strait of Georgia ESU Coho: Includes all naturally spawned populations of coho salmon from drainages of Puget Sound and Hood Canal, the eastern Olympic Peninsula (east of Salt Creek), and the Strait of Georgia from the eastern side of Vancouver Island and the British

Columbia mainland (north to and including the Campbell and Powell Rivers), excluding the upper Fraser River above Hope.

Redd: A shallow depression excavated by female salmon in the substrate of streams or lakes to deposit eggs. At spawning time, the male and female take adjacent positions over the redd facing upstream, extend pectoral fins, mouths agape, and expel sexual products into the excavated depression. The female refills the redd with gravel after spawning.

Smolt: Juvenile salmonid one or more years old that has undergone physiological changes to cope with a marine environment; the seaward migration stage of an anadromous salmonid.

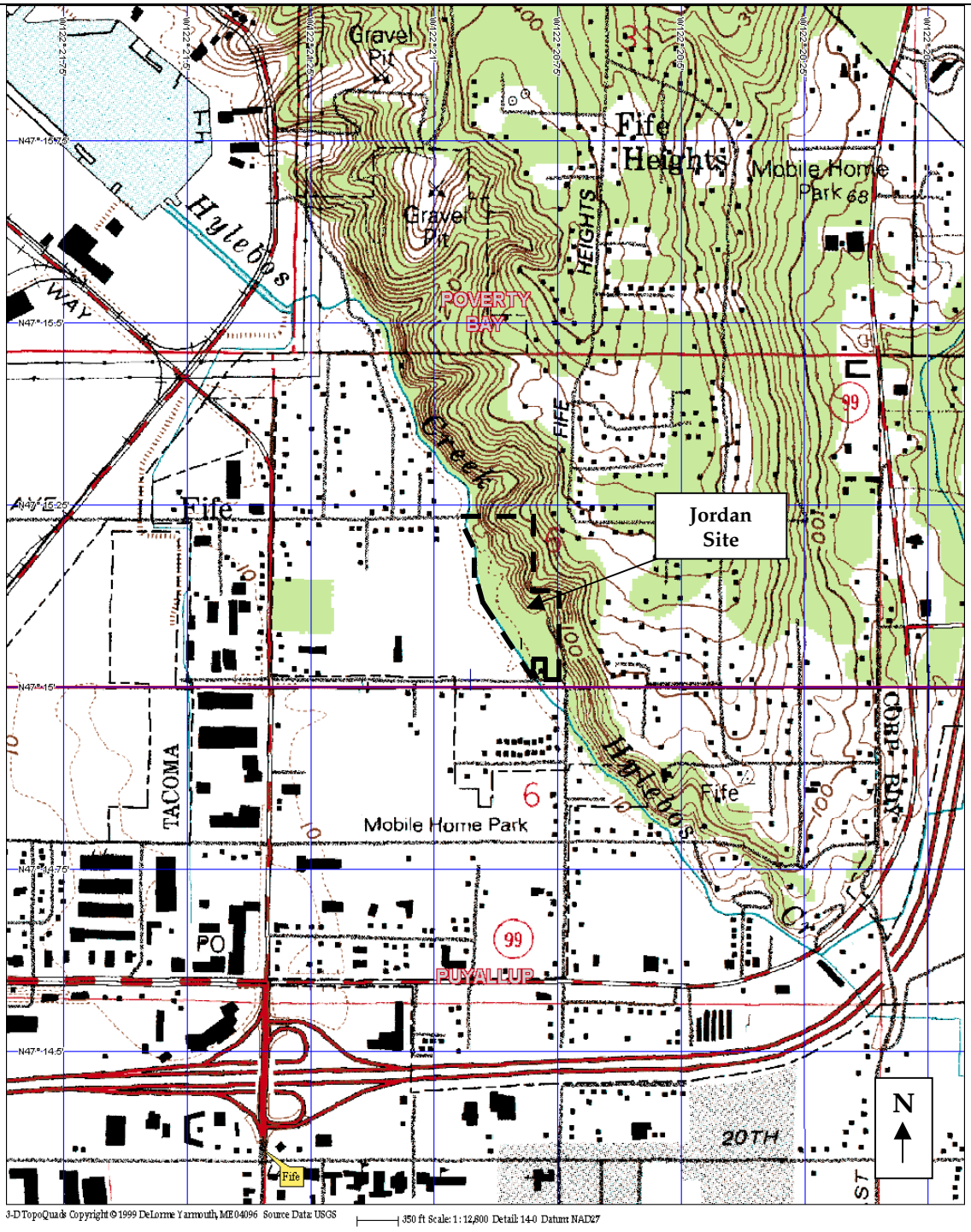
Snag: A standing dead tree or part of a dead tree from which at least the smaller branches have fallen.

Subadult: Stage in which an organism has developed many but not all adult characteristics and is not sexually mature.

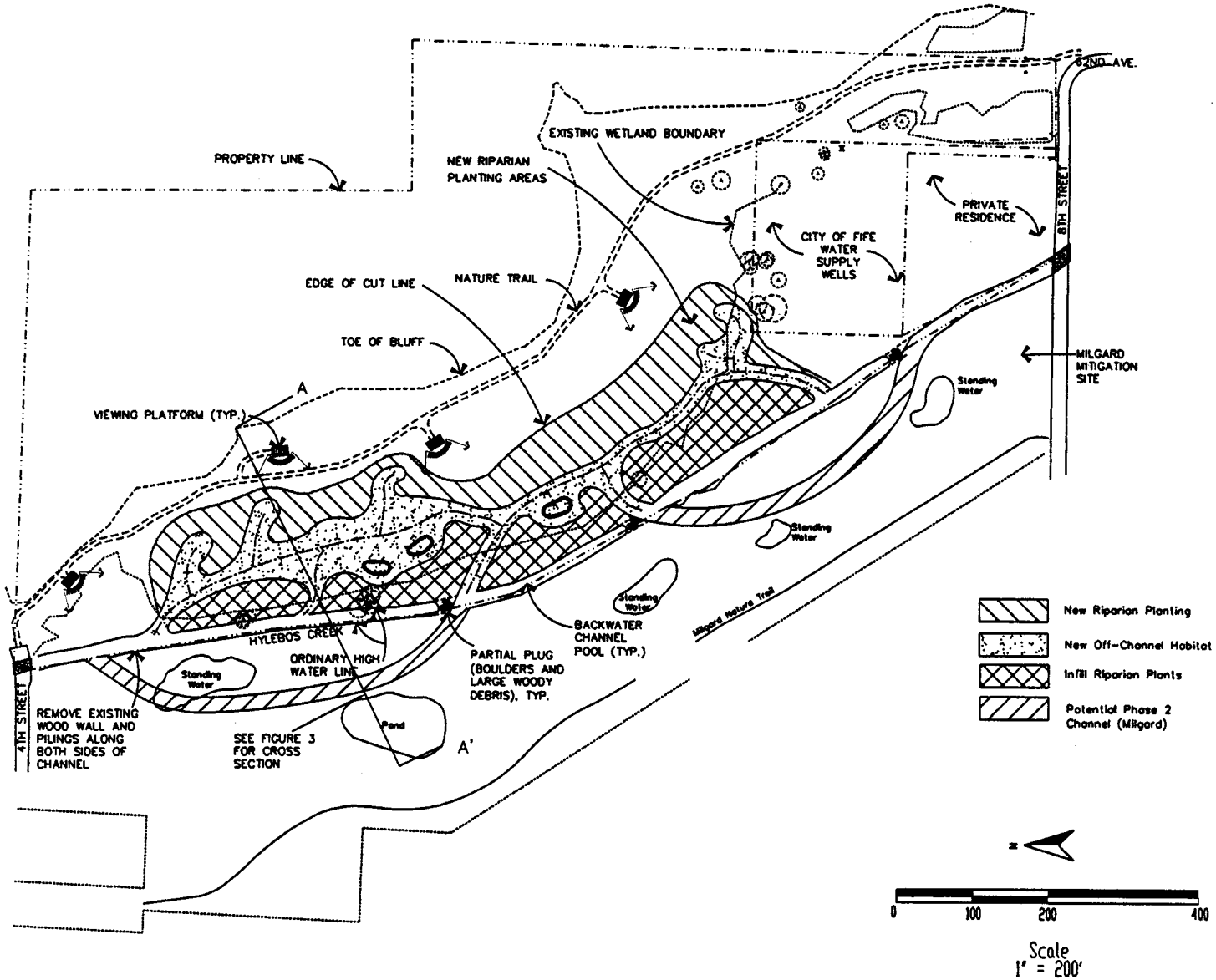
Take: Defined in ESA Section 3(18) means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Yearling: A one-year-old individual in its second year of life.

FIGURES



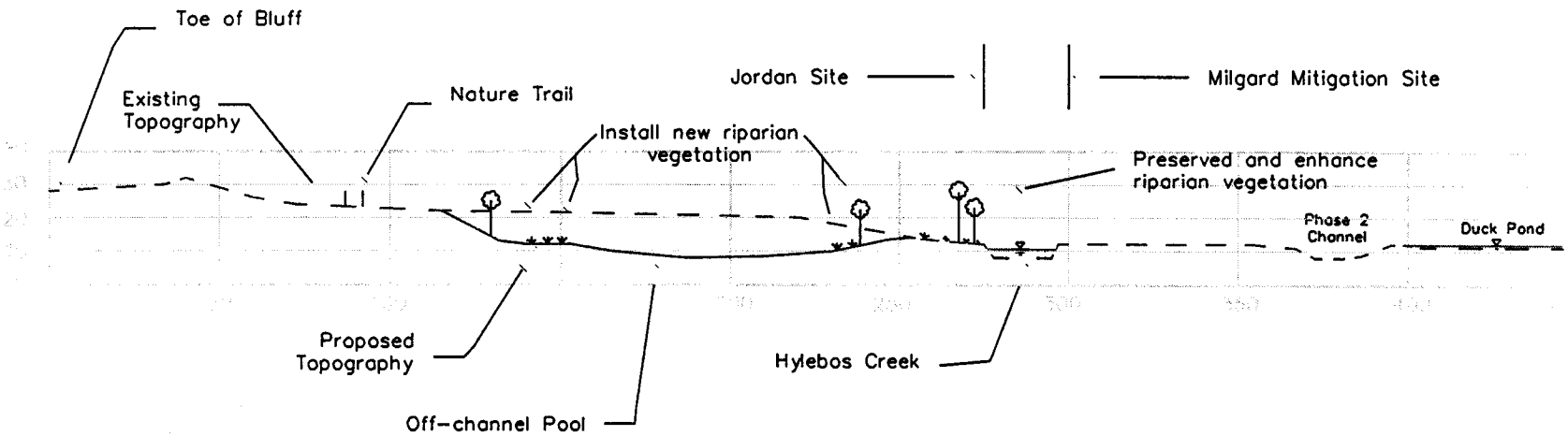
RIDOLFI Inc.	Jordan Site Fife, WA	Figure 1 Site Location Map



RIDOLFI Inc.

HYLEBOS CREEK OFF - CHANNEL RESTORATION
FORMER JORDAN PROPERTY
FIFE, WASHINGTON

FIGURE 2



Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 50'
Vertical Datum: Mean Lower Low Water

RIDOLFI Inc.	HYLEBOS CREEK OFF - CHANNEL RESTORATION FORMER JORDAN PROPERTY FIFE, WASHINGTON	Figure 3

APPENDIX A:
PROPERTY DESCRIPTION

Pierce County Assessor-Treasurer

electronic Property Information Profile (e-PIP)

Ken Madsen
Assessor-Treas

Parcel Summary for 0420062208

Taxpayer Details		Property Details	
Taxpayer Name:	CITY OF FIFE	**Parcel Number:**	0420062208
Mailing Address:	5411 23RD ST E TACOMA WA 98424-2061	**Site Address:**	301XXX 62ND AV E
		Account Type:	Real Property
		Category:	Land and Improvements
		Use Code:	9100-RES VACANT LAND

Appraisal Details		Tax/Assessment	
Value Area:	PI Year 5	**Current Tax Year:**	2005
Appr Acct Type:	Residential	**Taxable Value:**	0
Business Name:		**Assessed Value:**	219,000

Related Parcels

Group Account Number:	n/a
Mobile/MFG Home and Personal Property parcel(s) located on this parcel:	n/a
Real parcel on which this parcel is located:	n/a

Tax Description

Section 06 Township 20 Range 04 Quarter 24 : THAT POR OF SE OF NW LY ELY OF HYLEBOS CR EXC N 500 FT OF E 200 FT THEREOF EXC THE FOLL COM AT SW COR
89 DEG 04 MIN E ALG C/L BLUE CO RD A DIST OF 1127 FT TO POB TH N 00 DEG 56 MIN E 395 FT TO NE COR OF PROP TO TOWN OF FIFE # 1891890 TH N 89 DEG 04
232 FT M/L TO NW COR SD PROP TH S 00 DEG 56 MIN W A DIST OF 200 FT TO LEFT BANK HYLEBOS CR TH SLY ALG LEFT BANK OF HYLEBOS CR TO C/L OF BLU
DEG 04 MIN E ALG SD C/L TO POB EXC S 15 FT FOR CO RD SEG G 1698

I acknowledge and agree to the prohibitions listed in RCW 42.17.260(9) against releasing and/or using lists of individuals for commercial purposes. Neither Pierce County nor the Assessor-Treasurer reliability or timeliness of any information in this system, and shall not be held liable for losses caused by using this information. Portions of this information may not be current or accurate. Any person or en information obtained from this system, does so at their own risk. ***All critical information should be independently verified.***

Pierce County Assessor-Treasurer
Ken Madsen
2401 South 35th St Room 142
Tacoma, Washington 98409
(253)798-6111 or Fax (253)798-3142
www.piercecountywa.org/atr

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