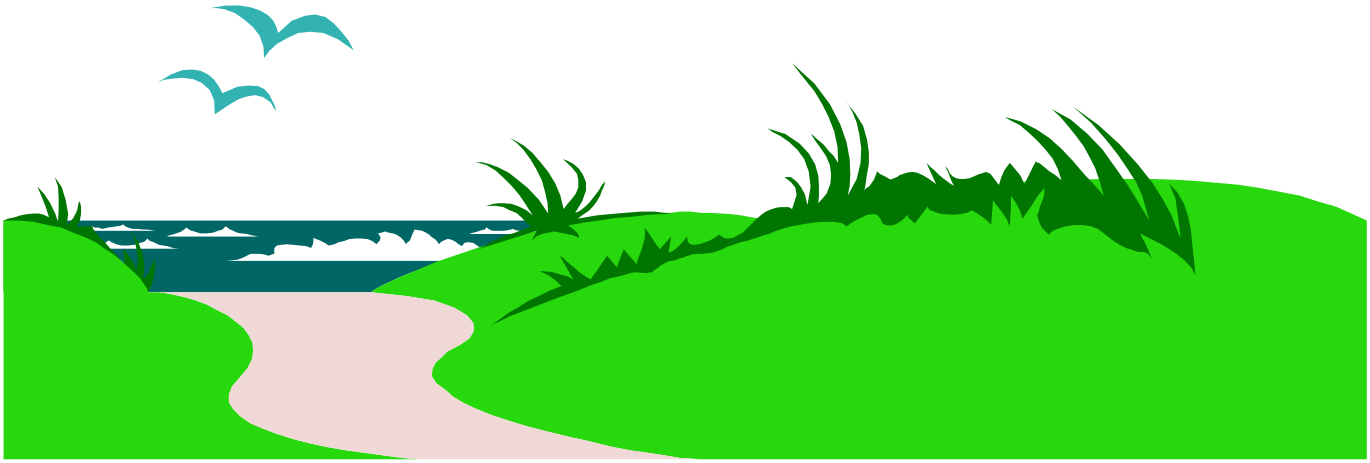
DRAFT Environmental Assessment for:
Codiga Farms 1135
Habitat Restoration Project
Tukwila, King County, Washington



July 6, 2001 Seattle District, U.S. Army Corps of Engineers

Draft Environmental Assessment for the 1135 project at Codiga Farms, Duwamish River at Tukwila Washington.

Table of Contents

1. Introduction _____ Page 2
2. Project Purpose _____ Page 2
3. Description of the Proposed Project _____ Page 2
4. Location _____ Page 3
5. Background _____ Page 3
6. Need for Action _____ Page 3
7. Alternatives _____ Page 4
8. Existing Environment _____ Page 4
9. Environmental Impacts _____ Page16
10. Project Coordination _____ Page24
11. Cumulative Impacts _____ Page 25
12. Relationship between local term use and long term productivity _____ Page 26
13. Irreversible or Irretrievable Commitment of Resources _____ Page 27
14. References _____ Page 28
15. Appendix A- Draft Memorandum _____ Page 30
16. Figure #1, Project Location Map _____ Page 33
17. Figure #2, Codiga Farms _____ Page 34
18. Finding of no Significant Impact _____ Page 35

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Draft Environmental Assessment for the 1135 project at Codiga Farms, Duwamish River at Tukwila Washington.

1. **INTRODUCTION.** This environmental assessment (EA) intends to appraise a habitat restoration project at the Codiga Farms site in the city of Tukwila, King County Washington. This EA "tiers" off of an existing Environmental Impact Statement (EIS) developed for the Green/Duwamish Ecosystem Restoration Study. In that programmatic EIS an overall approach toward restoration was evaluated. This project is consistent with that approach. Attached to the programmatic EIS, as a separate volume, was a description of specific restoration projects in the Green River basin if the preferred alternative was implemented. The Codiga Farm site was included in that description. This EA is intended to build upon the information and evaluation done in the programmatic EIS. The EIS is incorporated into this document by reference.

2. **PROJECT PURPOSE.** The purpose of the project is to restore tidal and riverine hydrology to the site in the form of a slough. Several objectives will also be achieved if the overall goal is accomplished. They include, the creation of side channel rearing habitat for juvenile fish, an increase in primary productivity, and nutrient export. In addition, the project will provide educational benefits to the public through the use of interpretive signage and an observation area.

3. **DESCRIPTION OF THE PROPOSED PROJECT**. The intent of the project is to restore tidal and riverine hydrology to the site in the form of a constructed slough. This would improve overbank storage, increase the shoreline length, provide improved estuarine habitat and improve floodplain inundation. If these hydrologic functions can be incorporated successfully we can expect to provide rearing and feeding habitat for juvenile fish such as chinook and chum. The project is located in a unique area within the basin. While adjacent to the Green River it is also within the zone of freshwater tidal influence. In addition to creating a tidal slough, the project will also include the creation of a small estuarine marsh. This will provide important primary productivity and nutrient export. There is also a public education/outreach component to the project that will provide educational benefits to the public. Through the use of interpretive signage and an observation area, information on estuarine and riverine ecology will be disseminated. The project area is about three and a half acres in size. Project components include:

- excavation of two adjoining sloughs (25,000 cubic yards),
- placement of rock, (100 cubic yards),
- large wood debris with root wads (about 40),
- gravel (250 cubic yards on the channel bottom),
- creation of an intertidal marsh (about 25,000 square feet and excavation of 13,000 cubic yards of material),

- the marsh will have fencing along the perimeter for a few years to allow for plant establishment by controlling duck and geese access to the site,
- placement of interpretive signs,
- an observation area.

Recreation features include:

- a small covered picnic area,
- a interpretive/observation area,
- a hand boat launch for canoes and kayaks.

An existing barn will also be demolished at the site and a small community garden (pea patch) will be maintained there. The unimproved areas within the project will be planted with native trees and shrubs that would benefit local wildlife in the area.

4. **LOCATION.** The project is located in the City of Tukwila, King County Washington, near 50th Place South and South 130th Place. (See attached vicinity map, figure 1)

5. **BACKGROUND.** Until recently (May 19,2000), the City of Tukwila had leased the site to the former owner, Jim Codiga, for a topsoil and bark business. Mr. Codiga had also been raising about 30 head of beef cattle on site. On March 19,2001, the City of Tukwila issued to Mr. Codiga a required 60-day notice to terminate the lease. Currently, the site is vacant. The City currently manages and will so in the future, a public pea patch (also known as the Allentown Pea Patch) on site. About twelve years ago the city of Tukwila had purchased the property for a city park. Subsequent discussion with the City since the purchase, allowed for inclusion of habitat restoration features. The purpose of the project is to restore tidal hydrology to the Codiga Farm site. Historically, this portion of the Duwamish had a broad and connected flood plain. Within the tidal portion of the flood plain existed estuarine marshes and sloughs. Starting in the 1860's levees were constructed at the marsh edges and these areas were converted to agricultural production such as hop fields. Sloughs in the area were also filled to make more farmable land. In many places farmland was then converted to housing or industry. The levees and fill that was placed along the margins of the tidal portions of the River interrupted the flow and as a result, nutrient export from the marshes to the adjoining habitats such as mudflats was diminished. Intertidal sloughs that were once refuge areas for juvenile fish (salmon, sculpins, and sole) shorebirds (dunlin, sandpiper and yellowlegs) and waterfowl (pintail, and baldpate) was lost. The continuity of the large interspersed habitats of the estuary became fragmented. In this particular location, a portion of the original farm is still present. This project offers an opportunity to restore some of the former estuary. Perhaps even more significant is the location of the site. Codiga farms is in the brackish to fresh water tidal area making it a prime area where juvenile salmon acclimate from freshwater to saltwater.

6. **NEED FOR ACTION**. Two elements have joined together to cause the proposed action. Over the last 100 years there has been a continued decline in the amount and quality of aquatic habitat in the Duwamish/Green River basin. This decline has probably

effected the population of many of the fish and wildlife species that are native to the area. In recent years this decline has precipitated some of these species to be listed as threatened under the Endangered Species Act (chinook, bulltrout and bald eagle). The second element is that Congress has given the Corps of Engineers the authority to improve fish and wildlife (Water Resources Development Act (WRDA) of 1986). One of the programs that the Corps accomplishes this is under section 1135 of WRDA. The Codiga Farms project fits the criteria for this program and the needed resources to accomplish the project have been authorized.

7. **ALTERNATIVES**. Three separate alternatives are evaluated for this proposal. They include:

The no-action alternative (alternative one): The city could maintain the existing farm and small pea patch.

Alternative two: The site would be converted wholly to a park. A large picnic area could be built and the pea patch expanded. The park focus would tend towards the river and waterfront activities.

Alternative three: The preferred alternative. This alternative would restore much of the property to tidal influence. Two new channels would be excavated back into the property (total length about 800-ft.). The outlet would be down river from the existing sand spit. The bottom elevation would be about -2ft. (NGVD29) allowing some water in the slough most of the time. One side of the pond would be at a slightly higher elevation allowing for some off-channel refuge at high water. Woody debris such as large stumps with root wads would be put in the new channel to provide cover. Adjacent to the channel would be an intertidal bench at the appropriate elevation (+4ft., NGVD29) to grow freshwater estuarine emergent plants such as sedges and rushes. Insects associated with this type of vegetation would provide prey resources for juvenile fish using the new channel. A fifty-foot riparian buffer would be planted on the uplands adjacent to the channel providing shade and shield against local disturbance. Finally, around the channel certain compatible park features would be included such as an observation platform with interpretive signing, maintain the existing pea patch, a hand boat launch a gravel parking area and small picnic pavilion with associated parking lot.

8. **EXISTING ENVIRONMENT.**

This affected environment section was prepared with emphasis on resources that would most likely be affected by the alternatives described in Section 7.These resources and concerns were identified in a general scoping process for the programmatic EIS. A more specific identification of issues was accomplished during detailed planning for this project as part of the 1135 program. The preferred alternative was also included in Volume 2 of the programmatic EIS as one of the projects in the preferred alternative restoration plan as well as the accompanying feasibility report. Both of these documents received public and

agency review as part of the process. Where appropriate, a discussion of historical conditions is followed by a discussion of current conditions in the basin.

8.1 GEOLOGY/SOILS/SEDIMENTS.

The Green/Duwamish Basin, like other north-south trending river basins arising in the Cascade Range along Puget Sound, has been shaped by a number of geologic processes and events. The major geologic processes along the Pacific Coast are the movement of tectonic plates, volcanic activity, and glaciation.

Following major continent building, a series of ice advances from Canada scoured much of Washington and the northern half of the United States. The most recent glaciation left behind the deposits of gravels and compacted till material seen today in most of the soils and surface formations (Kruckeberg 1991). Vashon ice dams formed glacial lakes in many of the river valleys coming out of the Cascades and left behind layers of fine sediments.

Eventually the glacial ice retreated far enough north to allow the Duwamish Valley to reconnect with the fresh waters of Puget Sound, and the water remained fresh until the ice left the Straits of Juan de Fuca. At that time, marine water extended up the narrow Duwamish Valley all the way to present day Auburn. Since the retreat of glaciation, the Green River has been carving out a floodplain from the sedimentary, volcanic, and glacial deposits. The most significant recent geologic event was a massive landslide triggered by seismic or volcanic activity on Mt. Rainier approximately 5,000 years ago. The largest landslide is known as the Osceola mudflow, and it spilled down the White River Valley, burying the Enumclaw area and flowing into the Duwamish Valley. In some places, several hundred feet of mud were deposited. This mudflow diverted the White River northward to join the Green River. The combination of the two rivers deposited vast quantities of alluvial material to form the wide flat lower Green River Valley, which was thereafter exclusively freshwater. (Perkins 1993, Corps 1997a, 1997b)

The Green River meandered widely across the valley between what are now the present day cities of Kent and Tukwila, forming and reforming channels. The Green River was joined in Tukwila by the Black and Cedar Rivers and became the Green/Duwamish River as it meandered north to the broad marshland delta into Elliott Bay (Dunne and Dietrich 1978).

By 1906, levees had been constructed for many miles upstream of Puget Sound to protect homesteads. In 1906, a major flood altered the course of the White River. A logjam south of Auburn redirected the course of the White River to its present alignment into the Puyallup River, no longer connecting it with the Green River. Through channelization efforts authorized by the State Legislature in 1909, this diversion was made permanent. The river was renamed the Green at its intersection with the Black River (RM 11) where it then became the Duwamish. Historically, the Black River was the outlet channel of Lake Washington and the Cedar River (Corps 1997b).

In 1916, the Lake Washington Ship Canal and Hiram Chittenden Locks were constructed. This construction lowered the level of Lake Washington by 9 feet, thereby eliminating

flows from the lake to the Black River and the Duwamish River. The Cedar River was redirected to Lake Washington, disconnecting it as well. (Corps 1997b) Construction of the canal and locks, along with the 1906 diversion, reduced the flows in the Green/Duwamish River Basin by 70 percent (diverted to other basins), with subsequent adverse effects on the anadromous fishery.

The soils along the lower Green/Duwamish River are not well known because extensive filling and industrial development in this area have largely covered up the delta soils. However, it is likely that the underlying native soils are similar to soils found in other tidal deltas, such as the Nisqually River delta. It is known that the Duwamish Estuary was once a vast tidally influenced swampland and marsh area. The soils in this area were likely fine materials from alluvium mixed with organic materials from the vast amounts of plant material produced in the estuarine marshes. These soils are generally very deep, poorly drained, and subject to being compacted and destabilized when disturbed (Perkins 1993, Corps 1997a, 1997b).

The lower Green/Duwamish Estuary was an area of very low gradient. Most of the larger sediment had been deposited in the middle river, and the lower river had primarily sand and mud substrate. Most of the lower reach of the river was affected by tidal influence, whether freshwater tidal or brackish tidal. It is known that the river had several distributary channels spread over the broad delta floodplain. LWD was carried into the lower river and estuary during floods (Perkins 1993, Corps 1997a, 1997b).

8.2 WATER QUALITY.

Historically, freshwater entered the Duwamish Estuary through several, dynamic channels of the lower Green/Duwamish River. Over the last 100 years, the braided flows of the lower river have been extensively channelized through dredging and construction of levees. Presently, freshwater enters the estuary through one permanent channel. A general increase in the distance of saltwater intrusions inland has been documented and is largely attributed to the loss of freshwater flows

The Duwamish River segment of the drainage (RM 11 to 0) contains intense industrial, commercial and residential development and is the only section of the river system designated as Class B waters. The Washington State Department of Ecology is responsible for setting water quality standards based on water use and water quality criteria. The five water quality classes are:

- AA: extraordinary
- A: excellent
- B: good
- C: fair
- Lake

The lower basin is divided into the freshwater portion (above RM 6) and the estuarine portion (from RM 6 to Elliott Bay). The Codiga Farms site is located within the freshwater portion. During the summer low flows, tidal influence extends upriver to RM 12.

Temperature

King County and Ecology have both recorded numerous instances of water temperature in the lower Green/Duwamish River exceeding the Washington State criteria for Class A waters. Specifically, water temperatures greater than 64°F were measured 58 times between January 1, 1988 and July 1, 1996 (Ecology 1994).

Surface water temperature in the Duwamish River is dependent upon the temperature in the Green River system as well as tidal influence from Elliot Bay. Surface flow temperatures ranged from 45.6°F in late March to 67.1°F in early August at nine sampling sites located from Duwamish RM 1.6 to 10.4 (Warner and Fritz 1995). The range of temperatures over depth is also influenced by the tidal stage. The variation in water temperature with depth provides adult and juvenile salmonids some refuge from the higher temperatures. However, in the late summer and early fall, the general range of temperatures offers no refuge from temperatures considered outside the preferred range.

Nutrients and Dissolved Oxygen

Nutrient loads carried by the lower Green/Duwamish River may contribute to freshwater algal blooms in the Duwamish River. Generally, nitrate and ammonia levels are greatest during the winter months, because of stormwater runoff, combined sewer overflows, and failing septic systems (METRO 1978).

Higher nutrient levels in the summer contribute to low DO through nitrification of ammonia and decay of algae blooms. Oxidation demand of industrial runoff further contributes to low DO. Measurements of DO in the lower Green/Duwamish River have revealed 52 instances between July 1987 and July 1994 when DO levels were below the criteria for Class A waters (Ecology 1995).

Fecal Coliform

The state water quality standard established for fecal coliform was exceeded 204 times from July 1987 to January 1992 in the lower Green/Duwamish River (Ecology 1995). Storm events play a role in increased fecal coliform levels. Stormwater runoff carries animal waste into the river and its tributaries from agricultural land

Turbidity and Suspended Sediment

With the exception of increased turbidity levels during high flow events, high turbidity is not currently a problem in the lower river. Springbrook Creek, in particular, contributes higher turbidity levels to this section of the river.

8.3 VEGETATION.

Until the early 1970s, most of the lower basin was in agricultural production. There are approximately 2,000 acres of agricultural land remaining in the middle and lower basins. Timber harvest and residential development have occurred on many of the upland slopes. Today many of the upland slopes have a mixed deciduous/conifer second-growth forest dominated by Douglas fir, black cottonwood, red alder and bigleaf maple.

The existing vegetation in the Green/Duwamish is limited due to the extensive industrial, commercial and residential development that filled most of the intertidal and freshwater tidal marshes and swamps. In the remnant intertidal areas, the marsh communities are dominated by Lyngby sedge, saltgrass, Baltic rush, brass buttons, and hardstem bulrush. The invasive reed canarygrass dominates the marsh plant community in at least two locations. On upland sites, the vegetation is dominated by weedy species such as Scot's broom, Himalayan blackberry, and tansy ragwort. A few sites have been planted with native vegetation in an attempt to restore habitat to the waterway and these sites are dominated by willows, alders, cottonwood, and shrubs such as red-flowering currant.

Approximately 41 percent of the riparian vegetation coverage of the Lower Basin is pavement. Next to the water's edge, pavement as land cover drops to 20 percent. Deciduous trees compose 18 percent of the acreage and 26 percent of the footage next to the river.

8.4 FISH AND WILDLIFE.

The historic lower portion of the Duwamish/Green basin was largely a detrital-based system and provided significant food and habitat for both terrestrial and marine organisms. Juvenile chum and chinook salmon frequently foraged in sand flat and marsh areas. These prime estuarine wetland and intertidal rearing areas for chum salmon converted high detrital carbon inputs from freshwater flows to forms usable to salmon (Simenstad et al. 1991). These forms included significant insect and crustacean populations on which juvenile salmon fed.

Less spawning habitat was available in the lower Duwamish/Green because the substrate would have been largely composed of sands and finer materials. However, the extensive floodplain swamp and marsh system would have been ideal rearing habitat for most salmonid species, especially chinook. Northern pike minnow (squawfish) and long-fin smelt were also likely found in the lower Duwamish/Green River. The Duwamish Estuary was probably used extensively by juvenile fish of many species for rearing in the extensive tidal marshes and mudflats. Chum and pink salmon were reared primarily in estuaries. Many species of saltwater fish also spawned or bore live young in intertidal areas (Corps 1997a).

Fish habitat in the lower basin is generally limited and significantly degraded by the armoring of the riverbanks and urban/industrial development. Blomquist's (1996) study of fish habitat did not inventory the lower basin in detail because it essentially found that no

high-quality fish habitat existed. In-stream habitat was not quantified in the lower basin, primarily because the greater water depth did not allow sufficient light penetration through the water column. The river has limited riffled reaches and some small point bars have been developed. Blomquist considered all of the lower Green River to be in riffle/glide habitat with no pools or side channels, and essentially no LWD.

Populations of many species have declined dramatically in response to habitat loss or degradation and over fishing. Salmon and steelhead escapements to the Green River declined by 60 percent or more from 1938 to 1942 and from 1987 to 1991 (Fuerstenberg et al. 1996). Currently, runs of chinook, coho, and chum salmon, and steelhead trout to the Green/Duwamish Basin are supported by hatchery production.

Matsuda et al. (1968) conducted the only survey to determine all fish species present in the Duwamish Estuary and the lower Green River. They captured 30 species of fish from RM 13 in Renton to the mouth in Elliott Bay. Some of the fish identified in the survey include: 6species of salmon and trout, 4 species of sculpin, dace and perch. Spawning surveys were not conducted in the lower Green River because the substrate is not suitable for salmonid spawning.

Historically, marshes, sloughs and tideflats provided the most productive wildlife habitat of all land within the lower basin. The diversity of wetland habitats in this area provided critical biological resources of food, water, and cover for a diversity of wildlife. Recent studies have correlated bird species use with wetland habitat complexity (Wallin et al. 1995). Wetlands with the highest number of plant communities present had the highest bird use as measured by bird species richness, plant species richness, and bird species breeding rates (Wallin et al. 1995). The expanses of marsh habitat dominated by eelgrass and marsh species were widely used by birds such as great blue herons, mergansers, western grebes, and brant. In unvegetated areas crows, gulls, killdeer, mallards, and pintails foraged for benthic and epibenthic invertebrates.

Historically, bird populations using the lower basin included Canada geese, mallards, gadwalls, green-winged teal, Northern shoveler, canvasback, scaup, ruddy ducks, American coot, western grebes, pintails, American pigeon, Barrow’s goldeneye, bufflehead, scoters, and mergansers (Canning et al. 1979).

No historic mammal records exist for the Duwamish Estuary. However, it is likely that voles, muskrats, rabbits, deer, river otter and rodents were resident in the area. Predators such as coyotes, wolves, and bears likely inhabited the area seasonally (Corps 1995a).

The lower basin and Duwamish Estuary are now heavily developed for industrial and residential purposes. The remaining riparian, wetland, and estuarine habitats in the lower basin are used by a variety of birds and small mammals. However, continued development in the lower basin is rapidly reducing this habitat. The remaining marsh habitats provide exceptional areas for wildlife because of their high biological productivity.

Flood storage areas primarily covered with dead and living willows are found in the lower basin, often contiguous to or intergrading with the marshes. These areas are valued to some extent as breeding and feeding areas for waterfowl and songbirds, but are used much less frequently than the marshes. Waterfowl also use ponds throughout the lower basin, either in the form of wet pastures that have year-round ponds, inactive sewage ponds in the Kent/Auburn area, or ponds that have formed in the pits associated with previous gravel operations. Generally, shallow ponds with gradual banks are most productive and are the best areas for wildlife. More than 10,000 waterfowl presently use the fields, ponds, and marshes near Kent, Renton, and Auburn for feeding and resting. (Corps 1997a)

Mammal usage of the Duwamish Estuary has been limited because industrial development and roads surround the site. Mammals inhabiting Kellogg Island and the estuary include raccoon, Townsend vole, muskrats, and Norway rats. Voles and muskrats likely consume fleshy plant material from the high and low marsh areas. Raccoons consume fish, turtles, small mammals, birds, eggs, insects, and plant material, especially berries. California sea lion, harbor seals, and river otters have been observed in the Duwamish Estuary. These species consume small fish, eggs, and invertebrates in the shallow and subtidal waters (Ingles 1965)

8.5 THREATENED AND ENDANGERED SPECIES.

The Puget Sound Evolutionarily Significant Unit (ESU) of chinook salmon has been listed as “threatened” under the federal Endangered Species Act (ESA) (64 FR 14307). Overall abundance of chinook salmon in this ESU has declined substantially from historical levels. The types of habitat degradation that have occurred in the Green/Duwamish Basin include diking for flood control, draining and filling of freshwater and estuarine wetlands, and sedimentation from forest practices and urbanization. All have been cited as causes for the overall decline of chinook salmon in the Puget Sound ESU (50 CFR 11494).

Stream flow, gravel quality, and silt load all have a significant influence on the survival of developing chinook salmon eggs. Juvenile salmon rear in freshwater or in the estuary for up to 1 year before migrating to sea. Generally, chinook salmon remain at sea for 2 to 4 years before returning to freshwater to spawn. Upstream migration of adult chinook salmon in the Green/Duwamish takes place from June to November, and spawning occurs from September through December.

The Puget Sound Distinct Population Segment (DPS) of bull trout is listed as a threatened species under the federal ESA. Bull trout are found in interior and some coastal drainage's from northern California to southeast Alaska (Stolz and Schnell 1991). Historically, bull trout were found in the thousands in the middle Green River when the White River was connected to the Green River (Grette and Salo 1986). Currently, the White River still supports a bull trout population, however the White River is no longer connected to the Green/Duwamish River. Their historic occurrence in the upper Green River has not been verified.

The Puget Sound Coho ESU is a candidate for listing under the ESA. As a candidate species, no federal protection is in place, however, this species is under consideration for listing. From 1965 to 1993, Green River coho run size has not changed significantly (Weitkamp et al. 1995). Because most years in this time period had stable escapement rates, the stock status was considered healthy by WDFW in 1994 (WDFW 1994).

The bald eagle is Federally listed as threatened in Washington. This species is found only in North America and ranges over much of the continent, from the northern reaches of Alaska and Canada to northern Mexico. Bald eagles migrate to wintering ranges in Washington in late October and are most commonly found along lakes, rivers, marshes, or other wetland areas west of the Cascade Range, with an occasional occurrence in eastern Washington.

The northern spotted owl was federally listed as threatened throughout its range on July 23, 1990. Some of the National Forest land within the basin is designated Critical Habitat for the northern spotted owl and is part of the 120,000-acre Critical Habitat Unit (CHU) #WA-34. Spotted owls can be found throughout the west slope of the Cascade Range below elevations of 4,200 feet.

The marbled murrelet was officially listed as a threatened species on October 1, 1992. Areas within Wolf, Champion, and Rock Creek drainages, and an area around Twin Camps, all in the upper basin, are designated Critical Habitat for marbled murrelets (CHU #WA-11a; USFS 1996). Murrelets live near shallow marine waters and, in Washington, nest in mature and old-growth trees.

The gray wolf is listed as an endangered species in Washington and can use a broad spectrum of habitats provided that there is an abundance of prey (generally ungulates) and that suitable denning and rendezvous sites exist away from human disturbance.

The grizzly bear is a federally listed threatened species. The North Cascades Grizzly Bear Recovery Zone has been designated north of Interstate 90, to the north and east of the Green/Duwamish Basin. The grizzly bear is not closely associated with late-successional forests, but inhabits vast areas of diverse habitat types including alpine meadows.

No grizzly bears or sign of grizzly bears have been reported in the basin. However, in 1993, the WDFW verified tracks of a grizzly adult, cub, and an unknown aged bear near Kapowsin in Pierce County. There have also been several reliable sightings on the Cle Elum Ranger District, just east of the upper basin, as well as others to the north and south (USFS 1996). Habitat conditions in the Green/Duwamish Basin are not highly suitable for grizzly bears for the same reasons given for gray wolf: high road density and little security habitat.

The Canada lynx was officially listed as threatened April 24, 2000 under the Endangered Species Act and is listed as threatened by the WDFW. In the western half of the

contiguous United States, lynx are known from Washington, Oregon, Idaho, Montana, Utah, Wyoming, and Colorado.

There are no reported sightings of lynx in the Green River Basin. The USFS has been conducting studies of potential lynx habitat on the Mt. Baker-Snoqualmie National Forest. The USFS has defined suitable habitat as areas of permanent winter snowpack, within Pacific silver fir, mountain hemlock, and subalpine fir zones, and areas supporting snowshoe hare, the principal prey of lynx (Olnedo pers. comm.).

Permanent winter snowpack in the Green River Basin occurs at approximately 2,800 feet in elevation on the western slope of the Cascades. Any potential lynx habitat would therefore be located in the upper Green River Basin well above the location of proposed habitat restoration project.

The spotted frog is listed as a candidate species in Washington. Spotted frog populations have declined dramatically in both western Washington and Oregon.

The basin lies within the historic range of the spotted frog. Sightings in Thurston County are the only confirmed observations of spotted frogs in 23 years in western Washington lowlands. Within the Green/Duwamish Basin, perennial water sources with adjacent emergent vegetation could provide suitable spotted frog habitat. Nevertheless, due to the rare documented occurrence of the spotted frog in western Washington lowlands, it is not expected to occur in the middle or lower basin at this time.

8.6 CULTURAL RESOURCES

8.6.1 Historic Preservation Mandate

The primary law affecting cultural resources is the National Historic Preservation Act (NHPA) of 1966 (16 USC § 470), as amended. NHPA requires Federal agency project proponents to identify any effects or impacts its actions may have on cultural resources listed in or eligible for listing in the National Register of Historic Places (NRHP). The project area contains an NRHP-eligible farm and there is a possibility that intact historic and/or prehistoric archaeological deposits may be located within the project footprint during construction activities.

8.6.2 Archaeological Resources

Codiga Farm is located on alluvial floodplain deposited approximately 1,800 to 1,600 years ago as the Duwamish River delta prograded northward from the confluence of the White (now Green) and Black Rivers and filled in a long, steep sided fjord remaining after the last glacial retreat. The project area is within the historic traditional territory of the Duwamish, which included Elliott Bay and the valleys of the Duwamish, Black, and Cedar Rivers. The Duwamish engaged in diverse economic activities including fishing, gathering, and hunting, with salmon providing the basis of their diet and economy. Salmon were harvested in the project area vicinity during their annual migration to spawning beds upstream because the metabolic changes that occurred upon encountering

the transition zone from salt to fresh water began to reduce the qualities of their flesh for immediate consumption and smoking. See discussion of the "salt wedge" area and its relevance to the project purpose above.

The Duwamish, who signed the Point Elliot Treaty in 1855, were assigned to the Port Madison Reservation on the Kitsap Peninsula, but most had returned to the Seattle area by 1857. They were subsequently assigned to one of several reservations, including the Muckleshoot Reservation near present-day Auburn, which was closer to their traditional territory, although many continued to live in the Seattle and Renton areas. The Muckleshoot Indian Tribe (MIT) is currently the primary political successor to the riverine interest of the Duwamish.

Although the river in front of the project area had been included in a preliminary reconnaissance associated with the Green River Flood Reduction Study by Dalan et al. (1981), Codiga Farm itself had never been subjected to a systematic cultural resources survey prior to this project. Although no archaeological sites had been previously identified on the project site, evidence of the Duwamish occupation of the immediate area has been identified at several nearby sites. These include the Allentown site (45KI431) and a cluster of archaeological sites (45KI51, 45KI59, and 45KI438/438A) and documented ethnographic villages along the former Black River and its confluence with the Green (White) River. The Allentown site was located on a depositional point bar, a similar landform to the Codiga property, approximately one half mile to the west/northwest and the Black River and confluence were productive areas and were the location of wealthy and influential ethnographic Duwamish villages. This latter area, roughly one to two miles southeast of the Codiga Site, represents one of the highest densities of documented sites in the region and it is anticipated that additional cultural deposits will be located here in the future. A comprehensive discussion of the aboriginal use of this area and the character of the documented sites found in the project area vicinity can be found in Lewarch et al. (1996). Lewarch presents the basic frame of reference for evaluation of the prehistoric setting of Codiga Farm.

8.6.3 Historic Resources

Euroamerican settlement of the Lower Basin area began in the late 1840s and 1850s. By 1853, Donation land claims had been filed in Seattle, along the Duwamish, Green, and White rivers. The project area was incorporated into the Bennett L. Johns Donation Land Claim staked in the spring of 1854 (Lewarch et al. 1996). The Johns house was a half-mile to the west at the location of the 45KI431 site, which was, at the time, an established Duwamish salmon fishing camp. The first large-scale commercially grown crop in the Puget Sound area was hops, which were subsequently replaced by dairy, berry, and truck farming. Most land in the valley was in individual farm ownership and the Lower Basin changed little until flood control opened the way for industrial, commercial, and residential development in the late 1950s. The loss of traditional agricultural land in the project area vicinity accelerated during the last decades of the twentieth century.

8.6.3.1 Codiga Farm

Codiga Farm, including the original house, gambrel roof hay barn, gabled feeding barn, milk house, machine shed, and open pasture, is the sole remaining example of farming in this part of Puget Sound. Its relative proximity to Seattle defines the urban-rural boundary during the historic period, 1918-1950, at a time when land speculation and development generated many new communities south of Seattle. The establishment of the Codiga Farms also coincides with the construction of the Puget Sound Electric Railroad Company, an interurban line that linked Seattle and Tacoma, thereby fostering new settlement and agricultural transport in the Duwamish Valley. As a dairy farm, the property also has significant associations with the larger pattern of Swiss dairying in rural valleys around Seattle, during the early 1900s. Archie Codiga arrived from Switzerland in 1908, soon after the founding of Tukwila, and built a farm into a 130-acre operation.

The historic buildings at the farm are not individually remarkable, and are in fact quite modest and typical of farmhouses and agricultural buildings of the time. However, the buildings and landscape as a whole convey a significant pattern of agricultural history that has all but vanished from the immediate Puget Sound.

King County identified Codiga Farm as a significant historic property when it listed the farmhouse in the King County Historic Register in 1978 and the remaining barn complex and surrounding pasture in 1985. Corps of Engineers historic preservation staff determined the entire farmstead was NRHP eligible and the Deputy SHPO concurred with this determination during an on-site assessment of the property on 27 February 2001. The proposed project will have an adverse effect on the historic Codiga Farm (see Section 9.6.3).

8.7 AIR QUALITY/NOISE.

In accordance with the Clean Air Act and its amendments, National Ambient Air Quality Standards (NAAQS) have been established by the Environmental Protection Agency (EPA) for several criteria pollutants including lead (Pb), ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), total suspended particulates (TSP), and particulates with aerodynamic diameters of less than 10 microns (PM10 and PM2.5).

Three agencies have jurisdiction over air quality in the project area: the EPA, Ecology, and the Puget Sound Clean Air Agency. These agencies establish regulations that govern both the concentrations of pollutants in the outdoor air and contaminant emissions from air pollution sources. Although their regulations are similar in stringency, each agency has established its own standards. Unless the state or local jurisdiction has adopted more stringent standards, the EPA standards apply.

The project area is classified as an attainment area for all criteria pollutants except CO, ozone, and PM 10. For CO and ozone, the region is classified as a maintenance area, which is a provisional attainment status that must be maintained for several years before being reclassified as full attainment. There are three pockets of PM10 nonattainment areas

in the region, including industrial areas in Seattle, Kent, and the Tacoma Tideflats. The project site is located outside of these areas.

In the lower basin, the high concentration of industrial sources and automobiles has caused air quality problems. Motor vehicles are the largest source of air pollutants in King County. As in other parts of the basin, most problems occur during the dry portion of late summer when weather patterns are stable and there are only slight onshore or offshore winds, or during mid-winter stable periods of thermal inversions (Corps 1997b).

NOISE

State, county, and local noise regulations specify standards that restrict both the level and duration of noise measured at any given point within a receiving property. The maximum permissible environmental noise levels depend on the land use of the property that contains the noise source (e.g., industrial, commercial, or residential) and the land use of the property receiving that noise.

The King County noise standards would be applicable to the restoration project in question. The King County noise standards are shown in the table below.

King County Environmental Noise Limits (dBA)

	District of Receiving Property			
District of Noise Source	Rural Day/Night	Residential Day/Night	Commercial	Industrial
Rural	49/39	52/42	55	57
Residential	52/42	55/45	57	60
Commercial	55/45	57/47	60	65
Industrial	57/47	60/50	65	70

Source: King County Code Chapter 12.88.

8.8 PUBLIC USE AND RECREATION

The Green/Duwamish River Basin is a heavily used recreation area both for water sports and more passive activities, such as fishing, bird watching, and hiking. Federal, state, King County, and local municipalities are involved in improving a system of parks within the Green/Duwamish Basin. Existing facilities include numerous municipal parks, golf courses, picnic facilities, and the Interurban Trail along the levees of the Green River.

Recreation in the Tukwila is limited due to the intensive urban, commercial and industrial development along the river. Trails do exist along portions of the Duwamish River, and local parks such as the occur in the vicinity of the river (e.g., Tukwila Community Center, Foster Golf Course, the Allentown Pea Patch, and portions of the Green River Trail).

9.0 **ENVIRONMENTAL IMPACTS**

9.0 GEOLOGY/SOILS/SEDIMENTS

The proposed action will require excavation of soils and disturbing the current substrate for alternatives two (the park only alternative) and three (the preferred alternative, park and habitat restoration). Alternative three requires much more excavation and movement of soil (up to 37,000 cubic yards). Short-term impacts to soils would occur during the construction phase, and to a far lesser extent over the long term from implementation of the restoration features. Much of these impacts will be minimized utilizing best management practices.

Construction impacts would result from the movement and use of construction equipment at the restoration sites. Construction activities would result in localized and temporary disturbance to soils at the construction sites, soil compaction, and removal or modification of coarse channel deposits and/or finer overbank alluvium. This material would either be repositioned on the restoration site or taken offsite for disposal.

Restoration under alternative three will restore some of the key hydrologic processes in the area. Historic tidal and riverine hydrology to the site would occur, this would improve overbank storage. An increase channel in length and an increase in the shoreline length, and creation of a marsh would provide improved estuarine habitat. The project would also improve floodplain inundation, which could improve base flow in the project vicinity.

9.2 WATER QUALITY

All proposed restoration alternatives, including No Action, will to some degree affect water conditions within the Green/Duwamish River in the proximity of the project. The implementation of Alternative three would permanently modify existing surface water conditions as tidal and riverine flow access the newly constructed slough. Patterns of surface water movement would be changed as tidal and riverine waters inundate the project site allowing fish passage into the newly constructed slough. The biggest changes will occur in the following areas:

Turbidity and suspended solids

Under the no-action alternative the existing farm practices would have continued. In the summer time the cattle on the farm had access and were occasionally to be found wallowing in the Green/Duwamish or grazing along the river's edge. This would have had a localized effect of an increase in turbidity and suspended solids as the cows waded into and drank from the river. This also facilitated some destabilization of the bankline causing erosion and an increase in turbidity and suspended solids. None of the impacts of farming operations have been quantified so an empirical comparison between alternatives is not possible. In addition, a good portion of farmed area lacked any vegetation, any good rainstorm probably eroded the topsoils and washed it into the River.

The second alternative would include construction of park-like facilities. There may have been some facilities built closely to the water's edge. During construction, potentially a small and temporary increase in turbidity and suspended solids would be expected.

As a result of the third alternative (the preferred restoration alternative) much of the construction will be "in the dry", that is, the majority of work will be done behind a berm that will separate the construction area from the river. Only when most of the construction is complete and the final connection to the river needs to be made will a small and temporary increase in turbidity and suspended solids occur. The impacts of this will be minimized through best management practices and the timing of the connection (when chances are best for encountering few fish). There will also be a short term release of sediment during the first few flushes of the tidal slough. In the long term, this alternative offers the best improvement for local water quality conditions. The newly planted vegetation, especially the marsh, will act as a sediment trap and filter particulates from the water column.

Fecal Coliform

The no-action alternative (continued farm operation) may have been a significant local provider of fecal coliform to the River. The cows at the site have been observed in close proximity to the River and some times in the river. Any significant rain event would have allowed water-containing bacteria to run into the adjacent water. Additionally, a number of geese (both domestic and wild) currently occupy the site on the bank of the river. Depending on time of year, this could be a notable input to the system of fecal coliform.

Alternative two may have the potential for providing some fecal coliform to the system, probably at a much lower rate than the no-action, as pets would have some access to the site.

Similarly, as a result of alternative three, some fecal coliform contamination could be expected from household pets. There could be a slight reduction in coliform bacteria under alternative three. Domestic and wild geese will be discouraged in the restoration area. A fence will be constructed in the marsh area to reduce avian herbivory at the site.

Nutrients and Dissolved Oxygen

Current farm practices under the no-action alternative may have facilitated a local elevation in nutrient levels as waste products from the cows decomposed. Surface water runoff from the site would be one path where the nutrients were delivered to the adjacent river. This may have had a small effect on reducing concentrations of dissolved oxygen in the area, as biological oxygen demand from decomposition increased, available oxygen would decrease.

Alternative two would probably have little effect on nutrients and dissolved oxygen. If fertilizer were used at the park site it would be expected that some nutrients would reach the river through runoff.

Alternative three should improve to some extent nutrient and dissolved oxygen in the area. The newly created marsh will act as a "sink" for some nutrients such as nitrogen and phosphorous. The marsh will also release nutrients (such as dissolved organic carbon) that are beneficial to a variety of organisms and helps form the basis of the food chain as part of the natural process. Dissolved oxygen should also improve in the long term, as the newly planted vegetation (some of which will be submerged for a portion of it's growing cycle) provides oxygen as part of the respiration process.

Temperature

Under the no-action alternative localized river temperature may have been slightly raised due to lack of a functioning riparian corridor area adjacent to the river. Much of the site was either dirt with no vegetation or pasture grass. Some maple, cottonwood and willow trees exist along the riverbank. But the majority of riverside vegetation is blackberry or reed canary grass, which provides little shading benefit.

Alternative two probably would have improved the local current situation proving some shad trees down by the river and removing some of the more invasive weeds such as blackberry and canary grass.

Alternative three probably provides the best opportunity for improving temperature locally through shading. Much of the project area will be planted in native trees and shrubs with the notable exception of the tidal sloughs, emergent marsh, park facilities and pea patch. Trees such as hemlock, Douglas fir, willow, maple and cottonwood are to be planted along the bankline. Blackberry and canary grass are to be removed during construction.

9.1 VEGETATION

Under the no action alternative stream side vegetation would remain the same, that is, there are few trees adjacent to the river (alder, maple and cottonwood) but much of the bankline is in blackberry.

As a result of both alternative two and three short-term impacts to riparian resources may occur during the construction phase. Some vegetation may need to be removed for equipment to gain access to the restoration area. This could result in the temporary reduction of woody vegetation (shrubs and trees) along stream and riverbanks. A few trees may have to be removed to actually make the hydrologic connection to the Green Duwamish under the third alternative. The extensive blackberry community would be removed. This would be replaced by planting of native trees and shrubs. One of the intents of the third alternative would be to create an improved riparian buffer next to the river. Trees such as hemlock, Douglas fir, willow, maple and cottonwood are to be planted along the bankline. In the long term, riparian vegetation would increase as a result of streamside planting.

9.4 FISH AND WILDLIFE

The no-action alternative would leave things pretty much as they are. The emphasis would be on domestic livestock and waterfowl. The site vegetation would remain with blackberry, pasture and a few trees on the bankline.

Alternative two would result in the loss of the domestic livestock. Increase in vegetation as a result of plantings might be expected if the park alternative was developed and this would benefit passerine birds the most. The original park proposal did not include off-channel access for fish or a marsh.

Alternative three offers a wide variety of benefits for fish and wildlife. By restoring flood plan connectivity and intertidal habitats (i.e. tidal slough, intertidal marsh) a variety of benefits could be expected. The following are three of the most important considerations:

- Primary and secondary productivity at the site would be increased. By restoring habitat types that produce the basic food sources (such as organic carbon, detritus, and benthic and epibenthic organisms) at the base of the food chain, the benefits will be realized throughout the trophic structure. This restoration would also facilitate nutrient exchange as well as provide better fish access.

- As a result of restoring several habitat types (tidal slough and marsh) and establishing functional connections between the watershed and estuary, the restoration work would also significantly increase the species diversity at the project site. Many of these species are sensitive species or are currently in decline in the region due to loss of habitat.

- Restoring complexity and interconnectedness within the ecosystem will provide better support for critical life stages of the more diverse species assemblages that could now utilize the site. These life stages include: rearing, feeding, refuge, immigration, and emigration. The site also offers one of the few off-channel refuge areas during high flow events in many miles.

Target species that would most benefit from alternative three include many species of fish, birds, and mammals. Bird species include coot, gadwall, bufflehead, merganser, great blue heron, green-winged teal, killdeer, mallard, sandpipers, dunlin, goldfinch, juncos, osprey, redtail hawk, bald eagle, redwinged blackbird, and song sparrows. Mammal species include river otter, raccoon, and muskrat.

Several salmon and trout species would especially benefit from this project as well. These include the threatened Puget Sound chinook, and chum salmon, steelhead and cutthroat trout. The increase in shallow water habitat would probably benefit chinook and chum salmon the most and these important species have been in serious decline in the Puget Sound basin within the past few decades. Puget Sound chinook has been listed as a threatened species under the Endangered Species Act. If residence times are increased due to the feeding and refuge opportunities afforded by this project, the salmon would be

larger and more fit as they migrate to the ocean. This would increase their survival rate during their long migration prior to spawning. Many salmon species in the Northwest are currently in severe decline and have been petitioned for endangered species status currently chinook is listed and bull trout is proposed for listing. There could be a small short-term impact to fish under this alternative. When the connection to the Green/Duwamish River is made, there could be a short term and localized increase in turbidity and suspended particulates. This impact will be offset by best management practices. The timing of the connection will be completed when salmonids are least likely to be using the area.

9.5 THREATENED AND ENDANGERED SPECIES

Puget Sound chinook does occur in the area during migration time (juvenile out migration and returning adults). The timing of in-water work will minimize any impacts to these fish, if alternative three is accomplished. There will be a long-term benefit to juvenile chinook, which would use the site as a rearing area.

Bull trout are found in some coastal drainage's and probably can be found in the Duwamish estuary. Again, timing of in-water work will minimize any anticipated impacts.

Puget Sound coho also utilize the area during migration. Timing of in-water work will minimize any potential impacts.

The Bald eagle may occasionally use the area that the project is in. There are currently no nesting trees within the project area for Bald Eagle. There could be a long-term benefit to the Bald Eagle under alternative three. As vegetation matures there could be potential roosting and nesting sites. Prey resources for the eagle would also improve under alternative three.

Marbled Murrelet- No other stands near the project site contain trees with suitable nest characteristics. It is doubtful that marbled murrelets use the site

The site does not contain suitable habitat or prey for the Northern Spotted owl and it is anticipated that they do not use the area. The same can be said for gray wolf, grizzly bear and Canada lynx.

The spotted frog is listed as a candidate species in Washington. Currently, the project area does not include the wetland habitat types preferred by the spotted frog and it is unlikely to occur there.

9.6 CULTURAL RESOURCES

Under the No Action Alternative the Codiga farm complex would continue to be used as a farm. Although some amount of deterioration and modifications to the historic structures will occur through continued use, these are consistent with historic preservation because the integrity of the historic agricultural landscape will be maintained through continued

agricultural use. The No Action alternative is the only alternative that will not have an adverse effect on NRHP-eligible historic properties.

Under Alternative two, the entire Codiga Farm property would be converted to a City of Tukwila park. The City of Tukwila will not rehabilitate the farm complex for incorporation into the park due to maintenance and liability issues. Under Alternative two, the NRHP-eligible property probably would be demolished with no mitigation.

As a result of the third alternative, construction of the proposed project will necessitate significant earth moving activities and will require the demolition of the remaining structures comprising the historic Codiga Farm.

Owing to its proximity to documented archaeological sites and the fact that it is on a depositional landform, Codiga Farm clearly warranted an archaeological reconnaissance effort. On 6 April, Corps staff archaeologist David Grant conducted a meandering pedestrian transect reconnaissance survey of exposed surfaces within the project area. These areas included disturbed area of Jim Codiga's gravel/soil/bark operation, trampled areas, and wallows within the pasture area adjacent to the barn, and a 40-m by 45 m freshly tilled pea patch. No cultural materials were observed on exposed surfaces within the project site. Due to the depositional nature of the Duwamish floodplain and point bar at Codiga Farm, however, some form of subsurface archaeological exploration was necessary to test for the existence of buried cultural deposits. Accordingly, Grant scheduled a subsurface testing effort to coincide with an investigation of the geotechnical characteristics of the project site on 10 April 2001. On that date, the Corps excavated by backhoe four, 10 foot by 2 foot test pits to a depth of 15 feet (maximum reach of rented backhoe) along the centerlines of the proposed habitat channels and an additional backhoe trench near the river bank requested by Grant. Grant also excavated a screened shovel test probe in an area that the Corps supervisor was concerned may contain buried utilities.

No evidence of prehistoric activity was recorded within the area examined. Construction of the off-channel habitat channels is not expected to adversely affect any NRHP eligible archaeological sites. There is a potential, however, that prehistoric cultural deposits exist below the barn structures and stockpiled materials that currently prevent observation of some surface areas. Accordingly, it is recommended that a professional archaeologist monitor the initial channel excavation and periodically monitor construction to assure that cultural materials are not inadvertently affected. In the event cultural materials are encountered during construction, work will stop in the immediate area and the Washington Office of Archaeology and Historic Preservation (OAHP) and the MIT Cultural and Wildlife Office will be contacted. The Washington State Historic Preservation Officer (SHPO) is expected to concur with this determination and recommendation prior to completion of the final project EA.

Corps Archaeologist David Grant faxed a project description to the Muckleshoot Wildlife and Cultural Program on February 14, 2001 and discussed the project and plans for the cultural resources monitoring of the geotechnical testing with Melissa Calvert, Director

Wildlife and Cultural Program, on March 26, 2001. Grant also furnished a copy of the cultural resources reconnaissance and monitoring report to the Muckleshoot Wildlife and Cultural Program on June 21, 2001.

The proposed construction will necessitate the demolition of a dairy farm complex (hay and milking barns, attached machine shed, and milk cooling house) and change the agricultural nature of the site, thus having an adverse effect on the National Register eligible farm complex. On 27 February 2001, Corps personnel associated with the project conducted a meeting with representatives from the City of Tukwila and the Deputy SHPO to discuss the anticipated adverse effect and discuss options to avoid, minimize, or mitigate for these effects. The Deputy SHPO agreed to consider proposed mitigation for destruction of the farm complex through 1) HABS documentation of the site, 2) reuse of architectural themes and interpretation for the public integrated into the public use portion of the project, and 3) a historic property inventory to incorporate into a historic context of the Tukwila area. These stipulations were agreed to in a Memorandum of Agreement (MOA) between the Corps, the City of Tukwila, the Washington Office of Archaeology and Historic Preservation, and the Advisory Council on Historic Preservation at the time of the draft EA (Appendix #). The MOA will be signed prior to the final project EA and will evidence Corps compliance with Section 106 of the NHPA.

9.7 AIR QUALITY/NOISE/LIGHT

Air Quality

Under the no action alternative, air quality would remain the same. For alternatives two and three, there is some construction involved. Both alternatives would probably use excavators, front-end loaders, bulldozers and dump trucks to move regrade and excavate the site. All of this equipment would be gas or diesel powered with some emissions associated with them. The site is located in an open area with a large dispersal area. Hydrocarbons, particulates and Carbon oxides are by products of the resulting work but are not anticipated being a problem. Emissions for construction equipment are not expected to exceed the Environmental Protection Agency's "de minimus" threshold. A water truck will be used to keep down dust and clean the road, reducing particulates. The actual construction for either alternative is expected to be about one month. Best management practices will be used to offset to the extent practical, short-term impacts. No long-term impacts to air quality are anticipated. There is expected to be a long-term benefit to air quality under both alternatives as planted vegetation matures, particulates (dust from the site should be reduced and a slight increase in oxygen could be expected from vegetative respiration).

Noise

Currently, the area around the site is a mix of residential, commercial and industrial activities (see attached picture). Mr. Codiga lives just to the North of the project. There are a few houses across the street. A number of tractor-trailers are found using surface

streets in the area frequently. To the south is Interstate 5 highway. The Green/Duwamish River borders the property to the west and there are commercial and industrial properties in this area.

The no action would maintain the current noise level at the site. That is farm and construction related machinery (tractor, front-end loader) would still operate at an intermittent periods.

As a result of either alternative two or three, the noise level in the area could be expected to increase for the short time period during construction. There is some background level of noise in the neighborhood due to existing operations that occur in the area (highway traffic, trucking etc.). During construction, there would be a temporary increase in sound levels due to the use of heavy equipment and the hauling of materials. The types of equipment used for these types of projects will typically generate noise levels between 80 and 90 dBA at a distance of 50 feet while the equipment is operating (EPA 1971, Toth 1979, Gharabegian et al. 1985). The sound level impacts resulting from construction would be short-term and temporary. Slightly elevated levels of noise can be expected in the short term but are only expected to last about one month. These impacts will be mitigated by the hours of operation and the distance to receptors. Construction will occur only during daylight hours. Under either alternative, long-term noise could come from vehicle use in the area and associated human uses typical of a park; this would probably be within the range of existing background noise. In the long-term, noise impacts in the area will slightly improve. As the planted vegetation matures it will act as a buffer to attenuate some of the noise in the area.

9.9 PUBLIC USE AND RECREATION.

The no-action alternative offers no public use opportunity or recreation features.

Both alternative two and three would have public use and recreation features. Under alternative two the park would focus on picnic features and shoreline recreation (hand held boat launch) and retain the neighborhood pea patch. Alternative two would also have some open space for passive recreation. Alternative three offers the same features except replaces the open space with the habitat restoration components of a slough and marsh. Alternative three (the preferred alternative) provides the best chance of insuring habitat benefits while accommodating human needs. Since this area has been designated to be a park it is import to maintain some of the public amenities while also insuring the biological integrity of the restoration effort. With the park designation this project offers the opportunity to provide habitat benefits and public education while offering low impact human uses. Alternative three is also the environmentally preferred alternative.

10.0 **PROJECT COORDINATION**.

This project has received extensive coordination with both regulatory agencies and the public. The city of Tukwila has held two public meetings on the project and several

informal on site meetings. The State Environmental Policy Act (SEPA) and Shoreline Permit process all had public comment periods. Both of these permits for the project have been issued (SEPA 5/9/01 and Shoreline 5/24/01). This DRAFT Environmental Assessment will have thirty day review time and will be provided to affected agencies/organizations and posted on the Corps web site. Once the comment period is over, the corps will evaluate comments and address them in the final EA where appropriate.

a. Clean Water Act Sections 404 and 401. The Corps has determined that this project qualifies for a Nationwide permit #27, (Stream and Wetland Restoration Activities). A letter to this effect was sent to Department of Ecology on June 7, 2001. Under Nationwide 27, a 401-water quality certification is not required. In a letter dated June 22, 2001 from Washington Department of Ecology (Alice Kelly) confirmation that the project will not require individual water quality certification was provided

b. Coastal Zone Management Act. The proposed project complies with the State Environmental Policy Act and the City of Tukwila's shoreline master program. And therefore, the Corps has determined that the project is consistent to the maximum extent practicable with the Coastal Zone Management Act. A Shoreline permit for this project has been issued. A shoreline substantial development permit was applied for by the City of Tukwila (local sponsor for the project) on March 23,2001 and was approved on May 24,2001 (file number L01-22). In a letter dated June 22, 2001 from Washington Department of Ecology (Alice Kelly) concurrence that the project is consistent to the maximum extent practicable with the enforceable policies of Washington's Coastal Zone Management Program was obtained.

c. National Historic Preservation Act. . The proposed project has included extensive coordination with the State Historic Preservation Office. A draft memorandum of understanding has been prepared to resolve the issues associated with the project. This draft document is included in Appendix A.

d. Executive Order 11988. No adverse impact to floodplain is anticipated. The majority of channel modification is to off-channel areas, except some bank stabilization at the inlet. The stabilization will be completed to maintain channel integrity and conveyance. Approximately 33,000 cubic yards of material will be removed from the flood plain allowing for increased flood storage capacity. This project will not facilitate development in the flood plain.

e. Endangered Species Act (ESA) and Essential Fish Habitat (EFH) under the Magnuson Fisheries Conservation Act. Biological Assessments were prepared for the National Marine Fisheries Service (NMFS) and U.S. Department of Fish and Wildlife (USFWS). In those assessments the Corps had made the determination that the Codiga Farms project "may effect, not likely to adversely affect" listed species or EFH. In a letter, dated March 27, 2001, the Corps received concurrence from USFWS for the species under their jurisdiction. On April 10, 2001, the Corps received concurrence from NMFS on both the ESA and EFH.

f. Environmental Justice – Executive Order 12898. On February 11, 1994, President Clinton issued Executive Order 12898 (E.O. 12898), Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This Executive Order requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations**.** No disproportionate, adverse impacts on human health on minority or low-income population, or environmental effects resulting from implementation of the preferred alternative, have been identified.

g. Fish and Wildlife Coordination Act. The Act and amendments require consultation with the USFWS and the fish and wildlife agencies of states where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted…or otherwise controlled or modified" by any agency under a federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources." The corps has had some discussions with USFWS on the Codiga Farms project. We are expecting a Planning Aid letter at the conclusion of the comment period for this EA.

11.0 **CUMULATIVE IMPACTS**. The proposed restoration project would have beneficial cumulative effects with other habitat conservation enhancement projects, and would incrementally offset adverse impacts on habitat and related natural resources from past, present, and future development projects. Other ongoing and proposed programs include:

- Howard Hanson Dam Continued Operation & Maintenance and the Additional Water Storage Project;
- Second Diversion Water Right and Tacoma Public Utilities/Muckleshoot Indian Tribal Agreement;
- King County Salmon Recovery efforts;
- State of Washington Salmon Recovery Board;
- Federal Section 4(d) rules;
- King County Wastewater Treatment Plant Habitat Conservation Plan (HCP);
- Plum Creek HCP; and
- Tacoma Water HCP.

When considered in combination with the aforementioned programs, the proposed Codiga Farms restoration project would result in improved riverine habitats over the long term

that will benefit the variety of fish and wildlife species in the basin described in this EIS. Several of the aforementioned programs would not be implemented for several years, and the full restoration benefits of all these actions may not be realized for 10 to 20 years. However, the implementation of individual projects each year will assist in increasing and improving fish and wildlife habitat throughout the basin. These restoration efforts will provide important elements of the life requirements for threatened and endangered species as well as other species.

Restoration projects are designed to restore or enhance lost or degraded habitat functions, to reduce the fragmentation of habitat areas, and to restore ecological functions at individual sites within the Green River Basin that cumulatively would provide a significant benefit to the resource.

Coordinated design, implementation of mitigation measures identified earlier, and monitoring during and after construction would make cumulative short-term (construction) impacts associated with implementing the restoration program insignificant.

12.0 **RELATIONSHIP BETWEEN SHORT TERM USES OF THE ENVIRONMENT AND MAINTAINCE AND ENHANCEMENT OF LONG TERM PRODUCTIVITY.**

The proposed Codiga Farm restoration project would restore or improve habitat for anadromous fish, and benefit wildlife resources. These activities will restore a portion of the historic habitat conditions and functions within the Green River Basin. The principal goal of the project is to achieve long-term enhancement of biological and natural resource productivity in the restoration areas. The proposed project is expected to reduce the harmful effects of human short-term uses of the environment that have occurred over time, and to promote long-term productivity within these restoration areas. This project will result in an improved productivity condition within the watershed that will benefit aquatic and terrestrial resources as well as provide some shoreline recreation activities.

13.0 **IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES.**

The proposed restoration project would not entail any significant irretrievable or irreversible commitments of resources. Construction of some habitat improvements would require consumption of petroleum products, and importing materials such as rock, soil, gravel, and vegetation. Construction of recreation structures such as kiosk and picnic shelter will require building materials such as steel, wood, plastic, or concrete, all resources that are plentiful and recyclable if so desired. The restoration project would entail long-term commitment of land for fish and wildlife habitat purposes as well as shoreline recreation in lieu of other possible societal uses.

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APPENDIX A

DRAFT MEMORANDUM OF AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, THE CITY OF TUKWILA, AND THE WASHINGTON STATE OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
REGARDING DESTRUCTION OF HISTORIC CODIGA FARMS COMPLEX

WHEREAS, the U.S. Army Corps of Engineers (the Corps) and the City of Tukwila propose to construct an off-channel salmon habitat channel (Project) and city park at Codiga Farms on the Duwamish River in Tukwila, King County, Washington; and

WHEREAS, the Corps and the City of Tukwila have determined that the Project will have an adverse effect upon the Codiga Farms, a property eligible for inclusion in the National Register of Historic Places (Register), and have consulted with the Washington State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) pursuant to 36 CFR § 800 implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470s); and

NOW, THEREFORE, the Corps, the City of Tukwila, and the Washington SHPO agree that the Project shall be implemented in accordance with the following stipulations in order to take into account the effect of the Project on historic properties.

STIPULATIONS

I. The Corps and Tukwila shall ensure that the following measures are carried out:

A. The Corps and the City of Tukwila shall ensure that both photographic and narrative documentation of the Codiga Farms historic property be undertaken so that there will be a permanent record of its present appearance and history. In accordance with Section 110(b) of the NHPA, the appropriate records will be held in local repositories at the Washington State Office of Archaeology and Historic Preservation, the City of Tukwila, the Tukwila Historical Society, and the Corps. Documentation will consist of the following:

a) Prior to removal of any structures, the entire Codiga Farms property shall be recorded in large format black and white photographs. As per agreement with the SHPO, and in accordance with Section 110(b) of the NHPA, photographic documentation will conform to Historic American Building Survey Level 4 standards.

b) The Corps and the City of Tukwila shall produce an overview of the Tukwila area's agricultural history that places the Codiga Farms in context with surrounding development. The overview will compare the Codiga property by referencing related farm properties that are no longer extant, as well as any that may remain. The

document will be designed for public dissemination through the Corps' and the City of Tukwila's websites.

B. The Corps and the City of Tukwila shall ensure that the Codiga Farm is interpreted for the public through incorporation of appropriate interpretive sign boards encompassing the historic context of the barn and commemorative architectural features in the design of new park structures.

C. Although a cultural resources reconnaissance and subsurface testing at the site did not reveal the presence of buried cultural material, some portions of the project area under the barn complex and stockpiled fill dirt and bark were not available for inspection. Therefore, the Corps and the City of Tukwila shall ensure that an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9) monitors initial excavation of the proposed channels and periodically checks other construction activities to make certain no concealed cultural deposits are adversely affected.

II. Implementation of this Agreement

A. Dispute Resolution

The Corps, the City of Tukwila, and the SHPO will together attempt to resolve any disagreement arising from implementation of this Agreement. The Council will assist in attempting to resolve any disagreement if so desired by either party. If the Corps determines that the disagreement cannot be resolved, the Corps will request the further comments of the Council in accordance with CFR § 800.6(b). Any Council comment provided in response will be considered by the Corps in accordance with 36 CFR § 800.6(b)(2), with reference only to the subject of the dispute. The Corps' responsibility to carry out all other actions under this Agreement that are not the subjects of the dispute will remain unchanged.

B. Terms of this Agreement

This Programmatic Agreement will continue in force for two (2) years from date of execution of this Agreement. If revisions to this Agreement are needed, the signatories to this Agreement will consult to make such revisions in a manner consistent with 36 § CFR 800. At the request of any of the signatories, this Agreement may be reviewed for possible modification or termination at any time.

Execution and implementation of this Memorandum of Agreement by the U.S. Army Corps of Engineers, Seattle District, the City of Tukwila, and the Washington SHPO, its subsequent acceptance by the Council, and implementation of its terms, evidence that the Corps and Tukwila have afforded the Council an opportunity to comment on the Codiga Farm Off-Channel Habitat Project and its effects on historic properties, and that the Corps and the City of Tukwila have taken into account the effects of the Project on historic properties.

U.S. ARMY CORPS OF ENGINEERS, SEATTLE DISTRICT

District Engineer Date

THE CITY OF TUKWILA

Date

WASHINGTON STATE OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION

State Historic Preservation Officer Date

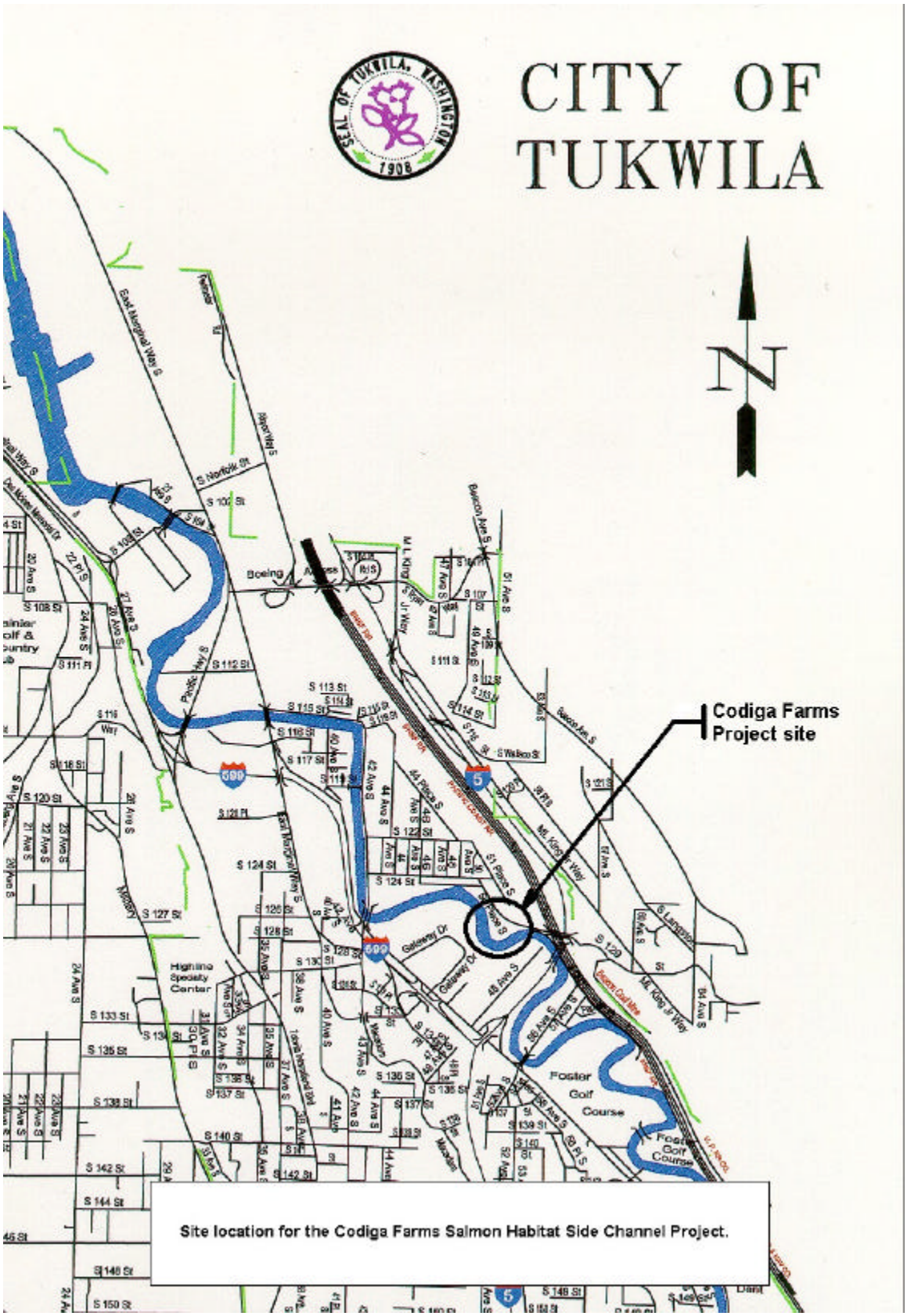
CITY OF TUKWILA
SEAL OF TUKWILA, WASHINGTON 1908
N
Codiga Farms Project site
Boeing
Highline Specialty Center
Foster Golf Course
Site location for the Codiga Farms Salmon Habitat Side Channel Project.

FIGURE 1

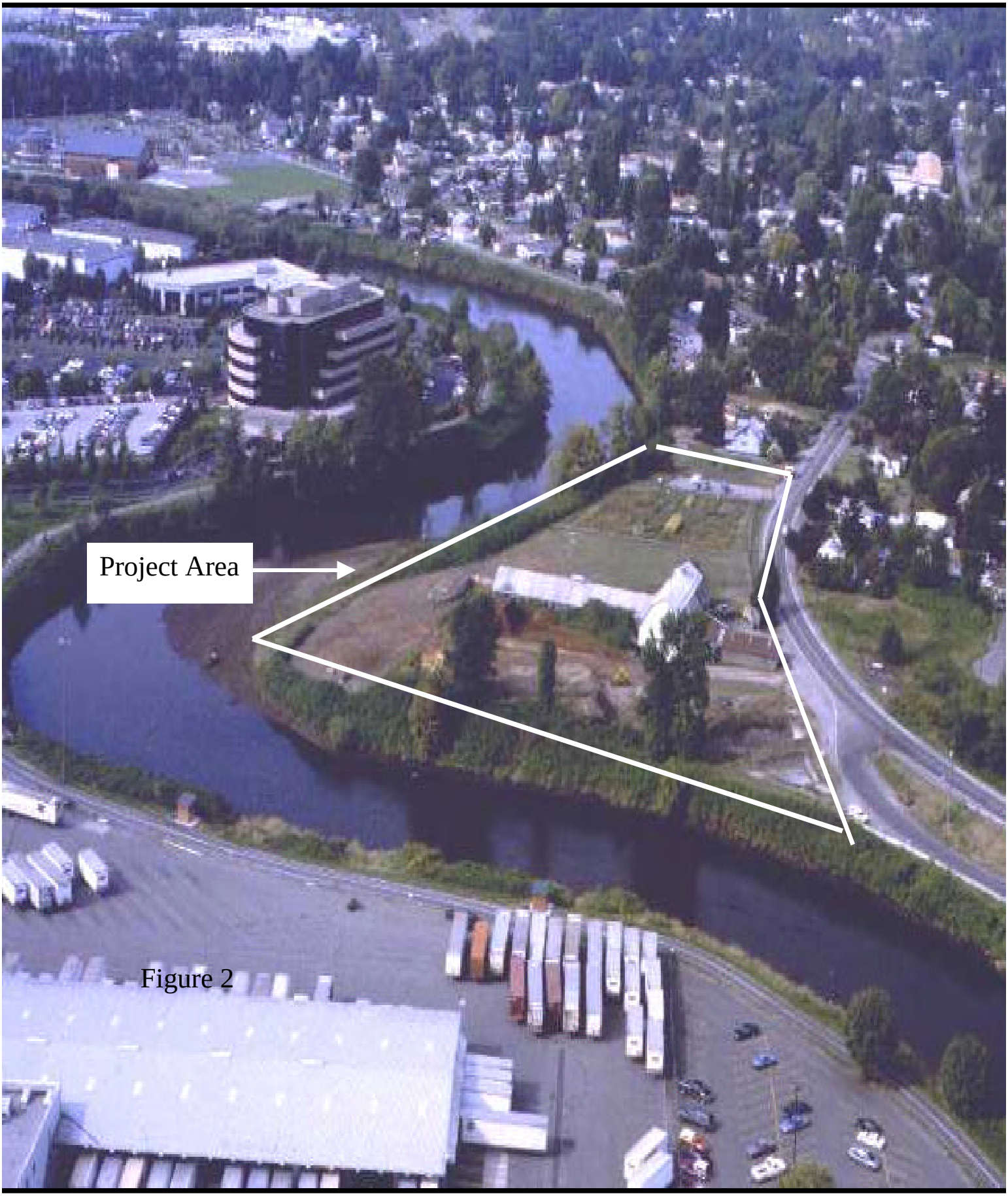

Figure 2

CENPS-PM-PL-ER

Codiga Farms and Surrounding Area

FINDING OF NO SIGNIFICANT IMPACT

Codiga Farms Section 1135
Tukwila Washington

1. Action. The proposed action will create about 1000 linear feet of new channel (slough) and a half-acre of new marsh adjacent to the Green River in Tukwila Washington for a habitat restoration project. About 38,000 cubic yards of material will be excavated, a 3000 linear feet of pathway, a parking lot for 11 vehicles, picnic tables, observation area, kiosk and a picnic shelter will also be constructed as part of the project. The proposed action will also demolish a barn that may have been eligible for the Historic Register. This proposed action is described in the attached environmental assessment (EA) and will restore fish and wildlife habitat to a portion of the Green/Duwamish River and riparian zone, in the city of Tukwila, King County, Washington.

2. Evaluation. The attached environmental assessment was tiered off of an EIS for the proposed work and an Environmental Assessment was distributed to affected agencies for a twenty-day review and comment period. The proposed project will not negatively impact the three and one half acres and its natural resources, and in fact, is expected to significantly improve fish and wildlife habitat in the area. The proposed action will comply with all applicable laws, regulations, and agency consultations. Short-term construction related impacts are expected to be insignificant.

3. Finding of No Significant Impact. It has been determined that performance of this work, in accordance with the conditions herein described or referenced, will not result in significant adverse environmental impacts. Further, it has been determined that the proposed action is a Federal action not having significant impacts on the human environment, and thus does not require preparation of an Environmental Impact Statement.

_____ _____

Date

Col. Ralph Graves
Colonel, Corps of Engineers
District Engineer