Final Environmental Assessment

Cedar River Side Channel PL84-99 Replacement Project

King County, Washington
March 2009

US Army Corps of Engineers®
Seattle District

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Responsible Agency: The responsible agency for this project is the U.S. Army Corps of Engineers, Seattle District.

Abstract: This Environmental Assessment is tiered off of the Environmental Impact Statement developed for the Cedar River Section 205 Flood Damage Reduction Study (Final EIS 8/1997). This document evaluates the impacts of the Cedar River Side Channel Replacement Project. The United States Army Corps of Engineers (Corps), with the City of Renton as the local project sponsor, constructed the Cedar River Section 205 Flood Damage Reduction Project between 1998 and 2000. The project consisted of dredging within, and constructing concrete floodwalls and earthen levees along the lower 1.25 miles of the Cedar River. A groundwater-fed spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) was constructed during this time period to serve as mitigation for the anticipated loss of salmonid spawning habitat in the lower 1.25 miles of the Cedar River following the initial and maintenance river dredging operations. Maintenance dredging was expected to occur every 3 to 10 years to maintain the flood damage reduction benefits. During the February 28, 2001 Nisqually Earthquake, a landslide occurred adjacent to the groundwater spawning channel and resulted in the loss of the channel's function as off-channel habitat. In response, the City of Renton requested assistance from the Corps under Public Law 84-99 to replace the channel to provide the functional equivalent of the long-term mitigation required for the Cedar River Section 205 Flood Damage Reduction Project. During the summer of 2009, the Corps is planning to construct the Cedar River Side Channel Replacement Project. The proposed work includes replacing the earthquake-damaged side-channel with a new river-fed channel containing habitat features suitable for salmonid spawning and rearing located between River Mile 3.4 and 3.6.

The comment period on the Draft Environmental Assessment was May 1, 2003 through May 31, 2003. The Corps provided another comment period from June 6, 2008 to June 27, 2008, via a Notice of Preparation of this Final Environmental Assessment.

Please send questions and requests for additional information to:

Ms. Hannah Hadley
Environmental Resources Section
U.S. Army Corps of Engineers
P.O. Box 3775
Seattle, Washington 98124-3755
hannah.f.hadley@usace.army.mil
206-764-6950

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1. INTRODUCTION

The goal of the project is to create off-channel spawning and rearing habitat for salmonids (primarily sockeye and Chinook) within the Cedar River basin. The proposed habitat features consist of a side channel between river mile (RM) 3.4 and 3.6 along the Cedar River in the City of Renton, King County, Washington. The new spawning and rearing habitat (about 10,000 square feet) would serve as a functional replacement for the groundwater channel that was destroyed as a result of the 2001 Nisqually Earthquake. The groundwater channel was originally constructed as mitigation for the United States Army Corps of Engineers Cedar River Section 205 Flood Damage Reduction Project. Pursuant to the National Environmental Policy Act (NEPA), this Environmental Assessment is tiered from the 1997 Final Environmental Impact Statement (EIS) for the Cedar River Section 205 Flood Damage Reduction Project, and will assess the narrow topic of the spawning side-channel component of the Flood Damage Reduction Project that had been addressed in that EIS. The contents of the 1997 EIS are incorporated into this EA by express reference. As the EIS has previously conducted a comprehensive evaluation of a spawning side-channel as a mitigation component in the context of the Cedar River Flood Damage Reduction Project, and as the central features of that Flood Damage Reduction Project have been constructed and have long been in operation, this EA will focus primarily on whether the proposed replacement channel constitutes a functional equivalent to the spawning side-channel as assessed in the 1997 EIS, and as it was constructed in the period 1998 through 2000. The EA will also evaluate whether the environmental impacts directly associated with the construction of the replacement side channel are consistent with those evaluated for the original Cedar River spawning channel, and whether the construction-phase impacts would cause significant effects to the quality of the human environment. This EA will not revisit and reevaluate the nature and scope of the mitigation necessary to compensate for the effects of the Cedar River Section 205 Flood Damage Reduction Project, nor will it reassess any other component or parameter of the Flood Damage Reduction Project.

In evaluating whether the proposed action constitutes a functional equivalent to the spawning side-channel being replaced, as it was constructed this analysis will consider whether the proposed action provides a commensurate degree of habitat benefit. Identical replacement is not possible, even if the alternative involving repair of the original, damaged side-channel is selected. Therefore, adequacy of replacement will be addressed in terms of habitat functions established and restored. The original channel, as constructed, will be compared to the preferred alternative to determine whether, as a whole, the proposal provides substantially equal, or greater, beneficial habitat functions and services. As the impacts of the Flood Damage Reduction Project, including its side-channel mitigation component, have already been evaluated in the 1997 EIS, that analysis will not be revisited. Furthermore, as the purpose of the side-channel replacement is to provide an environmental benefit, the long-term consequences of each alternative proposed in this EA will not be evaluated. The temporary effects of the proposed action and the assessed alternatives, caused by the side-channel construction process, will be assessed and compared, and the recommended alternative will be evaluated to determine whether the effects on the quality of the human environment are generally commensurate with the side-channel construction effects addressed in the Final EIS, and whether the effects are significant.

1.1 Location

This project is located in the floodplain along the left bank between RM 3.4 and 3.6 on the Cedar River in the City of Renton, King County Washington (T21N, R05E, Section 21). The project

location is east of the Royal Hills Neighborhood; west of the Maple Garden Neighborhood within City owned property.

1.2 Background

The Seattle District, United States Army Corps of Engineers (Corps), with the City of Renton as the local project sponsor, constructed the Cedar River Section 205 Flood Damage Reduction Project between 1998 and 2000. The project consisted of dredging within, and constructing concrete floodwalls and earthen levees along the lower 1.25 miles of the Cedar River.

A groundwater-fed spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) was constructed during this time period to serve as mitigation for the anticipated loss of salmonid spawning habitat in the lower 1.25 miles of the Cedar River following the initial and maintenance river dredging operations. This ground-fed channel including the groundwater collection pond was approximately 24,000 square foot in size with one braided portion. From the pond, the channel flowed approximately 1100 feet into the Cedar River. Maintenance dredging was expected to occur every 3 to 10 years to maintain the flood protection benefits. To date, no maintenance dredging has been done.

During the February 28, 2001 Nisqually Earthquake, a landslide occurred adjacent to the groundwater spawning channel. The landslide blocked the mainstem river and flow was eventually diverted along the alignment of the original spawning channel. Diversion of the main flow through the spawning channel resulted in the loss of the original channel's function as off-channel habitat. In response, the City of Renton requested and obtained assistance from the Corps under Public Law 84-99 to replace the channel to provide the long-term mitigation required for the Cedar River Section 205 Flood Damage Reduction Project.

1.3 Project Purpose and Need

The purpose of this project is to reestablish a salmonid spawning and rearing side-channel along the Cedar River functionally equivalent to the Section 205 spawning channel[1] destroyed by the Nisqually earthquake.

1.4 Authority

The Cedar River Side Channel Project is authorized by Public Law 84-99 (33 USC 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by flood. The rehabilitated structure will normally be designed to provide the same degree of flood damage reduction as the original structure. Because the 1998 groundwater-fed side channel was an essential feature of the Section 205 Cedar River Flood Damage Reduction Project, the PL 84-99 authority authorizes its rehabilitation or replacement.

[1] The mitigation provided by the original side channel is described in the final environmental impact statement for the Cedar River Section 205 Flood Damage Reduction Study (Corps 1997).

2. PROPOSED ACTION AND ALTERNATIVES ANALYSIS

2.1 Description of the Proposed Action

The project consists of the following design elements to create an approximately 10,000-square foot salmonid spawning and rearing side-channel with a reliable water source and habitat complexity:

- The construction of an intake structure (consisting of concrete box culvert, trash rack, control valve, geogrids, and approximately 140 feet of pipe) at the upstream end of the channel to convey from the Cedar River.
- The construction of an open-channel outlet approximately 1,150 feet downstream from the intake structure in order to allow flow to re-enter the Cedar River and adult/juvenile fish to migrate to or from the channel.
- The excavation of approximately 14,000 cubic yards of floodplain sediments[2] (i.e., gravel, sand and silts) and shaping for a distance of 950 feet within the existing drainage course in order to create the replacement channel, with an average bottom dimension of 10 feet.
- The addition of anchored large woody debris into five alcoves to create rearing habitat and to provide cover within the constructed channel.
- The addition of anchored large woody debris into the channel bank at several locations to create pool habitat.
- Large woody debris partially buried into the left bank upstream from the outlet to stabilize the bank.
- The addition of 600 to 900 cubic yards of gravel to create spawning habitat.
- The construction of a 12-foot wide gravel-surfaced maintenance path adjacent to the west side of the channel for the length of the project.
- The installation of native trees, shrubs and plants at two locations – along the new channel and between the Cedar River and the new channel within an existing disturbed area – in order to mitigate for vegetation disturbance and tree removal (approximately 60 to 100 cottonwood and alder trees) resulting from the construction of the channel and maintenance road.
- The installation of a gate across the access road to deter illegal vehicular access.
- The installation of educational signs to inform the public of salmon within the Cedar River basin as well as the impacts of illegal activities on the habitat area.

Project construction is anticipated to be during the summer of 2009, with in-water work occurring June 16th through August 15th. Project plantings would likely occur during the fall of

[2] The quantity of material excavated from the side channel is amended from the draft EA and NOP based on updated calculations; the design prism has not changed.

2009. Future maintenance work may be necessary for cleaning and/or repair of the channel, including the intake structure and outlet.

2.2 Alternatives

The Corps evaluated a variety of alternative sites during development of the project. Criteria used to evaluate the suitability and functional equivalency of the different sites included adequacy of size to replace lost sockeye spawning and Chinook rearing habitat, risk of future landslide, risk of channel migration, flood frequency, risk of vandalism/poaching, ease of operation and maintenance, construction access, land rights, and habitat functions and services. Initial evaluation narrowed down the list of potential alternatives to those described below, which were further analyzed for consistency with the site criteria.

No Action. The no action alternative would not repair or replace the groundwater-fed spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) that was destroyed as a result of a landslide triggered by the February 28, 2001 Nisqually Earthquake. The landslide changed the main flow of the river resulting in the loss of the channel's function as off-channel salmonid spawning and rearing habitat. The no-action is not a viable alternative since it does not meet the project purpose; the no-action alternative will be carried forward as the basis for evaluating impacts of other action alternatives.

Repair of the Earthquake Damaged Channel. This alternative would have required diverting the current mainstem flow of the Cedar River and removing approximately 40,000 cubic yards of slide debris to reopen the river channel. In addition, a control structure on the upstream end of the original channel might be necessary. This alternative was not selected because of the high threat of additional slides closing the side channel again and impacts of diverting the entire current flow of the mainstem Cedar River.

Modification to the Existing Elliot Channel. This alternative would involve modification of the existing Elliot Spawning and Rearing Channel, located along the left bank just downstream of RM 5 on the Cedar River, in an attempt to increase the available productivity of existing channel. This would include supplementing the existing project with more large woody debris, plantings, and spawning gravel as necessary. However, this channel is currently functioning with an adequate rate of production and modification to the channel might have adverse affects to sockeye production and other fish and wildlife species. The potential increased rate of flooding due to the 2001 landslide upstream was a consideration for not selecting this alternative.

Creation of a New Channel at the Renton Elks Club This alternative would have created a replacement spawning/rearing side-channel on the Renton Elks Club property. The problem with this site was that it was adjacent to an actively sliding area and there were concerns that any new projects near this site were likely to be eliminated in a future slide.

3. EXISTING ENVIRONMENT

3.1 Geology

The northwest/southeast trending valleys that contain the Cedar River, and Lakes Sammamish and Washington were formed by the most recent retreat of glaciation approximately 10,000 years ago. The soils are generally glacially deposited, such as till, outwash or glaciolacustrine deposits. The Cedar River valley is composed primarily of alluvium deposited with the meanderings of the Cedar River across its floodplain. Gravels are deposited in many areas of the floodplain, and flow from the river through these gravel deposits manifests itself in the form of groundwater flow where floodplain soils have been excavated. The floodplain soils at the project site are a mix of gravels, sands, and silts from successive flooding events. The project site lies along the southern shore of the Cedar River and occupies a floodplain terrace below a steep valley slope. The riverbank is abrupt and appears stable. One swale runs immediately at the base of the valley slope. Another occupies a linear depression at the base of a minor terrace escarpment midway between the valley slope and the river. The proposed spawning channel would occupy the second swale, which becomes more defined toward the downstream end of the site. At its highest, the terrace rises about 10 feet above the left side (looking downstream) of the swale.

3.2 Hydrology

Flows in the Cedar River are regulated by the Masonry Dam (RM 36) and Landsburg Diversion Dam at RM 21.9. At the project site, the annual minimum flow in the Cedar River during the early sockeye spawning season (in September) is about 100 cubic feet per second (cfs). Later in the fall during peak sockeye spawning season, flows would typically be about 400 cfs. The Cedar River 10-percent exceedance flow (a 10 year recurrence interval) is slightly less than 6,000 cfs. The 2-percent exceedance flow (a 50-year recurrence interval) is estimated at just less than 10,000 cfs and the 1-percent exceedance flow (a 100-year recurrence interval) is about 11,500 cfs. The floodplain where the rearing/spawning channel will be constructed is inundated with river water during flows greater than about 5,500 CFS, which is about a 5 to 10 year recurrence interval flow.

3.3 Water Quality

In the vicinity of the proposed rearing/spawning channel (RM 3.1), the State of Washington classifies the Cedar River as core summer habitat for aquatic life uses, primary contact for recreational uses, approved for all water supply uses, and miscellaneous other uses (from WAC 173-201A-602). During heavy rainstorms and floods there are temporary periods of high turbidity, but otherwise there are no other water quality issues. The Washington Department of Ecology classifies the reach of the Cedar River immediately adjacent to the project site as meeting tested standards for clean waters. Downstream of the project site, the reach of the lower Cedar River between Interstate 405 and Lake Washington occasionally exceeds state water quality criteria for temperature and fecal coliform.

3.4 Vegetation

The most prevalent community that occurs throughout the site and surrounding area is a cottonwood/alder forest with an understory of snowberry, salmonberry, buttercup, nettle, and sword fern. In places, vine maple, blackberry, Indian plum, Japanese knotweed, bleeding heart, giant horsetail, and Pacific waterleaf occur. The only wetland in the vicinity of the construction consists of a 300 square foot (0.007 acre) patch that is vegetated with snowberry, salmonberry, and sword fern. The wetland occupies a relatively long, narrow low spot in the swale that is located along the approximate alignment of the proposed side channel. Locations of all trees greater than 6-inch diameter located within 25 feet of the centerline of the proposed channel are shown on the drawings in Appendix 11.1.

3.5 Fish

According to the EIS for the Cedar River 205 Flood Damage Reduction Project prepared in August of 1997, there are at least 22 species of fish present in the Cedar River. In the vicinity of the project site, fish species present include sockeye salmon, Chinook salmon, coho salmon, steelhead, rainbow trout, cutthroat trout, mountain whitefish, northern squawfish, peamouth chub, three-spine stickleback, largescale sucker, longnose dace, brook lamprey, Pacific lamprey, and several species of sculpin. Bull trout have not been observed in the vicinity of the proposed project, but may occur as sporadic migrants either from the upper watershed or on forays from Puget Sound and Lake Washington.

The Cedar River adjacent to the proposed project is heavily utilized for spawning by adult sockeye, Chinook and coho salmon. The existing natural side channels in the vicinity are utilized for rearing by sockeye fry, Chinook fry and juveniles, coho and steelhead smolts.

Sockeye salmon are the most numerous salmonid species in the river and in the Lake Washington basin as a whole. Approximately 80 percent of the Lake Washington sockeye population spawns in the Cedar River. Annual escapement[3] ranges from less than 50,000 to more than 500,000 adult fish. Adults enter the Cedar River from late August through December, with spawning occurring through mid-January. Emerging fry rapidly migrate downstream to Lake Washington at night from late January through May. The peak of the outmigration occurs in March and April.

Sockeye salmon typically spawn in streams that flow into large lakes systems to allow juvenile sockeye to rear for a year or more in a deepwater lake environment before migrating to sea. Prior to the 1930s, Lake Washington was famous for its large populations of kokanee (the freshwater form of the sockeye). In the year 1916, the ship canal was opened to serve as a new outlet for Lake Washington and to provide the water needed to operate the just completed Hiram M. Chittenden Locks at Ballard. This combined the extensive spawning grounds of the Cedar River with a large lake-rearing environment, provided an opportunity to develop a major sockeye salmon population in the waters of southern Puget Sound.

Sockeye were introduced into the Lake Washington watershed in 1935 (and subsequent years) from the Baker River. The first documented adult returns to Lake Washington were in 1940

[3] Escapement is based on fish counts at the Hiram M. Chittenden Locks.

when 9,099 sockeye were counted at the Washington Department of Fisheries hatchery on Issaquah Creek. The run gradually increased, and in 1970 an escapement goal of 350,000 spawners was adopted and in 1971 the first directed fisheries occurred. Since then, sockeye returns have significantly fluctuated despite supplementation efforts and harvest restrictions, theoretically due to freshwater and ocean survival constraints, and because of an increased frequency in damaging winter floods (WDFW 2002).

Chinook and coho salmon are present in smaller numbers than sockeye. WDFW rates the stock status for both Cedar River Chinook and coho as depressed. Escapement for Chinook ranges from less than 200 to more than 1500 adult fish. Chinook and coho enter the Cedar River in the early fall through mid-winter, with Chinook run timing and spawning starting and ending earlier. Chinook fry emerge from gravels from February through April and may rear for a short period in the river prior to moving downstream into Lake Washington. Coho emerge from gravels starting early in the year and continue through spring. Coho juveniles rear in stream habitats until they migrate out to sea about one year after emerging.

3.6 Wildlife

Wildlife species likely to be present at the site and surrounding area are black-tailed deer, cougar, muskrat, coyote, raccoon, eastern gray squirrel, opossum, beaver, cottontail rabbits, striped skunk, Norway rats, various small rodents, and feral dogs and cats. Red tailed hawks and bald eagles utilize the taller cottonwoods for perching and foraging. Mergansers, mallards and other waterfowl are present.

3.7 Threatened and Endangered Species

Three species listed as threatened under the Endangered Species Act are likely to occur in the project area, including Puget Sound steelhead, Puget Sound ESU Chinook salmon, and Puget Sound/Western Washington ESU bull trout. In addition, coho salmon, a species of concern, are located in the vicinity of the site.

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species. Several species listed as either threatened or endangered are potentially found in vicinity of the project (Table 1).

Table 1. Protected Species Potentially Occurring in the Project Vicinity

Species	Listing Status	Critical Habitat
Puget Sound Steelhead *Oncorhynchus mykiss*	Threatened	—
Coastal/Puget Sound Bull Trout *Salvelinus confluentus*	Threatened	Designated (but doesn't include project area)
Puget Sound Chinook Salmon *Oncorhynchus tshawytscha*	Threatened	Designated

3.8 Cultural Resources and Native American Concerns

A Corps archeologist in coordination with Muckleshoot Tribe and the State Historic Preservation Office conducted a cultural resources survey resulting in the determination that there are no known cultural resources in the project area.

3.9 Land Use

The project site and adjacent property to the south and east is owned by the City of Renton. All City of Renton property (i.e. site and adjacent parcels) is considered a natural zone area. The proposed location has a City of Renton zoning designation as a *Resource Conservancy*. Located to the west of the project site is a City of Seattle right of way for the East Side Supply Line, which is a 36" water main supplying water the east side of Seattle. Developing residential areas are located on areas overlooking the Cedar River valley to the south of the project site along the access route to the project site. Property across the river is occupied by private residences.

3.10 Air Quality and Noise

Air Quality

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 (PM_{10} 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 PM_{10} non-attainment areas in the region, including industrial areas in Seattle, Kent, and the Tacoma Tideflats. The project site is located outside of these areas.

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 are shown in Table 2. The King County residential noise standards would be applicable at the project site.

Table 2. King County Environmental Noise Limits

King County Environmental Noise Limits (dBA)

District of Noise Source	District of Receiving Property: 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.

3.11 Transportation

Residential streets are in the project vicinity. There is a gravel utility road adjacent to the proposed project site and an access road (upper portion is paved and lower portion is gravel) into the proposed project site. Currently, a gate located on the existing utility road restricts vehicular access to the proposed project site. However, illegal entry by motorized vehicles is not uncommon.

3.12 Recreation

The current use of the proposed location is an open space with limited public hiking/walking trails. However, current legitimate use is limited and illicit use common.

3.13 Aesthetics

The proposed project area is located in the wooded flood plain across the Cedar River from several City of Renton residents. Currently, these residents enjoy a view of a wooded stand of mature cottonwoods and occasional wildlife sightings.

4. ENVIRONMENTAL EFFECTS

4.1 Geology

About 14,000 cubic yards of floodplain deposits will be excavated to construct a new spawning and rearing channel within the existing floodplain. The channel will be aligned along the course of a former side channel. Approximately 3000 -5000 cubic yards of suitable material will be beneficially used to repair existing access roads that are currently rutted. The remaining excavated material will be temporarily stockpiled at the staging area, approximately .25 miles upland of the side channel prior to being hauled offsite. Authorized reuse or proper disposal of the stockpiled material will be the responsibility of the construction contractor. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, the proposed earth moving will have less than significant effects on the geology and physical setting of the project site.

4.2 Hydrology

Depths in the channel would average between 0.75 and 1.0 feet for most of the channel until the outlet to the river during ninety percent exceedance flows (Table 3). Here, river backwater increases depths to up to 2.5 feet. Velocities in the channel would range between 0.4 feet per second at the mouth to 2.5 feet per second at the riffle just upstream of the new channel outlet. Average channel velocities would be between 1.2 and 1.6 feet per second for most of the channel length.

Table 3. Channel Spawning-Flow Hydraulic Parameters

Spawning Period	Minimum Flow (cfs) in River based on Cedar HCP	Max Flow (cfs) in Channel (Flow at 6" gate opening)	Range of Depth (ft) (Average)	Range of Velocity (fps) (Average)
Summer Lowest Q	97	6 (5)	0.3-1.7 (0.6)	0.3-1.6 (1.0)
16-22 Sept[1/]	150	7 (6)	0.4-1.7 (0.7)	0.3-1.5 (1.1)
1-7 Oct[1/]	270	10 (8)	0.6-2.0 (0.9)	0.3-1.5 (1.2)
"90%Exceed"	300	11 (8)	0.7-2.1 (0.9)	0.3-1.5 (1.2)
Peak Critical	240	10 (7)	0.6-1.9 (0.8)	0.3-1.6 (1.2)
Peak Low Normal	440	14 (9)	0.8-2.5 (1.1)	0.3-1.6 (1.3)
Peak High Normal	470	14 (10)	0.9-2.6 (1.1)	0.3-1.6 (1.3)

1/ Normal minimum during early spawning period

The side channel intake will divert a portion of the river flow into the side channel at all river flows. The minimum critical Cedar River flow is 97 cfs per the City of Seattle Habitat Conservation Plan. At this flow rate about 5 to 10 cfs will be conveyed into the new channel.

The maximum design flow in the new channel is about 50 cfs. This flow would occur when Cedar River flows are at about 5,500 cfs just prior to levee overtopping.

Flow from the Cedar River will enter the channel at the inlet of the new channel and return to the Cedar River after flowing within the new channel system for a distance of about 1,200 ft. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, diversion of flow from the mainstem river into the side channel will have less than significant effect on the river hydrology in the project reach of the river.

4.3 Water Quality

With the exception of the inlet and outlet structures, the project will be constructed without any in-water work. This means that Cedar River water quality will not be directly affected during the clearing/grading and excavation work elements related to channel construction. Work to connect the channel to the river will likely generate increased turbidity in the river; turbidity is expected to fall within state water quality standards within 300 feet downstream of the work limits. This

is consistent with the temporary turbidity mixing zone under the 401 Water Quality Certification. Water quality monitoring will be turbidity sampling of a minimum of every two hours throughout the first day of in-water construction activity, pursuant to the 401 Certification. Other impacts to water quality during construction are not anticipated.

Following construction, the intake structure will divert flows into the side channel at all river flows. The presence of flow in the side channel at all river stages and seasons – including the 5-10 cfs anticipated when the Cedar River is at minimum critical flow – will help ensure that water quality in the side channel is suitable for salmonid rearing and spawning during the appropriate seasons. Pursuant to the 401 Certification, diversion into the replacement spawning side-channel will only be initiated following approval by the WDFW.

The project will utilize best management practices (BMPs), such as silt fencing and other erosion control measures, to ensure no sediments enter the river during construction, and all cleared areas will be mulched, seeded and planted to prevent storm water runoff after construction. The project is limited to in-river construction between the dates of June 16 and August 15 in order to reduce impacts to salmonids. With implementation of the above-mentioned BMPs, construction will result in less than significant effects to water quality, using the no-action alternative as a benchmark for the existing environment in comparison to construction effects,.

4.4 Vegetation

The channel and maintenance road were designed to minimize the impact on the existing vegetation. In total, the project will involve construction over about 12.5 acres of the forested floodplain terrace. Between 60 and 100 trees greater than 6-inch diameter will be felled during construction. Field engineering adjustments will be made to avoid removing trees whenever possible. Except for in the immediate vicinity of the channel intake and outlet, the bulk of the tree cutting will occur inland from the river shoreline and consequent adverse effects associated with nearshore riparian vegetation will be minimal.

The channel construction will convert a 300 square foot (0.007 acre) wetland, located within the construction footprint, to side channel habitat, encompassing approximately 10,000 square feet. Vegetation within this small wetland is similar to the adjacent area including the rest of the project site. Outside of this wetland area, the remainder of the site appears to be well drained and the steep riverbank precludes any sort of wetland fringe associated with the shoreline. This wetland represents a small portion of the overall amount of wetlands in the watershed and is not functionally unique to the watershed. Spawning and rearing habitat is a limited resource and thus provides a unique function in this watershed. The conversion of the wetland is anticipated to be off-set by the functional benefits gained by the addition of the side channel habitat to the watershed. In addition, the alcoves in the constructed channel are shallow and there is a high likelihood that in excess of the filled 300 square feet of wetlands could develop in those areas, which could replace the loss of the wetland.

Native trees and shrubs (i.e. douglas fir, pacific willow) will be planted in disturbed areas as mitigation for construction of the channel and maintenance path. The ratio of trees to be replanted is 3 to 1, assuming 100 trees are removed during construction. If fewer trees are removed, the ratio of replanting could increase to as much as 5 to 1. This does not include the

willow plantings. Willow stakes will be planted along portions of the new channel. The trees and shrubs will be planted in two locations. First, planting will occur in areas that are disturbed to construct the new channel (with the exception of the channel bottom). Second, an existing disturbed area between the Cedar River and new channel will be planted to control runoff and deter access along a beaten path to the river. Pursuant to conditions in the Water Quality Certification and Hydraulic Project Approval that applies to the project, the City of Renton will monitor and maintain all plantings at three intervals through year 5 to ensure at least 80 to 90 percent survival, as specified in the 1997 EIS. Planting will occur in fall of 2009.

In summary, the project will result in removal of some forested area that currently occurs on the terrace. Plantings will be installed following construction and, as these plantings mature, vegetation conditions at the site will gradually transition to the forested characteristics that currently occur; therefore, no long-term effects to vegetation would occur. Temporal effects from vegetation removal would be minimal because the site has been overplanted to compensate for temporal loss and the vegetation in the surrounding area is similar to the project site. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, this project will have less than significant effect on vegetation, including wetlands.

4.5 Fish

The construction of the proposed alternative will involve short-term disturbance to the Cedar River at the new channel's upstream and downstream ends. In-water work would occur during the work window for the project, June 16 though August 15. Therefore, the project's effect on fisheries would be short-term and less than significant, using the no-action alternative as a benchmark for the existing environment in comparison to construction effects.

4.6 Threatened and Endangered Species

A Biological Evaluation (BE) was prepared and submitted to National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on July 30, 2002. Supplemental documentation was submitted to NMFS on May 9, 2008. The BE and supplement concluded that the proposed project is *not likely adversely affect* any species protected under the Act, largely because construction will occur when Chinook, steelhead, and bull trout are least likely to be present in the project area, and the project will provide approximately 10,000 square feet of off-channel habitat. The individual effect determinations made in the BE are summarized in Table 4. A concurrence letter from the USFWS was received February 27, 2004. Concurrence letters from NMFS were received June 10, 2003 and May 30, 2008. (Appendix 11.2)

Pursuant to the HPA issued to it by the WDFW, the City of Renton Surface Water Utility will be required to monitor and maintain the channel over a five-year period, to meet the success standards prescribed by that HPA to provide spawning and rearing habitat. Monitoring will include: adult and redd counts, fry production surveys, and riparian habitat monitoring, as specified in the 1997 EIS. Maintenance will include: cleaning and/or repair of entire channel including intake structure and outlet.

Construction will occur when Chinook, steelhead, and bull trout are least likely to be present in the action area. The in-water work is scheduled to occur between June 16 and August 15, in accordance with the fish windows created by WDFW. The project would create approximately 10,000 square feet of salmonid spawning and rearing side-channel. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, the project, therefore, would result in less than significant impacts to threatened and endangered species.

Table 4. Determination Summary Table

Species	Effect Determination	Critical Habitat Determination
Steelhead	Not likely to adversely affect	—
Bull Trout	Not likely to adversely affect	—
Chinook	Not likely to adversely affect	Not likely to adversely affect

4.7 Cultural Resources and Native American Concerns

Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, no known cultural or historic sites occur in the project area and therefore no impacts would be anticipated to occur. However, if any artifacts or cultural resources are discovered during construction, all work will be stopped and the Corps archeological and cultural resources staff will further investigate the site and alert the appropriate authorities.

4.8 Land Use

The project site and adjacent property to the south and east is owned by the City of Renton. All City of Renton property (i.e. site and adjacent parcels) is considered a natural zone area. This project will not change the land use of the project area and it will continue to be considered a natural zone. The local sponsor will obtain the easements and permits, and the Corps will control construction and equipment use practices, to ensure that project construction will not adversely affect the City of Seattle water pipeline located along the construction access route between Rolling Hills Drive NE and the project site. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, less than significant effects to land use, therefore, would occur.

4.9 Air Quality and Noise

Construction activities will occur during daylight hours, 5 days a week. The nearest residence is located across the river approximately 300 feet from the project site and the subdivision, Royal Hills is located approximately 0.3 miles from the project site. There will be a temporary increase in noise during construction; however effect of construction noise will be minimal given the distance the residences are from the project site. Emissions from construction activities such as excavation and hauling are anticipated to be below the EPA's *de minimis* threshold levels (100 tons/year from CO and 50 tons/year from ozone). In addition, equipment such as dump trucks, excavator, and dozers will have mufflers and exhaust systems in accordance with State and Federal standards. Any effects to air quality will be short term; only during construction. The construction-phase air quality effects are not expected to exceed the standards of 40 CFR

93.153(b)(1) for applicable criteria pollutants, and a conformity determination is therefore not required. Following construction, there will be no change in air quality, noise or light parameters. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, impacts to air quality and noise will be less than significant.

4.10 Transportation

Vehicle traffic in the area will increase during construction, as dump trucks will be needed to transport the materials excavated during the creation of the channel offsite. Depending on the amount of material used to repair the access road, approximately 450 to 550 truck trips would occur hauling the remaining material offsite, using residential streets. However, this increase in traffic will be localized and of short duration, with no long-term impacts. The project includes improvements to the gate across City of Seattle right-of-way that is expected to deter illegal vehicular traffic near the project site. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, transportation related impacts will be less than significant.

4.11 Recreation

During construction, public access will be restricted on the site. Following construction, the site will be available for passive recreation as appropriate for a natural area. Interpretive signs will be placed on-site to provide information the following issues: wildlife poaching; trail use impact; salmonid spawning; and benefits of project. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, impacts to recreation would be short term and therefore, less than significant.

4.12 Aesthetics

Significant efforts and consideration have been made to maintain the project location's aesthetics, as well as maintain the wooded view for City of Renton residents who live across the Cedar River from the project site. The location of the channel has been designed to minimize the number of large diameter trees that will be removed during construction. Final alignments of the channel will be field engineered to help preserve the maximum number of large diameter trees. Native plants and trees will be planted in the disturbed area, with the exception of the channel bottom. In addition, an existing disturbed area along the river will be planted with native trees and shrubs to maintain a buffer that will allow for a wooded view for the residents located across the river from the project location. Wildlife sightings in the area are likely increase due to the projected abundance of salmon in the channel. Using the no-action alternative as a benchmark for the existing environment in comparison to construction effects, impacts to aesthetics would be less than significant.

5. UNAVOIDABLE ADVERSE EFFECTS

Unavoidable adverse effects associated with this project include: (1) a temporary and localized increase in noise, which may disrupt wildlife in the area, (2) a temporary and localized disruption of local traffic by construction vehicles, and (3) a temporary and localized increase in turbidity levels during construction of the intake and outlet structures in the Cedar River, which may affect aquatic organisms in the area. However, these potential impacts will be short in duration and considered insignificant.

6. CUMULATIVE IMPACTS

Cumulative effects include the effects of other past, present, and reasonably foreseeable future Federal, State, tribal, local or private actions in the action area considered in this evaluation.

Seattle Public Utilities proposes to construct and operate a sockeye hatchery and associated facilities on the Cedar River. The project would consist of a hatchery, a system to supply virus-free water for hatchery operations, and broodstock collection and spawning facilities. The new hatchery would be located within King County, about two miles northeast of Ravensdale and three miles southeast of Maple Valley. The broodstock collection facility would be located on the lower Cedar River, possibly within several hundred feet of the Corps proposed replacement side-channel. Several WSDOT projects such as widening I-405 across Cedar River, are proposed in the project vicinity. The long-term cumulative environmental effects of the Cedar River Flood Damage Reduction project – including the mitigation component provided by the spawning side-channel – have been fully evaluated in the EIS. As discussed previously, the proposed project would implement a functionally equivalent replacement for the spawning side-channel destroyed in 2001, and is anticipated to provide a net habitat benefit. Therefore, the recommended alternative is not anticipated to generate incremental adverse effect on the quality of the human environment, when considered in conjunction with other past and present actions, and future proposals.

7. COORDINATION

Design of this project was extensively coordinated with the public, the Muckleshoot Indian Tribe, and resource agencies including: the City of Renton, King County, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Washington Department of Fish and Wildlife, the Washington Department of Ecology, the University of Washington- School of Fisheries, and the Department of Fisheries and Oceans- Canada.

A resource agency coordination meeting was held on July 18, 2001 to discuss the replacement criteria of the Section 205 Groundwater Spawning channel destroyed by the earthquake and to rank potential replacement sites. Attendees included: the City of Renton, the Corps, WDFW, EFH Consulting, the USFWS, and the University Of Washington School Of Fisheries.

Additional technical design input regarding critiques of the Elliot Rearing and Spawning Channel for the Purpose of Design Guidance for the 205 Groundwater Replacement Channel was received from Department Fisheries and Oceans- Canada, NMFS, USFWS, WDFW, WDOE, King County, R2 Resource Consultants, Golder Associates Inc., NHC Inc., and Perkins GeoSciences (see Appendix 11.8).

On February 15, 2002, the City of Renton conducted a site visit to discuss the proposed project with local citizens.

On March 7, 2002, a follow-up multi-agency design team meeting discussed in detail the top two alternative replacement sites- the Rolling Hills site and the alternative of potentially enhancing the Elliot Side Channel Site.

On February 26, 2002, the Corps and the City of Renton participated in the Cedar River Council public meeting to discuss the replacement of the damaged side channel. Shortly after, a follow-up presentation was offered to the City of Renton City Council public meeting.

Public coordination per the NEPA is discussed in Section 7.1 below.

7.1 National Environmental Policy Act

The original Cedar River Section 205 Flood Damage Reduction Project, which included the original side channel that was destroyed in the 2001 earthquake, was subject of a final environmental impact statement released by the Corps in August 1997 (Corps 1997). This final EA tiers off of the EIS to document the functional equivalency of the proposed replacement side channel, and the short-term environmental impacts of side-channel construction.

The Corps circulated a Draft EA for public comment from May 1 through May 31, 2003. One comment letter was received from the Muckleshoot Indian Tribe (MIT) dated July 1, 2003 and can be found in Appendix 11.7.1, Corps responses to the MIT comments are specifically addressed in Appendix 11.7.2 and incorporated throughout this document.

In addition, a Public Notice was circulated for public comment from February 1, 2004 through March 2, 2004. In response, the Corps received a letter from the MIT dated March 15, 2004, asking the Corps to again review the comments submitted on the Draft EA in July 2003.

In continued coordination with the MIT, Corps submitted updated project drawings to the MIT in March of 2008. A teleconference to address the existing MIT comments from 2003 as well as any new comments was held on April 22, 2008. As a result of the call, the MIT submitted an additional comment letter dated April 24, 2008, (found in Appendix 11.7.5) and a follow-up teleconference was held on April 25, 2008 to address the new concerns.

Because the proposed action has been revised since the 2003 Draft EA, the Corps provided another comment period from June 6, 2008, to June 27, 2008, via a Notice of Preparation (NOP) of this Final Environmental Assessment. The NOP presented updated design features and implementation parameters for the proposed replacement spawning side-channel.

8. ENVIRONMENTAL COMPLIANCE

8.1 National Environmental Policy Act

This Environmental Assessment (EA) satisfies the documentation requirements of NEPA. A Draft EA was posted for a 30-day comment period in 2003. One comment letter dated July 1, 2003 was received from the Muckleshoot Indian Tribe and can be found in Appendix 11.7.1. Given the amount of time that elapsed, design modifications, and changes in NEPA approach since the review of the draft EA, the Corps provided another opportunity for public comment via a Notice of Preparation of this final EA; the comment period began on June 6, 2008 and ended on June 27, 2008. Comment letters, which can be found in Appendix 11.7, were received from

the Muckleshoot Indian Tribe and Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Technical Committee. Corps responses to all comments can be found in Appendix 11.7.

8.2 Endangered Species Act Section 7 Consultation

In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed or proposed threatened or endangered species. A Biological Evaluation was submitted to USFWS and NMFS on July 30, 2002. Supplemental documentation was submitted to NMFS on May 9, 2008. The Corps concluded that the proposed activities would be not likely to adversely affect listed species and their designated critical habitat. A concurrence letter from the USFWS was received February 27, 2004. Concurrence letters from NMFS were received June 10, 2003 and May 30, 2008. (Appendix 11.2.)

8.3 Clean Water Act Compliance

A 404(b)(1) evaluation, which demonstrates compliance with the substantive requirements of the CWA is required for work involving discharge of fill material into the waters of the United States. The Corps promulgated a Section 404 Public Notice on February 1, 2004 (Appendix 11.5) and an updated Section 404 Public Notice on June 6, 2008 (Appendix 11.9). A 404(b)(1) evaluation was prepared by the Corps and a 401 water quality certification was issued by the Washington Department of Ecology dated March 19, 2004 and amended December 2, 2008 (Appendix 11.3 and 11.4). None of the practicable alternatives, taking into consideration cost, logistics, and technology, would avoid all loss of wetlands, and none would be less environmentally damaging compared to the proposed project.

8.4 Coastal Zone Management Act Consistency

The Coastal Zone Management Act of 1972, as amended, requires Federal agencies to carry out their activities in a manner, which is consistent to the maximum extent practicable with the enforceable policies of the approved Washington Coastal Zone Management Program. The Washington Department of Ecology concurred that the project is consistent with Washington Coastal Zone Management Program upon issuance of the 401 water quality certification dated March 19, 2004 (Appendix 11.4).

8.5 Hydraulic Project Approval

A Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife is not required for federal work that involves construction within state waters, since there has been no waiver of sovereign immunity by the Federal government to require or allow such regulation of Federal agencies by local governments. The Corps has coordinated the project with WDFW and has incorporated their comments into the project design. An HPA has been issued for this project to the City of Renton, for the period April 28, 2008 through August 15, 2010 (Appendix 11.6). The HPA states an in-water work window from June 16 through August 15; as these dates are consistent with the work windows developed during the Section 7 consultation process, construction below the ordinary high water mark will be limited to that time period.

8.6 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 USC 661) requires that wildlife conservation receive equal consideration and be coordinated with other features of water resource development projects. This goal is accomplished through Corps funding of U.S. Fish and Wildlife Service habitat surveys evaluating the likely impacts of proposed actions, which provide the basis for recommendations for avoiding or minimizing such impacts. A Fish and Wildlife Coordination Act Report was completed for the 1997 Final EIS and the current project is consistent with that report.

8.7 National Historic Preservation Act

The National Historic Preservation Act (16 USC 470) requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. A query of the Washington State Office of Archaeology and Historical Preservation database indicated that no sites listed on the National Register of Historic Places are located in the project section. A Corps archeologist conducted cultural resource investigations for this project and a report was sent to the Washington State Office of Archaeology and Historic Preservation SHPO and the Muckleshoot Indian Tribe. Concurrence letter was received May 20, 2008 (Appendix 11.2).

8.8 Rivers and Harbors Act (33 U.S.C. 403)

Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) prohibits the creation of an obstruction to navigable waters without authorization of the Corps. Under Section 10, the Corps has previously determined that the Cedar River is navigable approximately 1.25 miles above the mouth to the N.P.R.R. Bridge. The project is located upstream of the bridge and therefore not within the designated navigable waters.

8.9 Clean Air Act, as Amended (42 U.S.C. 7401, et seq.)

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

The Corps has determined that emissions associated with the project site will not exceed EPA's *de minimis* threshold levels (100 tons/year for carbon monoxide and 50 tons/year for ozone). The project site is in a maintenance area, provisional attainment status. Emissions of pollutants from the construction equipment would be negligible.

8.10 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), (16 U.S.C. 1801 et. seq.) requires Federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat (EFH). The objective of an EFH assessment is to determine whether or not the proposed action(s) "may adversely affect" designated EFH for relevant commercial, federally-managed fisheries species within the proposed action area. The assessment describes conservation measures proposed to avoid, minimize, or otherwise offset potential adverse effects to designated EFH resulting from the proposed action. A Biological Evaluation was submitted NMFS on July 30, 2002, which included a conclusion that the proposal would have no adverse effect on EFH. Supplemental documentation was submitted to NMFS on May 9, 2008. NMFS provided a combined response under the ESA and the MSA, and concluded that no conservation measures specific to EFH were required in addition to those conservation measures referencing listed species and designated critical habitat. Concurrence letters dated June 10, 2003 and May 30, 2008 can be found in Appendix 11.2.

8.11 Executive Order 11990, Protection of Wetlands

Executive Order 11990 encourages federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands when undertaking federal activities and programs. The channel construction will convert a 300 square foot (0.007 acre) wetland, located within the construction footprint, to side channel habitat, encompassing approximately 10,000 square feet. The conversion of the wetland is anticipated to be off-set by the functional benefits gained by the addition of the side channel habitat to the watershed. In addition, the alcoves in the constructed channel are shallow and there is a high likelihood that wetlands in excess of the 300 square feet to be filled could develop in those areas, which could replace the loss of the wetland.

8.12 Executive Order 12898, Environmental Justice

Executive Order 12898 directs every federal agency to identify and address disproportionately high and adverse human health or environmental effects of agency programs and activities on minority and low-income populations.

The project does not involve the siting of a facility that will discharge pollutants or contaminants, so no human health effects would occur. The creation of the side channel would not negatively affect property values in the area, or socially stigmatize local residents or businesses in any way. No interference with Native American Nations' treaty rights would result from the proposed project; construction activities would not physically interfere with fishing, or negatively impact fishery resources.

Since no adverse effects are anticipated to result from the project, the Corps has determined that no disproportional impacts would occur.

9. CONCLUSION

The conclusion drawn in the June 1997 EIS and Record of Decision (ROD) regarding the Cedar River Flood Damage Reduction project has been revisited. The alternative recommended in this EA would establish a replacement spawning side-channel off the Cedar River providing full

functional equivalency to the spawning side channel that was developed and constructed as mitigation for the Flood Damage Reduction project, before that original side-channel was destroyed by earthquake. Even though the replacement channel (approximately 10,000 square foot of aquatic habitat) is smaller in size than the original channel (approximately 24,000 square foot of aquatic habitat), once constructed, it will provide substantially in excess of full functional equivalency to the original channel. The replacement channel will have improved reliability of flow as compared with the original channel. Flow from the Cedar River will enter the replacement channel at the inlet of the channel providing a very dependable source of flow. The original channel relied upon ground water to provide flow to the channel, which is not as dependable a source of flow as the river. The replacement channel will provide more habitat complexity than the original channel. The alcoves with large woody debris will create rearing habitat and provide cover within the constructed channel. Logs with root balls will be anchored into the channel bank at several locations to create pool habitat. Large woody debris partially buried into the left bank upstream from the outlet will stabilize the bank. The addition of spawning gravel to the replacement channel will create spawning habitat. All these design elements will provide habitat complexity for various salmonid life stages. The original channel did not incorporate large woody debris into the channel; however, spawning gravel was element of the original channel design. The original channel primarily provided spawning habitat. The original channel did not have the habitat complexity as the replacement channel will. Both channels have a riparian vegetation planting plan, which includes native trees and shrubs. Based on improved reliability of flow and more habitat complexity, the replacement channel, therefore, will have greater than functional equivalence to the original channel. Because the replacement channel will provide substantially greater than exact functional equivalence, over the life of the project, this surplus of functions and services will compensate for the temporal loss of side channel habitat since the original channel was destroyed in 2001. Because the present proposal would provide more than functionally equivalent mitigation to compensate for the adverse effects of construction, operation, and maintenance of the Flood Damage Reduction project, the conclusions of the 1997 EIS and ROD as to the project's net environmental effects, as mitigated, remain valid. The proposed replacement spawning side-channel may therefore be adequately addressed, pursuant to NEPA, in an EA tiered off the 1997 EIS pursuant to 40 CFR 1502.20, incorporating by reference the discussion of project impacts and compensatory mitigation values provided by a spawning side-channel.

Furthermore, based on this assessment and on coordination with Federal and State agencies, the temporal consequences of the proposed project during the construction phase would not result in significant adverse environmental impacts. The temporal effects of the recommended alternative would be consistent with the nature and extent of effects evaluated in 1997 EIS regarding construction of the spawning side-channel mitigation component of the Cedar River Flood Damage Reduction project. Moreover, the construction of the replacement side-channel is not considered a major Federal action having a significant impact on the quality of the human environment, because the construction-phase effects of the recommended alternative are substantially similar to the effects of establishing the mitigation component of the Flood Damage Reduction project. The 1997 EIS addressing that project continues to provide a valid assessment of the net effects of the Cedar River Flood Damage Reduction project, including its spawning side-channel mitigation component, on the quality of the human environment. As such, the proposal for a replacement side-channel does not present substantial changes in the proposed

action that are relevant to environmental concerns, pursuant to 40 CFR 1502.9(c)(1), and the proposal thus does not require preparation of an environmental impact statement supplement. A signed finding of no significant impact (FONSI) is attached in Appendix 11.9.

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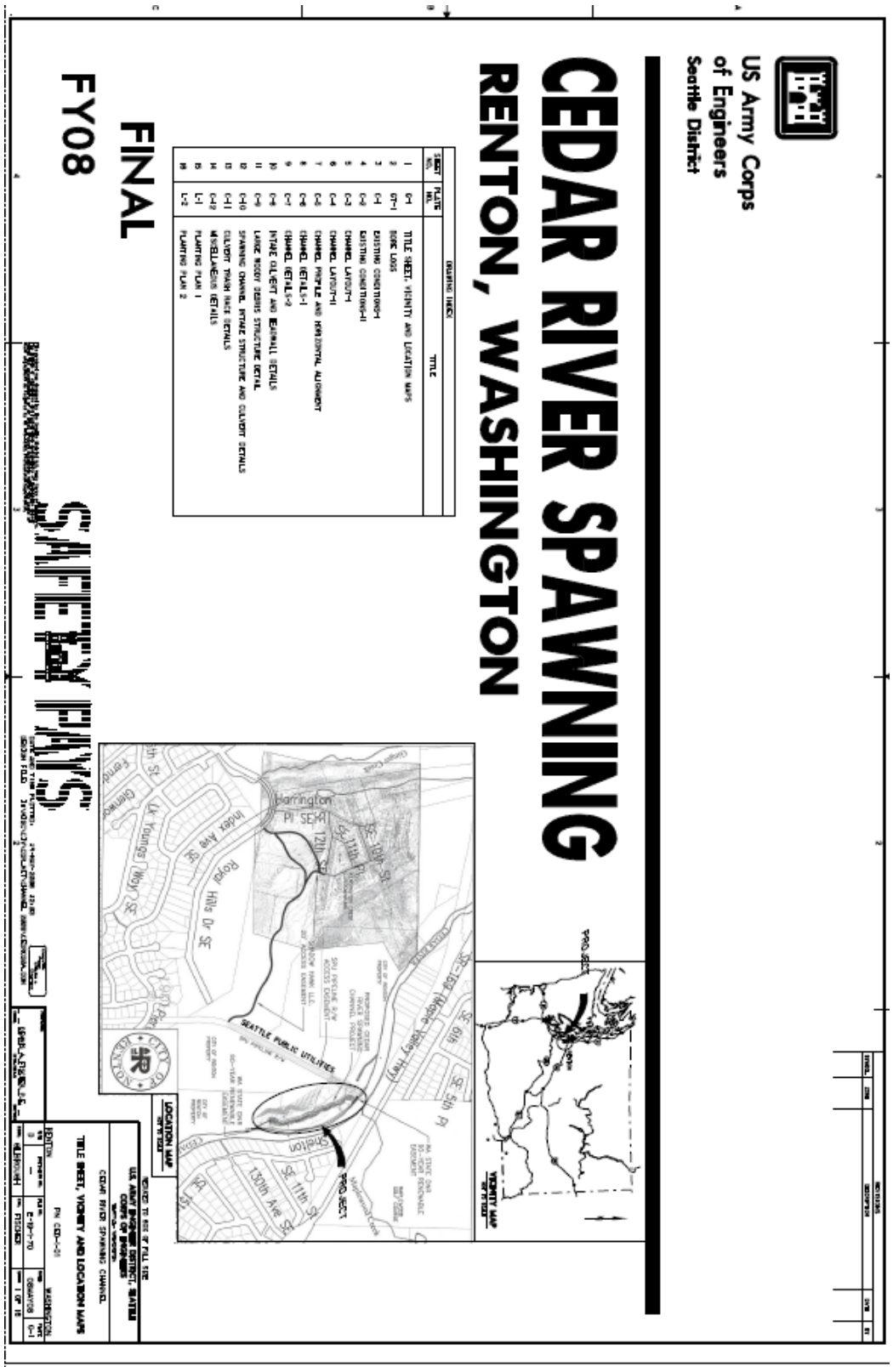
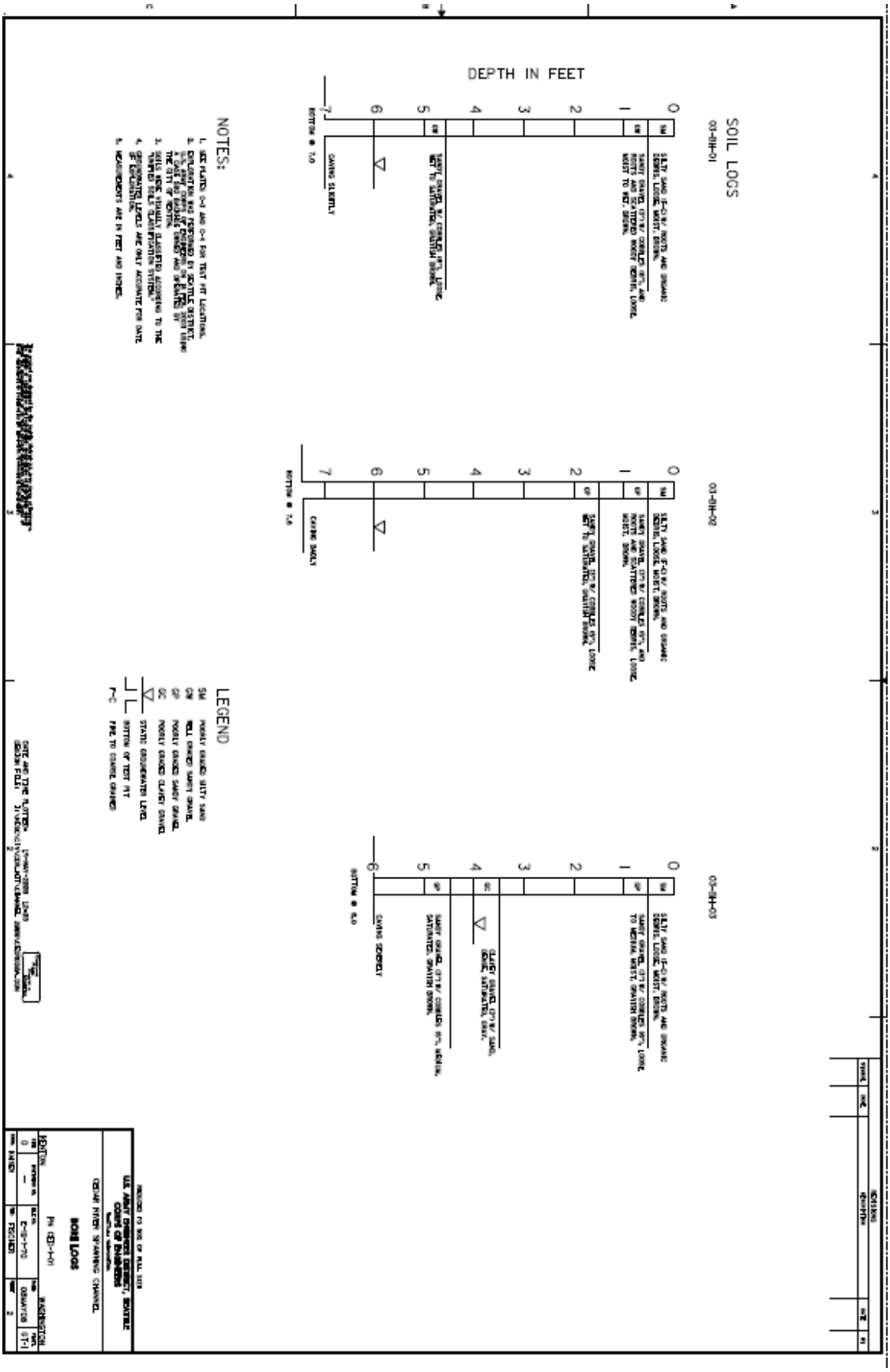
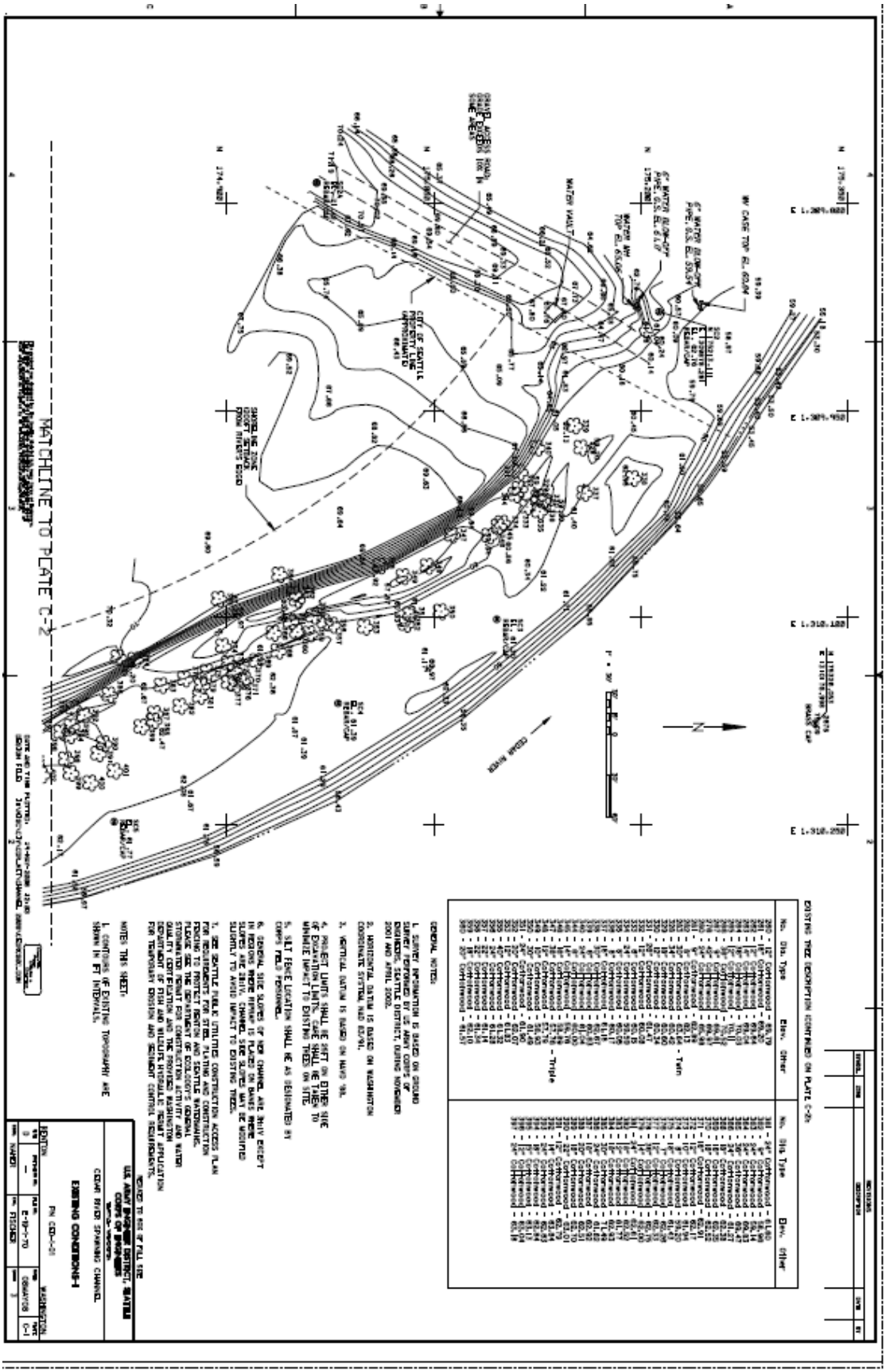
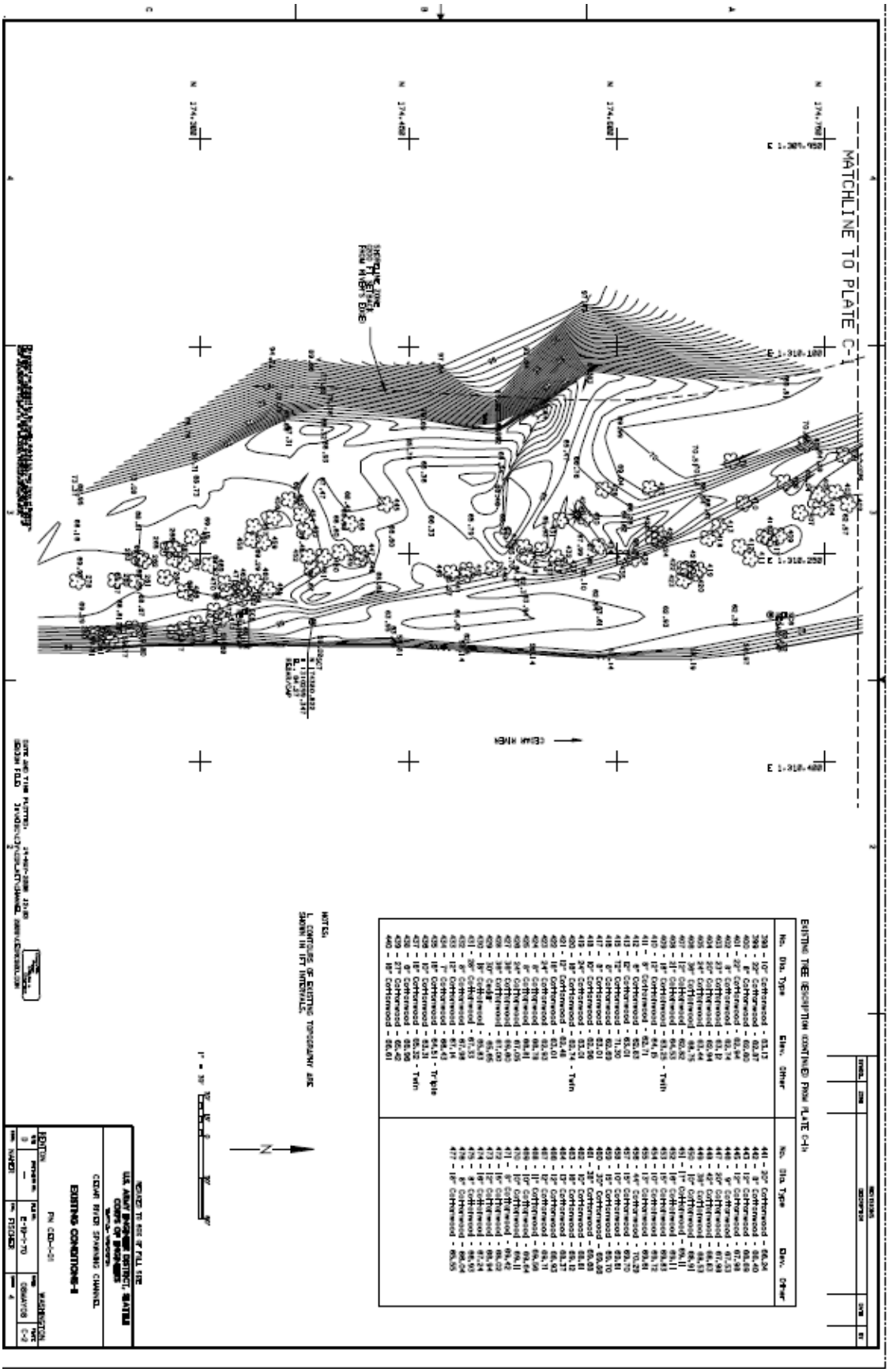
11. APPENDIX

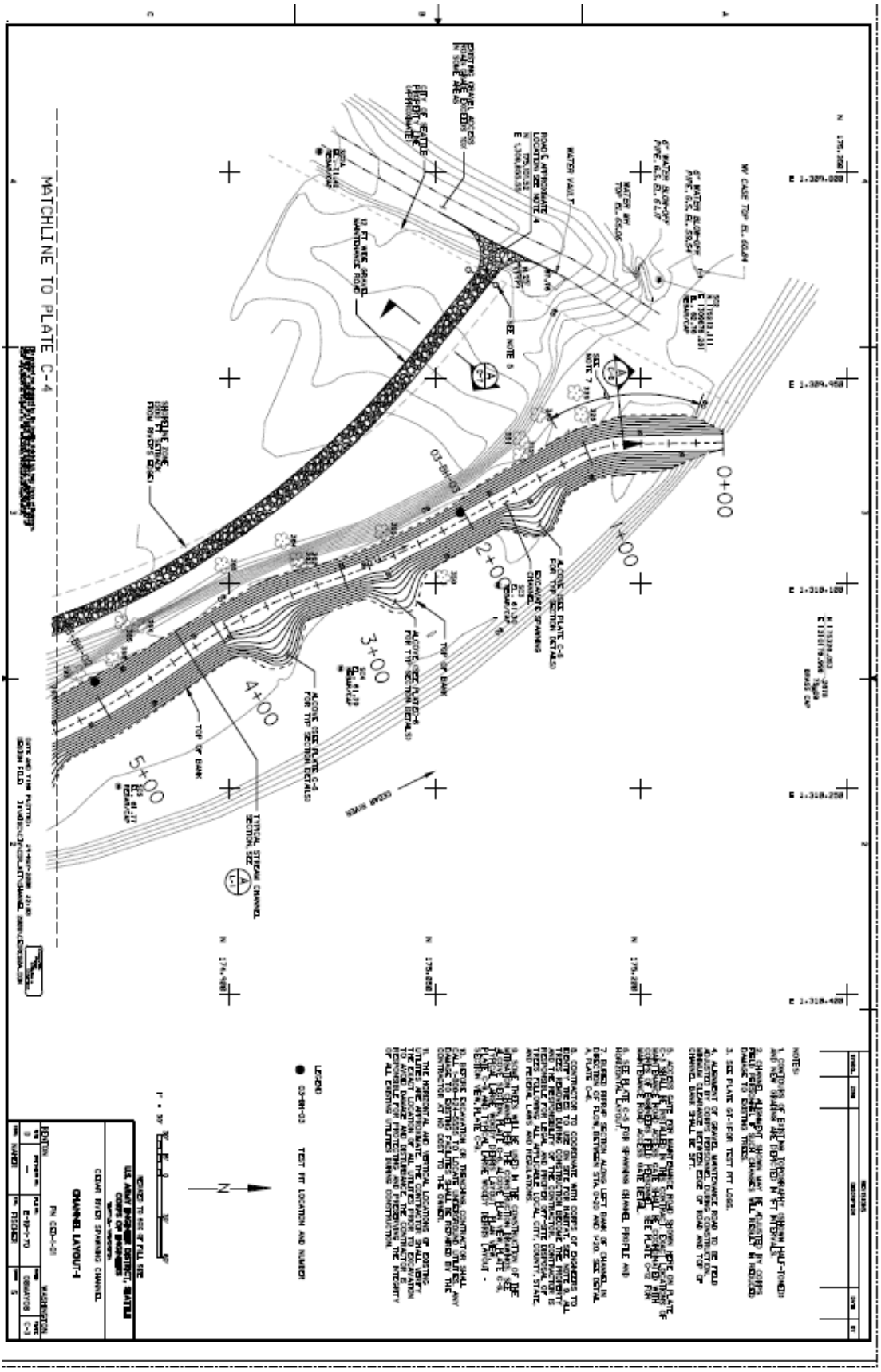
11.1 Final Design Drawings

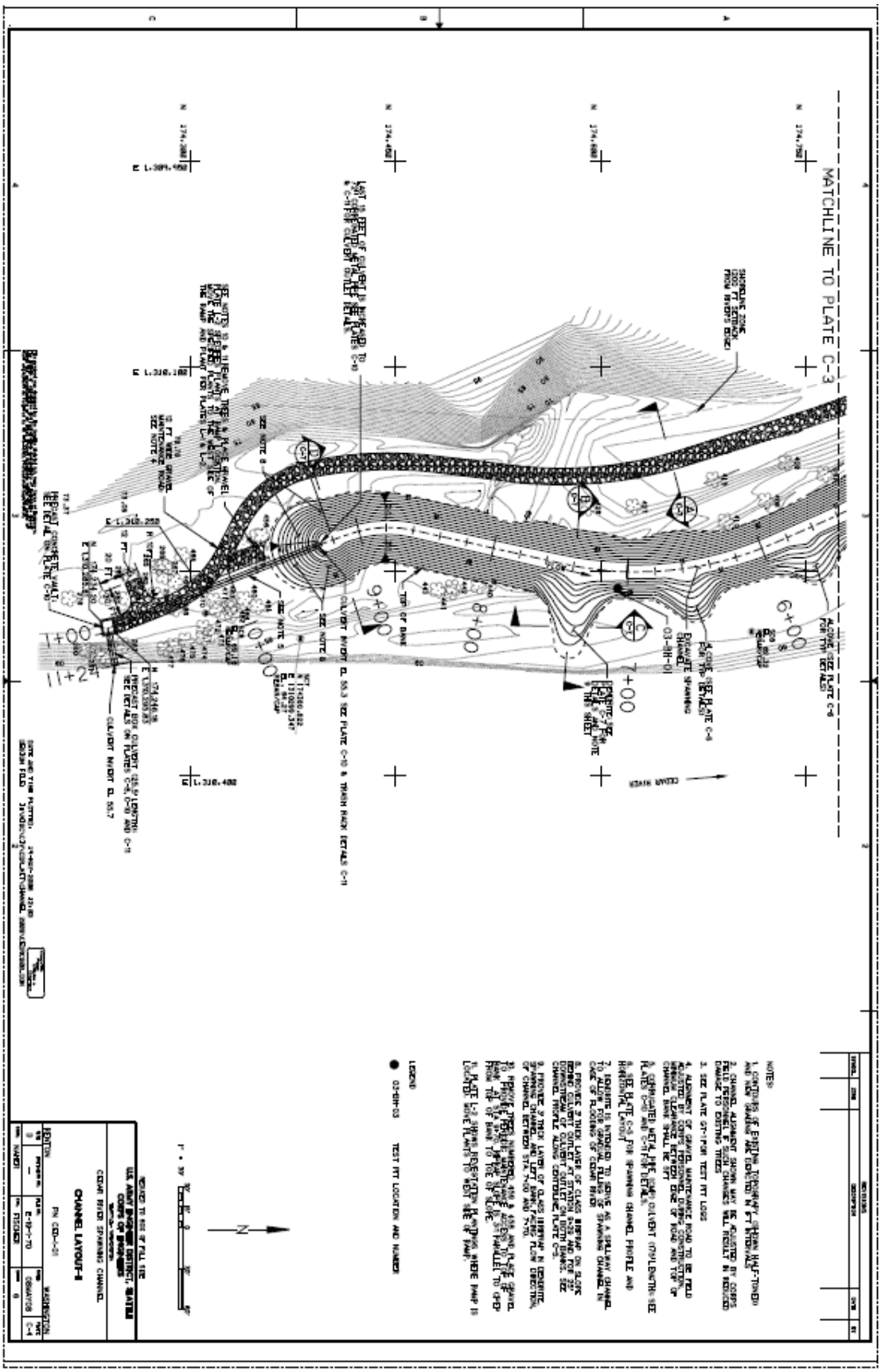


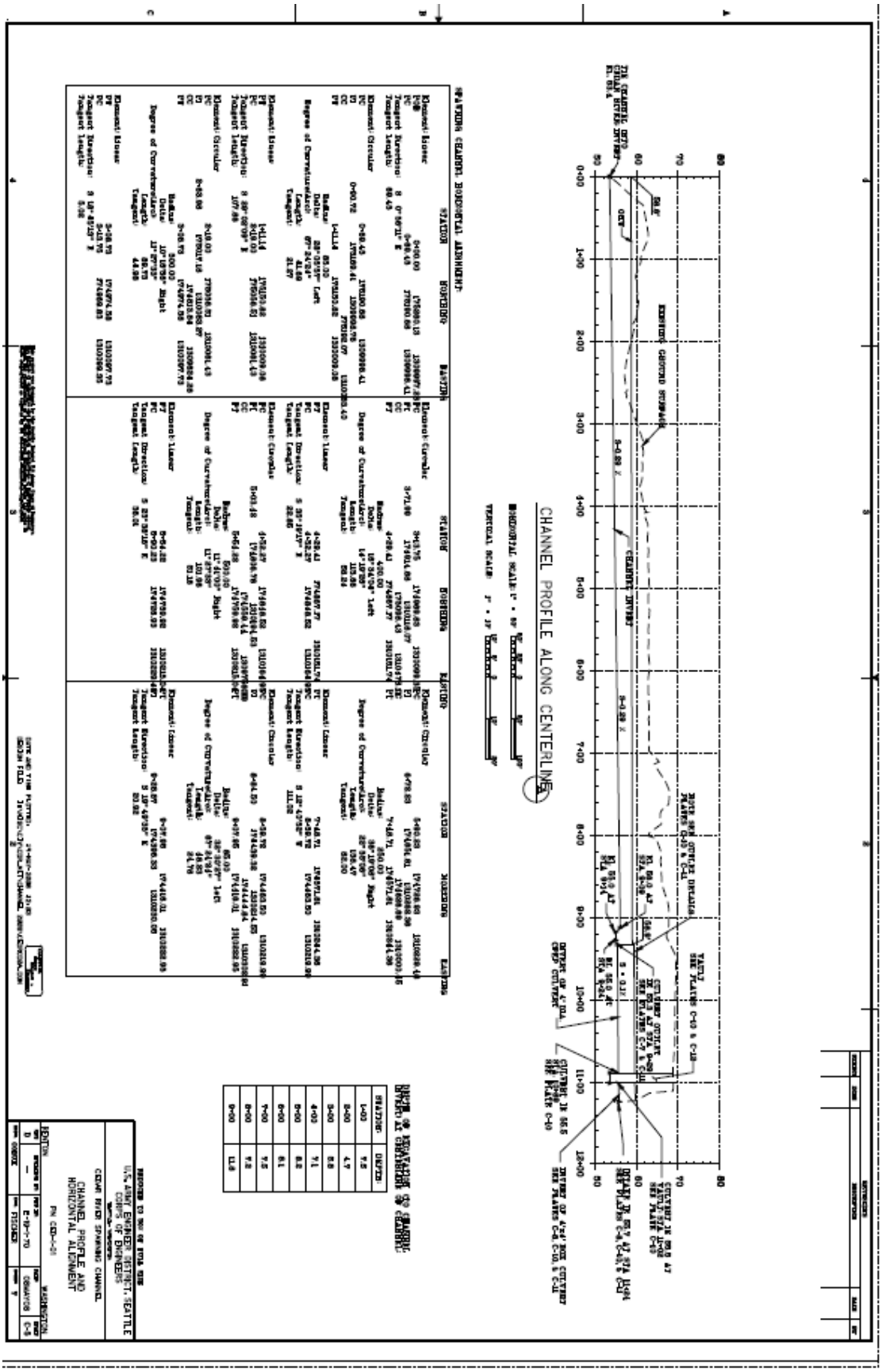

SOIL LOGS
DEPTH IN FEET
NOTES:
LEGEND
BORE LOGS

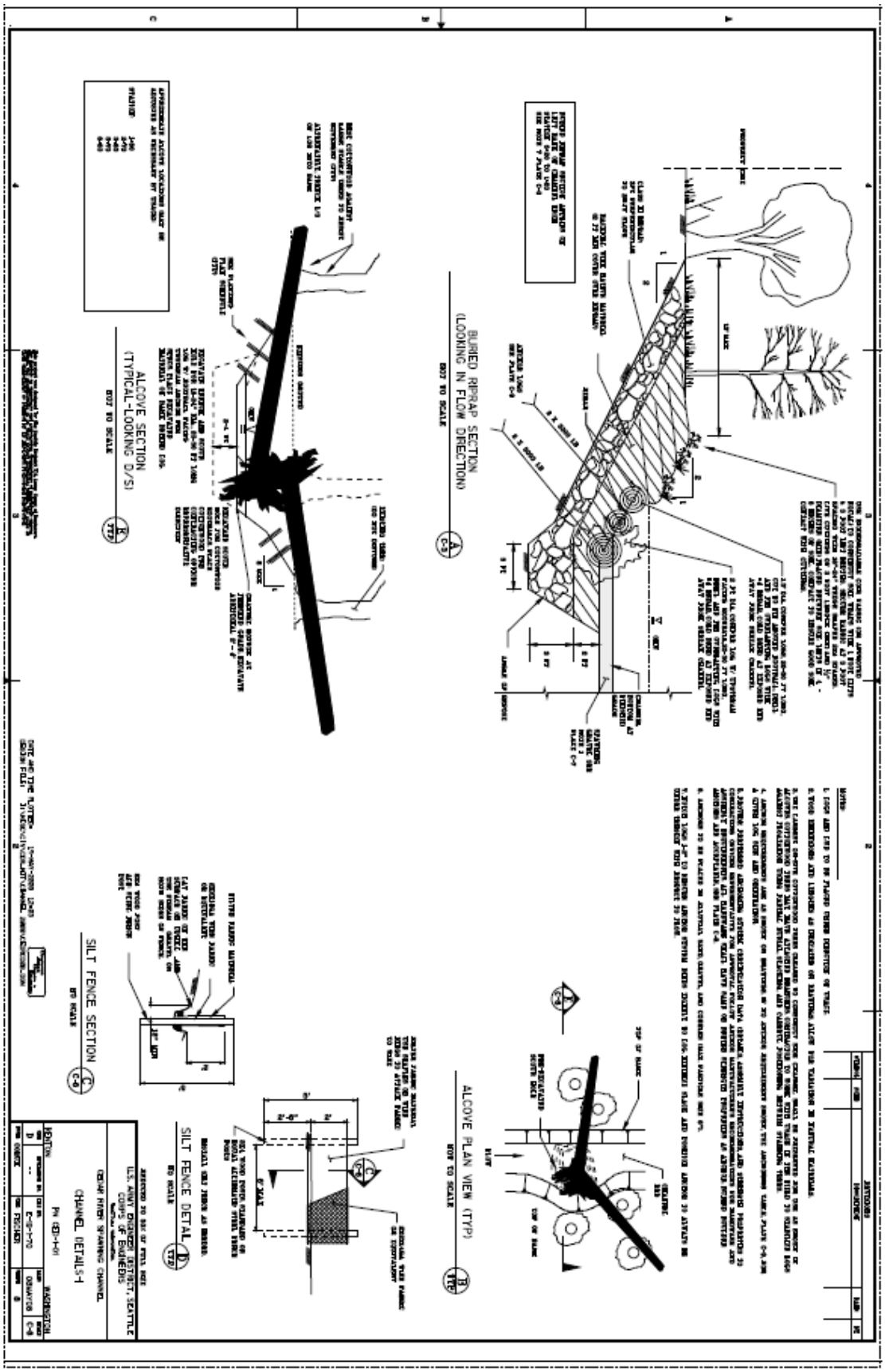

MATCHLINE TO PLATE C-2
EXISTING TREE DESCRIPTION CONTINUED ON PLATE C-2b
GENERAL NOTES:
1. SURVEY INFORMATION IS BASED ON GROUND SURVEY PERFORMED BY LANDCOR & CO. ENGINEERS, SEATTLE DISTRICT, DURING NOVEMBER 2001 AND APRIL 2002.
2. HORIZONTAL DATUM IS BASED ON WASHINGTON COORDINATE SYSTEM, NAD 83/91.
3. VERTICAL DATUM IS BASED ON NAVD 1988.
4. PROJECT LIMITS SHALL BE SET ON OTHER SIDE OF EXCAVATION LIMITS. CARE SHALL BE TAKEN TO MINIMIZE IMPACT TO EXISTING TREES ON SITE.
5. SILT FENCE LOCATION SHALL BE AS DESIGNATED BY CORPS FIELD PERSONNEL.
6. GENERAL SIDE SLOPES OF NEW CHANNEL ARE 3H:1V EXCEPT IN REGIONS WHERE FINAL IS PLACED ON BANKS WHERE SLOPES ARE 5H:1V. CHANNEL SIDE SLOPES MAY BE MODIFIED SLIGHTLY TO AVOID IMPACT TO EXISTING TREES.
7. SEE SEATTLE PUBLIC UTILITIES CONSTRUCTION ACCESS PLAN FOR ADDITIONAL INFORMATION ON TEMPORARY FENCING TO PROTECT RIPARIAN AND SEATTLE WATERWAYS. PLEASE SEE THE DEPARTMENT OF ECOLOGY'S GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY AND WATER QUALITY CERTIFICATION AND THE PROPOSED WASHINGTON DEPARTMENT OF FISH AND WILDLIFE HYDRAULIC PROJECT APPLICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL REQUIREMENTS.
NOTES THIS SHEET:
1. CONTOURS OF EXISTING TOPOGRAPHY ARE SHOWN IN FT INTERVALS.
REDUCED TO 50% OF FULL SIZE
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
CEDAR RIVER SPAWNING CHANNEL
EXISTING CONDITIONS-1
PN CED-00
WASHINGTON
C-1

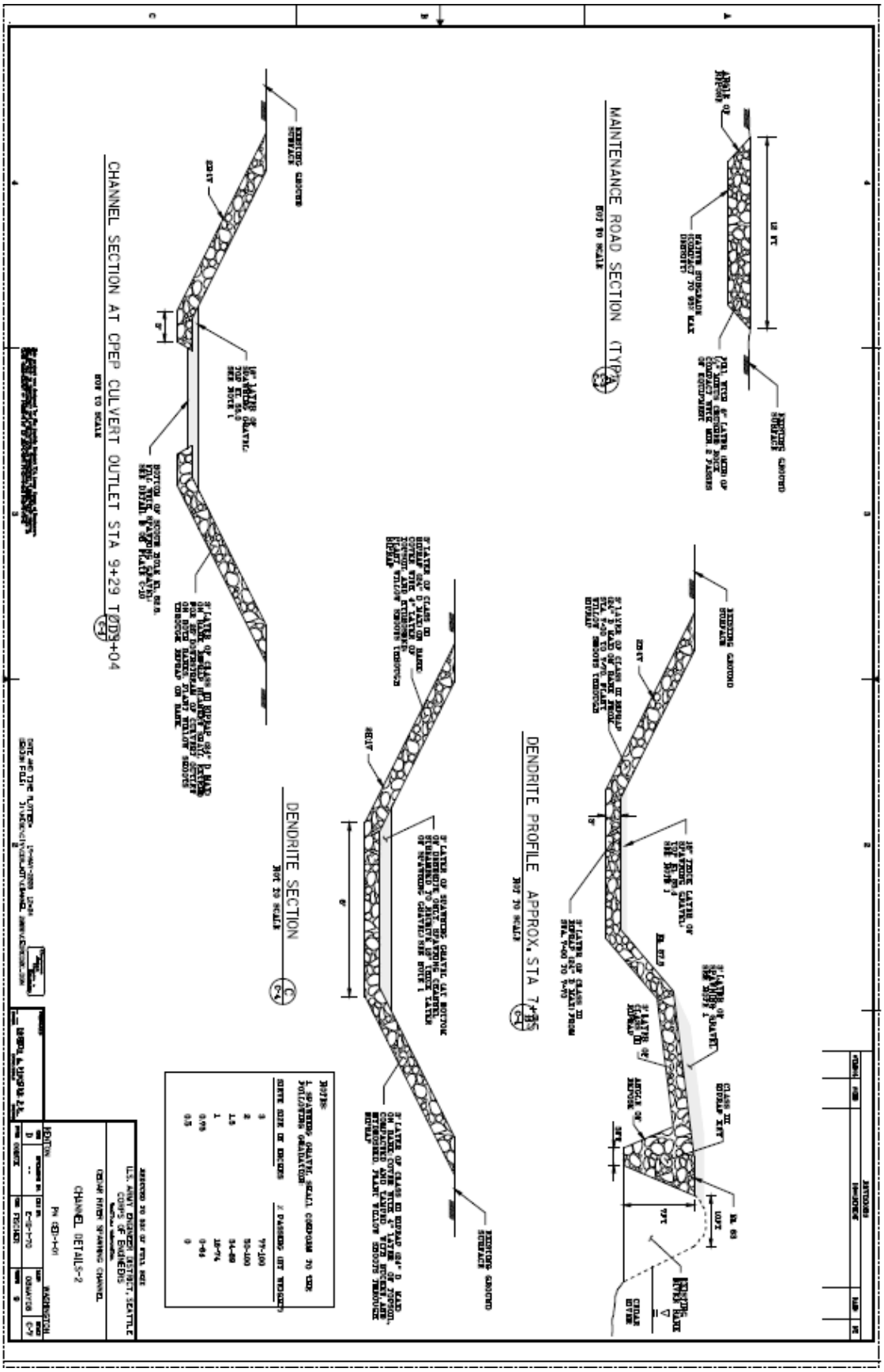

MATCHLINE TO PLATE C-1
EXISTING TREE DESCRIPTION (CONTINUED) FROM PLATE C-1b
NOTES:
1. CONTOURS OF EXISTING TOPOGRAPHY ARE SHOWN IN 1FT INTERVALS.
CEDAR RIVER
CEDAR RIVER SPAWING CHANNEL
EXISTING CONDITIONS-4
WASHINGTON

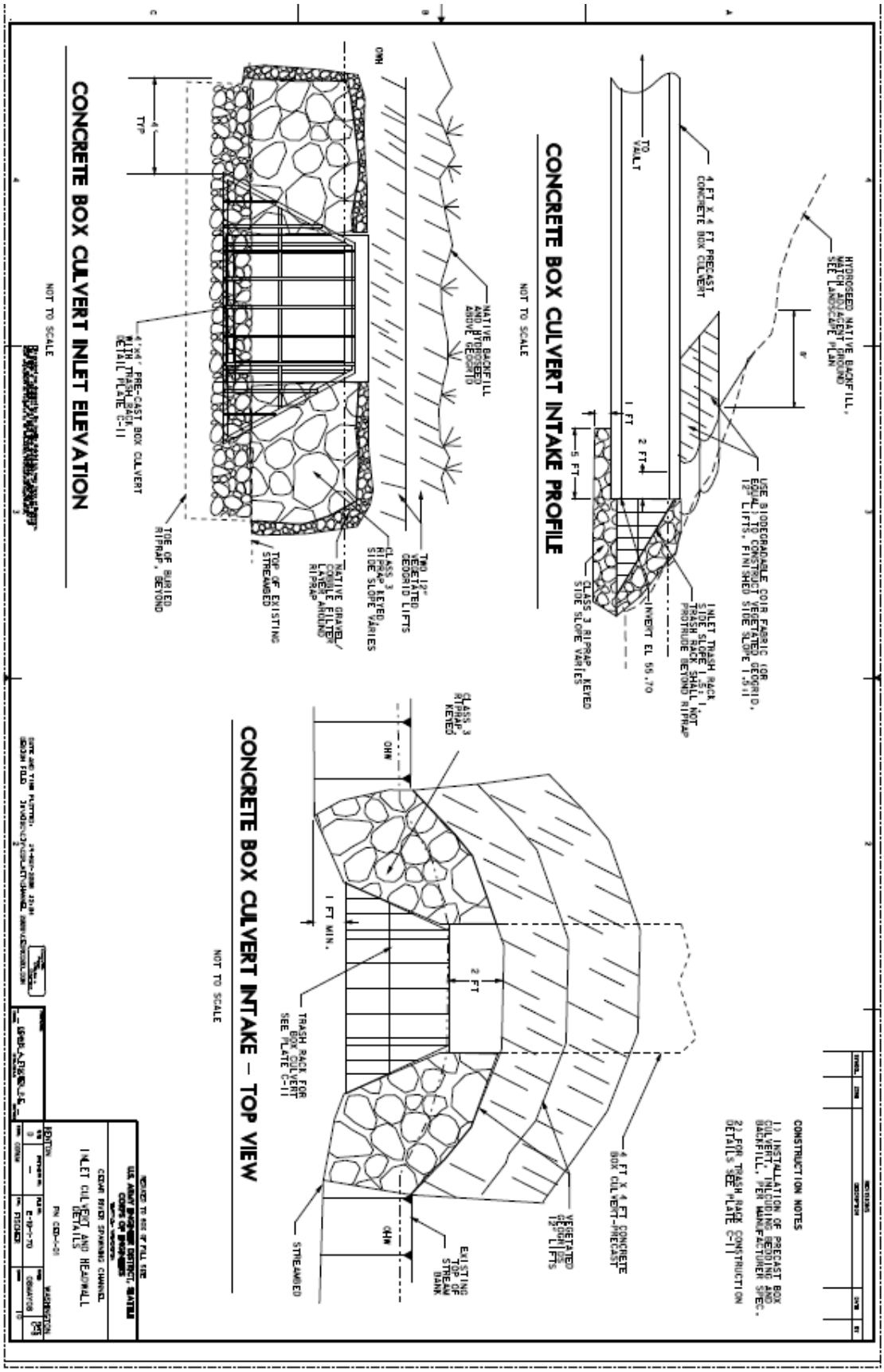

MATCHLINE TO PLATE C-4
0+00
1+00
2+00
3+00
4+00
5+00
TOP OF BANK
TYPICAL STREAM CHANNEL SECTION
CEDAR RIVER
NOTES:
LEGEND
TEST PIT LOCATION AND NUMBER
CHANNEL LAYOUT-1
CEDAR RIVER SPAWNING CHANNEL


MATCHLINE TO PLATE C-3
CHANNEL LAYOUT-4
CEDAR RIVER SPAWNING CHANNEL
TEST PIT LOCATION AND NUMBER

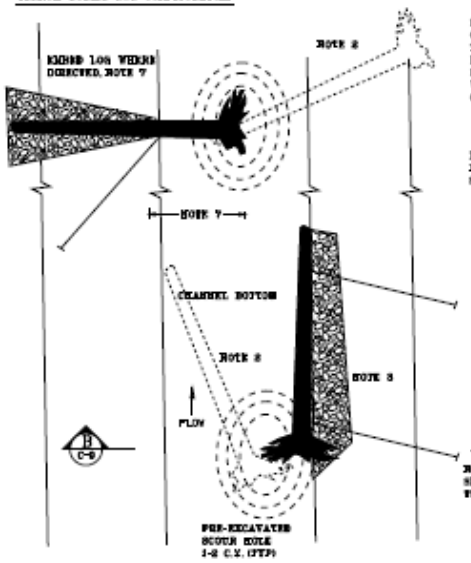

CHANNEL PROFILE ALONG CENTERLINE
CHANNEL PROFILE AND HORIZONTAL ALIGNMENT
CEDAR RIVER SPAWNING CHANNEL
CORPS OF ENGINEERS

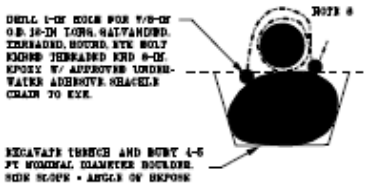

BURIED RIPRAP SECTION
(LOOKING IN FLOW DIRECTION)
ALCOVE SECTION
(TYPICAL-LOOKING D/S)
ALCOVE PLAN VIEW (TYP)
SILT FENCE DETAIL
SILT FENCE SECTION
CHANNEL DETAILS-1


MAINTENANCE ROAD SECTION (TYP)
NOT TO SCALE
DENDRITE PROFILE APPROX. STA 7+85
NOT TO SCALE
DENDRITE SECTION
NOT TO SCALE
CHANNEL SECTION AT CPEP CULVERT OUTLET STA 9+29 TO 9+04
NOT TO SCALE
CHANNEL DETAIL-2
CEDAR RIVER SPAWNING CHANNEL
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS


CONCRETE BOX CULVERT INTAKE PROFILE
NOT TO SCALE
CONCRETE BOX CULVERT INLET ELEVATION
NOT TO SCALE
CONCRETE BOX CULVERT INTAKE – TOP VIEW
NOT TO SCALE
CONSTRUCTION NOTES
1) INSTALLATION OF PRECAST BOX CULVERT, INCLUDING BEDDING AND BACKFILL, PER MANUFACTURER SPEC.
2) FOR TRASH RACK CONSTRUCTION DETAILS SEE PLATE C-11
4 FT X 4 FT CONCRETE BOX CULVERT-PRECAST
VEGETATED 12" LIFTS
EXISTING TOP STREAM BANK
STREAMBED
TRASH RACK FOR BOX CULVERT SEE PLATE C-11
1 FT MIN.
2 FT
OHW
CLASS 3 RIPRAP, KEYED
4 FT X 4 FT PRECAST CONCRETE BOX CULVERT
TO VAULT
INVERT EL 55.70
INLET TRASH RACK SIDE SLOPE 1.5:1, TRASH RACK SHALL NOT PROTRUDE BEYOND RIPRAP
USE BIODEGRADABLE COIR FABRIC (OR EQUAL) TO CONSTRUCT VEGETATED GEOGRID, 12" LIFTS, FINISHED SIDE SLOPE 1.5:1
CLASS 3 RIPRAP, KEYED SIDE SLOPE VARIES
HYDROSEED NATIVE BACKFILL, SEE LANDSCAPE PLAN
NATIVE BACKFILL ABOVE HYDROSEED
TWO 12" VEGETATED GEOGRID LIFTS
CLASS 3 RIPRAP KEYED SIDE SLOPE VARIES
NATIVE GRAVEL/ COBBLE FILTER LAYER AROUND RIPRAP
TOP OF EXISTING STREAMBED
TOE OF BURIED RIPRAP, BEYOND
4'x4' PRE-CAST BOX CULVERT WITH TRASH RACK DETAIL PLATE C-11
TYP
5 FT
2 FT
1 FT
CEDAR RIVER SPAWNING CHANNEL
INLET CULVERT AND HEADWALL DETAILS
PN CED-01
E-10-70
C0040708
FINISHED

TRENCH BURIED LWD CONFIGURATION





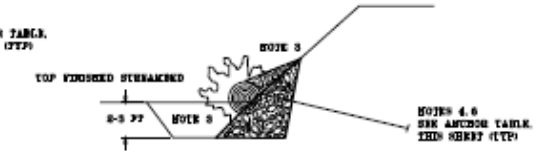
BOULDER-LOG CHAIN CONNECTION SCHEDULE

LOG DIAMETER (FT)	CHAIN LENGTH (FT)
1	7
2	14
3	21
4	27

BOULDER-LOG ANCHOR STRENGTHS

SPHERICAL STONE DIAM (FT)	ANCHOR STRENGTH (KIPS)
2	1.1
3	3.8
4	9.4

ALTERNATE ANCHOR SYSTEM
BURIED BOULDER
NOT TO SCALE
(B) C-9



TYPICAL LARGE WOODY DEBRIS
LAYOUT-PLAN VIEW
NOT TO SCALE
(A) TYP

TYPICAL LARGE WOODY DEBRIS
LAYOUT-SECTION VIEW
NOT TO SCALE
(B) TYP

REVISIONS

SYMBOL	ZONE	DESCRIPTION	DATE	BY

NOTES:

1. ALL WOOD 18-24" DBH (DIAMETER BREAST HEIGHT) CONIFER, LENGTHS WITH ROOTBALL 20-30 FEET. INSTALL 20 TOTAL PIECES COMPRISE LARGE WOODY DEBRIS EVERY 25' - 50' ON ALTERNATING SIDES OF SPAWNING CHANNEL, INCLUDING ALCOVES.

2. WOOD ORIENTATIONS SHOWN ARE SCHEMATIC. FINAL WOOD POSITION SHALL BE COORDINATED WITH COR IN THE FIELD. CONTRACTOR TO USE ANCHOR TABLES TO DETERMINE ANCHOR REQUIREMENTS BASED ON FINAL LOG POSITIONS.

3. EXCAVATE TRENCH/SCOUR HOLES FOR BACK LOG AND ROOTBALL. PLACE EXCAVATED MATERIAL ALONG BANK AND BLEND INTO ADJACENT CONTOURS. CONCEAL ANCHORING SYSTEM WHERE POSSIBLE.

4. THE CONTRACTOR SHALL PROVIDE PROPOSED ANCHORING SYSTEM FOR LWD FOR APPROVAL IF NEEDED. NOTCH WOOD WITH CHAINSAW TO REDUCE SLACK OF ANCHORING SYSTEM.

5. A MINIMUM OF TWO ANCHOR POINTS REQUIRED PER PIECE OF LWD TO MINIMIZE CANTILEVER LOADING. ANCHOR POINT IS DEFINED AS UNFAILED ANCHOR, OR IMMOVABLE OBJECT (OTHER ANCHORED LWD OR BOULDER), AND BURIAL TRENCH.

6. IF BANK ANCHORS USED, FOLLOW ANCHOR MANUFACTURER'S RECOMMENDATIONS FOR HARDWARE AND ASSEMBLY REQUIREMENTS. ALL COMPONENTS TO MEET ANCHORING REQUIREMENTS SHOWN IN TABLE. INSTALL ANCHORS TO REMOVE ANCHOR IN TENSION WHEN SUBMERGED.

7. IF BANK BURIAL USED AS ANCHORING SYSTEM, ROOTED ANCHOR NEEDS BE MEASURING LOG LENGTH BY LENGTH EXPOSED TO FLOW. MINIMUM BURIAL DEPTH ABOVE LOG 5'. IF LOG TURNS 5' FT OF FILL FOR MORE THAN 2/3 LOG LENGTH, NO ADDITIONAL ANCHORING NEEDED.

8. IF BOULDER ANCHORS USED, SELECT CHAIN AND SHACKLES THAT MATCH BOULDER ANCHOR STRENGTH SHOWN ON PLANS.

REQUIRED* TOTAL ANCHOR STRENGTH, KIPS, GIVEN LOG SIZE AND FLOW ANGLE**

AVG. LOG DIAM (1)	WITH ROOTBALL										NO ROOTBALL									
LOG LENGTH (2)	10'		20'		30'		40'		50'		10'		20'		30'		40'		50'	
FLOW ANGLE (3)	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90
12	2	4	2	7	2	10	3	13	3	16	0	3	1	6	1	9	3	16	3	30
24	9	9	10	15	10	22	11	28	12	35	1	6	3	13	4	19	12	35	7	32
36	21	17	22	26	24	36	26	46	26	56	3	10	6	20	9	38	28	54	15	49
48	38	27	41	40	44	54	47	67	51	81	5	14	11	27	16	41	51	81	27	69

REQUIRED* TOTAL NUMBER 5000 LB ANCHORS, GIVEN LOG SIZE AND FLOW ANGLE**

AVG. LOG DIAM (1)	WITH ROOTBALL										NO ROOTBALL									
LOG LENGTH (2)	10'		20'		30'		40'		50'		10'		20'		30'		40'		50'	
FLOW ANGLE (3)	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90	0	90
12	0	1	0	1	0	2	1	3	1	3	0	1	0	1	0	2	1	3	0	3
24	2	2	2	3	2	4	2	6	2	7	0	1	1	3	1	4	2	7	1	6
36	4	3	4	5	4	7	5	9	6	11	1	2	1	4	2	6	6	11	3	10
48	6	5	8	8	9	11	8	13	10	16	1	3	2	5	3	8	10	16	5	12

(1) AVG. LOG DIAM = (DIAM TIP+DIAM BOLE)/2, INCHES
(2) LOG LENGTH INCLUDES ROOTBALL
(3) FLOW ANGLE IS MEASURED WITH REFFIDOT TO LONG AXIS OF LOG. IF NECESSARY, INTERPOLATE IF ANGLE BETWEEN 0 AND 90.
* IN SOME CASES WHERE LOG RESTRAINED BY IMMOVABLE OBJECT, CAN REDUCE ANCHORING. CONSULT WITH USACE FIELD ENGINEER.
** DATA ARE SITE SPECIFIC. USE FOR CEDAR RIVER SPAWNING CHANNEL ONLY. ASSUMES LOG RESTRAINED AT BOTH ENDS (NO CANTILEVER LOADING)

REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS

CEDAR RIVER SPAWNING CHANNEL

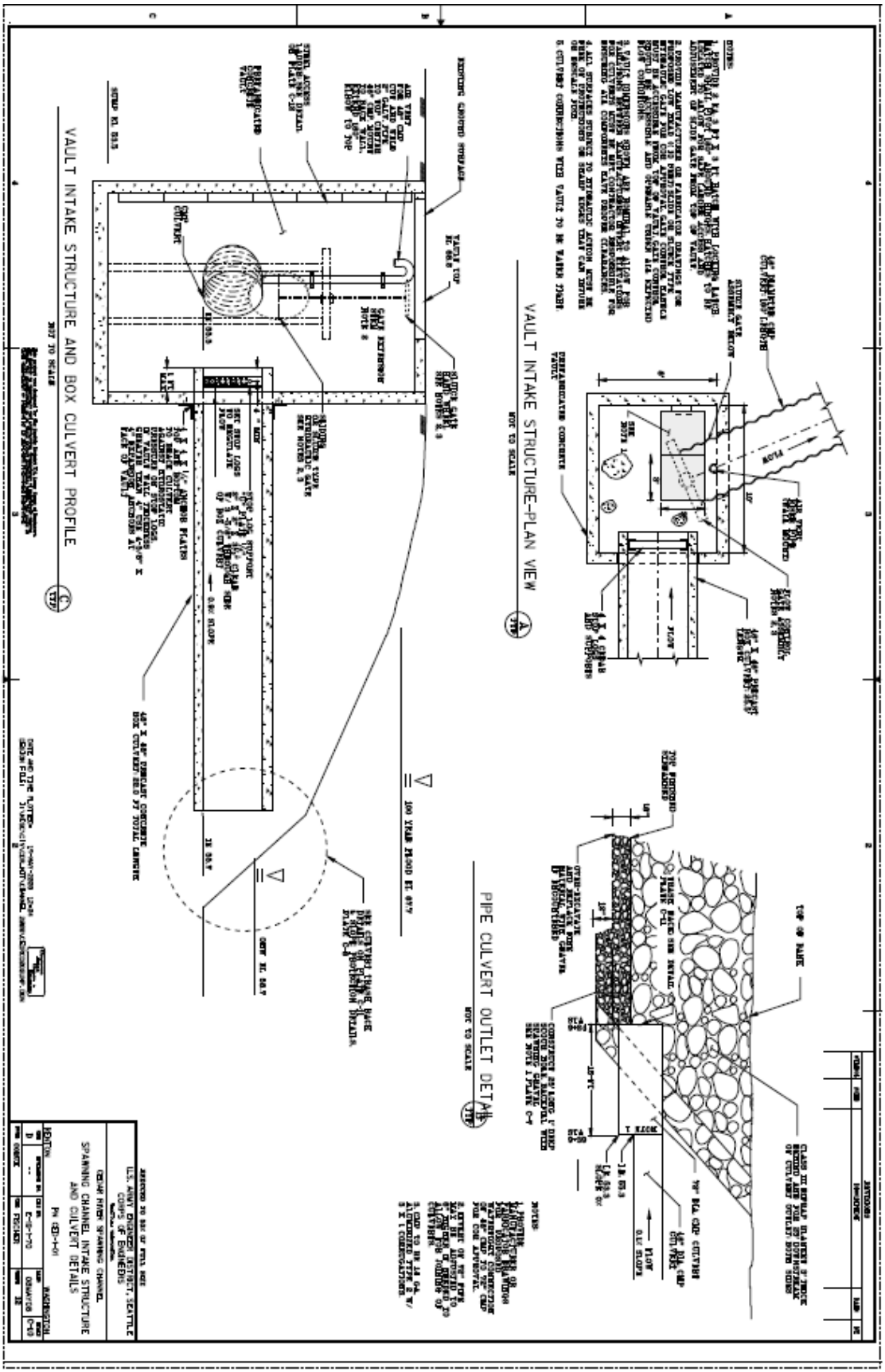
LARGE WOODY DEBRIS AND ANCHORING DETAILS

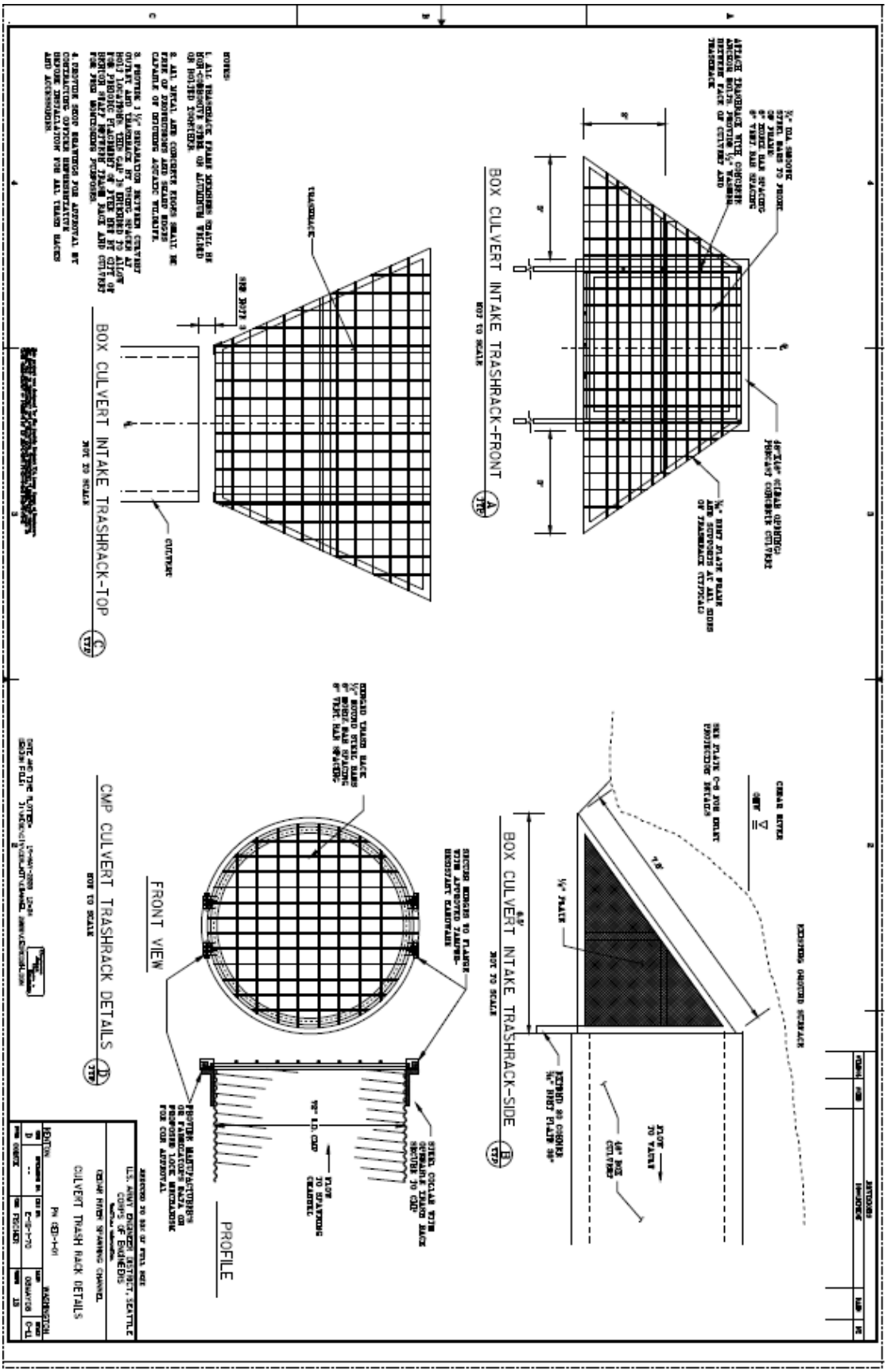
PN CEI-1-01

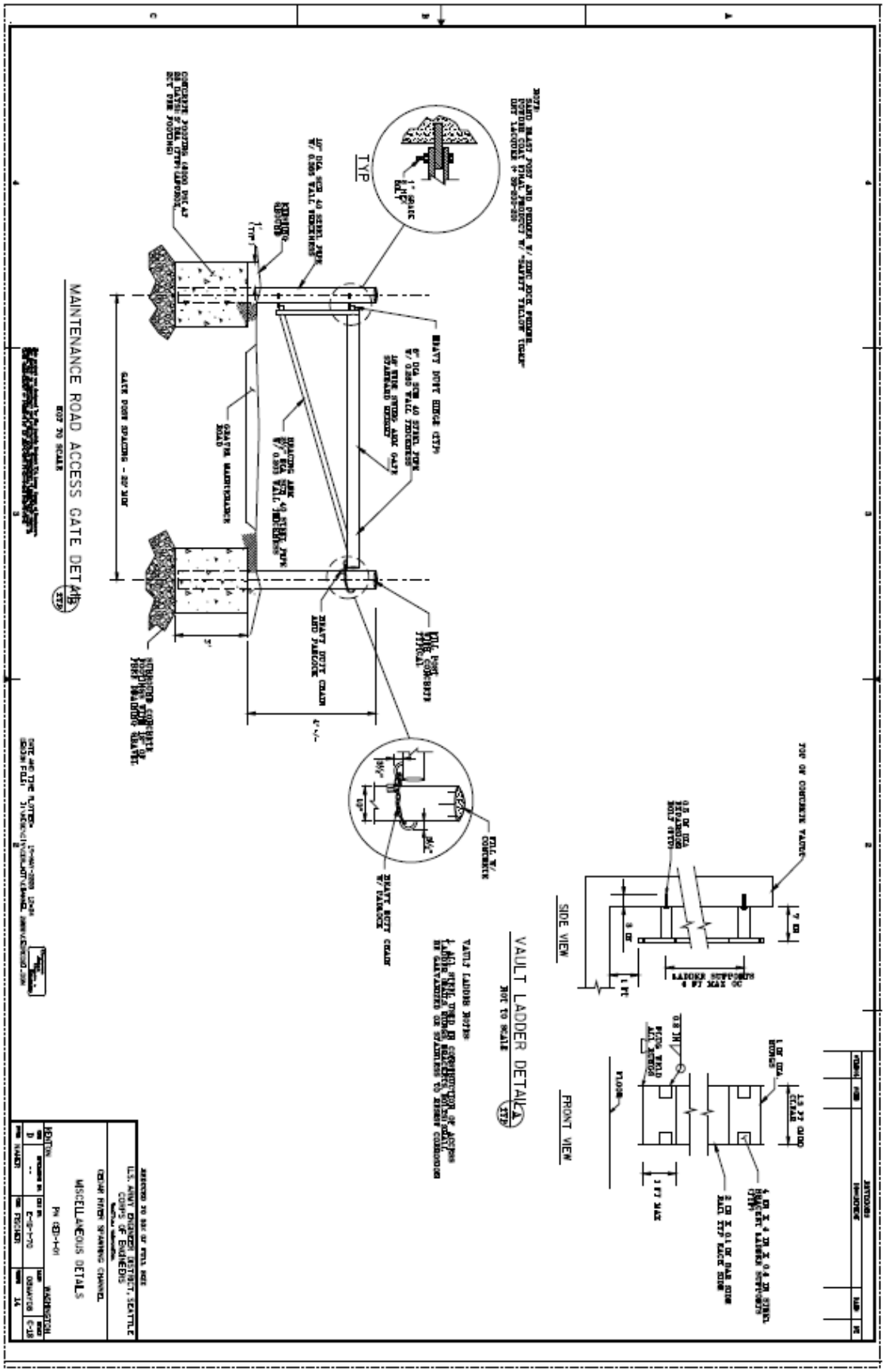
RENTON, WASHINGTON

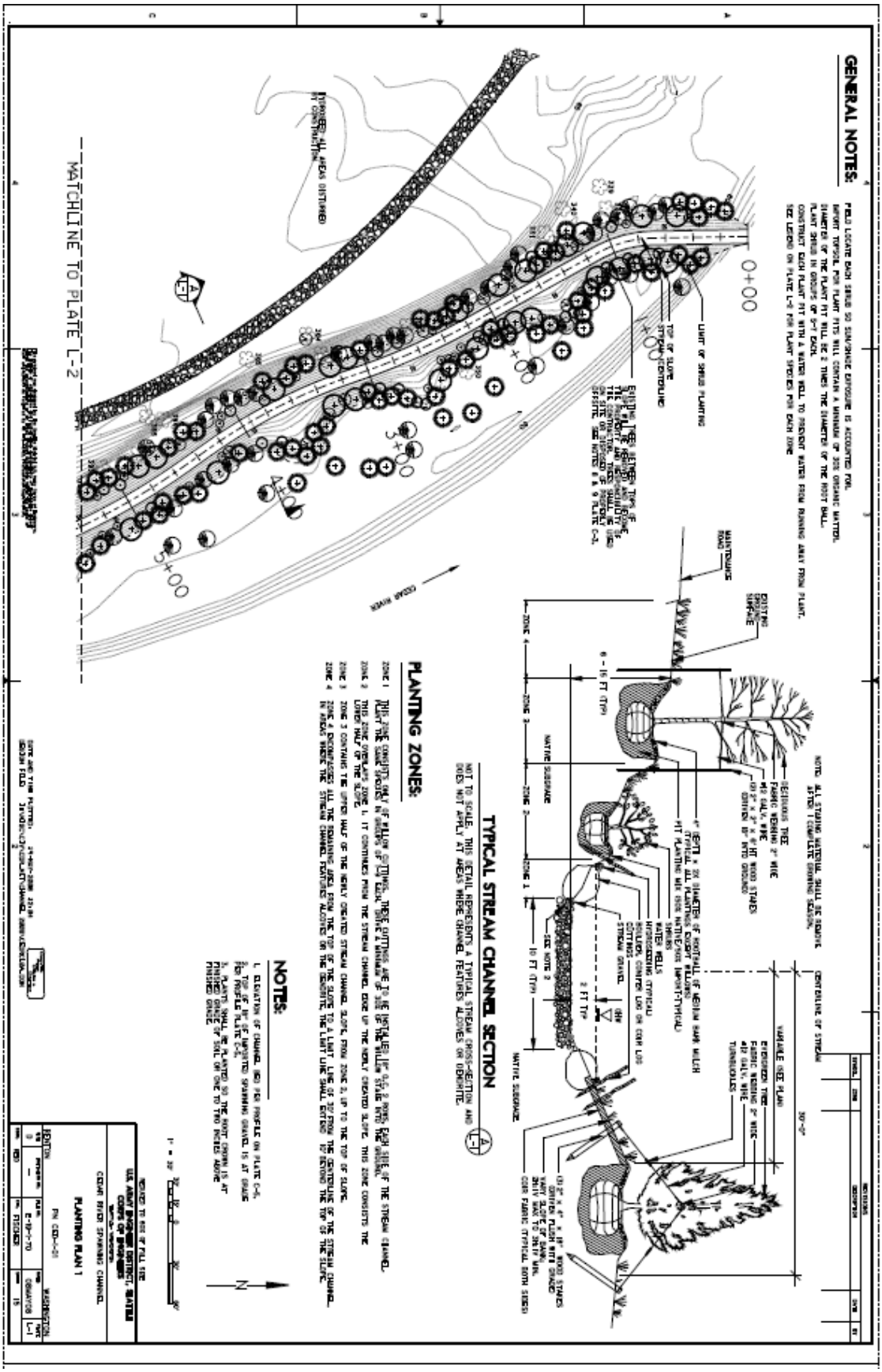
SIZE	SCALE	CEI NO.	DATE	SHEET
D	--	E-CI-1-70	08MAY08	C-9
DRN OSBTX	CHK FISCHER	APPR LI		

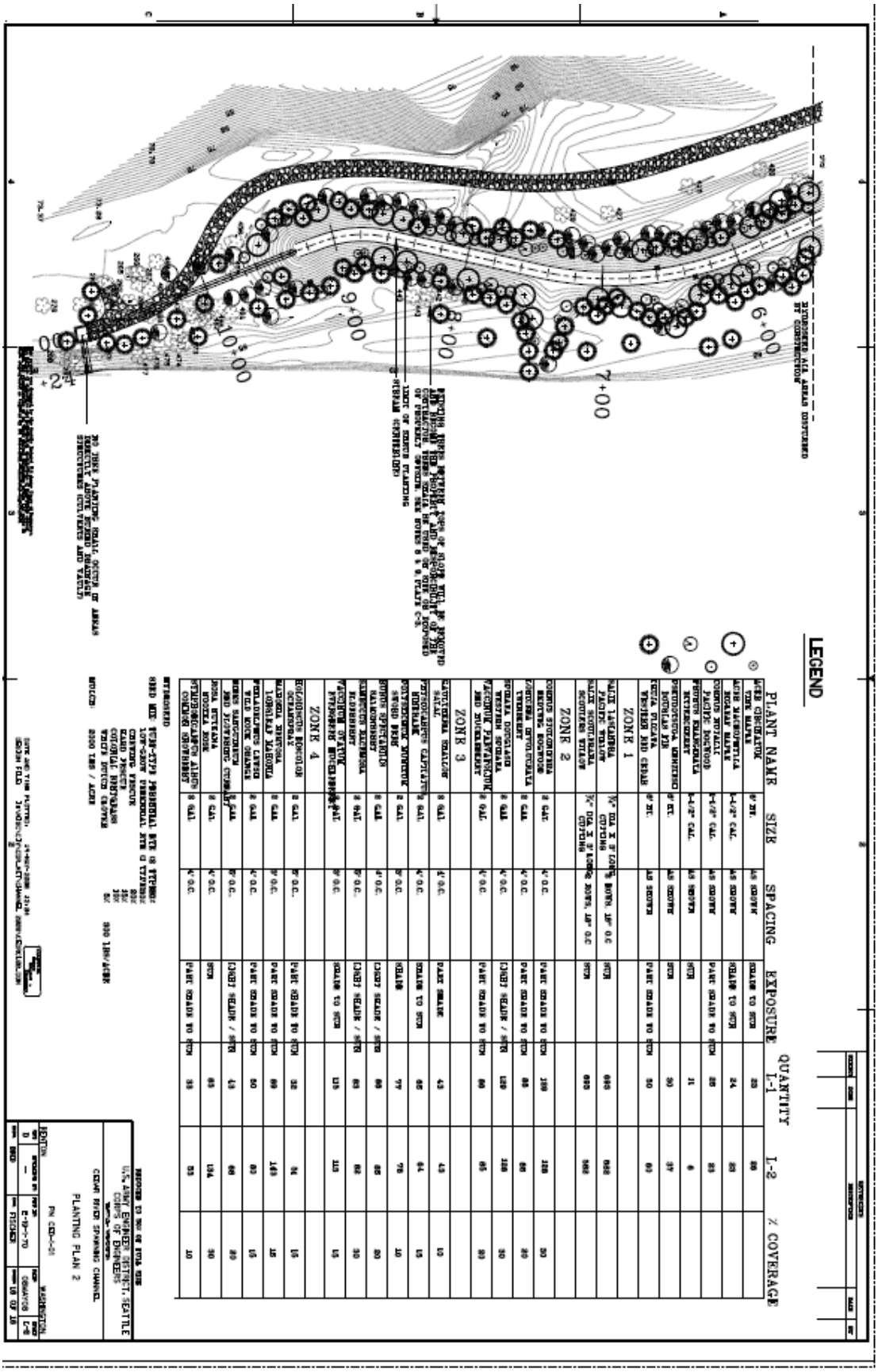
DATE AND TIME PLOTTED= 19-MAY-2009 12:04
DESIGN FILE: J:\ENGINEERING\CEI_HOTWS\BANKS_DWG\CEI_C09.DGN


VAULT INTAKE STRUCTURE-PLAN VIEW
NOT TO SCALE
PIPE CULVERT OUTLET DETAIL
NOT TO SCALE
VAULT INTAKE STRUCTURE AND BOX CULVERT PROFILE
NOT TO SCALE
SPANNING CHANNEL INTAKE STRUCTURE
AND CULVERT DETAILS


BOX CULVERT INTAKE TRASHRACK-FRONT
BOX CULVERT INTAKE TRASHRACK-TOP
BOX CULVERT INTAKE TRASHRACK-SIDE
CMP CULVERT TRASHRACK DETAILS
FRONT VIEW
PROFILE
CULVERT TRASH RACK DETAILS
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS


MAINTENANCE ROAD ACCESS GATE DETAIL
NOT TO SCALE
VAULT LADDER DETAIL
NOT TO SCALE
SIDE VIEW
FRONT VIEW
TYP
MISCELLANEOUS DETAILS
U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
CEDAR RIVER SEAWALL CHANNEL


GENERAL NOTES:
MATCHLINE TO PLATE L-2
TYPICAL STREAM CHANNEL SECTION
PLANTING ZONES:
NOTES:
PLANTING PLAN 1


LEGEND
PLANT NAME
SIZE
SPACING
EXPOSURE
QUANTITY L-1
L-2
% COVERAGE
ZONE 1
ZONE 2
ZONE 3
ZONE 4
CEDAR RIVER SPAWNING CHANNEL
PLANTING PLAN 2

11.2 ESA and SHPO Concurrence Letters

11.2.1 USFWS Concurrence Letter February 27, 2004

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Western Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

In Reply Refer To:
1-3-04-I-0413

FEB 27 2004

Colonel Debra M. Lewis, District Engineer
Seattle District, Corps of Engineers
ATTN: Environmental Resource Section (R. Director)
P.O. Box 3755
Seattle, Washington 98124-3755

Dear Colonel Lewis:

Subject: COE Cedar River Side Channel Replacement

This is in response to your letter dated July 30, 2002, and enclosed Biological Evaluation (BE). The letter and BE for the replacement of the Cedar River Side Channel in Renton, King County, Washington, were received in our office on August 2, 2002. Your letter requests our concurrence with your determination of "may affect, not likely to adversely affect" for bald eagles (*Haliaeetus leucocephalus*) and bull trout (*Salvelinus confluentus*) as evaluated in accordance with section 7(a)(2) of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). We requested additional information during a site visit on September 26, 2002, and received the additional information on January 22, 2004.

We believe that sufficient information was provided to determine the effects of the proposed project to federally listed species and to conclude whether this project is likely to adversely affect those species. We, therefore, concur with the "may affect, not likely to adversely affect" determination for bald eagles and bull trout. Our concurrence is based on the information and conservation measures described in the BE, Memorandum for the Services, cover letter, and the following information:

Bull trout
-Work will be conducted when bull trout are least likely to be present.
-Off-channel habitat in the lower Cedar is limited and this project will help provide additional rearing habitat for bull trout prey and juvenile salmonids.

TAKE PRIDE IN AMERICA

Bald eagles
- There are no bald eagles nests within 4 miles of the proposed project.
-No foraging or wintering habitat will be impacted.
- Perching habitat will be disturbed but the disturbance should only be short term and temporary in nature.

The replacement of the side channel is due to the Nisqually earthquake on February 28, 2001. During that earthquake, a landslide occurred which closed off the mainstem of the Cedar River. Subsequentally, the river was diverted by construction crews to minimize the chance of a catastrophic flood event downstream. During the site visit on September 26, 2002, Dr. Roger Peters and Brian Missildine of this office made recommendations to improve the habitat features of the proposed project. The redesign of the project to include the recommended habitat features, along with Corps budgetary constraints is why this consultation has taken over a year and a half to complete.

This concludes informal consultation pursuant to the regulations implementing the Endangered Species Act (50 CFR 402.13). This project should be reanalyzed if new information reveals effects of the action that may affect listed species or critical habitat in a manner, or to an extent, not considered in this consultation. The project should also be reanalyzed if the action is subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this consultation, and/or a new species is listed or critical habitat is designated that may be affected by this project.

If you have further questions about this letter or your responsibilities under the Act, please contact Brian Missildine at (360)753-9561 or Lynn Childers at (360)753-9440.

Sincerely,

Lynn P. Childers

for Ken S. Berg, Manager
Western Washington Fish and Wildlife Office

cc:
WDFW, Region 4
WDOE, Bellevue (A. Kelly)

11.2.2 NMFS Concurrence Letter June 10, 2003

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

June 10, 2003

Mark Ziminske, Chief
Environmental Resources Section
Seattle District Corps of Engineers
Post Office Box 3755
Seattle, Washington 98124-3755

Attention: Rustin Director

Re: Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Army Corps construction of a Cedar River Side Channel Replacement Project (NMFS Tracking No. 2002/00931)(WRIA 8)

Dear Mr. Ziminske:

This correspondence is in response to your request for consultation under the Endangered Species Act (ESA). Additionally this letter serves to meet the requirement for consultation under the Magnuson Stevens Fishery Conservation Act (MSA).

Endangered Species Act

NOAA's National Marine Fisheries Service (NOAA Fisheries) has reviewed the Biological Evaluation (BE, received August 1, 2002) and additional information provided for the above referenced project (received May 20, 2003) and concurs with the Army Corps of Engineer's (COE) determination of "may affect, not likely to adversely affect" Puget Sound (PS) chinook salmon *(Oncorhynchus tshawytscha)*. Puget Sound chinook were listed as threatened under the Endangered Species Act (ESA) on March 24, 1999 (50 CFR Parts 223 and 224). This consultation with the COE is conducted under section 7 (a)(2) of the ESA, and its implementing regulations, 50 CFR 402.

The COE proposes to construct a replacement side-channel for salmon habitat mitigation on a low terrace of the Cedar River (approximately River Mile 3.5) near Renton, WA. In-water construction will be timed during later summer to avoid impacts on PS chinook. Although the target species is sockeye salmon, the replacement channel will also provide some rearing habitats for PS chinook and coho salmon. NOAA Fisheries' concurrence is based on the low likelihood that chinook salmon would be exposed to short-term or long-term adverse affects from the construction and maintenance activities associated with the project.

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Discussions with staff from the Muckleshoot Indian Tribe raised several concerns. Given the COE's problems with construction and maintenance of the previously constructed mitigation spawning channels, tribal staff would like to offer their ideas to the COE for project design, and also be invited to provide fisheries expertise to the COE during construction. Further, the tribal staff is now preparing comments to the COE on the Environmental Assessment and other concerns may be raised in their comments.

This concludes informal consultation on this action in accordance with 50 CFR 402.14(b)(1). The COE must re-analyze this ESA consultation if: 1) new information reveals effects of the action that may affect listed species in a way not previously considered; 2) the action is modified in a manner that causes an effect to the listed species that was not previously considered; or 3) a new species is listed, or critical habitat is designated, that may be affected by the proposed action.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under Section 305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NOAA Fisheries regarding actions that are authorized, funded, or undertaken by that agency, that may adversely affect Essential Fish Habitat (EFH). The MSA (§3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." If an action would adversely affect EFH, NOAA Fisheries is required to provide the Federal action agency with EFH conservation recommendations (MSA §305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal agency and descriptions of EFH for Pacific salmon contained in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

Because the habitat requirements (*i.e.*, EFH) for the MSA-managed species in the project area, *i.e.*, chinook and coho salmon, are similar to that of the ESA-listed species, and because the conservation measures that the COE included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse effects to designated EFH, conservation recommendations pursuant to MSA (§305(b)(4)(A)) are not necessary. Since NOAA Fisheries is not providing conservation recommendations at this time, no 30-day response from the COE is required (MSA §305(b)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations, the COE will need to reinitiate consultation with NOAA Fisheries in accordance with the implementing regulations for EFH at 50 CFR 600.920(k).

Should you have any questions concerning this informal consultation for ESA or EFH, please contact Matt Longenbaugh, of the Washington Habitat Branch at 360-753-7761, or by email matthew.longenbaugh@noaa.gov .

Sincerely,

D. Robert Lohn
Regional Administrator

cc: Rustin Director, Project Manager, COE
Karen Walter, Muckleshoot Tribe

11.2.3 NMFS Supplemental Concurrence Letter May 30, 2008

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

NMFS Tracking No.:
2008/02937

May 30, 2008

Mr. Ron Kent
Acting Chief, Environmental Resources Section
Seattle District, Corps of Engineers
P.O. Box 3755
Seattle, WA 98124-3755

RE: Reinitiation of Endangered Species Act Section 7 Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the PL 84-99 Cedar River Side Channel Replacement Project, Renton, King County, WA, HUC 1711001201 (Cedar River)

Dear Mr. Kent:

The purpose of this letter is to provide consultations in our role as lead Federal agency for Endangered Species Act (ESA) review on this project for Puget Sound Chinook salmon critical habitat (*Oncorhynchus tshawytscha)* and Puget Sound steelhead (*O. mykiss*), The letter also serves to meet requirements for consultation under the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Endangered Species Act

The National Marine Fisheries Service (NMFS) has reviewed the May 2008 Supplement to the Biological Assessment (BA) for the PL 84-99 Cedar River Side Channel Replacement Project received on May 12, 2008. The Army Corps of Engineers (COE) proposes to construct a salmon spawning side channel, approximately 1000-ft long, to replace one destroyed by a landslide, under authority of PL 84-99. This consultation is conducted under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

The proposed project area is located in the City of Renton in King County, Section 21 of Township 21N, Range 05E on the left bank between river mile (RM) 3.4 and 3.6 of the Cedar River. The action area is riverine habitats within the described project area and downstream 600 feet.

Initial Section 7 consultation on this project was conducted in 2002, with NMFS concurring with the COE that the project was "not likely to adversely affect" Puget Sound Chinook salmon in a June 10, 2003 letter (NMFS Tracking No. 2002/00931). Shortly after receiving this letter, the COE placed this project on hold for approximately four years as no dedicated funding was available. Since that time Puget Sound Chinook salmon critical habitat was designated in 2006 and Puget Sound steelhead were listed as ESA threatened in 2007.

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This channel is part of a mitigation project to off-set the loss of spawning habitat as a result of over-dredging in the lower river. The COE is proposing to replace the earthquake-damaged and non-functioning side channel at RM 5.0 with this excavated river-fed channel containing habitat features suitable for salmonid spawning and rearing. Several updates from the 2002 design are proposed, including: (1) Large woody debris jams in the channel have been replaced with 20 individually anchored conifers with rootwads and pre-excavated scour holes; (2) One additional cottonwood tree with rootwad has been added at each alcove; (3) The outlet pipe at the channel inlet structure has been increased in size to reduce velocities through the trash rack; (4) A stop-log weir was added to the box culvert to reduce the need for partial sluice gate settings; and, (5) The maintenance road alongside the channel has been increased from 10 ft. to 12 ft. wide to allow safe transit of maintenance vehicles.

Additional project detail can be found in the original 2000 project BA and the 2008 Supplement. To minimize potential negative effects on Chinook and steelhead, all appropriate BMPs as noted in the BA shall be followed, including:

1) Channel excavation and habitat feature construction shall occur in the dry channel prior to inundation by river water.

2) Limit in-water work to June 16 – August 15 when aquatic species are at least risk.

3) New riparian plantings will be monitored, and replanted as necessary, for a minimum of 3 years following project completion.

4) Follow all relevant technical assistance from Washington Dept. of Fish and Wildlife.

Species Determination

Puget Sound Chinook salmon
Puget Sound steelhead

Puget Sound Chinook salmon are seasonally distributed in the Cedar River both upstream and downstream of the project site. No Chinook salmon will be in the action area during the construction window of June 16 through August 15. Following all BMPs and technical guidance will minimize potential effects to this species to the point of being discountable. NMFS concurred in a June 10, 2003 letter with a finding of "not likely to adversely affect" Puget Sound Chinook salmon, and this finding stands for the project as currently planned.

Puget Sound steelhead juveniles may be present year-round in the action area. Juvenile steelhead will likely be in faster water of the main channel rather than the slower water of the spawning channel. Appropriate use of BMPs as listed above will ensure that project effects are insignificant for this species. NMFS has determined that this project "may affect, not likely to adversely affect" Puget Sound steelhead.

Overall, this spawning channel will provide additional habitat for various life history stages of salmonids present in the Cedar River. It addresses a limiting factor identified in the Salmon and Steelhead Habitat Limiting Factors Report for the Cedar-Sammamish Basin (Water Resource Inventory Area 8, Kerwin 2001) and will likely provide continued benefits to all species.

Critical Habitat Determination

Puget Sound Chinook salmon

The final rule designating critical habitat for Puget Sound Chinook salmon was published on September 2, 2005 (70 FR 52630) and became effective on January 2, 2006. The Cedar River is designated as critical habitat for Puget Sound Chinook salmon. Primary Constituent Elements (PCEs) associated with the project area are:
1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development;
2) Freshwater rearing sites with: (i) Water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) Water quality and forage supporting juvenile development; and (iii) Natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
3) Freshwater migration corridors free of obstruction and excessive predation with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

NMFS has analyzed potential effects of the proposed action on these three PCEs and has determined that impacts will be insignificant. Following standard BMPs will minimize undesirable temperature and sediment effects to the action area. Project activities will not affect the suitability of the area as a migration corridor and spawning habitat, and will likely enhance the area's suitability for rearing. Because the conservation value of PCEs in the action area will be maintained and the goal of this project is restoration of fish habitat, NMFS concurs with the effect determination of "may affect, not likely to adversely affect" Puget Sound Chinook salmon critical habitat.

Discussions by the COE with Muckleshoot Indian tribal staff for technical assistance to further minimize potential affects should continue as discussed in our 2003 concurrence letter. Issues regarding trash rack construction and maintenance and alternatives proposed by the USFWS are supported by NMFS.

According to the COE, the City of Renton will monitor and maintain the side channel.

Magnuson-Stevens Fishery Conservation and Management Act

Federal agencies are required, under section 305(b)(2) of the MSA and its implementing regulations (50 CFR 600 Subpart K), to consult with NOAA Fisheries regarding actions that are

authorized, funded, or undertaken by that agency that may adversely affect Essential Fish Habitat (EFH). The MSA section 3 defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". If an action would adversely affect EFH, the Federal action agency is required to provide EFH conservation recommendations (MSA section 305(b)(4)(A)). This consultation is based, in part, on information provided by the Federal action agency and descriptions of EFH for Pacific salmon contained in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (August 1999) developed by the Pacific Fishery Management Council and approved by the Secretary of Commerce (September 27, 2000).

The proposed action and action area are described in this letter and in the BA and Supplement. The action area includes habitat which has been designated as EFH for various life stages of Chinook and coho salmon (*O. kisutch*).

EFH Conservation Recommendations: Because the habitat requirements (*i.e.*, EFH) for the MSA-managed species in the action area are similar to that of the ESA-listed species, and because the conservation measures that NMFS has included as part of the proposed actions to address ESA concerns are also adequate to avoid, minimize, or otherwise offset potential adverse effects to designated EFH, conservation recommendations pursuant to (MSA section 305(b)(4)(A)) are not necessary. Since NMFS is not providing conservation recommendations at this time, no 30-day response is required (MSA section 305(b)(4)(B)).

This concludes consultation under the MSA. If the proposed action is modified in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH conservation recommendations, the COE should reinitiate EFH consultation in accordance with implementing regulations for EFH at 50 CFR 600.920(k).

The efforts of the COE and the City of Renton to design, construct and maintain this project to minimize environmental impacts are appreciated. If you have any questions, please contact Randy McIntosh at 360-534-9309 or randy.mcintosh@noaa.gov.

Sincerely,

for D. Robert Lohn
Regional Administrator

cc: Karen Walter, Muckleshoot Indian Tribe
Tim Shaw, Project Manager, COE
Gregg Zimmerman, Public Works Director, City of Renton

11.2.4 SHPO Concurrence Letter May 20, 2008

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

May 20, 2008

Mr. Ronald Kent
Environmental Resources Section
Seattle District, Corps of Engineers
PO Box 3755
Seattle, Washington 98124-3755

Re: Cedar River Spawning Channel Replacement Project
Log No: 051908-11-COE-S

Dear Mr. Kent:

Thank you for contacting our department. We have reviewed the materials you provided for the proposed Cedar River Spawning Channel Replacement Project in Renton, King County, Washington.

We concur with your determination of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the concerned tribes and this department notified.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Should additional information become available, our assessment may be revised. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: rob.whitlam@dahp.wa.gov

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION
Protect the Past, Shape the Future

11.3 Section 404(b)1) Consistency Determination

Substantive Compliance with Section 404 (b)(1) of the Clean Water Act
Cedar River Side Channel Replacement Project
King County, Washington, Summer 2003

1. Introduction. The purpose of this document is to record the Corps of Engineers' evaluation and findings regarding this project pursuant to Section 404 of the Clean Water Act. The project is not subject to Section 10 of the Rivers and Harbors Act as it occurs above navigable waters of the Cedar River. Actions subject to Section 404 are the following:

a. Inlet facility for side channel. Temporary placement of a cofferdam, placement of five (5) cubic yards (CY) of riprap and installation of a steel trash rack, all below the ordinary high water line (OHW).

b. Outlet from side channel. Temporary placement of a cofferdam and 12.5 CY of gravel both below OHW, the gravel to be used as salmonid spawning and rearing habitat.

c. Loss of a small wetland. There is a small (0.007 acre or 300 square foot) wetland in the project area that will need to be excavated in order to construct the spawning channel.

Information sources used in preparation of this document include: the draft Environmental Assessment for this project, summer 2003; and the Biological Evaluation prepared pursuant to the Endangered Species Act, submitted to NOAA Fisheries and U.S. Fish and Wildlife Service, July 2002. The structure of this document, including Attachment 1, contains the substantive compliance issues from the Clean Water Act 404(b)(1) Guidelines [40 CFR 230.12(a)].

2. Availability of less environmentally damaging practicable alternatives to meet project purpose.

a. Project Need. This 404 (b)(1) evaluation is for construction of a side channel by the Corps of Engineers near river mile (RM) 3.4 and 3.6 along the Cedar River in the City of Renton, King County Washington. New spawning and rearing habitat (approximately 10,000 square feet) will serve as a functional replacement for a Cedar River groundwater spawning channel that was destroyed as a result of the 2001 Nisqually Earthquake. The groundwater channel was originally constructed as mitigation for the Army Corps of Engineers Cedar River Section 205 Flood Damage Reduction Project.

b. Project Purpose/Criteria. The project goal is to create additional off-channel spawning and rearing habitat for salmonids (primarily sockeye and Chinook salmon) within the Cedar River basin. The project was evaluated using the nine criteria specified in 40 CFR 230.

c. Alternatives Analysis.

(1) No Action. There would be no repair or replacement of the groundwater spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) that was altered as a result of a landslide triggered by the February 28, 2001 Nisqually Earthquake. This landslide changed the main flow of the river, resulting in the loss of the channel's function as off-channel salmonid spawning and rearing habitat.

(2) Repair of the Earthquake Damaged Channel. This alternative would require the moving of approximately 40,000 cy of slide debris to reopen the side channel and then development of a control structure on the upstream end of the original channel. This alternative is not practicable in terms of logistics and technology because of the continued high threat of additional slides again closing the main river channel.

(3) Modification to the Existing Elliot Channel. This alternative would involve modification of the existing Elliot Spawning and Rearing Channel, in an attempt to increase the available productivity of existing channel. This would include supplementing the existing project with more large woody debris, plantings, and spawning gravel as necessary. However, this channel is currently functioning with an adequate rate of production,

and modifications to the channel could have adverse affects on sockeye production and other fish and wildlife species. Thus, this alternative is not the least environmentally damaging alternative.

(4) Creation of a new Channel at the Renton Elks Club. A replacement spawning/rearing side-channel would be constructed on the Renton Elks Club property. However, this site is adjacent to an active slide area and there is a high potential that a new channel here would be greatly impacted due to a future slide. This alternative is not considered practicable in terms of high risk.

(5) Findings. For reasons described above, none of these practicable alternatives, taking into consideration cost, logistics, and technology, would avoid all loss of wetlands, and none would be less environmentally damaging compared to the proposed project.

3. Significant degradation, individually or cumulatively, to the aquatic ecosystem.

a. Impacts on ecosystem function. The inlet facility would permanently remove about 40 square feet (SF) of aquatic habitat below OHW (Ordinary High Water). During construction, a sandbag cofferdam would temporarily (June 16 – August 15) cover 90 SF of stream bottom and isolate 70 SF of stream habitat from the Cedar River. At the channel outlet, placement of 12.5 CY of gravel for salmon spawning would permanently remove about 225 SF of aquatic habitat below OHW. During construction, a cofferdam would temporarily cover 162 SF of stream habitat and isolate 288 SF of stream habitat from the Cedar River. Total stream area impacted below OHW would be 875 SF (0.02 acres) And even though the project would permanently remove about 265 SF of habitat below OHW, the 225 SF of spawning channel habitat below OHW would in itself be productive, i.e. colonized by aquatic microorganisms and macroscopic food web organisms, offsetting the loss of natural habitat. There would be minor, short-term increases in turbidity and siltation due to placement and removal of the cofferdams and spawning gravel. The small loss of aquatic productivity in these small areas is not considered significant, especially in view of beneficial impacts to salmon production inherent in the project.

b. Impacts on recreational, aesthetic and economic values. The proposed spawning channel should have substantial beneficial impacts on salmon production in the Cedar River. This should, in turn, have a beneficial impact on salmon fishing in future years. Also, the spawning channel may be visible via trails in the area, thereby providing a positive impact on recreation in the vicinity.

C. FINDINGS. The removal of 265 SF of aquatic habitat and associated loss of aquatic production is not considered a significant impact on Cedar River ecosystem functions and values, especially in view of obvious beneficial impacts on salmonid production. In addition, the project will have positive recreational and aesthetic impacts in the region.

4. Appropriate and practicable measures to minimize potential harm to the aquatic ecosystem.

a. Impact avoidance measures. Construction of the inlet and outlet facilities would only take place during the "work window" for the Cedar River, which is the period from June 16 to August 15. This will avoid impacts to salmon during critical upstream and downstream migratory periods.

b. Impact minimization measures. The cofferdams will minimize siltation during inlet and outlet facilities construction.

c. Compensatory mitigation measures. The small loss of river benthic habitat will be offset by aquatic production in that portion of the spawning channel below OHW.

d. Findings. All appropriate and practicable measures will be taken to minimize potential adverse impacts.

5. Other Factors in the Public Interest

a. Fish and Wildlife. Seattle District coordinated with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Washington Department of Fish and Wildlife, the Washington Department of Ecology. Regarding Section 7 of the Endangered Species Act, the Corps prepared a Biological Evaluation that was submitted

to USFWS and NOAA Fisheries on July 30, 2002. Supplemental documentation was submitted to NMFS on May 9, 2008. The BE and supplement concluded that the proposed project is *not likely adversely affect* any species protected under the Act, largely because construction will occur when Chinook, steelhead, and bull trout are least likely to be present in the project area, and the project will provide approximately 10,000 square feet of off-channel habitat. A concurrence letter from the USFWS was received February 27, 2004. Concurrence letters from NMFS were received June 10, 2003 and May 30, 2008. Relative to a Hydraulic Project Approval from Washington Department of Fish and Wildlife (WDFW), Seattle District has coordinated with WDFW and has made efforts to incorporate their comments into project design.

b. Water quality. A 401 Water Quality Certification and Amendment have been issued by the Washington Department of Ecology, dated 14 March 2004 and 02 December 2008, respectively.

d. Historic and Cultural Resources. Although there are no known cultural resources in the project vicinity, if any artifacts or cultural resources are discovered during construction, all work will be stopped and the district's cultural resources staff will investigate the site and alert the appropriate cultural resources authorities.

e. Findings. Seattle District has determined that this project is in the public interest.

6. Conclusions. The Corps finds that this project complies with the substantive elements of Section 404 of the Clean Water Act.

Attachment 1

404(b)(1) Evaluation [40 CFR 230]

I. POTENTIAL IMPACTS ON PHYSICAL AND CHEMICAL CHARACTERISTICS (SUBPART C).

a. Substrate [230.30] Rock (riprap, quarry spalls), the trash rack, and spawning gravel placed below OHW would cover about 265 of bottom substrate. In addition, the cofferdams would temporarily (June 16-Aug 15) cover or isolate about 610 SF of bottom substrate.

b. Suspended particulate/turbidity [230.21] There will be minor, short-term turbidity during placement and removal of the cofferdams, the latter allowing initial discharge of water that had "washed" silt from the spawning gravel. However, this would be minimal, as the spawning gravel will have been washed after placement in the channel, before pulling the plug, with wash water pumped to an upland site.

c. Water [230.22] Not applicable.

d. Current patterns and water circulation [230.23] The project will have a localized and short-term impact on water circulation and current patterns around the cofferdams.

e. Normal water fluctuations [230.24] Not applicable.

f. Salinity gradients [230.25] Not applicable.

II. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).

a. Threatened and endangered species [230.30] The project would provide spawning and rearing habitat for two species listed as threatened under the endangered Species Act and likely to occur in the project area: Puget Sound Chinook salmon and Puget Sound bull trout. Also, coho salmon, a candidate species, are located in the site vicinity and could use the spawning channel. The Biological Assessment (BA) submitted by the Corps to NOAA Fisheries and the U.S. Fish and Wildlife Service in July, 2002, concluded that the proposed project may affect, but is not likely to adversely affect species protected under the Act, largely because construction would occur when Chinook and bull trout are least likely to be present in the project area, and during a portion of the year when bald eagles are most tolerant of disturbance.

b. Fish, crustaceans, mollusks and other aquatic organisms in the food web [230.31]. The project would provide spawning/rearing habitat for other salmon and trout species besides the species indicated in II.a. The project would have no discernable impact on other fish species utilizing the river or their prey base, including crustaceans and mollusks, due to the relatively small size of the construction area, the use of cofferdams, and adherence to the WDFW work window, June 16 to August 15.

c. Other wildlife [230.32] Noise and activity during construction of the inlet and outlet would disrupt bird and wildlife populations in the short-term. Affected mammals would include black-tailed deer, cougar, muskrat, raccoon, opossum, gray squirrel, and feral dogs and cats. Birds would include red tailed hawks, mergansers, and mallard ducks. Wildlife sightings in the project area are thought likely to increase due to the projected abundance of salmon in the channel.

III. Potential Impacts to Special Aquatic Sites (Subpart E).

a. Sanctuaries and refuges [230.40] Not applicable.

b. Wetlands [230.41] The channel construction will convert a 300 square foot (0.007 acre) wetland, located within the construction footprint, to side channel habitat, encompassing approximately 10,000 square feet. Vegetation within this small wetland is similar to adjacent area including the rest of the project site. Outside of this wetland area, the remainder of the site appears to be well drained and the steep riverbank precludes any sort of wetland fringe associated with the shoreline. This wetland represents a small portion of the overall amount of wetlands in the watershed and is not functionally unique to the watershed. Spawning and rearing habitat is a limited resource and thus provides a unique function in this watershed. The conversion of the wetland is anticipated to be off-set by the functional benefits gained by the addition of the side channel habitat to the watershed. The alcoves in the constructed channel are shallow and there is a high likelihood that wetlands could develop in those areas, which could compensate for the loss of the wetland.

c. Mudflats [230.42]. Not applicable.

d. Vegetated Shallows [230.43] Some aquatic vegetation would be covered or removed from interaction with the river due to placements of cofferdams during construction.

e. Coral Reefs [230.44] Not applicable.

f. Riffle and pool complexes [230.45] River riffle patterns in the project vicinity would be altered to a minor extent by the cofferdam.

IV. Potential Effects on Human Use Characteristics (Subpart F).

a. Municipal and private water supplies. [230.50] Not applicable.

b. Recreation and commercial fisheries [230.51] There are no recreational fisheries in the project vicinity. However, salmon produced in the river out-migrate to Lake Washington and eventually to Puget Sound where they enter recreational and commercial fisheries. Construction of the inlet and outlet structures and placement and removal of cofferdams will not impact these fisheries. However, placement of spawning gravel below OHW will augment the spawning gravel in the entire spawning channel and will help produce additional fish, many of which will enter recreational and/or commercial fisheries to an incremental degree.

c. Water-related recreation [230.52] Not applicable.

d. Aesthetics [230.53] Channel location would minimize the number of large diameter trees that would be removed during construction. Also, native plants and trees would be planted in disturbed areas to provide a wooded view for residents located across the river from the project. The project would also have a pleasing gravel path and educational signs along the spawning channel. Overall, the project would have positive aesthetic impacts.

e. Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves [230.54] Not applicable.

V. EVALUATION AND TESTING (SUBPART G).

a. General evaluation of fill material [230.60] Materials subject to this evaluation include spawning gravel, riprap, trash rack, and a portion of a culvert. The spawning gravel is small to medium sized, and rocks will consist of Class 3 riprap and quarry spalls.

b. Chemical, biological, and physical evaluation and testing [260.61] The spawning gravels are from a clean gravel source. No testing was considered necessary.

VI. ACTIONS TO MINIMIZE ADVERSE EFFECTS (SUBPART H).

a. Actions concerning the location of the discharge [230.70] Not applicable.

b. Actions concerning the material to be discharged [230.71] None necessary.

c. Actions controlling the material after discharge. [230.72] Not applicable.

d. Actions affecting the method of dispersion. [230.73] None necessary.

e. Actions related to technology [230.74]. Not applicable.

f. Actions affecting plant and animal populations [270.75] A minor quantity of fill material, including riprap and spawning gravel, will remove limited existing areas of aquatic production, but these materials will be colonized by microscopic and macroscopic aquatic organisms that will become part of the river's food web and part of the fish prey base.

g. Actions affecting human use. [230.76] Not applicable.

11.1 11.4 401 Water Quality Certification and Amendment to the Certification

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

March 19, 2004

REGISTERED MAIL
RR 359 893 200 US

Noel Gilbrough
U.S. Army Corps of Engineers
Environmental Resources Section
PO Box 3755
Seattle, WA 98124-2255

Dear Mr. Gilbrough:

Re: **Order # 1040**
U.S. Army Corps of Engineers # **PL-04-07**
Water Quality Certification and Coastal Zone Management Consistency Determination to authorize construction of side channel on Cedar River, Renton, King County, Washington.

The request for certification for proposed work in and adjacent to the Cedar River has been reviewed. On behalf of the State of Washington, we certify that the proposed work, as conditioned by the enclosed Order, will comply with applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended, and other appropriate requirements of State law. This letter also serves as the State response to the Corps of Engineers.

Pursuant to 16 U.S.C. 1456 et. seq. (Section 307(c)(3) of the Coastal Zone Management Act of 1972 as amended), Ecology concurs with the applicant's determination that this work will be consistent with the approved Washington State Coastal Zone Management Program. This concurrence is based upon the applicant's compliance with all applicable enforceable policies of the Coastal Zone Management Program, including Section 401 of the Federal Water Pollution Control Act.

This certification is subject to the conditions contained in the enclosed Order. If you have any questions, please contact Alice Kelly at (425) 649-7145. Written comments can be sent to her at the Department of Ecology, 3190 – 160th Ave. SE, Bellevue, WA 98008. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

Jeannie Summerhays

Jeannie Summerhays
Section Manager
Shorelands and Environmental Assistance Program

JS:AK:rc
Enclosure
cc: Rustin Director, Corps Chris Munter, City of Renton

IN THE MATTER OF GRANTING A WATER QUALITY CERTIFICATION TO U.S. Army Corps of Engineers in accordance with 33 U.S.C. 1341 FWPCA § 401, RCW 90.48.260 and Chapter 173-201A WAC	))))))))	**ORDER # 1040** **Corps Reference No. PL-04-07** Cedar River Side Channel Replacement Project; replace salmonid spawning and rearing channel destroyed by the Nisqually earthquake; located in Section 21, T. 23 N., R. 5 E., Renton, King County, Washington.

TO: Noel Gilbrough
U.S. Army Corps of Engineers
Planning Branch
PO Box 3755
Seattle, WA 98124-3755

On February 1, 2004, a public notice for a proposed water quality certification from the State of Washington was distributed for the above-referenced project pursuant to the provisions of 33 U.S.C. 1341 (FWPCA §401). The proposed project entails construction of a side channel on the Cedar River to replace a constructed side channel that was destroyed in the February 2001 Nisqually earthquake. Replacement is mandatory because the side channel is required mitigation for the Cedar River Flood Damage Control Project (dredging). The goal of the project is to create off-channel spawning and rearing habitat for salmonids, primarily sockeye and Chinook.

The proposal includes excavation of 6,000 cubic yards of floodplain sediments to create the 1,200 foot-long channel along the left bank between RM 3.4 and 3.6 in the City of Renton. The material will be stockpiled on uplands nearby. The 10,000 square-foot channel will be constructed with 3:1 side slopes, alcoves with woody debris, and will be revegetated with native vegetation after construction. The intake structure will consist of a concrete box culvert, trash rack, control valve, geogrids and approximately 140 feet of pipe.

AUTHORITIES:

In exercising authority under 33 U.S.C. 1341, 16 U.S.C. 1456, and RCW 90.48.260, Ecology has investigated this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. Sections 1311, 1312, 1313, 1316, and 1317 (FWPCA Sections 301, 303, 306 and 307);

2. Conformance with the state water quality standards as provided for in Chapter 173-201A WAC authorized by 33 U.S.C. 1313 and by Chapter 90.48 RCW, and with other appropriate requirements of state law; and

3. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

CONDITIONS OF ORDER # 1040 AND WATER QUALITY CERTIFICATION:

In view of the foregoing and in accordance with 33 U.S.C. 1341, 90.48.260 RCW and Chapter 173-201A WAC, water quality certification is granted to the U.S. Army Corps of Engineers subject to the following conditions:

A. No Impairment of Water Quality:

A1. The Cedar River is classified as Class AA waters of the state. Certification of this proposal does not authorize U.S. Army Corps of Engineers to exceed applicable state water quality standards (Chapter 173-201A WAC) or sediment quality standards (Chapter 173-204 WAC). Water quality criteria contained in WAC 173-201A-030(1) and WAC 173-201A-040 shall apply to this project, unless otherwise authorized by Ecology. This Order does not authorize temporary exceedances of water quality standards beyond the limits established in WAC 173-201A-110(3). Furthermore, nothing in this certification shall absolve the permittee from liability for contamination and any subsequent cleanup of surface waters or sediments occurring as a result of project construction or operations.

A2. Turbidity in Class AA waters shall not exceed 5 NTU over background when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.

B. Construction:

B1. Construction activities waterward of the ordinary high water mark may cause water quality effects that will exceed the state water quality criteria specified in WAC 173-201A. Mixing zones (or zones of disturbance) can be authorized to allow for temporary exceedances of certain water quality standards in state waters immediately adjacent to a permitted project, provided that the discharger fully applies all known, available, and reasonable methods of prevention, control, and treatment (AKART). No mixing zone shall be granted unless the supporting information clearly indicates the mixing zone would not have a reasonable potential to cause a loss of sensitive or important habitat, substantially interfere with the existing or characteristic uses of the water body, result in damage to the ecosystem, or adversely affect public health as determined by the department (WAC 173-201A-100(4)), and the size of a mixing zone and the concentrations of pollutants present shall be minimized (WAC 173-201A-100(6)).

B2. For this project, a temporary turbidity mixing zone of 300 feet from the downstream edge of the in-water activities is considered reasonably sufficient to allow for temporary water quality exceedances (WAC 173-201A-110(3)). Within the mixing zone, the Class AA standard for turbidity is waived. All other applicable water quality standards shall remain

in effect within the mixing zone and all other water quality standards are to be met outside of the authorized mixing zone.

B3. The waiver of specified standards within the mixing zone is intended for brief periods of time (such as a few hours or a day) and is not an authorization to exceed those standards for the entire duration of construction. In no case does the waiver authorize degradation of water quality that significantly interferes with or becomes injurious to characteristic water uses, including fisheries habitat, or causes long-term harm to the Cedar River.

B4. Water Quality Monitoring:
Sampling for turbidity shall occur a minimum of every two hours throughout the first day of in-water construction activity. Subsequent sampling is dependent upon monitoring results, but shall be a minimum of three times per day during in-water activity if no exceedances are detected. Sampling shall increase if exceedances are detected.

B5. Construction Stormwater and Erosion Control: Work in or near waters of the state shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment and erosion control Best Management Practices suitable to prevent exceedances of state water quality standards (*e.g.*, detention and/or infiltration areas, silt fences, etc.), shall be in place before starting clearing, excavating, and grading work at the impact site.

B6. During clearing and excavation, U.S. Army Corps of Engineers shall take all necessary measures to minimize the alteration or disturbance of existing wetland and upland vegetation.

B7. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working areas shall be contained for proper disposal, and shall not be discharged into state waters or storm drains.

B8. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked daily for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters. No refueling of equipment shall occur over, or within 50 feet of the river or wetlands.

B9. Equipment used for this project shall be free of external petroleum-based products. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to work below the Ordinary High Water Line.

B10. U.S. Army Corps of Engineers shall provide notice to Ecology's Alice Kelly at least 3 days prior to the start of construction. Notification can take place by e-mail to akel461@ecy.wa.gov, telephone to (425) 649-7145, fax to (425) 649-7098, or in writing.

B11. A qualified stream ecologist shall be on site to oversee project construction and riparian planting.

B12. Side channel construction and installation of the inlet structure shall be isolated from the flow of the Cedar River.

B13. Before water is diverted into the side channel, approved fish habitat components, streambed materials, and bank protection to prevent erosion shall be in place.

B14. Alteration or disturbance of the streambank and bank vegetation and wetlands and wetland vegetation shall be limited to that necessary to install the project. With seven calendar days of project grading work, all disturbed riparian areas shall be protected from erosion using vegetation or other means. Installation of the project plantings shall be completed per the approved plans prior to the start of the first growing season (March 1) subsequent to project grading. Project plantings shall be maintained as necessary for three years to ensure 80 percent or greater survival.

B15. Water diversion shall occur only after inspection and approval of the side channel by an Area Habitat Biologist or other representative of Washington Department of Fish and Wildlife.

B16. If at any time as a result of project activities fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills) operations shall cease and the following agencies shall be contacted: Department of Ecology at (425) 649-7000 and Washington Department of Fish and Wildlife (WDFW) at (360) 534-8233. Work shall not resume until further approval is given by WDFW.

C. Stormwater Management:

C1. The US Army Corps of Engineers shall comply with the Stormwater Management Manual for Western Washington, August 2001.

D. Emergency/Contingency Measures:

D1. In the event U.S. Army Corps of Engineers is unable to comply with any of the permit terms and conditions due to any cause, the permittee shall:

- Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the violation and correct the problem.

- Notify Ecology of the failure to comply. Spill events shall be reported immediately to Ecology's 24-Hour Spill Response Team at (425) 649-7000, and within 24 hours to Ecology's Alice Kelly at (425) 649-7145.

- Submit a detailed written report to Ecology within five days that describes the nature of the violation, corrective action taken and/or planned, steps to be taken to prevent a recurrence, results of any samples taken, and any other pertinent information.

E. Other Permits and Approvals:

- SEPA DNS issued by the City of Renton LUA-02-080.
- City of Renton Certificate of Exemption from Shoreline Substantial Development Permit, LUA-02-080, issued November 22, 2002.
- Hydraulic Project Approval (HPA) Log No. ST-F8338-01 issued by the Washington Department of Fish and Wildlife on May 16, 2003.

F. General Conditions:

F1. For purposes of this Order, the term "Applicant" shall mean U.S. Army Corps of Engineers and its agents, assigns, and contractors.

F2. This certification does not exempt and is provisional upon compliance with other statutes and codes administered by federal, state, and local agencies.

F3. The applicant will be out of compliance with this certification if the project is constructed and/or operated in a manner not consistent with the project description contained in the Public Notice for certification, or as otherwise approved by Ecology. Additional mitigation measures may be required through other local, state, or federal requirements.

F4. The applicant will be out of compliance with this certification and must reapply with an updated application if five years elapse between the date of the issuance of this certification and the beginning of construction and/or discharge for which the federal license or permit is being sought.

F5. The applicant will be out of compliance with this certification and must reapply with an updated application if the information contained in the Public Notice is voided by subsequent submittals to the federal agency. Any future action at this project location, emergency or otherwise, that is not defined in the Public Notice, or has not been approved by Ecology, is not authorized by this Order. All future actions shall be coordinated with Ecology for approval prior to implementation of such action.

F6. Copies of this Order shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and foremen, and state and local government inspectors. To avoid violations or non-compliance with this Order, the applicant shall ensure that project managers, construction superintendents, and other responsible parties have read and understand relevant aspects of this Order, the NPDES permit if applicable, and any subsequent revision or Ecology-approved plans.

F7. The applicant shall provide access to the project site and all mitigation sites upon request by Ecology personnel for site inspections, monitoring, necessary data collection, or to ensure that conditions of this Order are being met.

F8. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (*e.g.*, violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect the public interest.

F9. Liability: Any person who fails to comply with any provision of this Order shall be liable for a penalty of up to ten thousand dollars ($10,000) per violation for each day of continuing noncompliance.

Appeal Process:

Any person aggrieved by this Order may obtain review thereof by appeal, within thirty (30) days of receipt of this Order, to the Washington Pollution Control Hearings Board, P.O. Box 40903, Olympia, WA 98504-0903. Concurrently, a copy of the appeal must be sent to the Department of Ecology, Shorelands and Environmental Assistance Program, P.O. Box 47600, Olympia, WA 98504-7600. These procedures are consistent with the provisions of Chapter 43.21B RCW and the rules and regulations adopted thereunder.

Dated 3/19/04 at Bellevue, Washington.

Jeannie Summerhays

Jeannie Summerhays, Section Manager
Shorelands and Environmental Assistance Program
Department of Ecology
State of Washington

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

December 2, 2008

REGISTERED MAIL
RB 670 439 665 US

U.S. Army Corps of Engineers
Attn: Les Soule LCD Dec 3 08
PO Box 3755
Seattle, WA 98124

RE: First Amendment to Administrative Order #1040, Cedar River Side Channel Project, Cedar River, Renton, King County, Washington

Dear Mr. Soule:

Enclosed is an amendment to the Water Quality Certification issued on March 19, 2004, for the above project.

If you have any questions, please contact Rebekah Padgett at (425) 649-7129. The enclosed Amendment may be appealed by following the procedures described in the Amendment.

Sincerely,

Erik Stockdale

Erik Stockdale, Unit Supervisor
Northwest Regional Office
Shorelands and Environmental Assistance Program

ES:rrp:cja

cc: Hannah Hadley, U.S. Army Corps of Engineers
Steven Lee, City of Renton

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF GRANTING	)	**ORDER #1040 First Amendment**
A WATER QUALITY	)	**U.S. Army Corps of Engineers #PL-04-07**
CERTIFICATION TO	)	
U.S. Army Corps of Engineers	)	Cedar River Side Channel Project; Cedar
	)	River, Renton, King County Washington.

TO: U.S. Army Corps of Engineers
Attn: Les Soule
PO Box 3755
Seattle, WA 98124

As requested on October 24, 2008, the Department of Ecology (Ecology) is amending the above-referenced Administrative Order to extend the Section 401 Water Quality Certification. While construction of the side channel was expected to be completed in Summer 2008, it is now anticipated that the construction will be completed in 2009. An additional request was submitted to Ecology on November 19, 2008, to amend the quantity of material excavated from the channel based on updated calculations.

This amendment is issued under the provisions of Chapter 90.48 RCW and Chapter 173-201A WAC.

Administrative Order #1040 is hereby amended as follows:

Project description that reads:

The proposal includes excavation of 6,000 cubic yards of floodplain sediments to create the 1,200 foot-long channel along the left bank between RM 3.4 and 3.6 in the City of Renton. The material will be stockpiled on uplands nearby. The 10,000 square-foot channel will be constructed with 3:1 side slopes, alcoves with woody debris, and will be revegetated with native vegetation after construction. The intake structure will consist of a concrete box culvert, trash, rack, control valve, geogrids and approximately 140 feet of pipe.

Is replaced with:

The proposal includes excavation of approximately 14,000 cubic yards of floodplain sediments to create the 1,200 foot-long channel along the left bank between RM 3.4 and 3.6 in the City of Renton. The material will be stockpiled on uplands nearby. The 10,000 square-foot channel will be constructed with 3:1 side slopes, alcoves with woody debris, and will be revegetated with native vegetation after construction. The intake structure will consist of a concrete box culvert, trash, rack, control valve, geogrids and approximately 140 feet of pipe.

1. **Condition F4 that reads:**

   F4. The applicant will be out of compliance with this certification and must reapply with an updated application if five years elapse between the date of the issuance of this certification and the beginning of construction and/or discharge for which the federal license or permit is being sought.

   Is replaced with:

   F4. This Order is valid until all of the conditions have been complied with.

No other conditions or requirements of the above-mentioned Order are affected by this Amendment. The Department of Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if it appears necessary to further protect the public interest.

Failure to comply with this amendment may result in the issuance of civil penalties or other actions whether administrative or judicial, to enforce the terms of this amendment.

Appeal Process

You have a right to appeal this Amendment. To appeal this you must:

- File your appeal with the Pollution Control Hearings Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.

- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

Be sure to do the following:

- Include a copy of this document that you are appealing with your Notice of Appeal.

- Serve and file your appeal in paper form; electronic copies are not accepted.

1. To file your appeal with the Pollution Control Hearings Board

Mail appeal to:		Deliver your appeal in person to:
The Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903	OR	The Pollution Control Hearings Board 4224 – 6th Ave SE Rowe Six, Bldg 2 Lacey, WA 98503

2. To serve your appeal on the Department of Ecology

Mail appeal to:		Deliver your appeal in person to:
The Department of Ecology Appeals Coordinator P.O. Box 47608 Olympia, WA 98504-7608	OR	The Department of Ecology Appeals Coordinator 300 Desmond Dr SE Lacey, WA 98503

3. And send a copy of your appeal to:

Department of Ecology
Northwest Regional Office
Attn: Rebekah Padgett
3190 160th Avenue SE
Bellevue, WA 98008

For additional information visit the Environmental Hearings Office Website:
http://www.eho.wa.gov

To find laws and agency rules visit the Washington State Legislature Website:
http://www1.leg.wa.gov/CodeReviser

Your appeal alone will not stay the effectiveness of this Amendment. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Ch. 43.21B RCW.

Dated December 2, 2008 at Bellevue, Washington.

Erik Stockdale

Erik Stockdale, Unit Supervisor
Northwest Regional Office
Shorelands and Environmental Assistance Program
Department of Ecology
State of Washington

11.2 11.5 Public notice

Public Notice

US Army Corps
Of Engineers
Seattle District

Planning Branch
Post Office Box 3755
Seattle, Washington 98124-2255
Rustin A. Director, Environmental Coordinator
Telephone: (206) 764-3636

Public Notice Date: February 1, 2004
Expiration Date: March 2, 2004
Reference: PL-04-07
Name: Seattle District, Corps of Engineers

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Seattle District, plans to perform work related to the Cedar River Side Channel Replacement Project, King County, Washington. This work is subject to Section 404 of the Clean Waters Act and described below and shown on the enclosed drawing(s).

LOCATION: The proposed project is located in the floodplain along the left bank between RM 3.4 and 3.6 on the Cedar River in the City of Renton, King County Washington (T21N, R05E, Section 21). The project location is east of the Royal Hills Neighborhood; west of the Maple Garden Neighborhood within City owned property.

PROJECT BACKGROUND: The U.S. Army Corps of Engineers, Seattle District, (Corps) with the city of Renton as the local project sponsor, constructed the Cedar River Section 205 Flood Control Project between 1998 and 2000. The project consisted of dredging within, and constructing concrete floodwalls and earthen levees along the lower 1.25 miles of the Cedar River. A groundwater-spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) was also constructed during this time period to serve as mitigation for the assumed loss of salmonid spawning habitat in the lower 1.25 miles of the Cedar River following the initial and maintenance river dredging operations. Maintenance dredging was assumed to occur every 3 to 10 years to maintain the flood protection benefits. During the February 28, 2001 Nisqually Earthquake, a landslide occurred adjacent to the groundwater spawning channel and resulted in the loss of the channel's function as off-channel habitat. In response, the City of Renton requested and obtained assistance from the Corps under Public Law 84-99 to replace the channel to provide the long-term mitigation required for the Cedar River Section 205 Flood Damage Control Project. During the summer of 2004, the Corps is planning to construct the Cedar River Side Channel Replacement Project. The proposed work includes replacing the earthquake-damaged side channel with a new river-fed channel containing habitat features suitable for salmonid spawning and rearing located between River Mile 3.4 and 3.6.

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PURPOSE: This project is necessary to reestablish a salmonid spawning and rearing side-channel to the Cedar River to fulfill the mitigation agreements between the Corps and the Washington Department of Fish and Wildlife.

MITIGATION: No mitigation is required for this project as it is considered self-mitigating.

COORDINATION: The proposed work is being coordinated with the following federal, state, or local agencies:

Federal
U.S. Fish and Wildlife Service
National Marine Fisheries Service

Indian Tribes
Muckleshoot Tribe

State of Washington
Department of Ecology
Department of Fish and Wildlife

Local
City of Renton

CULTURAL AND HISTORIC RESOURCES: The District Engineer has reviewed the latest published version of the National Register of Historic Places, lists of properties determined eligible, and other sources of information. A field reconnaissance of the site did not identify any significant cultural or historic resources that would directly be affected by the proposed project. Unknown archeological, scientific, prehistoric or historical data may be lost or destroyed by work to be accomplished under the requested work.

The District Engineer invites responses to this Public Notice from Federal, State and local agencies, historical and archeological societies, Indian tribes and other parties likely to have knowledge of or concerns with historic properties in the area.

ENDANGERED SPECIES - In accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended, federally funded, constructed, permitted, or licensed projects must take into consideration impacts to federally listed and proposed threatened or endangered species.

Several species listed as either threatened or endangered are potentially found in vicinity of the project:

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Species	Listing Status	Critical Habitat
Bald Eagle *Haliaeetus leucocephalus*	Threatened	—
Coastal/Puget Sound Bull Trout *Salvelinus confluentus*	Threatened	—
Puget Sound Chinook Salmon *Oncorhynchus tshawytscha*	Threatened	Designated
Puget Sound/Strait of Georgia Coho Salmon *Oncorhynchus kisutch*	Candidate	—

A Biological Assessment (BA) was prepared and submitted to National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) on July 30, 2002. The BA concluded that the proposed project is *not likely adversely affect* any species protected under the Act, largely because construction will occur when chinook and bull trout are least likely to be present in the project area, and during a portion of the year when bald eagles are most tolerant of disturbance. The Corps will not proceed with the proposed work until letters concurring with the determinations made in the BA have been received.

PUBLIC HEARING - Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION - The decision whether to perform the proposed work will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers (Corps) is soliciting comments from the public; federal, state, and local agencies and officials; Indian tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or not proceed with the proposed work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

The evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

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ADDITIONAL EVALUATION - The State of Washington will review this work for consistency with the approved Washington Coastal Zone Management Program. A coastal zone consistency statement will be prepared and submitted to the Department of Ecology. A preliminary determination has been made that the proposed maintenance work is consistent to the maximum extent practicable with the enforceable policies of the City of Renton Shoreline Master Program.

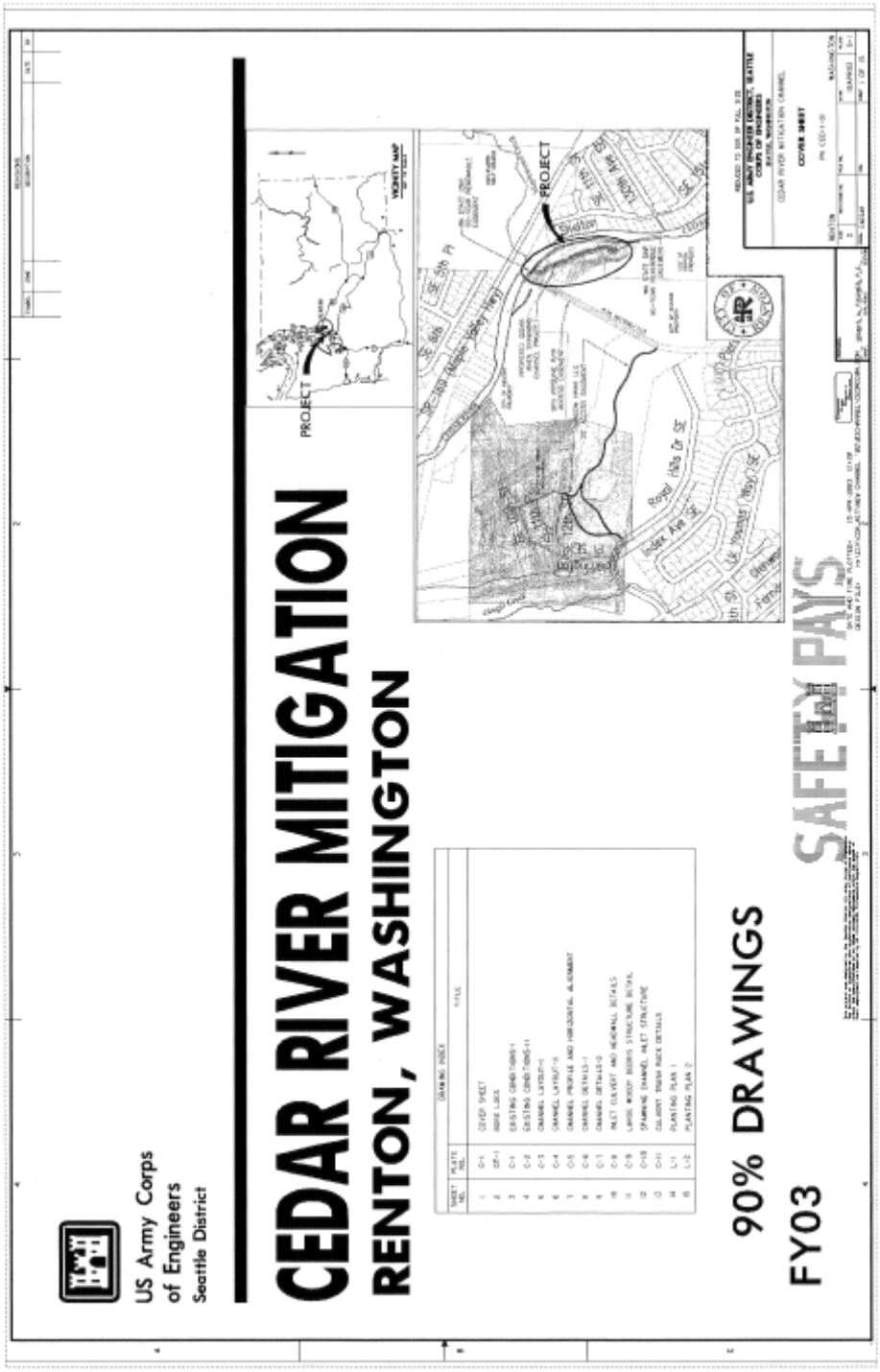
A Section 401 water quality certification is requested from the State of Washington.

Pursuant to the National Environmental Policy Act, a final Environmental Assessment will be prepared based on responses to this Public Notice. Once complete, the Environment Assessment (EA) will be posted and available on the Seattle District web site at: <http://www.nws.usace.army.mil/ers/envirdocs.html>. A preliminary determination has been made that the proposed maintenance work will not significantly affect the quality of the human environment and, therefore, an Environmental Impact Statement is not required.

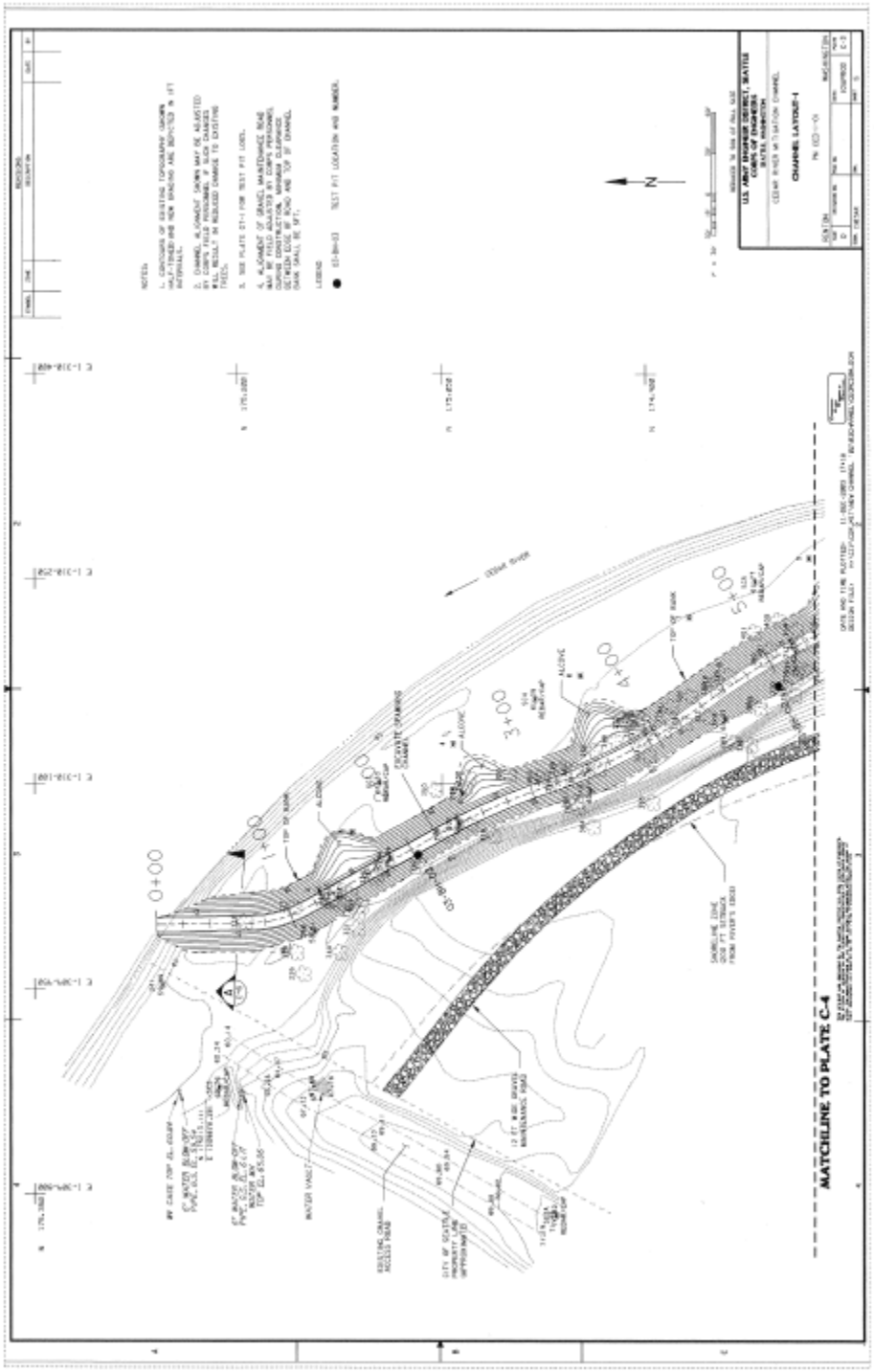
COMMENT AND REVIEW PERIOD: Additional information concerning the project may be obtained at the above referenced address from Mr. Rustin A. Director, (206) 764-3636, or from Mr. Noel Gilbrough, (206) 764-3652. Comments on these factors will be accepted and made part of the record. Comments should refer to the reference number shown above and reach this office, Attn: Mr. Rustin A. Director, NWS-PM-PL-ER, no later than the expiration date of this public notice to insure consideration.

Encl
Drawing ( ) or Drawings (x)

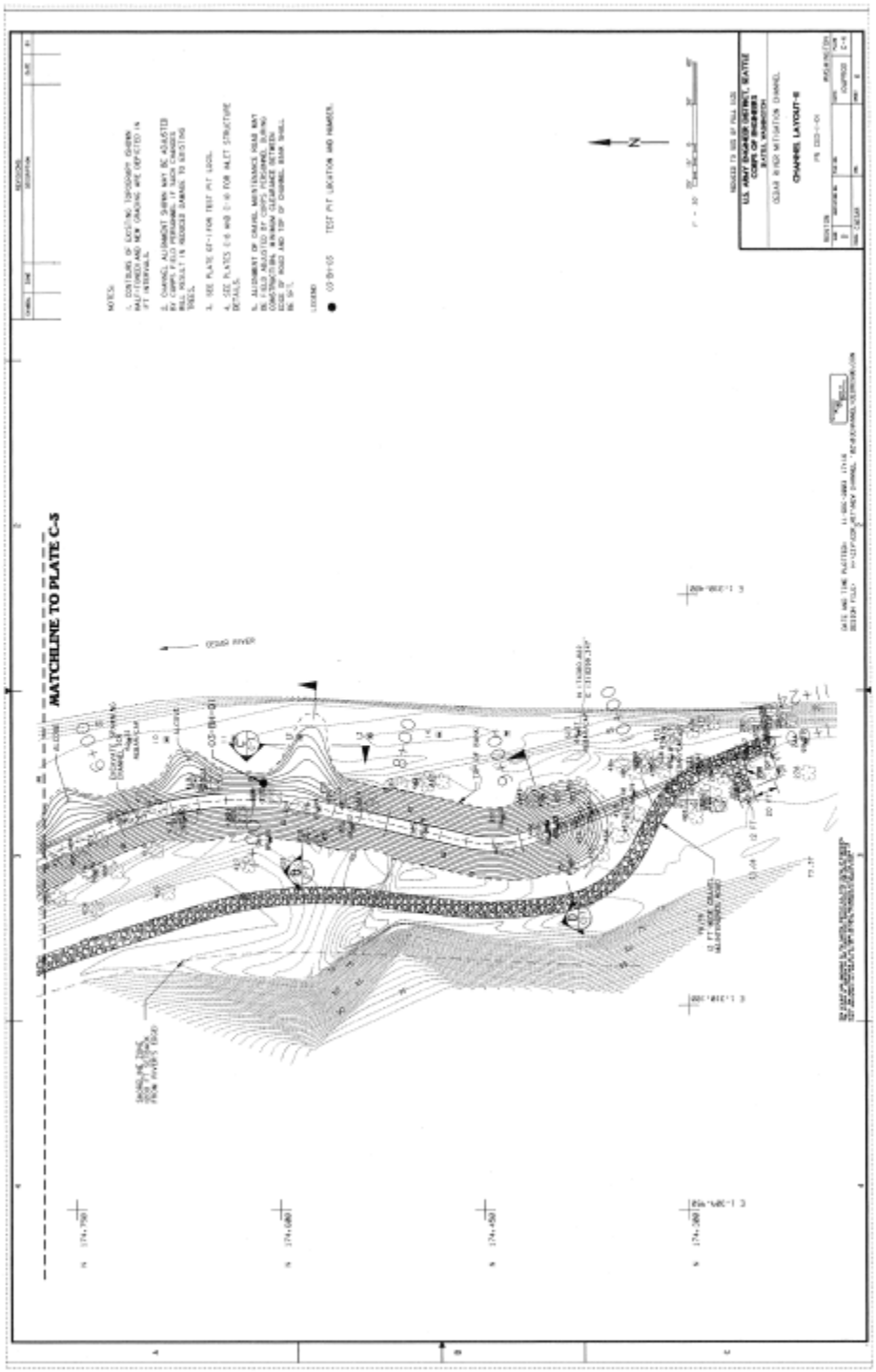
Public Notice: PL-04-07



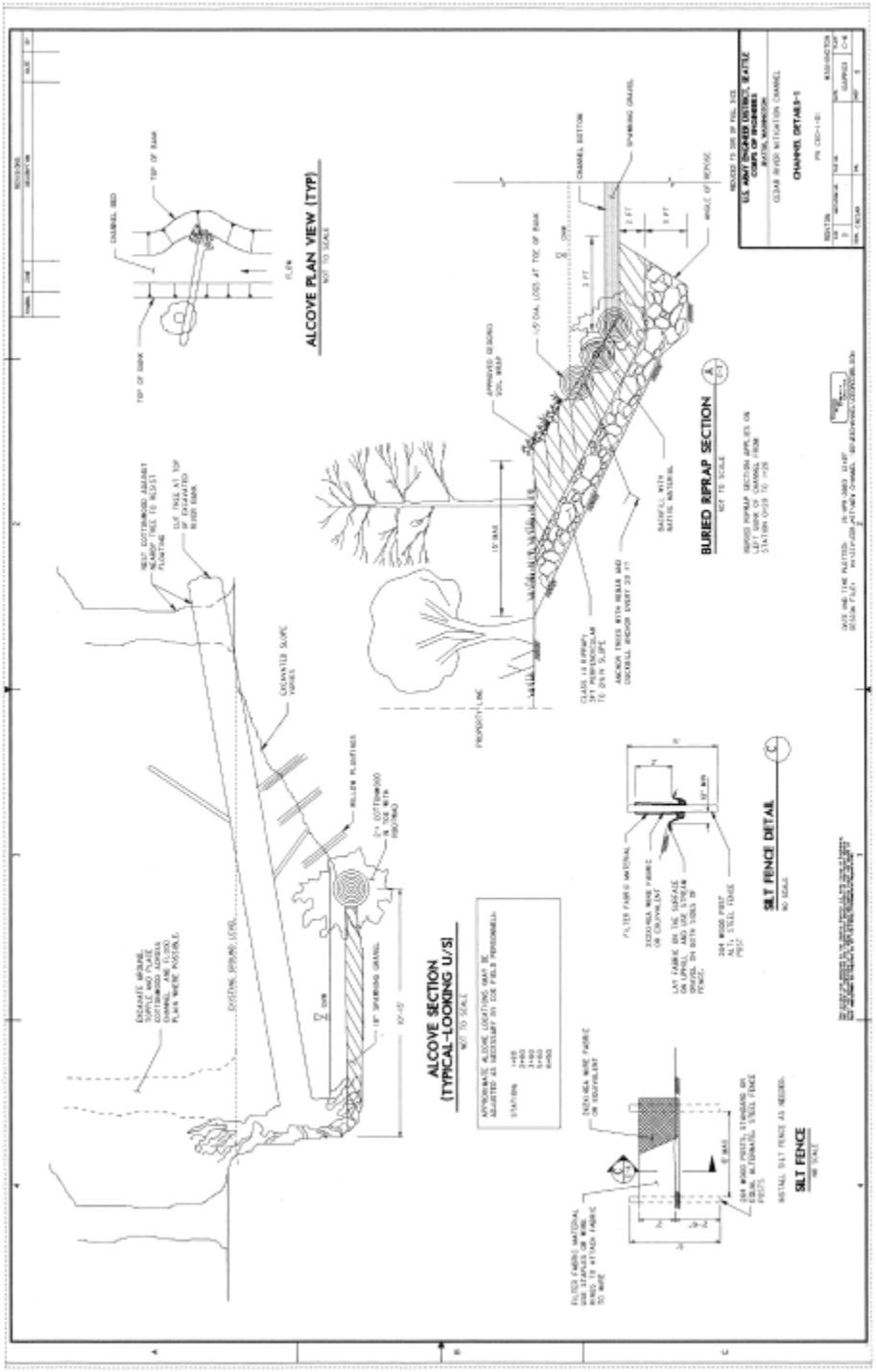
Public Notice: PL-04-07



Public Notice: PL-04-07



Public Notice: PL-04-07



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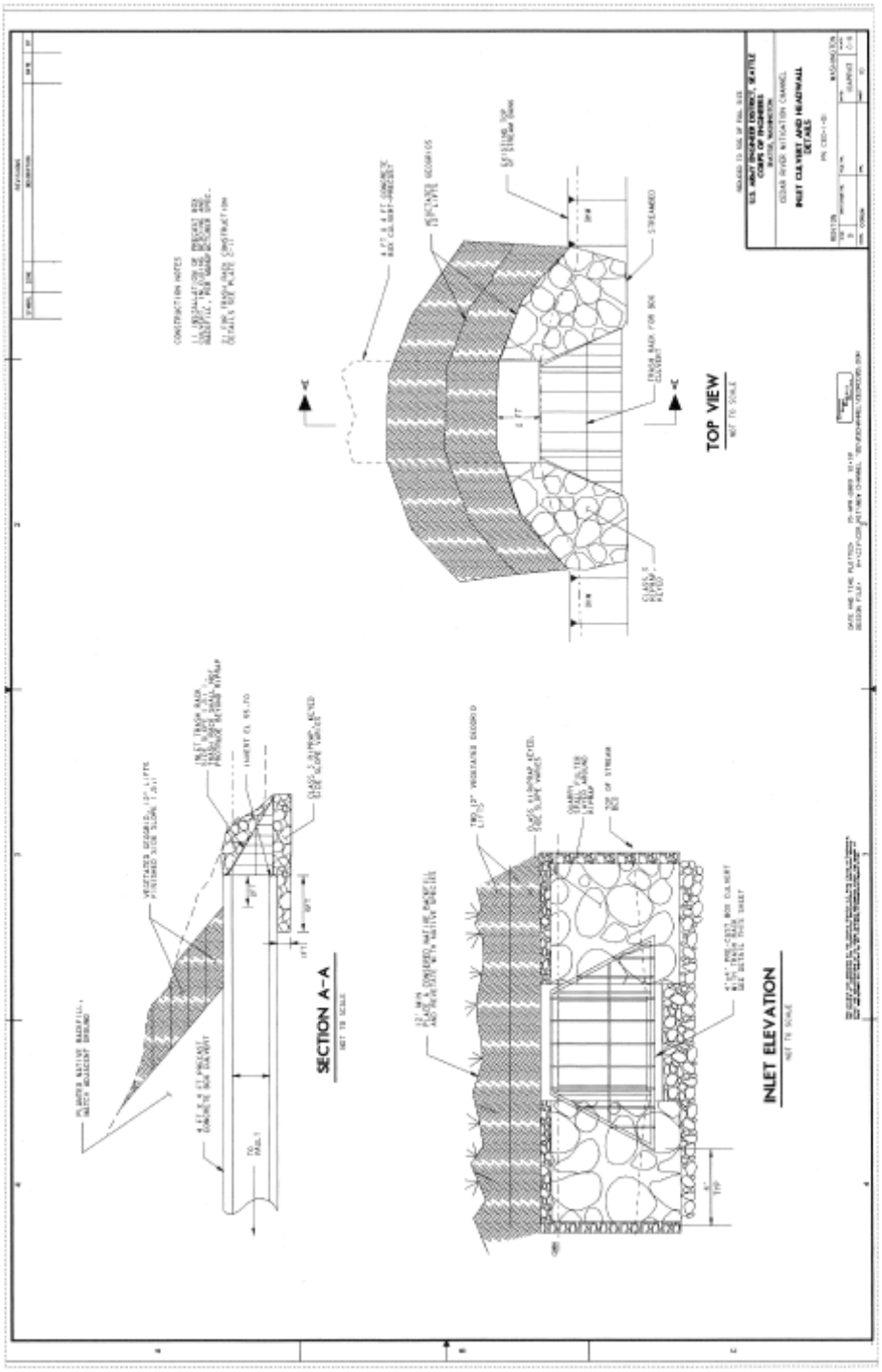

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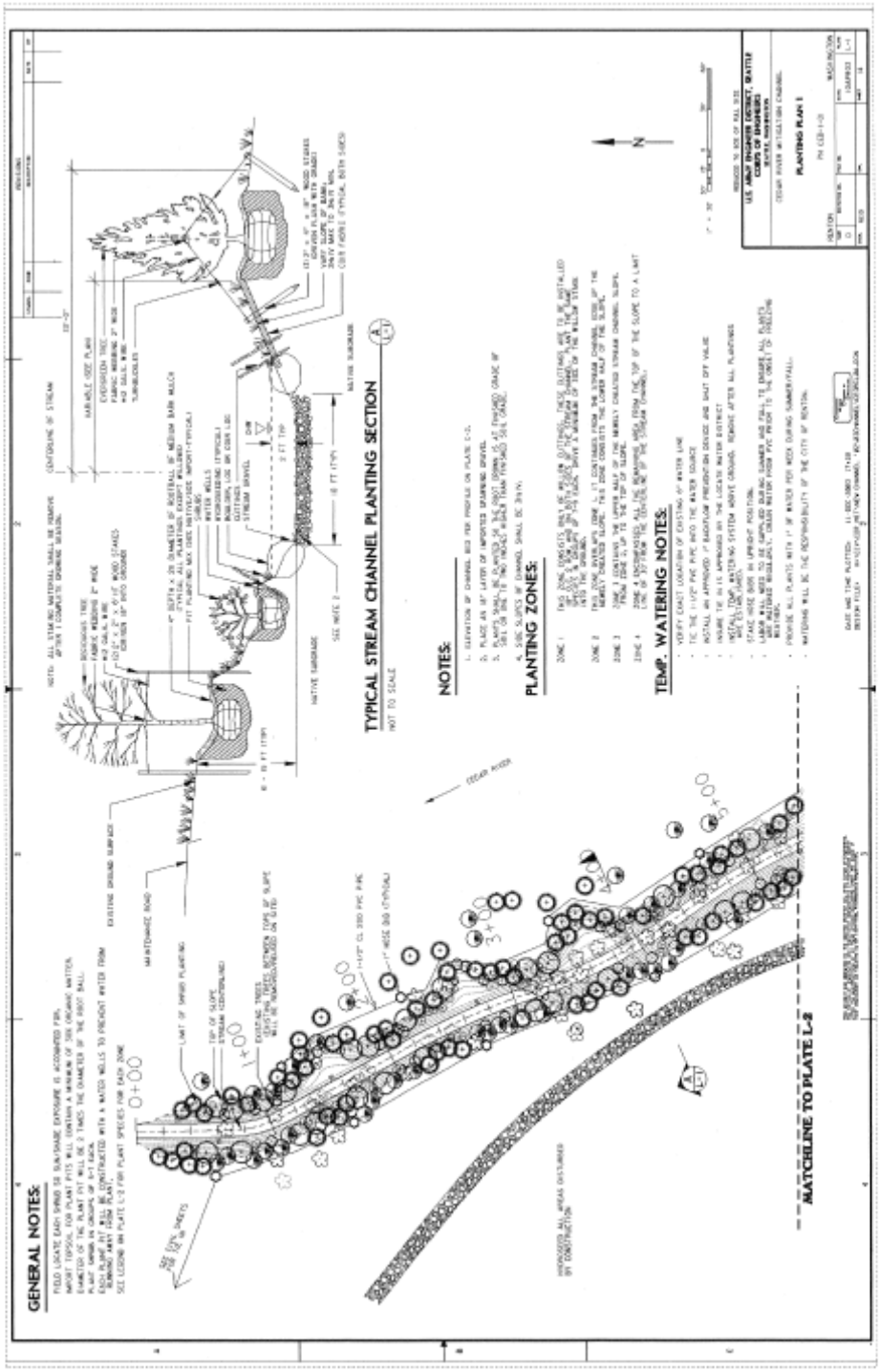

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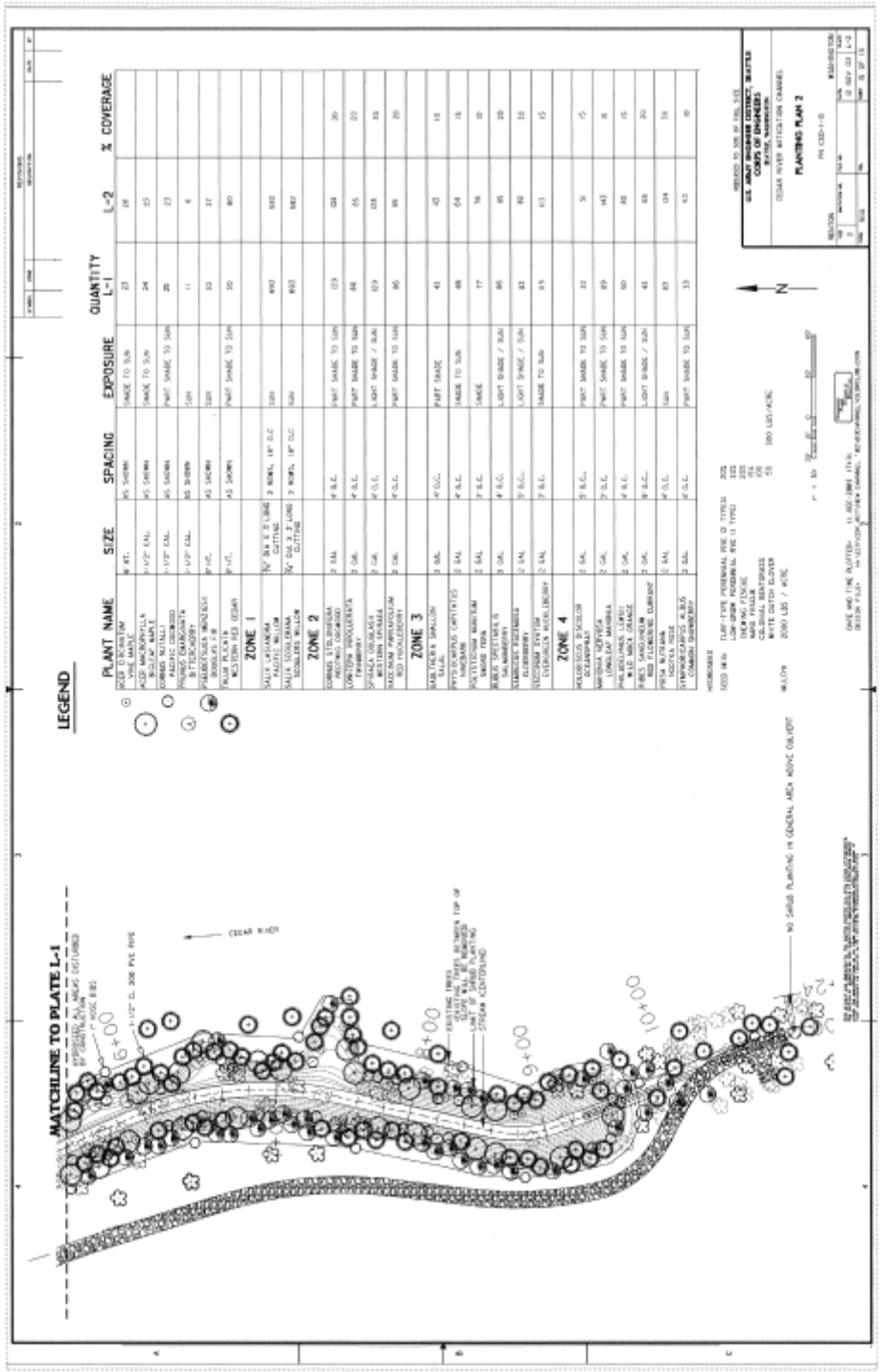

Public Notice: PL-04-07

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Notice of Application for
Water Quality Certification
and for
Certification of Consistency with the
Washington Coastal Zone Management Program

Date: 1 February 2003

Notice is hereby given that a request has been filed with the Department of Ecology, pursuant to the requirements of Section 401 of the federal Clean Water Act of 1977 (PL 95-217), to certify that the project described in the Corps of Engineers Public Notice No. PL-04-07 will comply with Sections 301, 302, 303, 306, and 307 of the Act, and with applicable provisions of State and Federal water pollution control laws.

Notice is also given that a request has been filed with the Department of Ecology, pursuant to the requirements of Section 307(c) of the federal Coastal Zone Management Act of 1972 (16 U.S.C. 1451), to certify that the above-referenced project will comply with the Washington State Coastal Zone Management Program and that the project will be conducted in a manner consistent with that Program.

Any person desiring to present views pertaining to the project on either or both (1) compliance with water pollution control laws or (2) the project's compliance or consistency with the Washington State Coastal Zone Management Program may do so by providing written comments within 30 days of the above publication date to:

Permit Coordination Unit
Department of Ecology
P.O. Box 47703
Olympia, WA 98504-7703

11.6 WDFW Advisory HPA

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: April 28, 2008
Project Expiration Date: August 15, 2010

Control Number: 112878-1
FPA/Public Notice #: N/A

PERMITTEE	AUTHORIZED AGENT OR CONTRACTOR
Renton City of Surface Water Utility Department	Renton City of Surface Water Utility
ATTENTION: Ron Straka	ATTENTION: Steve Lee
1055 S Grady Way 5th Floor	1055 S Grady Way Fifth Floor
Renton, WA 98057	Renton, WA 98057
425-430-7248	425-430-7205

Project Name: Cedar River Spawning Channel at Rolling Hills

Project Description: Construct a spawning channel with inlet structure to assist with long term mitigation requirements for the Cedar River Section 205 Flood Damage Project; includes large woody debris, vegetation, channel construction, access road to maintain the structure, and construction of the inlet structure; access is via easements off Royal Hills Drive SE

PROVISIONS

1. TIMING LIMITATIONS: The project may begin immediately and shall be completed by August 15, 2010, provided that construction within the ordinary high water line (OHWL) of the Cedar River shall occur only between June 16 and August 15.

2. NOTIFICATION REQUIREMENT: NOTIFICATION REQUIREMENT: The Area Habitat Biologist (AHB) listed below (e-mail to fisheldf@dfw.wa.gov) and the Enforcement Program Officer (e-mail to willewmw@dfw.wa.gov) shall receive e-mail notification from the person to whom this Hydraulic Project Approval (HPA) is issued (permittee) no less than three working days prior to start of work, and again within seven days of completion of work to arrange a compliance inspection. The notification shall include the permittee's name, project location, starting date of work or completion date of work, and the control number of this HPA.

3. Work shall be accomplished per plans and specifications entitled, "CEDAR RIVER MITIGATION CHANNEL", dated July 20, 2004, submitted to the Washington Department of Fish and Wildlife (WDFW), except as modified by this HPA. These plans reflect design criteria per Chapter 220-110 WAC. These plans reflect mitigation procedures to significantly reduce or eliminate impacts to fish resources. A copy of these plans shall be available on site during construction.

4. A qualified stream ecologist shall be on site to oversee project construction and riparian planting.

5. Installation of the inlet structure and outlet of the side channel shall be isolated from the flowing stream.

6. During construction, the side channel shall be isolated from the flowing stream.

7. Before water is diverted into the side channel, approved fish habitat components, streambed materials, and bank protection to prevent erosion shall be in place. Fish habitat components and

Page 1 of 5

bank protection material shall be installed to withstand the 100-year peak flows.

8. Spoils from the side channel shall be placed in an approved upland site.

9. Water diversion shall occur only after inspection and approval of the side channel by the AHB listed below or his representative.

10. Alteration or disturbance of the streambank and bank vegetation and wetlands and wetland vegetation shall be limited to that necessary to install the project. Within seven calender days of project grading work, all disturbed riparian areas shall be protected from erosion using vegetation or other means. Installation of the project plantings shall be completed per the approved plans (Provision 3) prior to December 31 of the year of spawning channel construction. Project plantings shall be maintained as necessary for three years to ensure 80 percent or greater survival of each species or a contingency species approved by the AHB.

11. If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), immediate notification shall be made to the Washington Emergency Management Division at 1-800-258-5990, and to the AHB.

12. Erosion control methods shall be used to prevent silt-laden water from entering the streams and/or associated wetlands. These may include, but are not limited to, straw bales, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas.

13. Prior to starting work, the selected erosion control methods (Provision 12) shall be installed. Accumulated sediments shall be removed during the project and prior to removing the erosion control methods.

14. Equipment used for this project may operate below the OHWL as per the TIMING LIMITATIONS (Provision 1), provided the drive mechanisms (wheels, tracks, tires, etc.) shall not enter or operate below the OHWL.

15. Equipment used for this project shall be free of external petroleum-based products while working around the stream. Accumulation of soils or debris shall be removed from the drive mechanisms (wheels, tires, tracks, etc.) and undercarriage of equipment prior to its working below the OHWL. Equipment shall be checked daily for leaks and any necessary repairs shall be completed prior to commencing work activities along the stream.

16. If high flow conditions that may cause siltation are encountered during this project, work shall stop until the flow subsides.

17. Extreme care shall be taken to ensure that no petroleum products, hydraulic fluid, sediments, sediment-laden water, chemicals, or any other toxic or deleterious materials are allowed to enter or leach into the stream or wetlands associated with the stream.

Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

RCW 77.55.021 - Appeal pursuant to Chapter 34.05

North Puget Sound
16018 Mill Creek Boulevard
Mill Creek, WA 98012-1296
(425) 775-1311

Issue Date: April 28, 2008
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PROJECT LOCATIONS

Location #1 Rolling Hills Spawning Channel

WORK START: April 28, 2008					WORK END: August 15, 2010	
WRIA: 08.0299	Waterbody: Cedar River				Tributary to: Lake Washington	
1/4 SEC: NE 1/4	Section: 21	Township: 23 N	Range: 05 E	Latitude: N 47.47154	Longitude: W 122.16874	County: King
Location #1 Driving Directions						

APPLY TO ALL HYDRAULIC PROJECT APPROVALS

This Hydraulic Project Approval pertains only to those requirements of the Washington State Hydraulic Code, specifically Chapter 77.55 RCW (formerly RCW 77.20). Additional authorization from other public agencies may be necessary for this project. The person(s) to whom this Hydraulic Project Approval is issued is responsible for applying for and obtaining any additional authorization from other public agencies (local, state and/or federal) that may be necessary for this project.

This Hydraulic Project Approval shall be available on the job site at all times and all its provisions followed by the person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work.

This Hydraulic Project Approval does not authorize trespass.

The person(s) to whom this Hydraulic Project Approval is issued and operator(s) performing the work may be held liable for any loss or damage to fish life or fish habitat that results from failure to comply with the provisions of this Hydraulic Project Approval.

Failure to comply with the provisions of this Hydraulic Project Approval could result in a civil penalty of up to one hundred dollars per day and/or a gross misdemeanor charge, possibly punishable by fine and/or imprisonment.

All Hydraulic Project Approvals issued pursuant to RCW 77.55.021 (EXCEPT agricultural irrigation, stock watering or bank stabilization projects) or 77.55.141 are subject to additional restrictions, conditions or revocation if the Department of Fish and Wildlife determines that new biological or physical information indicates the need for such action. The person(s) to whom this Hydraulic Project Approval is issued has the right pursuant to Chapter 34.04 RCW to appeal such decisions. All agricultural irrigation, stock watering or bank stabilization Hydraulic Project Approvals issued pursuant to RCW 77.55.021 may be modified by the Department of Fish and Wildlife due to changed conditions after consultation with the person(s) to whom this Hydraulic Project Approval is issued: PROVIDED HOWEVER, that such modifications shall be subject to appeal to the Hydraulic Appeals Board established in RCW 77.55.301.

APPEALS INFORMATION

If you wish to appeal the issuance or denial of, or conditions provided in a Hydraulic Project Approval, there are informal and formal appeal processes available.

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Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

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A. INFORMAL APPEALS (WAC 220-110-340) OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021, 77.55.141, 77.55.181, and 77.55.291: A person who is aggrieved or adversely affected by the following Department actions may request an informal review of:

(A) The denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval; or

(B) An order imposing civil penalties. A request for an INFORMAL REVIEW shall be in WRITING to the Department of Fish and Wildlife HPA Appeals Coordinator, 600 Capitol Way North, Olympia, Washington 98501-1091 and shall be RECEIVED by the Department within 30 days of the denial or issuance of a Hydraulic Project Approval or receipt of an order imposing civil penalties. If agreed to by the aggrieved party, and the aggrieved party is the Hydraulic Project Approval applicant, resolution of the concerns will be facilitated through discussions with the Area Habitat Biologist and his/her supervisor. If resolution is not reached, or the aggrieved party is not the Hydraulic Project Approval applicant, the Habitat Technical Services Division Manager or his/her designee shall conduct a review and recommend a decision to the Director or his/her designee. If you are not satisfied with the results of this informal appeal, a formal appeal may be filed.

B. FORMAL APPEALS (WAC 220-110-350) OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021 (EXCEPT agricultural irrigation, stock watering or bank stabilization projects) or 77.55.291:
A person who is aggrieved or adversely affected by the following Department actions may request a formal review of:

(A) The denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval;

(B) An order imposing civil penalties; or

(C) Any other 'agency action' for which an adjudicative proceeding is required under the Administrative Procedure Act, Chapter 34.05 RCW.

A request for a FORMAL APPEAL shall be in WRITING to the Department of Fish and Wildlife HPA Appeals Coordinator, shall be plainly labeled as 'REQUEST FOR FORMAL APPEAL' and shall be RECEIVED DURING OFFICE HOURS by the Department at 600 Capitol Way North, Olympia, Washington 98501-1091, within 30-days of the Department action that is being challenged. The time period for requesting a formal appeal is suspended during consideration of a timely informal appeal. If there has been an informal appeal, the deadline for requesting a formal appeal shall be within 30-days of the date of the Department's written decision in response to the informal appeal.

C. FORMAL APPEALS OF DEPARTMENT ACTIONS TAKEN PURSUANT TO RCW 77.55.021 (agricultural irrigation, stock watering or bank stabilization only), 77.55.141, 77.55.181, or 77.55.241: A person who is aggrieved or adversely affected by the denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval may request a formal appeal. The request for FORMAL APPEAL shall be in WRITING to the Hydraulic Appeals Board per WAC 259-04 at Environmental Hearings Office, 4224 Sixth Avenue SE, Building Two - Rowe Six, Lacey, Washington 98504; telephone 360/459-6327.

D. FORMAL APPEALS OF DEPARTMENT ACTIONS TAKEN PURSUANT TO CHAPTER 43.21L RCW: A person who is aggrieved or adversely affected by the denial or issuance of a Hydraulic Project Approval, or the conditions or provisions made part of a Hydraulic Project Approval may request a formal appeal. The FORMAL APPEAL shall be in accordance with the provisions of Chapter 43.21L RCW and Chapter 199-08 WAC. The request for FORMAL APPEAL shall be in WRITING to the Environmental and Land Use Hearings Board at Environmental Hearings Office, Environmental and Land Use Hearings Board, 4224 Sixth Avenue SE, Building Two - Rowe Six, P.O. Box 40903, Lacey, Washington 98504; telephone 360/459-6327.

E. FAILURE TO APPEAL WITHIN THE REQUIRED TIME PERIODS results in forfeiture of all appeal rights. If there is no timely request for an appeal, the department action shall be final and unappealable.

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Washington Department of FISH and WILDLIFE

HYDRAULIC PROJECT APPROVAL

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ENFORCEMENT: Sergeant Chandler (34) P2E

Habitat Biologist Larry Fisher	425-313-5683	Larry Fisher	for Director WDFW

CC:

Page 5 of 5

11.3 11.7 Public Comments and Responses

11.7.1 Muckleshoot Indian Tribe Comment Letter July 1, 2003

MUCKLESHOOT INDIAN TRIBE
Fisheries Division
39015 - 172nd Avenue SE • Auburn, Washington 98092-9763
Phone: (253) 939-3311 • Fax: (253) 931-0752

July 1, 2003

Mr. Rustin Director
Environmental Resources Section
U.S. Army Corps of Engineers
P.O. Box 3755
Seattle, WA 98124-3755

RE: Cedar River Side Channel Replacement Project EA and BA

Dear Mr. Director:

The Muckleshoot Indian Tribe Fisheries Division has reviewed the Draft Environmental Assessment (EA) for the Cedar River Side Channel Replacement Project. We have also reviewed the Biological Assessment (BA), which was originally submitted to the NOAA Fisheries for this project. This project occurs within the Usual and Accustomed fishing grounds and stations of the Muckleshoot Indian Tribe. Therefore, we are forwarding the following comments in the interest of protecting and restoring the Tribe's treaty-protected fisheries resources. The Tribe may also comment on impacts to cultural resources in a separate correspondence.

We would like to thank you for extending the EA comment period for an additional 30 days and for sending the BA to facilitate our review. Our page specific comments are attached for your review and consideration.

We look forward to working with the Corps on this important project as it goes through permitting, construction, and monitoring. If you have any questions about these comments, or would like to set up a meeting to discuss them, please contact me at (253) 876-3116.

Sincerely,

Karen Walter
Senior Watershed Coordinator

Cc: Matt Longenbaugh, NOAA Fisheries, Washington Field Office, Habitat Branch
Tim Romanski, US Fish and Wildlife Service

I. Comments to the Environmental Assessment (EA)

These comments are organized to follow the sections in the EA. If a page specific reference is needed, it will be noted as such.

1.2 Background

This section should be expanded to explain the previous projects in detail and the purpose of this proposed project. This section fails to fully discuss this project and its relationship to the original proposal (Section 205 Dredging project), the original mitigation, (Maplewood Golf Course work, etc), the overdredging of the Cedar River during the 205 dredging project, and the resulting requirement for additional mitigation (the destroyed side channel). Since this project is attempting to replace previous mitigation work, the EA needs to clearly identify what the project is and is not mitigating.

Comment 1

Therefore, we recommend that the EA be redrafted to include a table that includes this information and quantifies past actions associated with the Cedar River 205 Dredge as well as more information about this project in one place.

Below is an example of how the suggested table should look like:

Name of action	Date of action	Project quantified	Mitigation quantified
Dredge Cedar River	1998	Dredge 125,000 cu yards in lower 1.25 mile of Cedar River	Construct side channel (xxxx feet length by xxxx feet width) between river mile and xxxx river mile. Revegetate xxxx linear feet with plants Place xxxx logs of (width x length), etc.
Unforseen Dredge project result - Overdredge	1998	Quantify overdredge and upstream headcutting /bed degradation effects (i.e. – total loss of 18,000 sockeye redds)	Please describe the mitigation actions here.
Earthquake and landslide	2001	Mainstem filled in to point where rechannelizing impractical	Previous side channel done as original mitigated expanded to accommodate mainstem flow, etc.
Side channel replacement project	2004	Project details here	Any identified mitigation measures should go here.

Comment 2

Since this project is not a "new" project or independent of past actions, it is important to identify those actions and exactly what this project is attempting to replace, particularly since much of the mitigation for the original Section

205 Dredging project was a requirement arising from an appeal by the Muckleshoot Indian Tribe of the Hydraulic Project Approval (HPA) permit.

The EA should also clarify the project applicant. The roles between the Corps and the City of Renton should be discussed further to identify who is responsible for project impacts and who is responsible for mitigation. It is essential that these items be clarified since this latest activity proposed by the Corps cannot be used to overturn state permit requirements and appeal decisions regarding existing mitigation requirements and the requirement for additional mitigation measures if an insufficient cumulative percent of the sockeye spawner escapement fails to spawn in the dredged reached of the Cedar River and the mitigation sites. The Corps is encouraged to read the Washington Department of Fish and Wildlife decision on the Tribe's HPA appeal filed over the original Section 205 dredging project. Comment 3

1.3 Project and Need
This section lacks sufficient information to fully explain the details to justify the project. For example, the EA references mitigation agreements between the Corps and WDFW, but does not detail what these agreements require. If these agreements are the basis for the project, then their details need to be specified here. The information we recommend adding in Section 1.1 could be added to provide some of the details that are lacking in the EA. Comment 4

1.4 Authority
It is not clear what is meant by the "1988" side channel. Perhaps the date is in error and should read "1998". Comment 5

2. Proposed Action and Alternatives Analysis
2.1 Description of the Proposed Action

Under the third bullet on page 2, it is not clear if the excavation and shaping work is in addition to the construction of a channel 1200 feet below the proposed intake or not. The EA should have a total length of channel construction/excavation and tables of imported material by type, volume, and purpose listed. Comment 6

Under the fourth bullet on page 2, the size of wood should be quantified to determine if the proposed wood is sized appropriately for the size and expected velocities of the constructed channel. Also, the amount of wood proposed in this bullet is inadequate to mitigate for the impacts associated with removing 50-100 trees, unless all of these trees are placed into the constructed channel. It is also unclear as to the total number of trees that might be cut. Page 4 of the EA refers to 40 to 60 pieces, and the BA uses the term "small numbers". Although the sizes of trees to be removed are not listed in bullet 7, any tree removed that is greater than 6 inches at Diameter Breast Height (DBH) will require mitigation, unless placed into the channel, since trees of this size are capable of providing fish habitat (Beechie and Sibley 1997; Dolloff 1986; Fausch, 1993, etc.). The EA should clearly specify the number of trees that: (1) will be placed into the stream channel, and (2) be felled but not placed into the stream channel to determine the extent of impacts and mitigation. It is likely that more wood will be needed for the constructed side channel to provide the habitat conditions necessary for the salmonids likely to use the constructed side channel. In addition, wood of appropriate sizes should be added to the mainstem Cedar River to mitigate for the loss of potential wood recruitment due to tree removal. Comment 7

Under the sixth bullet on page 2, it is not clear why a 12-foot gravel surfaced road is needed for the length of the channel. This road will encourage people to access the site potentially reducing the success of this mitigation by disturbing the fish and the vegetation. Secondly, the road, if located within the channel migration zone, it will have adverse impacts of its own, including but not limited to, increased stormwater runoff and loss of wood recruitment and detritus input that will require mitigation. Furthermore, the BA and the drawings for the project indicate that the road is 10-feet wide. Additionally, the volume of quarry spalls to be imported for the road should be quantified. Comment 8

On page 3, in the first paragraph, the dates of project construction are incorrect. This project will not have completed its NEPA and ESA work by June 15th, 2003, let alone obtain permits for this project by that date. Comment 9

2.2 Alternatives

Repair of the Earthquake Damaged Channel

This alternative is confusing because it does not clearly describe what happened to the original mainstem Cedar River and the nearby side channel created as mitigation for the original project. The addition of approximate locations of the mainstem and the original side channel by river mile will help clarify this alternative. We recommend modifying this paragraph to further describe this alternative. Comment 10

Modification of the Existing Elliot Channel

This alternative should also be discussed in more detail as follows:

- Add river mile location to identify the channel.
- Discuss the existing condition of this channel, its current level of production, and why it was constructed (restoration? Mitigation? Etc.).
- Discuss factors that lead to the poor quality of the present channel.
- Discuss how the existing channel would be modified in detail to increase to a specified level of production.

Comment 11

Creation of a new Channel at the Renton Elks Club

Again, this alternative is short on details, including, but not limited to, approximate river mile location, extent of channel to be created, production potential, etc. Comment 12

Additional Alternatives

During the meetings to develop the side channel replacement project, numerous sites were discussed. This section could be enhanced by listing locations that were considered, but rejected from the final alternative analysis to give a more accurate description of the search for alternatives.

For example, there is an alternative that appears to have not been considered by the Corps. In 2001, Mid-Sound Fisheries Enhancement Group pursued funding to build a side channel in the Cedar River. As part of this proposal, they received technical assistance from the University of Washington's College of Forest Resources to do a feasibility study of the site at Maplewood Heights, at River Mile 4.5. The Corps should evaluate this information and analyze this site as a potential alternative in a revised EA. Comment 13

3. Existing Environment

3.3 Vegetation

This section should provide more details about the trees that will be removed for this project. In addition to the number, the actual tree heights and locations, along with the extent of the channel migration zone and the extent and location of existing levees should be discussed to enable the reader to understand the existing conditions. Additionally, the trees to be (1) removed and (2) felled into the side channel should be listed by the total number in each size categories broken out in 5-inch DBH increments. Comment 14

3.4 Fish

Sockeye

We disagree with the statement on page 5 that sea-run sockeye were "thought to be absent" from Lake Washington prior to 1930. The EA should acknowledge that there is controversy regarding whether the sea-run sockeye were absent prior to 1930. Comment 15

The Status Review written for sockeye by NOAA Fisheries was equivocal on this issue, stating that the committee was split on whether sockeye were native to the system (http://www.nwfsc.noaa.gov/publications/techmemos/tm33/inf.html). There is more information on this issue too. There is some information that suggests that sockeye were native but that the anadromous form was dramatically reduced in number by the 1930s. The current sockeye spawning in the North End Tributaries in the basin are of a unique stock and are thought to be native. These fish may have persisted for many years as landlocked fish since a dam was constructed on the lake outlet in 1851 to support a mill (Bagley, 1929; United States War Dept. 1853-1854; Evermann, B. W. and Meek, S. E. 1897). The mill's founders were killed soon after and it is not known how long the dam persisted. Returning adult salmon would not have been able to access the lake for a period of some years. Since sockeye generally require lake access, this dam would have had a drastic impact on any population that may have existed.

3.6 Threatened and Endangered Species
Comments on the BA follow at the end of this comment letter. Comment 16

3.7 Cultural Resources
"Muckleshoot" is spelled incorrectly in this section. Comment 17

3.8 Land Use
It is important to know the ownership as well as the zoning of the site and adjacent property. It is also important to note if there is any development on the existing site and adjacent property or if it is in an undeveloped condition. Comment 18

4.1Geology and Hydrology
The EA fails to discuss the fate of the excavated material and where it will go as well as the total volume of fill material to be imported. Comment 19

This section needs much more detail. It is important to know what the flow rates will be in the channel, when the channel will be connected to the Cedar River, for how long, and the proposed water depths, wetted width, and area in the constructed channel. Information concerning mainstem flow rates and water depths is found in the BA and thus could be readily incorporated into the EA. This section should be expanded beyond the limited discussion in the BA and include a discussion of current water depths in the mainstem reach from which flows will be diverted and if salmon passage through this reach meets NOAA Fisheries standards for upstream fish passage. Comment 20

This section also fails to discuss how the proposed maintenance road may adversely affect surface and ground water interactions by blocking water movement, timing, etc. The EA also fails to discuss and analyze potential stormwater runoff from the road and any potential adverse impacts to the constructed channel that may occur. Furthermore, nothing in the document provides a justification for a gravel-surface maintenance road underlain by quarry spall. In some similar cases, the maintenance road was constructed using soft-surface materials and vegetation allowed to grow. In this instance, if equipment is needed to access the road, then the equipment drives through the vegetation growing on the road. Comment 21

4.4 Fish
This section should have a citation to support the statement regarding fish use in the natural side channels downstream of the Elliot levee. Comment 22

8. Coordination
It is not clear how the Corps coordinated this project with the Muckleshoot Indian Tribe or other agencies. Therefore, we suggest that this section should modified by adding the following information for each agency listed: (1) if the information in the EA was coordinated in terms of seeing draft copies, providing comments upon pre- Comment 23

circulation drafts, etc; (2) whether coordination occurred during meetings during the project site and early design review process; or (3) both.

9.5 Hydraulic Permit Approval

This discussion about the potential exemption of a Hydraulic Project Approval Permit may be incorrect. The City of Renton was the previous application for the dredge work, which eventually led to the previous mitigation work. The EA is not clear about who the actual applicant is as noted above. If the City of Renton is the actual applicant, then an HPA will be needed. Furthermore, an HPA was needed for previous work done for this project, so it is not clear why an HPA is not needed now. Finally, the HPA that authorized the original dredge was violated, hence the need for the additional mitigation channel per a settlement agreement between WDFW and MIT. There are specific mitigation requirements that must be met for both projects, which could affect the design for this project. The EA should discuss these concerns in much more detail, including how this project may or may not comply with the HPA issued for the mitigation channel. A lack of compliance with the previous HPA may cause Renton and/or the Corps to have to complete additional mitigation for the over-dredge.

Comment 24

9.8 Executive Order 12898 Environmental Justice

This section as written is insufficient as written. The Corps concludes that this project will not negatively impact fishery resources inappropriately. Without changes in design and adequate monitoring, this project has the potential to adversely affect treaty-protected resources. Furthermore, if the mitigation channel fails, is less productive than designed, or is unsuccessful in fully mitigated for impacts associated with the previous dredge actions that it is attempting to mitigate as specified in the agreement with WDFW and MIT, then there will be adverse impacts to treaty resources. The impacts to these treaty resources have already occurred and new impacts may occur as a result of the project as we have identified above. Therefore, it is premature to conclude that there is "no interference with Native American Nations' treaty rights" as a result of the project not negatively affecting fishery resources, at least with respect to the Muckleshoot Indian Tribe.

Comment 25

II. Comments on the Biological Assessment (BA)

The action area is not described in sufficient detail to analyze to potential effects of this project on listed species and their critical habitat where it may exist, or even comprehend the location of the action area beyond a vague sense of being in the Cedar River. The project location is not always the same as the "Action Area"

The description of the project does not describe the quantity or nature of material to be excavated from the site, to be imported to the site, or the number and size of trees (including tree heights) to be removed. For example, the BA refers to an access road of approximately of 10 feet in width composed of quarry spalls, while the drawings and the EA refer to a 12 foot wide road. The volume of quarry spalls to be imported and where they will be obtained is not discussed.

The BA suggests that an unspecified, but "small number" of trees will be removed during construction. However, a review of the drawings suggests that more than 50 trees will be removed, some as large as 72 inches DBH. The BA should quantify these numbers by five-inch DBH size categories and analyze the potential effect of their removal on listed species and their habitat in both the short- and long-term, particularly with reference to wood recruitment to the mainstem of the Cedar River. Wood that enters or is placed into the side channel is unlikely to be transported to the mainstem Cedar River.

The BA also lacks specific information about the size of equipment to be used, information about materials to be used, location of staging areas and equipment washouts, stock piling areas, equipment operation procedures, etc. Even when combined with the information in the EA, the volume of riprap and quarry spalls to be imported is unknown.

Comment 26

The Environmental Baseline and Effects of Proposed Action
This section is written in EA format and does not follow the Corps' own guidance document for BAs. The failure to follow this format might be responsible for many of the shortcomings of the BA. For example, the document is referred to as a Biological Assessment (BA), although the document should be called a Biological Evaluation (BE) based upon guidelines published by the Corps following coordination with the NOAA Fisheries.

Furthermore, the discussion of the affected environment does not have a narrative or numerical description of the habitat parameters used to determine and describe the baseline environment against which the effects of the project are measured. Rather the BA only shows the results of some unknown assessment conducted to create Table 3. There is no discussion about data used to create this table, how the Corps evaluated the baseline conditions, etc. and how this information compares to the indicators found in NMFS' A Guide to Biological Assessments. We recommend that the BA be rewritten to be consistent with the Corps' guidance document and to provide complete information used to make the effects call.

There is no narrative information regarding the wetted area and width of the constructed channel at a time of the year when chinook will be using the channel; therefore, it is impossible to evaluate the potential benefits that this project will have for chinook.

Page 7- The BE states "even during extreme low flows in the Cedar River, the diversion of water into the proposed side channel will have insignificant effects on the mainstem river flows and elevations". However, since there is no information provided on existing water depths in the adjacent mainstem Cedar River, the applicant cannot support the claim that the reported decreases in mainstem water depths are insignificant.
The BA fails to assess the potential for stormwater runoff from the gravel road, how much stormwater will be generated, where this water will go and how it may affect the constructed channel. Furthermore, the BA fails to note where the "turbid water" will be discharged and the potential affects of this discharge.

Comment 26

The design of the side channel with its culvert inlet from the mainstem presents a new approach to side channel construction on the Cedar. It is not clear why the previous technique of a semi-pervious groin was dismissed in favor of this approach. There are potential problems with this technique that would not occur with the groin technique, chiefly the passage, intended or not, of juvenile and adult fish from the mainstem. There may be instances where mortality occurs as a result of this culvert. For example, if large sculpin or small trout are able to take up residence within the culvert, predation on chinook may be facilitated.

Another concern is the accessibility of the spawning channel to other fish species. Several fish species can follow the shoreline of the Cedar and end up in the spawning channel. If the spawning channel is shallower than the mainstem, large bodied fish may become stranded in the channel. This may be most problematic for peamouth chub, which ascend the river in droves in mid summer. The spawning run of peamouth runs in the tens to hundreds of thousands. If the spawning channel intercepts even a small proportion of the peamouth run, the channel could become inoperable for the targeted salmonid species.

There are major life history differences between coho and chinook; therefore, it is inappropriate to use the same effects analysis completed for chinook for coho. Coho are much more likely to use the constructed channel than chinook for spawning and possible for rearing; therefore, the channel is most likely to affect coho production.

EFH Concerns
In the EFH section, the BA states that the project area has been designated for various life stages of four species of Pacific salmon; however, only three salmon species (only two in detail – sockeye and chinook) species have been

discussed in the BA.

There are major life history differences between coho and chinook; therefore, it is inappropriate to use the same effects analysis completed for chinook for coho. Coho are much more likely to use the constructed channel than chinook for spawning and possible for rearing; therefore, the channel is most likely to affect coho production.

III. Comments to 90% drawings

The reasons for the extensive amounts of riprap on the left bank of the channel shown on Sheet 8 are elusive and should be described in both the EA and BA. Comment 27

There is no apparent need for the maintenance road, especially one with a gravel surface (Sheets 5 and 6). The road will require maintenance, which means that trees will not be allowed to grow and provide functions to the replacement channel and the Cedar River, that would occur if the road were not constructed. Comment 28

Riprap should not be used in lieu of footer logs because the anticipated flows through the replacement channel should not be large enough to displace the wood (Sheet 11). Comment 29

Although cleared deciduous trees are suitable for increasing the complexity of the proposed wood jams, the structural members of those jams must be coniferous trees due to their longevity compared to deciduous trees (Sheet 8). Comment 30

According to Sheet 5, the Corps is retaining the option to field adjust the location of the gravel maintenance road. However, we are concerned that without specific limitations for the road in this drawing, then the entire left bank of the proposed channel could have a gravel surfaced 12-foot wide maintenance road located no more than 5 feet away from the top of the channel bank and reduce the function of the riparian corridor on this side of the channel. NOAA fisheries should prescribe limits on field adjustments to avoid this potential impact. Comment 31

Given the site conditions adjacent to the project area on the left bank (i.e. steep valley) there is no need to construct a hard surfaced road and extensive riprap (Sheets 3 and 4). Both actions are likely to interfere with habitat-forming processes, including, but not limited to hyporheic conditions. Springs and other sources of water that can potentially feed the channel will be limited by these activities. Comment 32

Citations

Beechie, T.J. and Sibley, T.H. 1997. Relationships between channel characteristics, woody debris, and fish habitat in Northwest Washington streams. Trans. Am. Fish. Soc. 126: 217-229.

Dolloff, C.A. 1986. Effects of stream cleaning on juvenile coho salmon and Dolly Varden in southeast Alaska. Trans. Am. Fish. Soc. 116: 829-838.

Fausch, K.D. 1993. Experimental analysis of microhabitat selection by juvenile steelhead (*Oncorhynchus mykiss)* and coho salmon (*Oncorhynchus kisutch)* in a British Columbia stream. Can. J. Fish. Aquat. Sci. 50: 1198-1207.

Bagley, C. B. 1929. History of King County Washington. S. J. Clarke Publishing Company, Seattle, Washington.

Evermann, B. W. and Meek, S. E. 1897. A report upon salmon investigations in the Columbia River Basin and elsewhere on the Pacific Coast in 1986. Bulletin of the United States Fish Commission. 17(1181): 15-84.

Suckley, George and Cooper, J. G. 1860. The natural history of Washington territory and Oregon : with much relating to Minnesota, Nebraska, Kansas, Utah, and California between the thirty-sixth and forty-ninth parallels of latitude : being those parts of the final reports on the survey of the Northern Pacific Railroad route, relating to the natural history of the regions explored, with full catalogues and descriptions of the plants and animals collected from 1853 to 1860. New York : Baillière Brothers, 1860.

United States. War Dept, 1853 – 1854. Reports of explorations and surveys, to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean. Made under the direction of the secretary of war, in 1853-[6]. Washington, A.O.P. Nicholson, Printer [etc.] 1855-61.

11.7.2 Response to the July 1, 2003 Letter

Comment 1: Comment noted. Additional information has been added to this document to clarify the purpose of this project: to construct a functionally equivalent side channel to the 205 groundwater channel built as mitigation for the Corps Section 205 Flood Damage Reduction project.

Comment 2: The final EA describes the project background as replacement of the side channel destroyed in the 2001 Nisqually Earthquake. The background on the rationale for constructing the original channel can be found in the environmental impact statement for the Cedar River Section 205 Flood Damage Reduction Study.

Comment 3: Comment noted. The Seattle District, U.S. Army Corps of Engineers is the responsible agency for this project. The City of Renton is the local project sponsor. The Corps will acquire all authorizations necessary under Federal law for construction of this project. The City will obtain any permits and authorizations it identifies as necessary under State law. The Corps would also be responsible for the environmental compliance and construction of the replacement side channel, as well as for any future maintenance dredging of the Section 205 Flood Damage Reduction project (Corps 1997). As specified in this Final EA, the City has assumed responsibility for delineated aspects of replacement side channel monitoring and adaptive management, as a component of its obligation to operate and maintain that side channel.

Comment 4: Clarification has been added to the project purpose and need to identify that the proposed project is intended to provide functional replacement of the channel destroyed in the 2001 earthquake.

Comment 5: Comment noted, changed to 1998.

Comment 6: The project description provides the characteristics of the proposed work in sufficient detail to describe the primary features of the project. The excavation volume and channel length describe the work involved in construction of the channel downstream of the intake structure. For more detailed information, final project drawings are provided in Appendix 11.1.

Comment 7: Specifications for the size of the wood installed in the channel can be found on the project drawings. Approximately 60-100 trees will be felled during construction. It is difficult to determine the exact number prior to construction, as minor field engineering adjustments to the channel during construction are likely. In addition, substantial plantings of native vegetation and trees, at a rate that provides for overplanting as described in the Final EA, will help reestablish the canopy cover in the project area.

Comment 8: The gravel surfaced road is necessary for project maintenance. It is essential that a maintenance vehicle be able to safely transit the access road in order to perform maintenance of the structure and to remove accumulated debris. Continued maintenance of the channel will

ensure the optimum conditions for salmonid survival and spawning are maintained. The road will be closed to illegal vehicular traffic through a locked gate.

Comment 9: Comment noted. Construction timeline has been changed in the Final EA.

Comment 10: Clarification has been added in the Background section on how the 2001 earthquake and landslide destroyed the original channel. This discussion provides some context to substantiate that re-establishing the damaged channel is not feasible.

Comment 11: The Final EA summarizes the Corps' rationale for not pursuing modification of the Elliot Channel as a viable alternative. More detailed background information on the Elliot Channel does not provide information that would further clarify this rationale and has not been added.

Comment 12: Similar to the response to Comment 11, the Final EA summarizes the Corps' rationale for not pursuing a new channel at the Renton Elks Club due to concerns that this site was too vulnerable to landslides. Since the site was eliminated due to fundamental site concerns, the Corps did not develop detailed information on potential channel designs and fish production.

Comment 13: Per NEPA regulations, a reasonable range of alternative sites were evaluated during the development of this project and narrowed down based on a set of criteria specific to this project's purpose and need.

Comment 14: The existing environment section describes the vegetation that exists in the vicinity of the project and provides details on the location and number of large trees (defined as those with greater than 6-inch diameter). The Corps disagrees that an EA should also provide the heights of trees in the project vicinity in order to adequately characterize the existing vegetation. Section 3.1 of the Final EA describes the physical setting of the project site as a floodplain terrace, a site setting that would typically occur within a channel migration zone.

Comment 15: Comment noted. Removed statement that "sockeye were thought to be absent."

Comment 16: Comment noted.

Comment 17: Spelling corrected.

Comment 18: Additional details have been added regarding land use in areas close to the project site.

Comment 19: Approximately 3000 -5000 cubic yards of suitable material will be beneficially used to repair existing access roads that are currently rutted. The remaining excavated material will be temporarily stockpiled at the staging area, approximately .25 miles upland of the side channel prior to being hauled offsite. Authorized beneficial use or proper disposal of the stockpiled material will be the responsibility of the construction contractor. Approximately 600-900 cubic yards of spawning gravels will be imported to the site.

Comment 20: Additional details on channel depths and water velocities have been added to the final EA. The final EA also describes how the channel will receive flow at all expected river flow conditions.

Comment 21: The gravel surfaced road is necessary for project maintenance. It is essential that a maintenance vehicle be able to safely transit the access road in order to perform maintenance of the structure and to remove accumulated debris. Continued maintenance of the channel will ensure the optimum conditions for salmonid survival and spawning are maintained. Traffic on the road will be infrequent and impacts to the quality, quantity, or timing of stormwater runoff are anticipated to be extremely minor. The road will be built at grade and will therefore have no blocking impact on surface water flows. Subsurface flows should also be minimally affected since the depth of the road surfacing materials will not extend into portions of the soil profile that convey water during the vast majority of hydrologic conditions. The project drawings provide further detail regarding construction of the maintenance road, covering surface and subsurface designs.

Comment 22: Citation added.

Comment 23: Information was added to this section clarifying coordination with the Muckleshoot Tribe, the public, resource agencies, and technical consultants.

Comment 24: The Corps is the lead agency for this project, with the City of Renton acting as the local sponsor. The Corps does not apply for HPAs. However, the City of Renton was issued an HPA for this project which the Corps considers advisory. The Corps does intend to meet all the conditions of the advisory HPA. This project's purpose is to provide a functional equivalent to the original groundwater channel, and is not directly related to the Elliot Levee over-dredge mitigation channel.

Comment 25: The Corps does not anticipate this project to impact fishery resources as it has concluded that the replacement side channel would provide greater than functional equivalence to the groundwater channel destroyed by the Nisqually earthquake. The channel will be monitored to assure functional success and contingency actions would be pursued if it fails to meet its projected benefits for salmonids. Therefore, the Corps does not believe this project will negatively impact Tribal resources.

Comment 26: Comments noted; many of the expressed concerns have been addressed through further clarification and detail in this Final EA. It is important to note that concurrence letters have been received from NMFS and USFWS.

Comment 27: The channel was designed with riprap to secure the inlet structures as well as other features of the project.

Comment 28: The gravel maintenance road is necessary to keep the project a successful spawning and rearing channel for salmonids. The road will allow continued, safe access to the intake structure to allow maintenance to provide the best conditions for salmonid survival.

Comment 29: As noted in the response to Comment 27, riprap is incorporated into the design to secure critical design elements that are necessary to best ensure that the project will remain a side channel into the future. The design has considered the flows over a range of potential conditions and the Corps has incorporated relatively limited areas of riprap in areas that are most vulnerable to higher flows and consequent erosion.

Comment 30: Conifers will be used adjacent to the outlet structure and placed throughout the channel along with cottonwoods as large woody debris.

Comment 31: We do not expect major field adjustments to the gravel maintenance road as we recognize the importance of the riparian corridor alongside the channel.

Comment 32: See response 28 regarding the road. The channel is designed to have adequate flows without the need for springs as a water source.

11.7.3 Muckleshoot Indian Tribe Comment Letter- March 15, 2004

MUCKLESHOOT INDIAN TRIBE
Fisheries Division
39015 - 172nd Avenue SE • Auburn, Washington 98092-9763
Phone: (253) 939-3311 • Fax: (253) 931-0752

March 15, 2004

Rustin Director
Environmental Coordinator
US Army Corps of Engineers
Seattle District, Planning Branch
P.O. Box 3755
Seattle, WA 98124-2255

RE: Public Notice PL -04-07 Cedar River Side Channel Replacement Project

Dear Mr. Director:

The Muckleshoot Indian Tribe Fisheries Division has reviewed Public Notice PL-04-07 for the Cedar River Side Channel Replacement Project. We are forwarding the attached comments in the interest of protecting and restoring the Tribe's treaty-protected fisheries resources. The Tribe may also comment on impacts to cultural resources in a separate correspondence.

Previously we submitted comments on the Environmental Assessment and Biological Assessment documents for this project in July 2003. Based on our review of the Public Notice for the project, it appears that our previous comments and concerns still exist. Therefore, we are re-submitting our previous comments and ask that the Corps modify the proposal to address our concerns. In addition, we are enclosing a copy of a report entitled "Maplewood Heights Over-wintering Habitat Project" by graduate students at University of Washington under the direction of Drs. Jim Fridley and Susan Bolton which was cited in our July 2003 letter.

We appreciate the opportunity to comment. If you have any questions, please contact me at 253-876-3116.

Sincerely,

Karen Walter
Watershed and Land Use Team Leader

Attachments

Cc: Noel Gilbrough, US Army Corps Planning Branch (Cover letter only)
Matt Longenbaugh, NOAAF, Washington Habitat Branch
Larry Fisher, WDFW, Region 4
Alice Kelly, WDOE, NW Region

11.7.4 Response to the March 15, 2004 Letter

Comments submitted to the 2003 EA are previously addressed.

11.7.5 Muckleshoot Indian Tribe Comment Letter- April 24, 2008

MUCKLESHOOT INDIAN TRIBE
Fisheries Division
39015 - 172nd Avenue SE • Auburn, Washington 98092-9763
Phone: (253) 939-3311 • Fax: (253) 931-0752

April 24, 2008

Rustin A. Director
Biologist, Project Manager
U.S. Army Corps of Engineers Seattle District
P.O. Box 3755
Seattle, WA 98124

RE: Proposed Cedar River Mitigation Channel 90% Submittal (PN CED 1-01)

Dear Rustin:

We are writing to solicit necessary information and to share initial feedback with you about the proposed mitigation spawning channel based on the 90% design drawings and our recent April 22 telephone discussion. We understand that the proposed channel is intended as mitigation owed by the City of Renton for impacts of past Section 205 dredging on Cedar River sockeye spawning habitat.

Currently, we lack sufficient information to assess whether the project is likely to succeed in providing the intended net habitat benefits. We note that two earlier projects constructed by the Corps of Engineers in the lower Cedar River[1] were acknowledged to be extremely poor, and likely resulted in a net loss of salmon habitat. Given the importance of the Cedar River to salmon in the Lake Washington Basin, it is critical that the Corps and the City take the time and steps necessary to insure that the proposed mitigation project has a high likelihood of success, and that it results in a net gain of productive salmon habitat.

We are especially concerned about both fish passage safety through the intake apparatus and the potential for stranding of adults and juveniles in the channel. We do not know if an adequate fish passage evaluation has been performed for the channel intake and water supply structure. Juvenile Chinook and sockeye and other salmonids migrating along the bank will be entrained into the vault or other intake structures that may be hazardous to fish. Also, we do not know if the channel design insures that depressions, pits, and potholes are minimized, so that the channel will not strand juvenile or adult fish as flows change.

We expect to provide additional comments after we obtain the project information we request as indicated below.

1 Over-dredging of the Cedar River in the Section 205 Project and over-deepening of the Elliott Mitigation Channel

General

1. We provided comments to the Corps in 2003 on the environmental and biological assessment for this project but never received a response. As a result, opportunities for earlier collaboration were lost. We would appreciate a timely written response from the Corps to determine if the project has been modified to address our previously identified concerns.

2. Given past experience in the Cedar River with side channel projects by the Corps and others, and the challenging nature of designing and construction side channels and spawning channels in dynamic river environments, we strongly recommend that the City and/or the Corps commission an expert review of the proposed design by consulting firms or individuals with experience designing spawning channels and side channels.

We have several questions that need to be answered, as noted below:

Water Supply/Other

1. What is the flow rate in the channel?
2. Will all the water be supplied from river intake versus groundwater?
3. Are areas of groundwater upwelling part of the design?
4. At what times will the channel be connected to the river?
5. What are the predicted water depths, velocities, width, and wetted area in the channel at "normal" operations? What are these parameters during flood events of various magnitudes? What will happen to the channel during flood events?
6. What is the capacity of the proposed channel for sockeye spawners?
7. How does the channel profile elevations compare to the river elevations through the adjacent reach at various flows
8. Will the diversion of water into the channel reduce the available spawning habitat (depth, area and velocities) in the adjacent reach?
9. The channel design must insure that depressions, pits, and potholes in the channel are minimized, and that the channel will not strand juvenile or adult fish as flows change. How has this been considered?
10. We are concerned that the outlet be deep enough to pass fish, but not so deep as to significantly backwater and inundate redds at high water.
11. What is the purpose of the dendrite? We have concerns about designing the spawning channel to serve as a high flow bypass channel for the Cedar River given impacts on incubation.
12. What is the purpose of the intake vault?
13. We would like to know if an evaluation of a porous berm intake was made as an alternative to the present culvert design.
14. The intake culvert and vault design must eliminate the potential for juvenile or adult fish injury or impingement on the trash rack or any other surfaces. It is essential that fish passage criteria be evaluated and safe fish passage be provided. Juvenile salmon including Chinook and sockeye will migrate along the bank and are likely to be entrained into the culvert and vault structures.

15. If wood accumulated on the intake is removed it should be retained in the river reach.
16. We are concerned that the river will move into the channel and become the main river. We recommend that an analysis be performed of the risk of such an event in this location.
17. In order to avoid past failures to build a spawning channel to specifications in the Cedar River for this very same project, and in order to respond to problems that may arise, it is critical that the fisheries or hydraulic engineer who actually designed the channel be present on-site during construction and actively work with the equipment operator to insure that elevations and other design parameters are met.

Maintenance and Performance:

1. How will performance be monitored? Assurances need to be provided such that if the channel does not perform as planned, then modifications or maintenance will be performed. Given past experience with this project, a performance bond should be posted to facilitate any work that needs to be redone.
2. What is the maintenance plan and who will maintain the channel?
3. A vegetation maintenance plan is necessary to prevent encroachment of knotweed and other invasive plants that are known to be a large problem in this area.
4. Public access should be controlled to avoid disturbance and harassment of spawning salmon by dogs or people. The design of road, gating, and the plantings or other methods should be utilized to minimize disturbance.
5. The proposed maintenance road appears to be overbuilt and should be reduced in length and/or width to reduce impacts.

Thank you for your attention to our concerns about this project. We look forward to your timely response, so that we can assess whether this project is likely to be successful in providing benefits to salmon habitat in the Lower Cedar River. Please contact me at 253-876-3360 or Eric Warner at 253-876-3125 if you have any questions.

Sincerely,

Holly Coccoli

Holly Coccoli
Fisheries Biologist
Muckleshoot Indian Tribe Fisheries Division

11.7.6 Responses to the April 24, 2008 Letter

General

1) Responses to the 2003 Draft EA are included in this document.

2) NHC Inc was retained to aid in selection of the inlet system, and also to review the draft spawning channel design documents. Perkins GeoSciences was retained to help select the Rolling Hills site based on geomorphic criteria. Experts from BC Fisheries demonstrated functioning spawning channel projects in Canada with similar inlet systems to that proposed on the Cedar. Gino Lucchetti from King County led the design team on a field trip to demonstrate desired characteristics of Cedar side channels. Regional Agency experts were canvassed at the beginning of the design effort to ascertain the best available information on design criteria and target species.

Water Supply/Other

1) The system is designed to be wetted at all flows. Design minimum low flow is 6 cfs during 97 cfs minimum Cedar River discharge.

2) The vast majority of flow is expected to originate from the river. Some groundwater will enter the side channel during periods when the groundwater table is high. Ongoing study is assessing potential contribution of groundwater to channel flow. All hydraulic parameters are based exclusively on Cedar River flows through the inlet structure.

3) Groundwater upwelling is not a design criterion, but would be a desired attribute if DO levels are not impacted.

4) The channel is designed to be connected to the river 100% of the time.

5) Hydraulic parameters are presented in this Final EA. The effect of a larger entrance was shown to be negligible at low flows but would significantly increase spawning channel flows as much as 40%. Floods should backwater the channel up to the 5-year event, then overtop through the armored dendrite in a controlled fashion. Detailed habitat areas have not been computed.

6) No formal evaluation of “Sockeye capacity” has been conducted.

7) The spawning channel is set higher than the main channel to limit excavation. The channel will perform adequately during low flow if flow from the river is not restricted by debris and the flow level in the river is not lower than the side channel invert. The results of ongoing monitoring of river stage and groundwater levels should be compared with the proposed channel invert to determine if site conditions are different than the design reports and hydraulic models suggest. If the side channel is likely to lose water to the river, it will need to be deepened to maintain minimum flows.

8) It is unlikely that the flow diversion will negatively impact spawning. Only 6 cfs is diverted at the lowest river flow (97 cfs) with the slide gate fully open.

9) By providing full time flow to the system, adequate depths allow egress from pools and prevent stranding.

10) Comment noted.

11) The purpose of the dendrite is to provide for controlled overtopping into the channel to minimize scour and side channel capture. Hydraulics do not indicate that channel capture is likely. Main channel velocities are much higher than the side channel in moderate flood events (3-8 ft/s vs. 0.1 to 2 ft/s) indicating redd scour unlikely. Under normal conditions, deposited sediments would likely be evacuated. Under extreme flood flows, modeled velocities could exceed 4 ft/s, indicating there would be potential to entrain and transport some gravel from the banks and bed. This will be partly mitigated by employing large spanning pieces of cottonwood LWD that will act as roughness elements during extreme flow events.

12) The intake vault allows for capture of fines and small debris that may enter the side channel, redirection of flow to the side channel from the river (this minimizes the footprint of the culvert and vegetative clearing), and control of flow via a slide gate.

13) An evaluation of a porous berm was conducted by the city and Corps during the planning stages of the project. It was concluded that the berm was not a feasible design to achieve the project's purpose and need of creating salmonid habitat. The concern was that the porous berm would result in head loss and therefore flows into the side channel would potentially be decreased resulting in poor salmonid habitat.

14) Fish entrainment will occur, but it should not be a hazard. The low gradient of the system and presence of backwater during floods prevent excessive velocities within the culverts (less than 4 ft/s at the exit to the spawning channel during a moderate to high flow, at normal flows, less than 2 ft/s). The inlet headwalls will conform to the existing bank line, and draw flow in sideways, thus flow impingement is not severe. The intake is in a lower velocity section, so fish should be able to sense the flow into the culvert and swim away in most cases. The specs and plans require all edges to be filed smooth. The pipes are large enough to enter to inspect for any problems. Trash racks would be wide enough to allow adult migration through the inlet system, but narrow enough to restrict beaver.

15) Wood accumulation is not likely to occur since the inlet conforms to the bank line. However, if wood does accumulate at the trash rack, the City will be performing the necessary maintenance of the project and will determine where to relocate the wood.

16) Based on Perkins GeoSciences analysis, this site has the least likelihood to be captured of the sites considered. Furthermore, use of a culvert inlet minimizes the chance of capture vs. other inlet systems considered.

17) Concur, the project hydraulic engineer and biologist will coordinate through the Contracting Officer's representative to assure the specifications are being met.

<u>Maintenance and Performance:</u>

1) The City of Renton will perform the necessary maintenance and monitoring for this project including fish surveys (spawners and redd counts), vegetation monitoring, and sediment accumulation monitoring. If this project is determined not to reach a functional equivalence to the original groundwater channel, the Corps will investigate contingency measures to meet the Section 205 Flood Damage Reduction Project mitigation requirements.

2) See above comment.

3) The City will monitor and maintain the vegetation plantings on-site, as indicated in the Final EA, which includes controlling invasive plant species.

4) Concur.

5) The maintenance road was designed to the necessary specifications to allow safe passage of maintenance vehicles, to gain access to the inlet structure.

11.7.7 Muckleshoot Indian Tribe Comment Letter- June 25, 2008

MUCKLESHOOT INDIAN TRIBE
Fisheries Division
39015 - 172nd Avenue SE • Auburn, Washington 98092-9763
Phone: (253) 939-3311 • Fax: (253) 931-0752

June 25, 2008

U.S. Army Corps of Engineers
Seattle District
Planning Branch
P.O. Box 3755
Seattle, WA 98124-3755
Attn: Tim Shaw

RE: Notice of Preparation and Clean Water Act Public Notice for Cedar River Side Channel, PL-08-07

Dear Mr. Shaw:

The Muckleshoot Indian Tribe Fisheries Division has reviewed the "Notice of Preparation and Clean Water Act Public Notice" for the proposed Environmental Assessment (EA) for the Cedar River Side Channel project. This project proposes to construct a new side channel as replacement mitigation for the previous side channel mitigation site that was destroyed in the 2001Nisqually Earthquake. The Cedar River is located within the Usual and Accustomed Fishing Area of the Muckleshoot Indian Tribe, and supports important treaty salmon and steelhead populations. We offer the following comments in the interest of the Tribe's treaty protected fisheries resources.

The Tribal Fisheries Division appreciates the Corps' efforts to construct this mitigation channel for the previous mainstem Cedar River dredging and we are hopeful that the project will succeed in providing the intended fish habitat mitigation. At this time, most of our questions regarding the project design have been answered. However, we continue to request that Zachary Corum, the Corps' hydraulic engineer who designed the channel and who is experienced in fish habitat restoration, be present on site during construction (or his designee). Fulfilling this request will help provide all interested parties with the necessary assurance that channel elevations and other features are indeed constructed as designed, that expected mitigation benefits will be realized, and that negative impacts to fish habitat will be avoided. In the past, Corps' construction activities in the Cedar River related to dredging or mitigation for dredging were not implemented according to design, and construction mistakes are believed to have resulted in poor mitigation performance and negative impacts to previously existing high quality fish habitat. Comment 1

As we noted in our earlier comments to the 90% design, we expect that this project will be constructed as designed and that any unanticipated impacts to fish passage and/or stranding for

both adults and juveniles will be addressed through monitoring and appropriate contingency actions.

Specific comments for the EA are attached for your consideration. We appreciate the opportunity to comment on this proposal, and with the Corps' efforts to date to resolve our concerns. Please contact me at 253 876-3360 if you have any questions.

Sincerely,

Holly Coccoli
Fisheries Biologist

Cc: Evan Lewis, Seattle District Corps of Engineers
Larry Fisher, WDFW, Region 4

V

Specific Comments

We note that we still have not received a written response from the Corps to the comments we sent in 2003 on an earlier EA for this project. At an April 2008 meeting with us, the Corps committed to provide this response, which would help fulfill coordination with the Muckleshoot Indian Tribe referred to on page 7.	Comment 2
The Corps provided a written critique of the existing Elliot side channel as design guidance for this project from some of the local knowledge fisheries biologists. Please include the Corps responses to these comments in the EA, particularly concerning head cutting and mainstem channel impacts identified by Roger Peters, USFWS staff.	Comment 3
The EA should analyze and discuss the sockeye spawning capacity of the channel so that it can be compared to the mitigation channel that was lost.	Comment 4
The EA should discuss the contingency plan if the flow from the mainstem Cedar is restricted by debris, or if the Cedar River becomes lower than the spawning channel inlet.	Comment 5
The EA should discuss alternative design using a porous berm instead of the culvert/vault structure and why this alternative was not chosen.	Comment 6
The EA should fully discuss how fish passage was evaluated, against what standards, and what measures will be taken, including monitoring to ensure that fish are not entrained by the trash rack, intake culvert and vault. Also describe the contingency measures that will be taken should fish become entrained.	Comment 7
The EA should discuss the fate of any wood that becomes entrained by the trash rack. We recommend that this wood be relocated back into the Cedar River or the side channel versus removal.	Comment 8
The EA should discuss how performance will be monitored, who will do the monitoring and how this information will be communicated to the Tribal Fisheries Division.	Comment 9
The EA should discuss the side channel maintenance plan, its duration (i.e. life of project), and who is responsible for this plan.	Comment 10
The EA should discuss the vegetation maintenance plan needed to avoid the establishment of invasive non-native vegetation. Japanese knotweed is a particular problem in this area.	Comment 11
The EA should discuss how the site will be managed to control public access to avoid disturbing and harassing fish using the channel.	Comment 12

Page 1 of 2
Muckleshoot Fisheries Division Specific Comments: Notice of Preparation and Clean Water Act Public Notice for Cedar River Side Channel

The EA should discuss the access road, its potential impacts and alternatives to reduce this road length and/or width to avoid these impacts.	Comment 13
The EA should quantify the amount of wood to be placed into the side channel, including diameter, length, number and species proposed.	Comment 14
The EA should discuss the fate of the 60-100 cottonwoods that will be removed from the riparian area of the Cedar River due to construction of the channel and the road and the mitigation for the temporal impacts associated with the removal of these trees.	Comment 15
Please clarify the alternative of "new channel at the Renton Lions Club". It is our understanding that King County already conducted this project as a separate restoration project.	Comment 16
The EA should quantify and discuss the additional native planting that will occur in an existing disturbed area between the Cedar River and the new channel. For example, describe what caused the vegetation to be disturbed. Discuss how this vegetation will be protected over the lifetime of this project.	Comment 17
Other projects with the potential for cumulative impacts should be listed in the cumulative impacts section. For example, WSDOT is proposing to widen I-405 where it crosses the Cedar River and is reviewing this project as part of a NEPA EA they created. The City of Renton's Airport proposes to dredge Lake Washington near the mouth of the Cedar River.	Comment 18
The EA should discuss the proposed mitigation measures to compensate for the loss of the spawning channel fish production since 2001.	Comment 19

Page 2 of 2
Muckleshoot Fisheries Division Specific Comments: Notice of Preparation and Clean Water Act Public Notice for Cedar River Side Channel

11.7.8 Response to the June 25, 2008 Letter

Comment 1: The project hydraulic engineer and biologist will coordinate through the Contracting Officer's representative to assure the Specifications are being met.

Comment 2: Responses to comments on the 2003 Draft EA are included in this document.

Comment 3: The Corps took the critique of the existing Elliot side channel into consideration when designing the current project. The project design addresses concerns regarding head cutting and impact to the mainstem of the channel.

Comment 4: Comment noted. No formal evaluation of sockeye spawning capacity of the side channel has been conducted.

Comment 5: The City will perform all necessary maintenance for the project including debris removal. In addition, the City will periodically assess how the project is functioning and adjust the maintenance plan as appropriate.

Comment 6: Evaluation of a porous berm was done during the planning phase of this project and it was concluded that the berm was not a feasible design to achieve the project's purpose and need of creating salmonid habitat. The concern was that the porous berm would result in head loss and therefore flows into the side channel would potentially be decreased resulting in poor salmonid habitat.

Comment 7: The City will be responsible for monitoring the project including fish surveys (spawners and redd counts). They will be developing the monitoring plan.

Comment 8: Comment noted. Wood accumulation is not likely to occur since the inlet conforms to the bank line. However, if wood does accumulate at the trash rack, the City will be performing the necessary maintenance of the project and will determine where to relocate the wood.

Comment 9: The City will be responsible for monitoring the project including fish surveys (spawners and redd counts). They will be developing the monitoring plan.

Comment 10: The City will perform all necessary maintenance and monitoring for this project. Monitoring parameters are described in the Final EA.

Comment 11: The City will monitor and maintain the vegetation plantings on-site, as indicated in the Final EA, which includes controlling invasive plant species.

Comment 12: A gate across the access road will be installed to deter illegal vehicular access; in addition, interpretive signs will be placed on-site to inform the public about wildlife poaching, trail use impact, and salmonid spawning.

Comment 13: The maintenance road was analyzed in the Final EA. The road was designed to the necessary specifications to allow safe passage of maintenance vehicle, in order to access the channel inlet structure.

Comment 14: Specifications for the size of the wood installed in the channel can be found in the Final Project Drawings, Appendix 11.1.

Comment 15: Approximately 60-100 trees will be felled during construction. It is difficult to determine the exact number prior to construction, as minor and discountable field engineering adjustments to the channel during construction are likely. In addition, substantial plantings of native vegetation and overplanting of trees will help reestablish the canopy cover in the project area. A number of the cottonwoods that will be removed during excavation will be re-used on-site to help anchor the LWD. Native vegetation will be planted by the City to mitigate for the loss of vegetation as a result of the construction of the channel and maintenance road.

Comment 16: The Final EA summarizes the Corps' rationale for not pursuing the new channel at the Renton Elks Club as a viable alternative due to concerns that this site was too vulnerable to landslides. Since the site was eliminated due to fundamental site concerns, the Corps did not develop detailed information on the potential channel designs and fish production.

Comment 17: Section 4.4 of the Final EA discusses the need for planting vegetation at the project site and the planting plan can be found in the Final Project Drawings, Appendix 11.1. The City will monitor and maintain the vegetation plantings.

Comment 18: Comment noted. The cumulative impact section, Section 6 has been revised to include transportation projects.

Comment 19: The purpose of this project is to reestablish a salmonid spawning and rearing side channel along the Cedar River that is functionally equivalent to the 205 spawning channel destroyed in the Nisqually earthquake. The replacement channel will provide substantially greater than exact functional equivalence, over the life of the project, which will compensate for the temporal loss of side channel habitat since the original channel was destroyed in 2001.

11.7.9 WRIA 8 Comment Letter- June 27, 2008

Lake Washington/Cedar/Sammamish (WRIA 8) Watershed

201 S. Jackson Street
Suite 600
Seattle, WA 98104-3855

June 27, 2008

U.S. Army Corps of Engineers, Seattle District
Environmental Resources Section
P.O. Box 3755
Seattle, WA 98124-3755

RE: Notice of Preparation of EA and Clean Water Act Public Notice, PL-08-07

Dear Mr. Shaw and Mr. Director,

Several members of the Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Technical Committee would like to provide comments on the Notice of Preparation and Clean Water Act Public Notice for the Cedar River Side Channel Replacement Project. WRIA 8 represents 27 local governments, community groups, businesses, water districts and state and federal agencies who are working together to recover endangered Chinook salmon by implementing the WRIA 8 Chinook Conservation Plan (hereafter referred to as the Plan). The Plan was ratified by all 27 jurisdictions in 2005 and was approved by NOAA Fisheries as a chapter in the overall Puget Sound Chinook Recovery Plan in January 2007.

The Technical Committee is comprised of local government, tribal, and state agency scientists. The WRIA 8 Chinook Conservation Plan is the primary document against which we, as the Technical Committee, evaluate the priority and adequacy of proposed Chinook habitat enhancement projects. Due to our meeting schedule, our project notice has not been brought before the WRIA 8 Salmon Recovery Council, but was discussed by the several of the WRIA 8 Technical Committee over phone/e-mail. Consensus is often difficult to reach on complicated issues such as this one and **the views stated in this letter do not represent the Technical Committee as a whole**. However, we ask for your consideration of and response to the technical concerns of some of the committee members.

The Public Notice proposes construction of a side channel mitigation project to account for the loss of the Cedar River Flood Control Project mitigation site that was destroyed by a landslide in 2001. The location of the proposed project (between RM 3.4 and 3.6) falls within Reach 2, which was identified by Ecosystem Diagnosis and Treatment (EDT) modeling (used to develop prioritized habitat actions for Chinook recovery) as the highest priority reach for restoration within the lower and middle Cedar River. Given this ranking and the limited opportunity for

Comment 1

restoration actions within this portion of the river, we are concerned that this work may preclude restoration of Chinook habitat. Since the original mitigation project was designed and constructed, Puget Sound Chinook salmon and steelhead have been listed as threatened under the Endangered Species Act. In light of this listing and the Plan ratification, we support habitat actions that are consistent with the Plan.

For the lower and middle Cedar River, the Plan identifies channel confinement as the cause for reduced floodplain connectivity and reduced pools and small cobbles, and recommends focusing restoration actions on setback or removal of dikes and levees, the addition of LWD to create pools, and planting of riparian vegetation (Chapter 4, page 14). The proposed mitigation project includes placing a concrete intake structure in the floodplain, an engineered approach that does not mimic natural processes. Projects that seek to create a static environment for salmon spawning habitat in the Cedar River have failed, and we believe a similar fate would likely occur at this project site. We recommend consideration of design alternatives that restore natural processes. Comment 2

In closing, several members of the WRIA 8 Technical Committee strongly encourage consideration of alternative approaches that (1) provide benefit to threatened Chinook salmon, following recommendations identified in the WRIA 8 Chinook Conservation Plan, and (2) strive to restore natural river/floodplain processes. We recommend evaluation of this project for compatibility with projects currently listed in the Plan. We welcome your response to our comments, and would be happy to convene a meeting with the project partners and the WRIA 8 Technical Committee to discuss concerns and ideas. The Plan identifies restoration projects that could be evaluated as mitigation for past dredging in the lower Cedar River, or for future project opportunities. Please do not hesitate to contact us if you have any questions.

Sincerely,

Sarah McCarthy
Interim WRIA 8 Technical Coordinator

11.7.10 Response to the June 27, 2008 Letter

Comment 1: Comment noted. The side channel will provide additional habitat for various life stages of all salmonids in the Cedar River and therefore will potentially benefit all species of salmonids. A BE was prepared and submitted to NMFS and USFWS on July 30, 2002. Supplemental documentation was submitted to NMFS on May 9, 2008. The BE and supplement concluded that the proposed project is *not likely adversely affect* Chinook, steelhead, and bull trout protected under the Act. Both USFWS and NMFS concur.

Comment 2: Comment noted. The design of an inlet structure was intensely evaluated by the Corps, fisheries experts, and consultants and this project's structure was selected based on criteria to meet the project's purpose and need.

11.4 11.8 Additional Technical Design Information

11.8.1 Critiques of the Elliot Rearing and Spawning Channel for the Purpose of Design Guidance for the 205 Groundwater Replacement Channel

Larry Fisher
WDFW Area Habitat Biologist
We have a concern here about installing LWD without anchoring. When a flood goes through there, there is likely to be a substantial impact on the LWD.

Roger Tabor
USFWS
Originally, I felt the additional side channel habitat at the Elliot was a good idea in that it could increase Chinook rearing habitat and provide some sockeye spawning area. I indicated that we should look at the existing lower channel and try to replicate those features in the new upper channel. The lower channel system had several channels with a variety of habitat types which included some deep pools with LWD that Chinook used extensively for rearing. Sockeye were also observed to rear in the old side channel in large numbers. The basic idea was to leave the lower channel alone and built the upper channel to look like the lower channel. Afterwards, it became apparent that the lower channel needed to be dug out to get the proper gradient. The end result is that it was great for sockeye spawning but decreased the Chinook rearing potential. Over time the channel may scour and some of the pools will be recreated but I doubt if there will be any net benefit for Chinook from preexisting conditions. If a new side-channel is created you need to decide if Chinook rearing is one of your objectives and if it is then some large deep pools (0.7-1.5 m deep) need to be created. Also keeping it away from some other existing side channel may be useful.

Roger Peters
USFWS
We have several concerns regarding the modification of the natural side channel at the Elliott Park site of the Cedar River. The first concern is one of general restoration principles. The first rule of restoration (and mitigation) is to do no damage (or more damage) to the habitats that you are trying to restore. The previous side channel was a properly functioning habitat, which provided substantial rearing habitat for juvenile salmonids. These types of habitats are limited in the Cedar River basin, and therefore the risk of degrading such a habitat should have been weighed heavily.

Our major concern regarding this project is that the original inlet of the side channel was left perched approximately 2 ft. above the "restored" side channel. This will (and has) resulted in head cutting up this original outlet. This outlet is about 300 ft. long. The slope from it's connecting point to the main stem Cedar River to the point where the head cut began in the winter of 2000 is 0.0056 ft/ft. The slope for the final 55 ft is 0.057 ft/ft. The final slope, if the head cut continues to the main stem will be 0.0156 ft/ft. Our concern is that this head cut will continue to the main stem and begin receiving more and more flow until the entire main channel shifts to this old side channel inlet. This would result in destruction of the side channel and likely the forested island that currently exists. This will also result in substantial sediment delivery to the Cedar River, which would then have to be transported downstream. This substantial sediment imbalance would result in significant redd scour and likely increased flood hazards.

Our final concern is the method of placing LWD. Very few if any of the LWD structures were anchored. These structures will be very susceptible to failure at higher flows given the trapezoid shape of the channel. They also will be very unlikely to re-settle in the side channel once mobilized given the shape of the channel. In our opinion, the bole of the trees should have been buried in the bank or the channel bottom, with the rootwads protruding into the channel. This would result in a more stable structure that could have remained structurally sound during the higher flows that would induce scour pools to form.

Cygnia Freeland
Department of Ecology, NW Region

1) The Cedar River main stem appears to occupy an incised channel. Overbank flows occur during 10-year events or greater (per Gary), and like many streams in the Northwest, the Cedar River has been manipulated to occupy a relatively confined, single channel. It seems likely that channel incision of the main stem has caused the abandonment of the side channels on the project site. Have any studies been completed or initiated that examine the long-term trends of the Cedar River in this area? The long-term viability of the side channel restoration project may be at risk if the Cedar River is continuing to incise.

2) I have concerns about a restoration project that narrowly targets one fish species for one phase of its life cycle. A channel design with a more complex morphology would seem to provide multi-use habitat throughout the year instead of a mono-habitat during limited times of the year.

3) Gary informed me that this restoration project will probably be modeled after the Ron Regis side channel restoration site. The Ron Regis site appears to provide good spawning habitat for sockeye salmon - Alice and I saw many fish during our visit. However, I have some concerns about the design elements of the project.

The "permeable culvert" seems to be doing a good job of providing adequate flow to the side channel, however riprap does not possess any kind of habitat value for salmonids; this area could have been stabilized, as well as made permeable, using a log structure. Gary informed me of the constraints for the Ron Regis project, but he also informed me of the greater flexibility that exists for the current project site. The only limitation in using a log structure in place of riprap is that of
implementing a sound design (without using cable). Using a well-designed\ log structure (based on analog conditions) not only provides stabilization of the inlet, permeability for interflow, but also superior fish habitat. I hope there is enough flexibility in this project to draw on the rich
community of geomorphologists that exist in this region for providing consultation on engineered log jams. Consistent with this request/hope, I gave Gary Schimek Tim Abbe's information because he is an individual within the scientific community who is well respected for his engineered log jams.

The LWD placed near the inlet of the Ron Regis side channel and farther downstream could have possibly been better utilized. It was difficult to assess how the LWD provided a beneficial function beyond supplying minimal cover and shade. The LWD used in this project did not appear to be integrated into the morphology of the design channel, i.e. as elements of sculpted pool-riffle sequences in the channel bed. Nor was the woody debris interlocked in a manner promoting structural stability (without using cables). Unanticipated impacts may occur when significant overbank flows transport the unanchored logs downstream and deposit them at a constriction or against an obstruction.

I mention these criticisms in the hope of maximizing the success of future restoration efforts by improving on previous designs.

Gino Lucchetti
King County Water and Land Resource Division
I would say that the project got the basic idea of getting water flow in an old channel, but left out several elements that can make a huge difference in the long term performance of the channel. It is relatively easy to get the "gee whiz" effect of diverting flows and fish spawning in them. And at that, the channel has done well. But that's the easy part in a system like the cedar, with such good substrate, and a specie like sockeye that are easily and readily attracted to this type of off-channel habitat... it's a near-fool proof "build it and they will come" situation. I stress "near-fool proof" as there are still aspect of gradient, substrate, flow and connectivity that you can't take for granted and that were thought out in the basin plan long before the project was ultimately implemented for Renton's mitigation need.

That being said, what wasn't done is the attention to natural structure that is important for both habitat and long term stability. Chiefly is lack of wood... but not just any wood or wood placed in unnatural angles and locations. First and foremost, the original concept called for a large log jam such as would accumulate and naturally stabilize the head of a side channel in a large river. These types of jams diffuse overflow water (not just harden the banks) as it tips into the side channel. They also provide much habitat value, and when surrounded by water they are alive with fish.

Second, the entire channel needs much more large (and I mean truly large) wood placed in natural rates and places. Not necessarily big jams like what should be at the head (although some jams wouldn't hurt), rather many significant pieces placed to provide for hydraulic diffusion and habitat value.

Third (not a wood concern), I would have rather seen the overflow built with large rounded river rock rather than the fractured rock. I understand why engineers do this, but frankly the same effect could have been achieved with very large glacial erratic sized river rock and wood. Since access is very good, the large machinery needed to move this could have been mobilized; I would still encourage you to remove as much of that fractured rock as possible and replace with a wood/river rock matrix.

Fourth, I would take some of your dredged gravel from the lower cedar (or from wherever) and place a mound of it at the head end of the channel for sockeye to excavate into. Sockeye (like chum) love to get right up into the upwelling gravel and dig away. There is no cushion or berm of gravel for them to dig into at the head end.

Fifth, better maintained and more riparian plantings. Sixth, either widen the notch into the lower overflow channel (where it goes out of the old pond) or place a big jam there as well and for
the same reason as above.

The above will help achieve a more natural and more productive channel. Some aren't just a good idea for habitat, however, they are also critical in ensuring the channel doesn't erode into your golf course!! There are natural analogs or examples of these even in the cedar.

Eric Jeanes
R2 Resource Consultants
1.) We did not really see that much difference between velocities as opposed to substrates when we looked at predation. The real issue is the type of substrate that you have in there (I think). The King County channel was a sorted gravel type and really held quite a few more sculpins than the USACE channel. I don't believe that you have enough gradient to work with down there to really make a difference in water velocities. On the other hand, you don’t have enough room either to be creating all kinds of meanders. Sure it would be nice to put some meanders and different habitat types in there, but you are really looking at a spawning channel and because of the lack of other off channel habitat in the Cedar River, other species will most definitely use it. Case in point, the old USACE groundwater channel was used by all species of salmonids, just more frequently by sockeye.

2.) A less incised channel will cause more harm than good down there. You know how river levels vary on the Cedar R. I think a smooth bank profile will cause stranding issues as well as possibly cause your channel to wash away in a high flood event. There are some highly incised channels on the Green that are used by all kinds of fish (both spawning and rearing) and work very well because they are able to move freely in and out under numerous flow scenarios.

3.) I too think that juvenile salmonids prefer the more complex smaller woody debris. Roger and I refer to these as "vegetation mats", the problem is that this stuff usually generates after high flow events and collects on large woody debris or rootwads and the more of this you place in the channel, the slower the water velocities and the more sediment problems you will have in the channel. Obviously, much of the design characteristics depend on what you have available. I would suggest (if space and gradient permits) a channel that is designed as follows: 1.) The upstream section is one fairly incised single "spawning channel" that will really be used heavily by spawning adults and a little less by rearing fry. A single channel like this will probably convey fine sediments and always have an ample supply of good clean river gravels; 2.) The lower section(s) could then act as temporary refugia for the fry produced before they enter the Cedar and also be used by other species as temporary rearing habitat. This section could be design to incorporate some woody debris/rootwads/channel spanning timbers and have several small meanders and a less-incised channel, but not getting too carried away with any of these components. Given adequate gradient, the meanders will create some deeper holding water for juveniles, as well as for adults while they are spawning. It would be nice to be able to tap into both an underground water supply (aka King County) and use the hyporheic flow from the river via French drains (aka USACE channel). The only aspect of the old USACE channel that I did not like was that the water supply was inadequate at times (my thought anyway). This way you will always have a nice supply of water throughout both the early spawning and late rearing periods (the Cedar River seems low during late September and late June to me). There are a couple of side channels that are like this

on the Green and they really kick out fish. This would really produce a gob of sockeye fry, but I do not know if it is feasible.

Paul Conrecode
Golder Associates Inc.
1.) To the extent possible, make better use of the floodplain area dedicated to side-channel construction by including a lot of channel meander. USFWS argument against this is that sockeye fry will survive outmigration better in a straight channel where velocity is greater and predation will be less. However, a channel with more meander will be better for coho and Chinook.

2.) Consider a less-incised or less channelized form so that at higher flows water will spread out and create more habitat, especially for spawning.

3.) LWD placement in Elliot Rearing/Spawning Side-Channel does not create much pool area. Consider placement of LWD partway into channel, including extra excavation of a small area to help anchor the LWD. Also, we noticed juvenile salmonids tend to use (rear) around small woody debris (pole-sized trees with branches)that had fallen into the stream. Apparently, fish prefer a dense (complex, convoluted) bunch of branches or roots to a single large log. Problem is, these smaller woody debris pieces don't really form pools, and get blown out at higher flows. I suggest root wads to get the benefit of complexity, but with the mass to hold at higher flows. However, I also recognize that logs, etc. aren't made to specifications.

4.) Consider a more aggressive strategy to respond to invasive plants after the disturbance of the area by excavation.

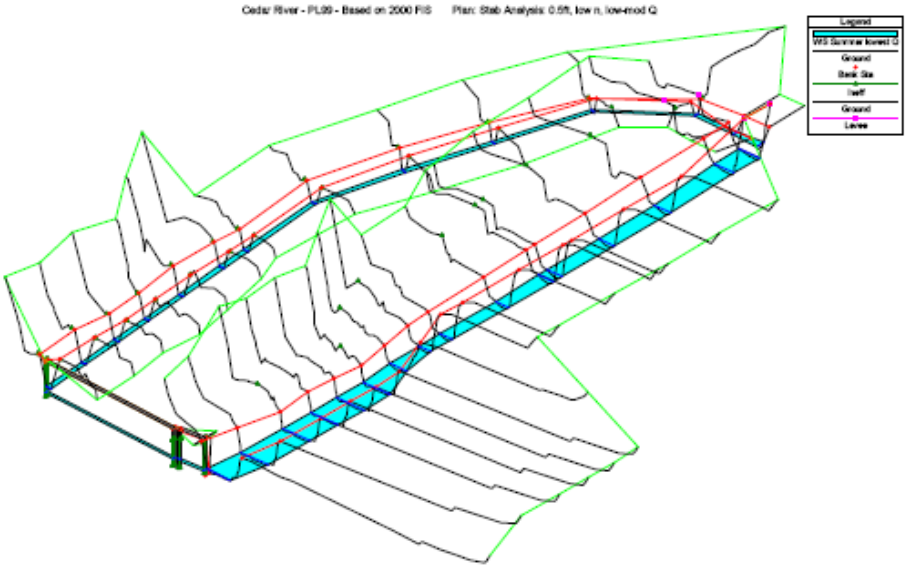
5.) On the positive side, the flow stability of side-channels seems to work well for sockeye spawning and incubation. They move in during freshets for spawning, and our work (and other research) shows that the flow stability that is characteristic of side-channels is good for incubation and emergence, too. (We already know that coho and Chinook like the off-channel areas).

11.8.2 Hydrology and Hydraulics Design Documentation Report- Cedar River Replacement Mitigation Spawning Channel, Rolling Hills Site A

HYDROLOGY AND HYDRAULICS

DESIGN DOCUMENTATION REPORT

CEDAR RIVER
REPLACEMENT OVERDREDGE MITIGATION SPAWNING CHANNEL
ROLLING HILLS SITE A



PREPARED FOR
CITY OF RENTON, WA

PREPARED BY
SEATTLE DISTRICT USACE
HYDROLOGY AND HYDRAULICS SECTION
FEBRUARY 2003

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1.0 Purpose

This document reports the results of the hydrologic and hydraulic analysis for the Cedar River PL99 project to replace the Overdredge Mitigation Channel destroyed in the February 2001 earthquake. This work item is outlined in the Hydrologic Engineering Management Plan (HEMP) dated 10 December 2001.

2.0 Project description

The project is located in the floodplain of the Cedar River between River Mile (RM) 3.3 and 3.6, within the city limit of Renton WA. The project is a proposed replacement of the spawning and rearing habitat destroyed during the February 2001 earthquake. That channel was constructed as mitigation for the Cedar Section 205 dredging project at the mouth of the river. The project involves constructing a culvert diversion and a channel on a high-flow bench that is protected from annual flooding. The intake and channel are designed to maximize spawning area, while minimizing the site footprint. Generally the channel is designed to be stable over the range of expected flows. Where risk allows, portions of the channel will be allowed to naturally conform to the flow regime. Large Woody Debris (LWD) will be incorporated to increase bank stability and to provide habitat complexity. The intake system is designed to take a varying quantity of flow from the Cedar over the entire range of expected flows. Site constraints include a steep valley wall with episodic geotechnical instability, buried utility lines at the downstream end, public and private right-of-ways, and local public resistance to the proposed project. Site amenities include a morphologically stable reach, native gravel-cobble substrate, flood protection, readily available large wood, and restricted public access.

3.0 Background

3.1 Restoration Goals and Concepts

The goal of the project is to provide spawning and rearing habitat for Sockeye salmon, and secondarily to improve spawning and rearing habitat for Coho, Chinook and other salmonids. A pool-riffle side channel with a river fed intake was selected as the preferred concept. The riffles will encourage sockeye spawning, the pools will encourage Chinook spawning. Based on resource agency comments the ratio of pools to riffles should not exceed 1:4. Because the Elliot channel produced favorable spawning conditions, it was used as a partial design template. Visits to other Cedar side channels indicate that over-steepened side slopes are a source for shade, gravel, and woody debris. And with constructed side channels, it was found that a predictable, controlled water source was used with success in similar river basins in British Columbia (Canada Department of Fisheries and Oceans). This led to pursuit of a structural intake system, and a channel that was not rigidly locked into place with rock armor. It was a project goal to include over steepened banks into the project design where feasible, and to accept that the constructed channel will evolve in time in these locations in response to regular fish use and flood flows. The large volume of available woody debris will limit

migration of the channel in response to normal flows. It was also recognized that critical parts of the channel and intake must be protected from erosion with rock armor.

3.2 Site Selection

Two sites were considered for the channel replacement project. The Rolling Hills Site, on the left bank at RM 3.3-3.6 was the primary site, the existing Elliot Channel at the Maplewild golf course was the alternate site. The site constraints and benefits governed the scope and scale of the project at each site. The Rolling Hills site and the Elliot channel were compared with respect to improvements in riparian habitat, cost, maintenance, flood damage risk, and social-economic impacts.

The Rolling hills site was selected as superior, largely because the river is geomorphically more stable, and the flood risk is lower. It is believed that the damage to the Rolling Hills site in the long run will be less severe, and thus the fry survival rate will be greater. Citizen input added the soft constraint of limiting the clearing of the cottonwood canopy forest and locating the maintenance path to the landward side of the channel.

3.3 Design Criteria

Project team members and resource agency specialists worked together to establish the design criteria for the project. The design criteria were used to size an inlet and channel to provide average and minimum spawning conditions comparable to the Elliot Channel (average stream bed slope 0.3%. depth between 0.5-1 ft, velocities 0.7-3.3 ft/s). Additionally it was recommended that the pool riffle ratio not exceed 1:4, that channel dendrites be added to safely flood the channel during large floods, that large woody debris be incorporated into the design without anchoring. Rock and other structural features should be limited to where necessary. It was desired to evaluate the performance of the design over a range of flows that represented the rearing and spawning windows.

4.0 Hydrologic Analysis

The concern for this project is to provide adequate flow in the spawning and rearing channel during the time period when the channel is in use. The operational time frame for this channel is from mid-October through May, although the project is intended to operate year-round. The design also considered use by early spawners (late summer to mid-October). Hydrologic investigations completed for previous Cedar projects and the 2000 Cedar River Habitat Conservation Plan were used to determine the low flow, design flow and flood flow conditions.

4.1 Data

The Instream Flow Agreement (IFA) for the Cedar River Watershed Habitat Conservation Plan (HCP) has been finalized. The IFA set minimum flow levels in the Cedar River measured below Landsburg Dam (USGS 12117500). These were adjusted to reflect the expected minimum flow levels at Renton. As part of the 1999 Additional Mitigation Channel Design ("Elliot Channel"), simulated weekly streamflow values at

Renton (USGS 12119000) using data from water years 1929 to 1992, and incorporating the constraints proposed in the IFA, were used to define a low flow duration curve. The duration curve values for incremental flows between Landsburg and Renton were taken from the HCP technical appendices. Flood flow data was obtained from previous USACE work on the Cedar and from the 2000 FEMA FIS for the City of Renton.

4.2 Methodology

It was assumed that there was a negligible incremental inflow to the Cedar River between the site of the proposed spawning channel and the gage at Renton. The minimum flow requirements are valid for the flow just below Landsburg. It was necessary to determine the flow at Renton that corresponds to the minimum flow levels imposed at Landsburg. A partial-duration frequency analysis for low flows, consistent with ER-1110-2-1450 and EM 1110-2-1415, was conducted to develop the weekly low-flow duration curve for Cedar River at Renton.

Once the weekly low flow duration curve was established for Renton, the incremental duration curve for flows between Landsburg and Renton was subtracted from the low-flow duration curve at Renton. This is an estimate of the low flow duration curve at Landsburg. For the Elliot Channel the design low flow was taken as the flow at Renton that had the same percent of time exceeded as the normal minimum instream flow requirement at Landsburg. With the HCP in place, the weekly high normal, low normal, and critical low flows are defined. Although the Elliot results are applicable, it was felt that they captured too broad a time scale to define early spawning and other low flows of interest. Thus for the Rolling Hills site, the actual weekly minimum HCP flows at Renton were used directly to establish the operating range at low flow. In highwater years, the project will generally experience flows higher than the low flows used for design.

4.3 Results

<u>From the Elliot Channel Analysis:</u>
For the period 15 October to 02 June, the normal minimum instream flow requirement at Landsburg is 250 cfs with a 98.8 percent of time exceeded. This corresponds to a flow at Renton of approximately 300 cfs. This value was considered the lower limit of design flows for the hydraulic analysis at Elliot Levee.

<u>From HCP (2000) (used for study):</u>
Early Sockeye Spawning (9 Sept-7 Oct): 138-273 cfs, weighted average 152 cfs, critical annual minimum flow ~ 100 cfs
Peak Sockeye Spawning (8 Oct- 30 Dec): 365-540 cfs, average "low normal" flow 440cfs, average "high normal" flow 468 cfs, critical minimum flow 243 cfs.

<u>From FEMA FIS (2000) (used for study)</u>
10 yr: 5,834 cfs, 50 yr: 9,708 cfs, 100-yr: 11,450 cfs, 500-yr: 15,830 cfs

From USACE (1995) (2, 5-yr used for study only):
2-yr: 3,200 cfs, 5-yr: 4,900 cfs, 10-yr: 6,175 cfs, 20-yr: 7,900 cfs, 50 yr: 10,100 cfs: 12,000 cfs, 500-yr: 22,000 cfs.

5.0 Hydraulic Analysis

The hydraulic analysis section of this report includes discussions of the channel inlet system selection, hydraulic modeling, geomorphic analysis, and stability analysis. Methods, Data and Results are presented.

5.1 Channel Inlet Selection

NHC Inc. was retained to provide preliminary design alternatives for the inlet system, based on their expertise with similar projects. Three alternatives were presented: A rock berm, a log jam, and a culvert intake. Project team members evaluated the alternatives and selected the culvert as the most appropriate system because head losses and ground disturbance needed to be minimized, and specific hydraulic conditions were required that could be reliably met by a culvert. This system was refined as needed to better match the topography and other project constraints. Guidance was supplied by Canada Department of Fisheries and Oceans experts who have used similar structures successfully. As stated previously it was preferred to have a reliable and controlled source of flow to the channel to meet spawning goals. It was determined that the culvert option, although more complex to design and construct, offered, the most reliable source of flow, with the least head loss, and least ground disturbance. Additionally the culvert gate allows for dewatering during maintenance and flushing of fines.

5.2 Hydraulic Modeling

A backwater analysis was required to design the inlet system to create the desired hydraulic conditions, and to analyze the stability of in-channel features (substrate on bed and banks, LWD). A HEC-RAS model developed for the 2000 FEMA FIS was modified for this study. This model was calibrated to a moderately high flow. Additional calibration data were gathered and incorporated into the model as part of this study. The HEC-RAS model included the main river channel, the spawning channel, and the inlet and outlet works. Flooding impacts were analyzed.

Manning's n values typically increase for a given reach for lower flows due to the larger influence of the channel's roughness elements. The channel roughness coefficients were increased to, on average, 0.055 in the channel and 0.120 on the overbank. This is about a 20 percent increase in roughness over the original calibration done for the FIS. The roughness values used in the recalibrated file are consistent with documented values for stony channels at lower stages.

The previously calibrated model was checked for accuracy by comparing the computed water surface elevations to the surveyed water elevations between RM 3.3 and 3.6 during discharges of 2000 cfs in April 2002. The model reproduced the surveyed elevations to

within 4 tenths of a foot at the inlet during this relatively high discharge, although some sections downstream of the inlet did not match the surveyed water surface as closely.

All elevations in this document are reported using NAVD 88 vertical control.

New model cross sections were added to the main-stem between RM 3.3 and 3.6. These cross sections were a combination of interpolated channel data for the main-stem Cedar, and recent ground survey of the floodplain where the proposed channel will be located. No new river cross-sections were taken. The channel is very stable, with little observable deposition or scour (Perkins Geosciences, 2002). Thus it is unlikely that the FEMA cross-section geometry has changed significantly.

Given the uncertainties inherent in every computer model, two staff gages were installed at the proposed inlet locations to monitor conditions during low flow to verify the hydraulic model and design before construction begins.

5.3 Results

5.3.1 Channel Inlet Selection

Careful consideration was given to the inlet selection. The options were a culvert, log jam, and rock berm inlet. The rock berm was ruled out as environmentally and hydraulically infeasible. Although the logjam inlet reflects successful natural analogs, the required ground disturbance, limited life span, and extra risk were viewed as negatives. A project at this site demands a reliable source of flow and protection against erosion of the steep hillside. It is difficult to reliably quantify the hydraulics of the log inlet, although there is substantial evidence of their success in nature. The need for meeting spawning goals makes a reliable and flexible water source attractive. The concern over hillside erosion caused by the river overtaking the channel (unlikely but possible) makes the culvert inlet attractive because there are over a hundred feet of land separating the inlet from the channel. A benefit of the culvert in this stable reach is that most of the materials will last for decades baring maintenance, although metal components will require corrosion control or occasional replacement. A "natural" inlet will degrade with time, requiring eventual replacement of the rotting trees. Limitations of the culvert are construction effort and cost, and use of a non-native materials. The worst-case scenario for the culvert is if the river severely degrades or aggrades (unlikely but possible). In this case the river would have to be re-graded (i.e. boulder riffle), or the culverts and headwall would have to be reset.

The culvert intake design consists of a 3 ft by 3 ft concrete box culvert with a concrete headwall and wing-walls, and a metal trash rack. A control gate would be mounted on the downstream end where the box culvert enters a vault. The vault is located approximately 170 ft upstream of the head of the spawning channel. A 4 ft diameter corrugated metal (outlet) or HDPE culvert would connect the vault to the spawning channel. The inlet culvert, manhole, and headwall will be precast, the wingwalls, cast-

in-place. Alternately two 24-inch parallel metal pipe culverts could be used in lieu of the box culvert, but they offer less of an operating range and are more difficult to maintain.

(Note: the culvert headwall is tentatively being redesigned. Riprap and quarry spalls will be used in lieu of a concrete headwall and wingwalls. Woody debris will be incorporated if feasible.)

5.3.2 Hydraulic Analysis

Low flow and high flow rating curves were developed for the site and are illustrated in Figures 1 and 2. Roughness values were varied from 0.04 to 0.12 to capture a reasonable range of expected hydraulic conditions. In Figure 1, only two gate settings are shown, the maximum opening (3 ft) and the minimum opening (0.5 ft). This gives the operating envelope for the channel for flows not exceeding 5,000 cfs in the river. It is important to point out that the gate opening to gate discharge relationship is not linear, that is, a ten percent increase in the gate opening does not result in a ten percent increase in flow. It is expected that the City will field test the channel and gate to develop as-built rating curves. When main river discharges exceed 5,000 cfs (5-10-year frequency), the high-flow bench where the channel would be constructed begins to overtop. Discharge would increase easily by a factor of ten if the channel were flooded. Thus the gate setting is irrelevant because the proportion of flow from the inlet is small relative the proportion from the river overtopping the channel banks. This is reflected in Figure 2, where the rating curve at high flow depends only on the amount of roughness in the spawning channel. The large difference in spawning channel discharge for different roughness values occurs because discharge is inversely proportional to roughness, and because the flooded channel area is large. Armored swales will be constructed to intercept overbank flow and flood the channel before banks are eroded by overbank flows. Additionally, the control structure for the inlet system would be located out of the 100-year floodplain. Flood elevations during the100-year event could be reduced by as much as 1.0 ft, attributable to the conveyance added by the new channel. If large amounts of LWD are added to the channel, the conveyance benefit will be negligible.

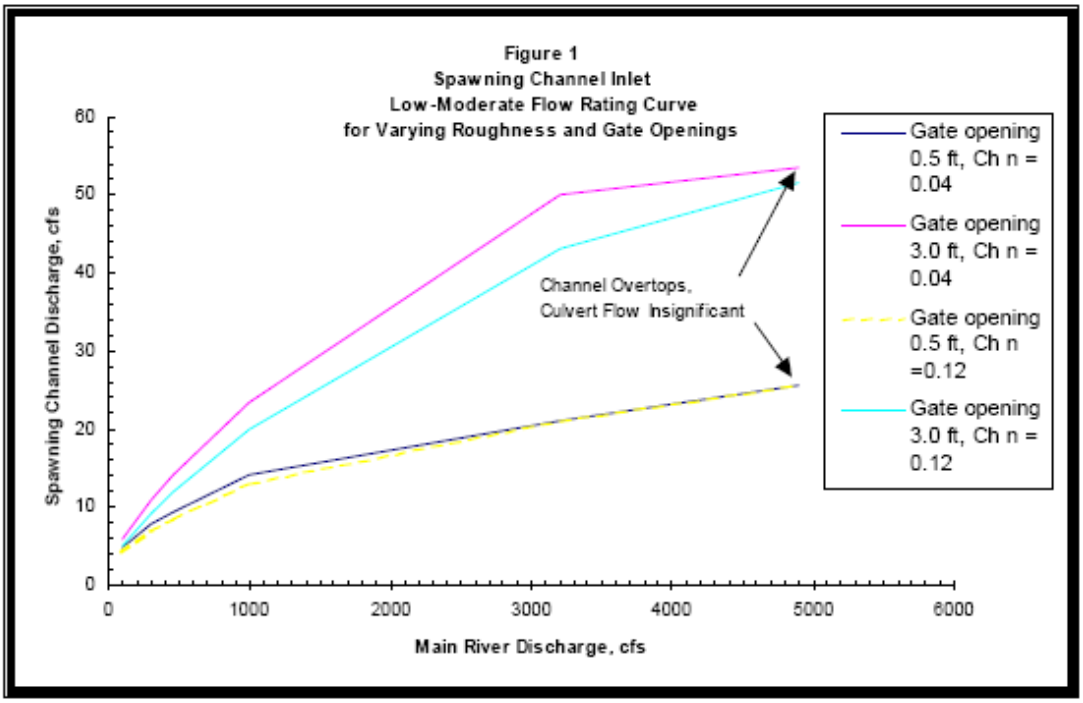


Figure 1
Spawning Channel Inlet
Low-Moderate Flow Rating Curve
for Varying Roughness and Gate Openings
Spawning Channel Discharge, cfs
Main River Discharge, cfs
0
10
20
30
40
50
60
0
1000
2000
3000
4000
5000
6000
Channel Overtops,
Culvert Flow Insignificant
Gate opening 0.5 ft, Ch n = 0.04
Gate opening 3.0 ft, Ch n = 0.04
Gate opening 0.5 ft, Ch n =0.12
Gate opening 3.0 ft, Ch n = 0.12

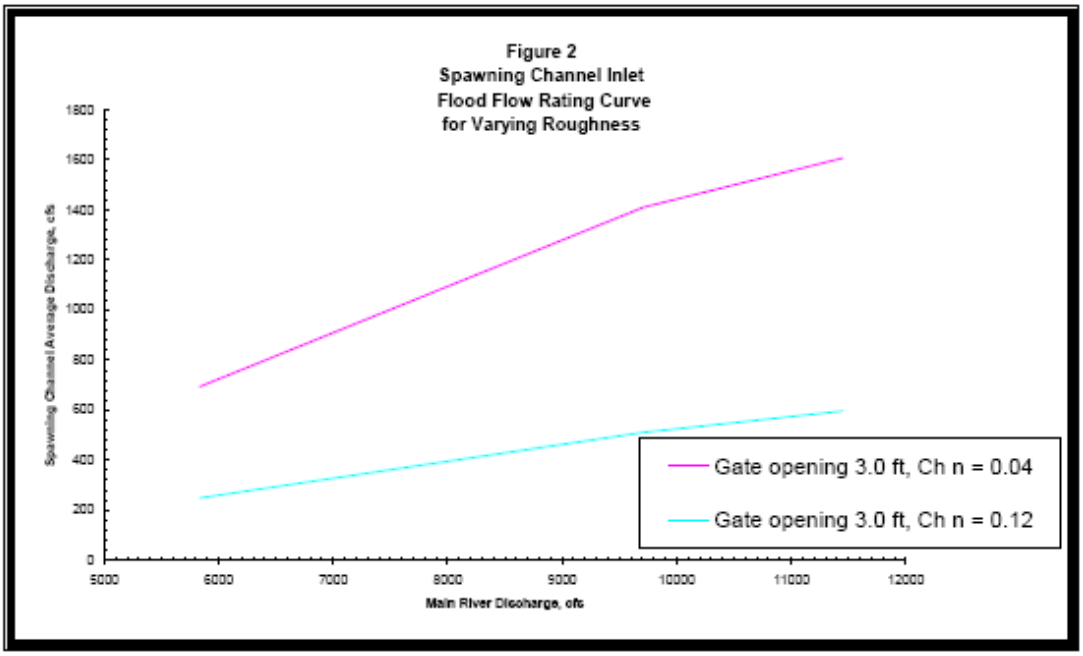


Figure 2
Spawning Channel Inlet
Flood Flow Rating Curve
for Varying Roughness
Spawning Channel Average Discharge, cfs
Main River Discharge, cfs
0
200
400
600
800
1000
1200
1400
1600
1800
5000
6000
7000
8000
9000
10000
11000
12000
Gate opening 3.0 ft, Ch n = 0.04
Gate opening 3.0 ft, Ch n = 0.12

For all analyses it is assumed that no flow is lost in the channel, that the gate on the inlet culvert is fully open, and that debris does not obstruct flow upstream or downstream of the inlet. The gate can be closed to optimize the hydraulic conditions in the spawning channel over a range of flows. The figure below compares the effect of a fully open and partially open (6-in) gate on discharge to the spawning channel. The figures and tables below describe hydraulic conditions expected throughout the channel over a range of spawning and flood flows, assuming the channel roughness and inlet configuration described above.

Table: 1 CHANNEL SPAWNING-FLOW HYDRAULIC PARAMETERS

Spawning Period	Minimum Flow in River based on Cedar HCP	Max Flow in Channel (Flow at 6" gate opening)	Range of Depth (Average)	Range of Velocity (Average)
Summer Lowest Q	97	6 (5)	0.3-1.7 (0.6)	0.3-1.6 (1.0)
16-22 Sept[1/]	150	7 (6)	0.4-1.7 (0.7)	0.3-1.5 (1.1)
1-7 Oct[1/]	270	10 (8)	0.6-2.0 (0.9)	0.3-1.5 (1.2)
"90%Exceed"	300	11 (8)	0.7-2.1 (0.9)	0.3-1.5 (1.2)
Peak Critical	240	10 (7)	0.6-1.9 (0.8)	0.3-1.6 (1.2)
Peak Low Normal	440	14 (9)	0.8-2.5 (1.1)	0.3-1.6 (1.3)
Peak High Normal	470	14 (10)	0.9-2.6 (1.1)	0.3-1.6 (1.3)

1/ Normal minimum during early spawning period

From the Table 1, it is clear that the proposed channel will meet all the design criteria during normal low flow conditions. Compared to the existing condition of the Elliot channel, flow depths and velocities should be somewhat greater, due to the greater flow capacity of the inlet. The bracketed discharges in the Max Flow column represent the discharge to the channel if the culvert gate was closed to 6 inches. The corresponding hydraulic parameters can be estimated by comparing with similar full-open discharges. Despite the 80% reduction in the culvert opening, flows are cut only 30% during peak spawning conditions. During high flows, as shown in the following table, the discharge reduction is more significant. However, during high flow events that don't overtop the channel, backwater will significantly increase depths and reduce velocities in the channel resulting in deposition of suspended fines. As the backwater recedes, shear stress on the bed should clean most if not all of the deposited fines. However, the more the culvert gate is open, the more effective the silt transport and removal. If desired, field-testing could be conducted to determine the best gate setting to balance fish hydraulics, habitat, and sediment management.

Table 2: CHANNEL FLOOD-FLOW HYDRAULIC PARAMETERS

Spawning Period	Minimum Flow in River	Max Flow in Channel (Flow at 6" gate opening)	Range of Depth (Average)	Range of Velocity (Average)
50% EXCEED	1,000	22.5 (14)	1.1-4.0 (1.8)	0.2-2.3 (1.3)
~1-YR	2,000	39 (18)	2.0-5.9 (3.2)	0.2-2.9 (1.1)
~2-YR	3,000	46 (21)	3.3-7.4 (4.7)	0.1-2.4 (0.7)
	4,000	46 (21)	4.6-8.9 (6.0)	0.1-1.9 (0.5)
5-YR *	5,000	46 (21)	5.7-9.8 (7.0)	0.1-1.6 (0.4)
10-YR *	5,800	790 (NA)	5.5-6.2 (5.9)	2.7-6.2 (4.1)
50-YR	9,700	1500 (NA)	9.0-11.2 (9.9)	3.0-7.0 (4.5)
100-YR	11,450	1790 (NA)	10.3-12.3 (11.2)	3.1-6.3 (4.4)

* Cedar River overtops into spawning channel between 5 and 10-year events

5.3.3 Sensitivity Check

Because the above parameters were based on a single assumed channel n-value, a sensitivity test was performed on the 90% exceedence flow and the 50-year flood flow. Low flow n-values were adjusted +/- 50% (.034-.068) and the model was re-run. The average channel depth ranged from 0.8 ft to 1.1 ft (~ +/- 15%) and the average velocity ranged from 1.0-1.5 ft/s (+/- 20%). Even within this range of error, the hydraulic design criteria are met, showing that the channel and inlet configuration are robust. The high flow channel n-values were adjusted upwards by 67% (0.06 to 0.10) to capture energy losses from flow resisting LWD blockages. With the increased roughness, the average channel depth ranged from 11 ft to 12 ft (~ + 15% of average) and the average velocity ranged from 2 - 4 ft/s (~ - 38% of average). Thus woody debris that increases hydraulic roughness should dissipate some of the erosive energy. This analysis does not incorporate the pool riffle sequences and LWD structures that will be constructed. This means that the as-built depths and velocities will be more variable than those shown here.

6.0 Geomorphic Analysis

6.1 Data and Methodology

Sue Perkins of Perkins GeoSciences was retained to provide an assessment of both the Elliot channel and the Rolling Hills site. Her assessment of the Rolling Hills Site is contained below. USACE staff inspected the site on several occasions, during high and low flow. USACE observations follow Ms. Perkins' results.

6.2 Results

The following are excerpted from Sue Perkins Geomorphic assessment for the Rolling Hills Site:

- The spawning channel should be kept far from the valley wall to minimize the risk of burial in the event of a landslide, and to reduce the very low risk of river migration to a position next to the valley wall where it could destabilize it.

- Drainage from roads, storm drains, and houses should be routed away from the potentially unstable slope above the project site.

- The inlet design should account for potential future degradation, perhaps with a permeable inlet such as a log jam that would allow flow to enter over a range of depths. More information could be gained about recent rates of bed degradation by comparing survey data from the new King County flood study with the 1980s FEMA flood study, if any of the cross-section pairs are located close enough for comparison.

- If the only water source is at the upstream end, sand is likely to drop out in the lower half of the channel due to the lower gradients and backwater flooding conditions. Unless permeability is such that groundwater would add a significant amount of flow, a second inlet halfway down the channel may be needed to provide additional flow to keep fine sediments moving through. There is a good example of this upstream at the Maplewood spawning channel, where a natural side channel enters partway downstream. During our site visit this month, the constructed spawning channel's bed was covered with sand upstream from the side channel, but was clean gravel downstream of the added water source.

- As with any channel with a controlled inlet, there may not be enough flow to scour the gravels and keep them clean over the years. If there were enough flow to scour the gravels, then there would be no way for new gravel to move into the channel to replace the gravel moved downstream. In addition, future downcutting of the river could potentially reduce flow in the channel. The need for repeated maintenance, design modifications and repairs should be anticipated throughout the life of the project.

- Were it not for the increased risk of landslides that would occur if the river were to undercut the valley wall, I would advocate an uncontrolled channel opening and allowing the river to shape the new channel as it wished. Over time, this would provide more numerous maintenance-free side channels that provide a variety of habitat functions in addition to spawning gravels. This still may be the best option given the potential long-term maintenance and sediment problems alluded to above. With this approach, the money spent on inlet construction would instead be spent to reinforce the outer boundary of the desired channel migration zone. Other than excavating a proto-channel and seeding it with LWD, minimal engineering of the side channel would be needed since the river would do the engineering for you.

- Given the low risk of channel migration at this site, the use of hard bank armoring can probably be limited to the approaches to the inlet, a controlled overflow area partway down the channel, and the downstream outlet (where it is essential to end the spawning channel before it encounters Seattle's water pipeline). I concur with many of Cygnia Freeland's suggestions (1/18/02 memo, Dept of Ecology) to construct a channel with as many natural characteristics as possible. These could include an engineered log jam at the inlet through which water flows, steeper bank angles similar to those occurring along the river, an excavated floodplain along one bank, and

clusters of logs with rootwads that are large enough to stay in the channel without anchoring.

Site visits show that the preferred inlet location is about 150-ft upstream of a riffle in a straight, slower, deeper reach. The cobble bank is steep and armored by small alder trees. The inlet is proposed just downstream of a vegetated boulder and submerged woody debris. The velocity shadow and scour hole of this feature results in the settling of some sand, however the bed is visibly dominated by gravel and cobble. This bank feature should be retained to ensure the scouring function. A gravel bar appears to be located towards the middle of the river, just outside the proposed inlet. It is unknown if this would limit flow to the inlet during minimum discharge conditions. If necessary, woody debris or boulders could be placed to scour deposited gravels away from the inlet, or to raise the water surface if degradation occurs.

An alternate location downstream is just upstream of the aforementioned riffle. Flow is swift and shallower. The bed is course, dominated by cobbles with few visible fines. At low flow it is uncertain if depths will be sufficient to sustain flow to the channel. Stability of the riffle is critical for the success of this alternate location. Erosion of the riffle could cut off flow to the inlet. Without in-river grade control work, the inlet invert would have to be re-set to match the new grade.

At this time two staff gages have been installed, one at each of the two inlet locations described above. If the results of the monitoring indicate that the alternate location is superior, the inlet design will be modified to match that location.

7.0 Stability Analysis:

7.1 Data and Methodology

The stability of placed gravel, in-situ soil, and large woody debris were analyzed in several ways. The hydraulic models were used to compute variables necessary for the stability calculations. Design charts were used to compare the stability of bed and bank soil and erosion control materials with respect to the shear stress and velocity. A critical shear bank stability analysis was used to determine the stable natural bank side-slope. A formal incipient motion analysis was undertaken to determine the grain size that would first be transported given specific hydraulic forces. The above were combined to identify where erosion protection is necessary. The stability of placed wood was not rigorously analyzed. Buoyant forces were computed to determine required ballast for bank revetments incorporating logs. Hydraulic forces acting on logs subject to flow were not rigorously determined because in-channel logs will be embedded in banks, and sized and grouped together where possible to resist hydraulic forces en masse. In-field hydraulic calculations can be performed to check these designs if required. As logs decay, some installations will become unstable. Bank vegetation should be well established by then, and in-water logs should still provide cover and structure.

The maintenance commitment will be largely determined by the stability of the placed gravel. Some bank erosion will occur during major floods and in reaches of the channel that are designed to conform to the flow regime and recruit gravel. Gravel nourishment stations should be located during construction to allow for convenient and effective gravel placement.

7.2 Results

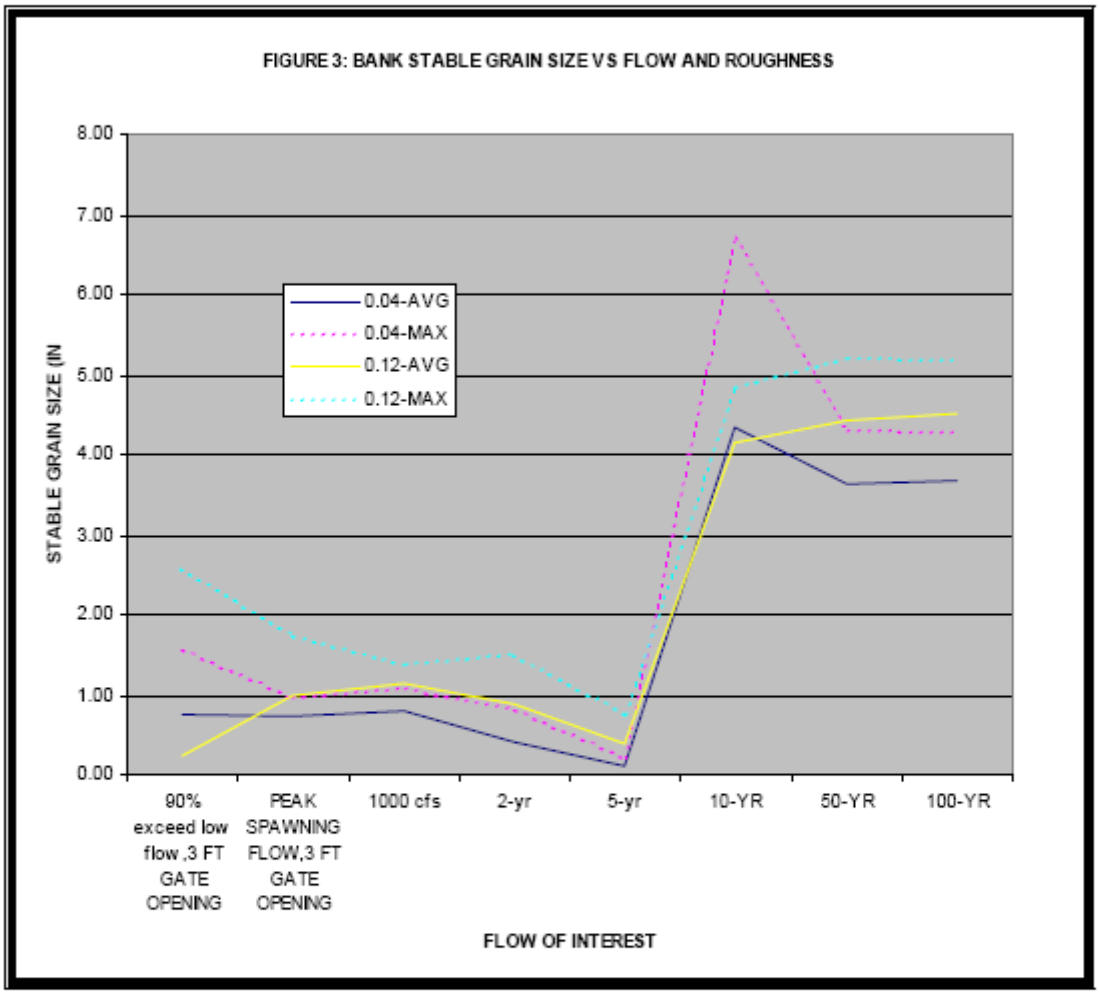
The results of the critical shear analyses are shown in Figure 2-4. For a given roughness value, the average condition is shown, along with the maximum. The average condition represents the conditions to expect in the majority of the channel. The maximum is generally much greater than the average, and typically occurs at one of two locations—during high flows, at the culvert outlet, during low flows, where the channel rejoins the river. The maximum should be considered an upper range for typical conditions, however larger grain sizes will be mobilized at channel bends, riffles, around LWD during high flows, and by spawning. The results also compare the effect of an inlet culvert gate opening of 3-ft (max. open) versus 6-inches (min. open).

The results show that the large majority of the design gravel specification is stable during spawning flows and over a wide range of higher flows and channel roughness conditions. Also, increasing roughness tends to decrease discharge, increase the friction slope, and thus increase the size of particle that can just be moved by the flow. Effective roughening of the channel will occur at low flows, especially in riffle sections, because the influence of the grain size on roughness increases inversely with depth of flow. At higher flows and depths, roughness is supplied by in-channel LWD and overhanging vegetation. Closure of the gate reduces discharge and increases the stability of the bed and bank materials.

The banks are generally less stable than the bed due to the additional gravitational force exerted on the bank material. As shown in Figure 3, the computed stable bank size ranges from 0.1-in to 6.8-in, with an average of about 0.8-in. As shown in Figure 4, the stable grain sizes on the bed range from 0.1-in during the 5-year flood backwater condition to 4.5-in at the outlet of the channel during the 10-year event, with an average of about 0.5-in. Overtopping floods (10-year and greater) are predicted to be much more erosive. Gravel and cobbles finer than 2.5 inches on the bed and 4.0-in on the banks may be eroded. This will result in armoring of some portions of the streambed, and bank scour where not sufficiently protected. Although the model predicts that increases in roughness will increase the stable grain size, this is only generally true. Around roughness features such as logjams, sediment movement will be restricted and finer particles will deposit.

Periodic gravel nourishment will be required to replenish gravel mobilized from high flows and spawning activity, especially following an overtopping flood. Normally stable vegetated side-slopes should withstand erosive forces during large floods that fill the channel in a controlled manner. Otherwise, uncontrolled overtopping will severely erode

the channel banks. Over- steepened sections will erode over time and in response to flows to a more stable configuration. This erosion will supply gravel to downstream reaches. Imported streambed material should be well graded, and include rounded cobbles up to 5-inches. If more than 30% of the material is finer than 0.5 inch, frequent gravel nourishment may be necessary.



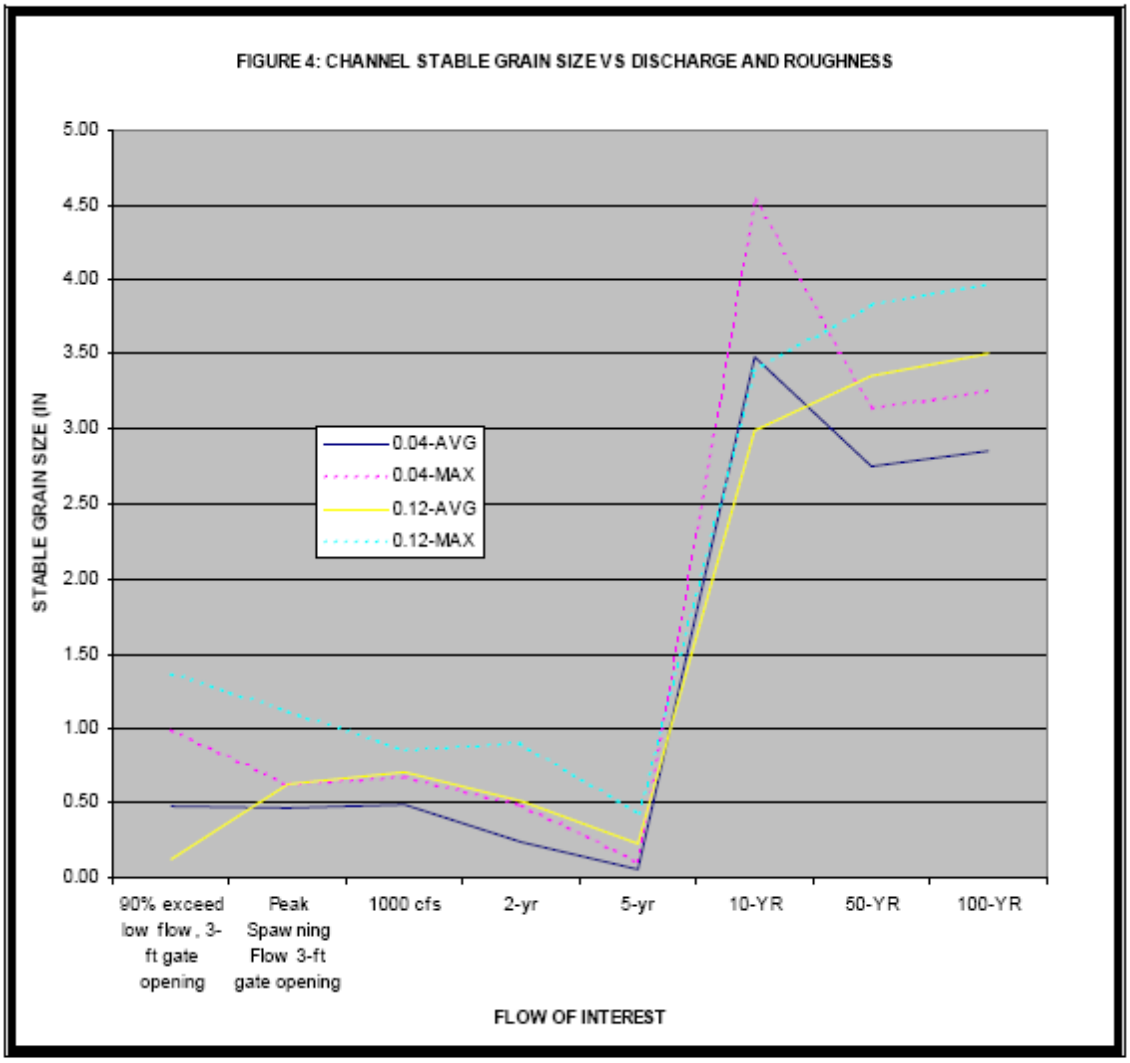


FIGURE 4: CHANNEL STABLE GRAIN SIZE VS DISCHARGE AND ROUGHNESS
STABLE GRAIN SIZE (IN
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0.04-AVG
0.04-MAX
0.12-AVG
0.12-MAX
90% exceed low flow, 3-ft gate opening
Peak Spawning Flow 3-ft gate opening
1000 cfs
2-yr
5-yr
10-YR
50-YR
100-YR
FLOW OF INTEREST

8.0 Hydraulic Design

8.1 Inlet

To provide the necessary flow to the spawning channel at the design low flow, the invert of the 3 ft x 3 ft concrete box inlet culvert should be at elevation 56.17 ft (NAVD88) at the inlet and 56.00 ft at the outlet. The invert of the 4 ft diameter outlet culvert should be 56.0 ft at the inlet and 55.50 ft at the outlet. Invert of the vault should be 54.0. The invert of the headwall apron should be 55.65. The wingwalls should be 45 degrees from the culvert centerline. The protruding end of the outlet culvert should be mitered to the vault wall. (Note: The inlet headwall has been tentatively redesigned as follows: The inlet will be protected by a riprap headwall. The box culvert end will be cut off to a 1.5 to 1 side-slope to match the riprap headwall slope. A gravel filter will be placed around the culvert end protected by the riprap headwall to reduce the void-space and prevent the piping of fines. The culvert end will be underlain by 2.0 ft of riprap for scour protection.).

8.2 Channel

The channel bottom at the upstream end should be 55.0 ft elevation at the downstream confluence the invert would match the invert of the river channel (52.5 ft)

The excavated channel depth varies from 14 ft at the upstream end to 4 ft or less at the downstream end. The channel geometry that met the design criteria was a trapezoidal channel, approximately 900 feet in length, with a 10.0 ft bottom width, 1.0-1.5H: 1V side slopes, and an average bed slope of 0.003 ft/ft (0.3%). The design spawning channel roughness coefficient was 0.045, corresponding to a typical gravel bed channel at low stages. At high flow, the LWD will begin to block flow and increase hydraulic roughness (assume at least a factor of two greater during full effect).

8.3 Riprap

In order to protect critical infrastructure during large floods, a 3-ft thick, Class 3-4 riprap blanket should be placed at slopes no steeper than 1.5 H:1 V. See plans for placement locations and details.

8.4 Large Woody Debris

LWD is a desired restoration project component because it provides both habitat and hydraulic function. Analogs for use of LWD at this site are newly formed side channels where erosion topples trees into the channel and the rootball and trunk armor the cut bank, and the tree spans the channel, and alternately, lays downstream parallel to flow. Wood anchored as shown in the plans should withstand a moderate to severe overtopping flood. Severe floods will both transport some wood not securely anchored from the site and undermine and recruit new trees on site. Until waterlogged, the large tree sizes at the site may require ballast to resist the buoyant and drag forces exerted by the flow. By leaving large rootballs intact, the additional frictional resistance will counteract the hydraulic forces on the log. If the cumulative backwater effects of LWD

is significant, the hydraulic forces on the channel, banks, and other LWD pieces will decrease. If necessary, ballast can be provided by burying the majority (2/3 of length) of a log in the bank, anchoring the log to other logs, placing large boulders on top of the logs, and anchoring the log to the earthen slope with a dumbbell driven through the log into the bank. LWD may be difficult to place in some portions of the channel, due to the large size of the members, excavation depths exceeding 10 ft, and limited access. Most cottonwood not permanently inundated will begin to rot after a 7-10 year period. This interval should allow the native bank vegetation and side-slopes to mature. LWD in the channel and pools could be replaced as needed.

8.5 Dendrites

Dendritic channels should be constructed at two locations shown in the plans to provide additional rearing and spawning area and to provide a predictable overtopping mechanism for the channel during flood events. The dendrite will consist of a swale armored with a 2-ft thick riprap blanket that extends from the river's edge to the spawning channel. The dendrite will be backfilled with spawning gravel and LWD will be located at the confluence with the channel. During high flows, water will preferentially flow down the dendrite to the spawning channel, supplying gravel, and flooding it before overtopping flows can erode the rim of the channel.

8.6 Bank Stabilization

Side-slopes excavated to 1.5 H:1 V are computed to be stable under high flow conditions, however, experience shows that unless the slopes are re-vegetated or armored, the slopes will erode where flow impinges on the bank. Fortunately vegetative growth is robust on site. Native topsoil and vegetation will be conserved and replaced to aid re-vegetation. LWD is readily available to provide temporary stabilization of excavated slopes, especially at the toe.

8.7 Other Design Considerations

There are several important considerations that relate to the H&H aspects of the project. These are briefly addressed below.

8.7.1 Right of way and Utilities

Access to the site for maintenance needs to be secured by the City. Buried utilities need protection should the river overtake the constructed channel. See the plans for buried riprap details.

8.7.2 Geotechnical

The steep hillside south of the project must be protected from becoming unstable during construction and from river migration following construction.. Additional investigations are required to ensure that the project will not de-stabilize the hillside and jeopardize the channel and properties above. The contribution of groundwater is assumed nil. If a reliable groundwater source is found, the inlet may be scaled back or eliminated. The

underlying soil appears to consist of gravels and cobbles. Thus importing spawning gravel may not be necessary. The likelihood of seepage into the groundwater table has not been determined, nor the availability of groundwater to supplement the surface intake.

8.7.3 Site/Civil

Wasting excess material close to the project site will create a significant cost and time savings. This will allow for more effort to construct the complicated features of the restoration project such as geogrid walls and LWD structures. The extra care in these areas should improve the long-term success of the project.

8.7.4 Public Access

A more natural ("messy") channel configuration with steeper side-slopes, higher excavation depths, and large amounts of in-stream woody debris may discourage poaching and vandalism by limiting access to and restricting movement within the channel. Tamper proof trash-racks and manhole covers are necessary to protect public safety and prevent vandalism of the control works.

8.7.5 Monitoring

It is recommended that the City periodically monitor channel cross sections to record the changes in the channel geometry. This will allow a means of tracking the gravel transport rates, effectiveness of gravel nourishment, success of re-vegetation, assessing general channel stability, impacts of inlet operations, impacts of LWD, and impacts of overtopping floods.

11.5 11.9 Notice of Preparation and Clean Water Act Public Notice

US Army Corps of Engineers
Seattle District

Notice of Preparation and Clean Water Act Public Notice

Planning Branch
P.O. Box 3755
Seattle, WA 98124-3755
ATTN: Tim Shaw

Public Notice Date: June 6, 2008
Expiration Date: June 23, 2008
Reference: PL-08-07
Name: Cedar River Side Channel

Interested parties are hereby notified that the U.S. Army Corps of Engineers, Seattle District (Corps) plans to prepare, pursuant to the National Environmental Policy Act, an environmental assessment (EA) for a proposed Cedar River side channel mitigation project, in King County, Washington. A landslide that occurred as a result of the 2001 Nisqually Earthquake destroyed the mitigation site that had been constructed in 1998 in conjunction with the Cedar River Flood Control Project. This proposed project seeks to remedy the earthquake damage by constructing a functionally equivalent mitigation project in a different location along the Cedar River.

AUTHORITY

Construction of the Cedar River Side Channel Project is authorized by Public Law 84-99 (33 U.S. Code Section 701n). Corps rehabilitation and restoration work under this authority may be undertaken to ensure the continued function of flood control works damaged or destroyed by flood or other damaging natural occurrence. The rehabilitated facility will normally be designed to provide the same functionality as the original structure in its condition at the time of the precipitating event. Because the 1998 original side channel that was destroyed by the 2001 earthquake was an essential feature of the Section 205 Cedar River Flood Control Project, the PL 84-99 authority authorizes its rehabilitation or replacement.

BACKGROUND

The Seattle District, United States Army Corps of Engineers (Corps), with the city of Renton as the local project sponsor, constructed the Cedar River Section 205 Flood Control Project between 1998 and 2000. The project consisted of dredging within, and constructing concrete floodwalls and earthen levees along, the lower 1.25 miles of the Cedar River.

A groundwater-fed spawning side channel was also constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) in 1998, and subsequently improved and expanded in 2000, to serve as mitigation for the anticipated loss of salmonid spawning habitat in the lower 1.25 miles of the Cedar River following the initial and maintenance river dredging operations. It was

anticipated that maintenance dredging would occur every 3 to 10 years following construction, to maintain the flood protection benefits along the lower Cedar River.

During the February 28, 2001 Nisqually Earthquake, a landslide occurred adjacent to the groundwater spawning channel and resulted in inundation of the side channel and the loss of the channel's function as off-channel habitat. In response, the City of Renton requested and was granted assistance from the Corps under Public Law 84-99 to replace the channel to provide the long-term mitigation required for the Cedar River Section 205 Flood Damage Control Project.

NEED AND PURPOSE

This purpose of this project is to reestablish a salmonid spawning and rearing side-channel along the Cedar River functionally equivalent to the spawning channel destroyed by the Nisqually earthquake.

LOCATION

This project is located in the floodplain along the left bank between RM 3.4 and 3.6 on the Cedar River in the City of Renton, King County Washington (T21N, R05E, Section 21). The project location is east of the Royal Hills Neighborhood; west of the Maple Garden Neighborhood within City owned property.

PROPOSED ACTION

The proposed preferred alternative consists of the following construction elements:

- The construction of an intake structure (consisting of concrete box culvert, trash rack, control valve, geogrids, and approximately 140 feet of pipe) at the upstream end of the channel to convey flow from the Cedar River.
- The construction of an open-channel outlet approximately 1,200 feet downstream from the intake structure in order to allow flow to re-enter the Cedar River and adult/juvenile fish to migrate to or from the channel.

The excavation of approximately 6,000 cubic yards of floodplain sediments (i.e., gravel, sand and silts) and shaping for a distance of 1,000 feet within the existing drainage course in order to create the replacement channel.

- The addition of large woody debris to create rearing pools and to stabilize banks within the constructed channel.
- The addition 600-900 cubic yards of gravel to create spawning habitat.
- The construction of a 12-foot wide gravel-surfaced maintenance path adjacent to the west side of the channel for the length of the project.
- The installation of native trees, shrubs and plants at two locations – along the new channel and between the Cedar River and the new channel within an existing disturbed area – in order to mitigate for vegetation disturbance and tree removal (approximately 60 to 100 cottonwood and alder trees) resulting from the construction of the channel and maintenance road.

- The installation of a gate across the access road to deter illegal vehicular access.
- The installation of educational signs to inform the public of salmon within the Cedar River basin as well as the impacts of illegal activities on the habitat area.

Project construction is anticipated to be during the summer of 2008, with in-water work occurring June 16th through August 15th. Project plantings would likely occur during the fall of 2008. Future maintenance work may be necessary for cleaning and/or repair of the channel, including the intake structure and outlet.

Four other alternatives are being evaluated as well, they include:

No Action. The no action alternative would not repair or replace the groundwater-spawning channel constructed near River Mile 5.0 of the Cedar River (within Ron Regis Park) that was destroyed as a result of a landslide triggered by the February 28, 2001 Nisqually Earthquake. The landslide changed the main flow of the river resulting in the loss of the channel's function as off-channel salmonid spawning and rearing habitat.

Repair of the Earthquake Damaged Channel. This alternative would require diverting the current mainstem flow of the Cedar River and removing approximately 40,000 cubic yards of slide debris to reopen the river channel. A control structure on the up steam end of the original channel might also be necessary.

Modification to the Existing Elliot Channel. This alternative would involve modification of the existing Elliot Spawning and Rearing Channel at approximately River Mile 5, in an attempt to increase the available productivity of existing channel. This would include supplementing the existing project with more large woody debris, plantings, and spawning gravel as necessary.

Creation of a new Channel at the Renton Lions Club This alternative would have created a replacement spawning/rearing side-channel on the Renton Elks Club property at approximately River Mile 8.

ANTICIPATED IMPACTSOF THE PREFERRED ALTERNATIVE

The Corps' preliminary analysis of effects of the actions is summarized below:

Hydrology

About 6,000 cubic yards of floodplain deposits will be excavated from upland areas to construct a new spawning and rearing channel within the existing floodplain. The channel will be aligned along the course of a linear depressional swale in the upland area alongside Cedar River. The excavated material will be removed from the site.

The minimum critical Cedar River flow is 97 cfs per the City of Seattle Habitat Conservation Plan. At this flow rate about 5 to 10 cfs will be conveyed into the new channel.

The maximum design flow in the new channel is about 50 cfs. This flow would occur when Cedar River flows are at about 5,500 cfs just prior to levee overtopping.

Flow from the Cedar River will enter the channel at the inlet of the new channel and return to the Cedar River after flowing within the new channel system for a distance of about 1,200 ft.

11.6 Water Quality

There is a wetland situated along the south side of the riverbank in the vicinity of the proposed channel location. The wetland occupies a long, narrow spot and is approximately 300 square feet in size. The proposal would entail excavation of approximately 150 cubic yards of wetland material in order to construct the channel. The proposal includes the excavation of this entire small wetland in order to construct the channel. Under section 404 of the Clean Water Act the disturbance of the wetland will be evaluated in the context of the parameters of the analogous Nationwide Permit number 18 (”Minor discharges of dredged or fill material into all water of the United States”) and/or Nationwide Permit number 27 (“Aquatic Habitat Restoration, Establishment, and Enhancement Activities”).

Outside of this wetland area, the remainder of the site appears to be well drained and the steep riverbank precludes any sort of wetland fringe associated with the shoreline.

The project will utilize best management practices, such as silt fencing and other erosion control measures, to ensure no sediment enters the river during construction, and all cleared areas will be mulched, seeded and planted to prevent storm water runoff after construction. In-river construction below the ordinary high water mark at the inlet and outlet structures is expected to occur after uplands excavation is complete, and will occur between the dates of June 16 and August 15 in order to reduce impacts to salmonids.

With the exception of the inlet and outlet structures, the project will be constructed without any in-water work. This means that Cedar River water quality will not be impacted during the clearing/grading and excavation work elements related to channel construction.

There are no other adverse impacts to water quality anticipated from the proposed project. A water quality permit from the Washington Department of Ecology has been obtained for this project.

11.7 Vegetation

Native trees and shrubs will be planted in disturbed areas as compensation for vegetation removal during construction of the channel and maintenance path. Additional native planting will occur in an existing disturbed area between the Cedar River and the new channel.

The channel and maintenance road were designed to minimize the impact on the existing vegetation. Native trees and shrubs will be planted to reduce and control surface water runoff. The trees and shrubs will be planted in two locations. First, planting will occur in areas that are along and adjacent to the footprint of the new channel. Second, an existing disturbed area between the Cedar River and new channel will be planted to control runoff and deter access along an existing beaten path to the river.

11.8 Fish

According to the Final Environmental Impact Statement for the Cedar River 205 Flood Control Project prepared in August of 1997, there are at least 22 species of fish present in the Cedar River. In the vicinity of the project site there are sockeye salmon, Chinook salmon, coho salmon, steelhead trout, rainbow trout, cutthroat trout, mountain whitefish, northern squawfish, peamouth chub, three-spine stickleback, largescale sucker, longnose dace, brook lamprey, Pacific lamprey, and several species of sculpin. Bull trout have not been observed in the vicinity of the proposed project, but periodically may occur there.

The Cedar River adjacent to the proposed project is heavily utilized for spawning by adult sockeye, Chinook and coho salmon. The existing natural side channels downstream of the Elliot levee are utilized for rearing by sockeye fry, Chinook fry and juveniles, coho and steelhead smolts (USACE, 2007). Three species listed as threatened under the Endangered Species Act are likely to occur in the project area, including Puget Sound Steelhead, Puget Sound ESU Chinook salmon, and Puget Sound/Coastal ESU bull trout. The City of Renton has obtained a Washington State Department of Fish and Wildlife Hydraulic Permit Approval for this project.

11.9 Threatened and Endangered Species

In-water construction will occur when Chinook, steelhead, and bull trout are least likely to be present in the action area. The in-water work is scheduled to occur between June 16 and August 15, in accordance with the fish windows specified by WDFW. The resultant side channel will establish considerable habitat benefits to the advantage of listed and other fish and terrestrial species.

Table 5. Determination Summary Table

Species	Effect Determination	Critical Habitat Determination
Steelhead	Not likely to adversely affect	—
Bull Trout	Not likely to adversely affect	—
Chinook	Not likely to adversely affect	Not likely to adversely affect

11.10 Cultural Resources and Native American Concerns

No known cultural or historic sites occur in the project area. If any artifacts or cultural resources are discovered during construction, all work will be stopped and the USACE archeological and cultural resources staff will further investigate the site and alert the appropriate authorities. The Washington Department of Archaeology and Historic Preservation concurs with the determination that no historic properties will be affected.

Land use

The project site and adjacent property to the south and east is owned by the City of Renton. All of the City of Renton property (i.e. site and adjacent parcels) is considered a natural zone area. This project will not change the land use of the project area and it will continue to be considered a natural zone.

11.11 Air Quality and Noise

There will be a temporary increase in noise during construction, but it will be well within urban limits. Exhaust from the equipment will emit a minor amount of exhaust. Equipment will have mufflers and exhaust systems in accordance with State and Federal standards.

Cumulative Effects

Seattle Public Utilities proposes to construct and operate a sockeye hatchery and associated facilities on the Cedar River. The project would consist of a hatchery, a system to supply virus-free water for hatchery operations, and broodstock collection and spawning facilities. The new hatchery would be located within King County, about 2 miles northeast of Ravensdale and 3 miles southeast of Maple Valley. The broodstock collection facility would be located on the lower Cedar River, possibly within several hundred feet of the USACE proposed replacement side-channel.

Compliance with other laws and regulations

The Corps has coordinated the proposed action with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service concerning anticipated effects on threatened and endangered species and their critical habitat, pursuant to Sec. 7(a)(2) of the Endangered Species Act.

The Corps has reviewed the work for substantive compliance with Section 404 of the Clean Water Act. Washington Department of Ecology has reviewed the project under Section 401 and has provided a water quality certification.

Design of this project was extensively coordinated with the public, the Muckleshoot Indian Tribe, and resource agencies including: the City of Renton, King County, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the Washington Department of Fish and Wildlife, the Washington Department of Ecology, the University of Washington- School of Fisheries, and the Department of Fisheries and Oceans- Canada.

The National Historic Preservation Act (16 USC 470) requires that the effects of proposed actions on sites, buildings, structures, or objects included or eligible for the National Register of Historic Places must be identified and evaluated. A query of the Washington State Office of Archaeology and Historical Preservation database indicated that no sites listed on the National Register of Historic Places are located in the project section. A Corps archeologist conducted cultural resource investigations for this project and a report was shared with the Washington State Office of Archaeology and Historic Preservation SHPO and the Muckleshoot Indian Tribe.

A Coastal Zone consistency determination has been prepared pursuant to the Coastal Zone Management Act, and has been coordinated with the Washington Dept. of Ecology. The Corps has determined that the proposed rehabilitation activities comply with the policies, general conditions, and activities as specified in the King County Shoreline Master Program adopted in 1975. The proposed action is considered to be consistent to the maximum extent practicable with the State of Washington Shoreline Management Program and policies and standards of the King County Shoreline Master Program.

Evaluation

The decision whether to conduct the project will be based on an evaluation of the probable impact on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among these are: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

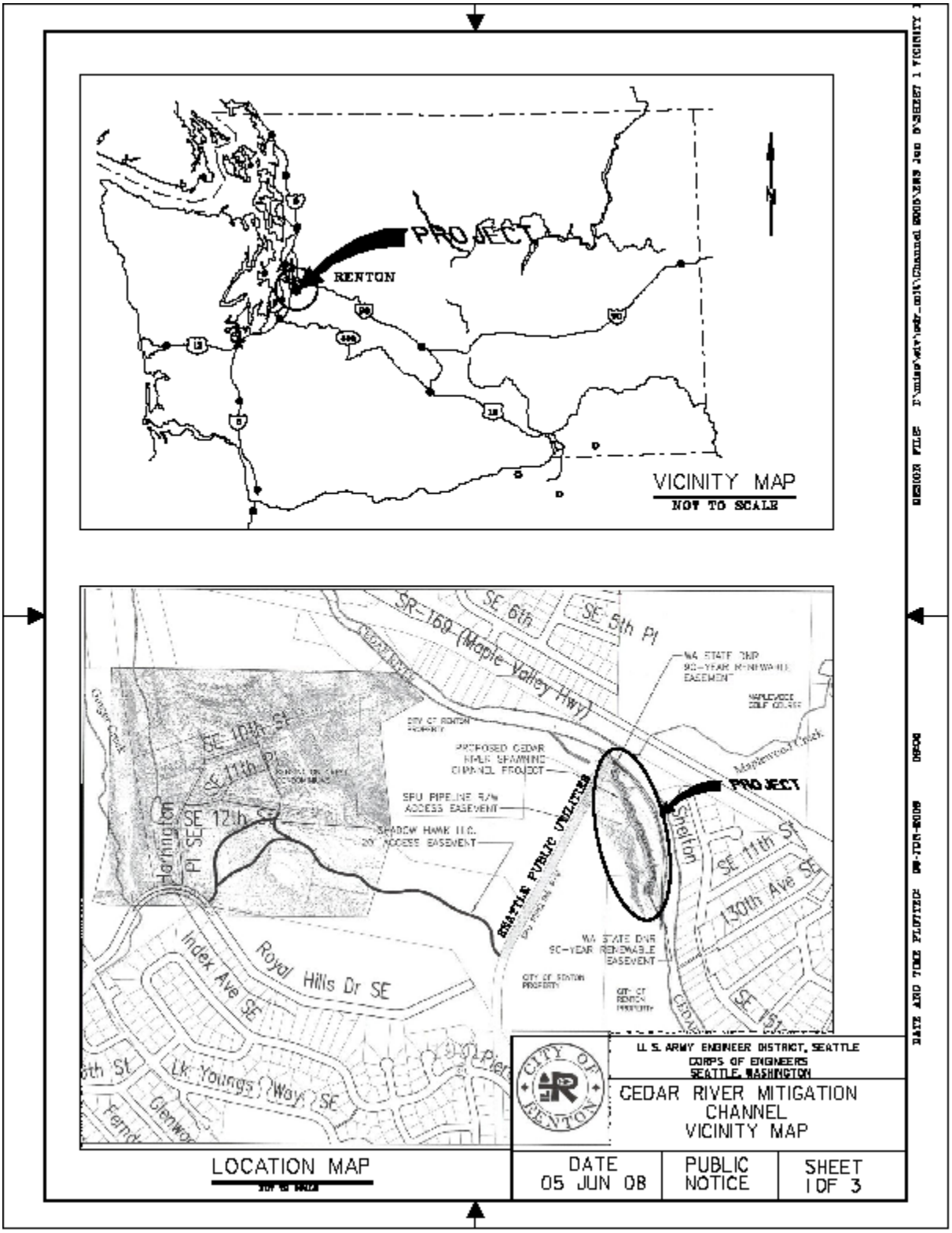
Any person who has an interest that may be affected by this disposal of fill or dredged material may request a public hearing. The request must be submitted in writing to the District Engineer within the comment period of this notice, and must clearly set forth the following: the interest that may be affected, the manner in which the interest may be affected by this activity, and the particular reason for holding a public hearing regarding this activity.

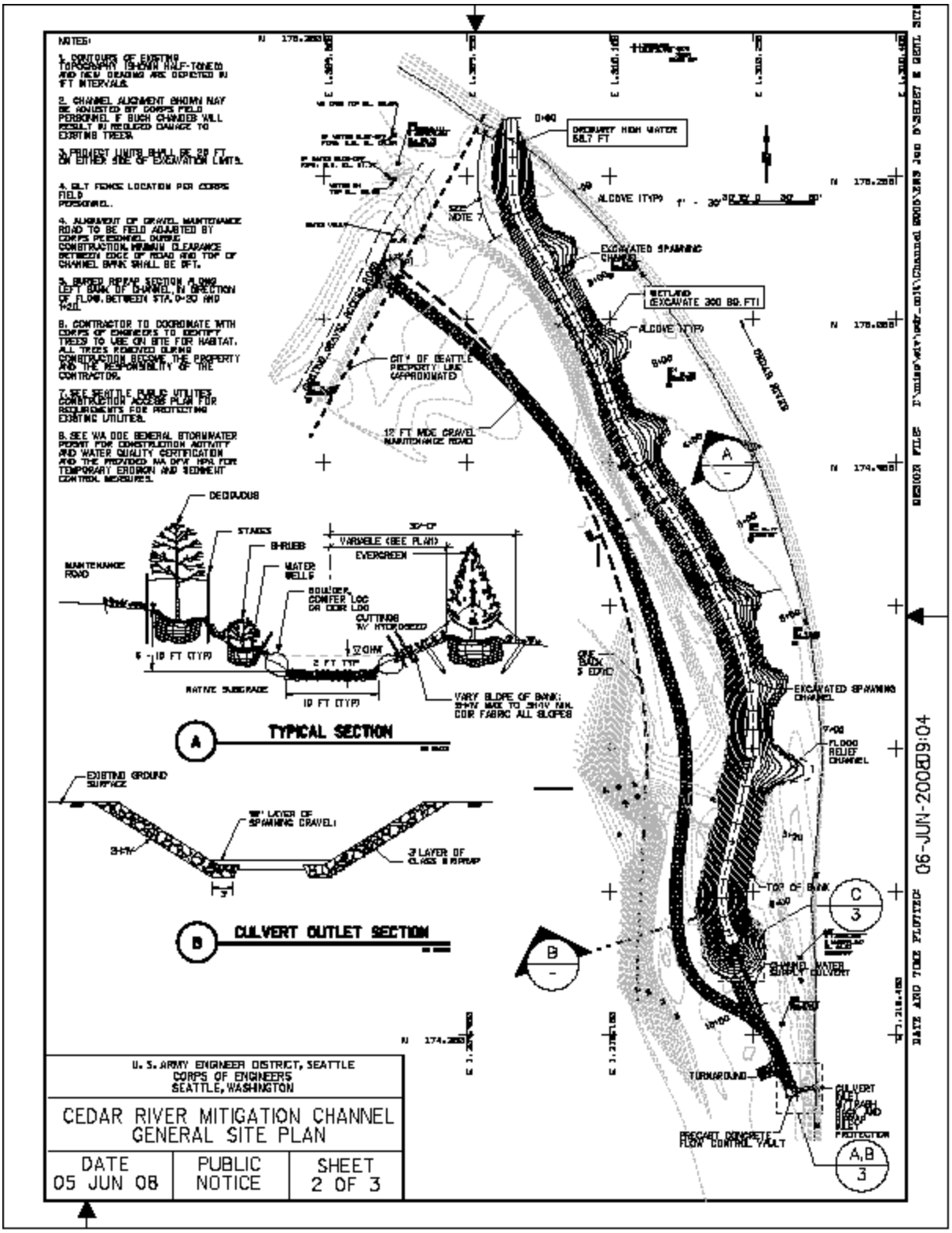
The Corps has made a preliminary determination that the environmental impacts of the proposal can be adequately evaluated under the National Environmental Policy Act through preparation of an environmental assessment (EA). The EA will be tiered from the 1997 EIS for the Cedar River Flood Control Project, and will assess the narrow topic of the spawning side channel component of the Flood Control Project that had been addressed in that EIS. As the EIS has previously

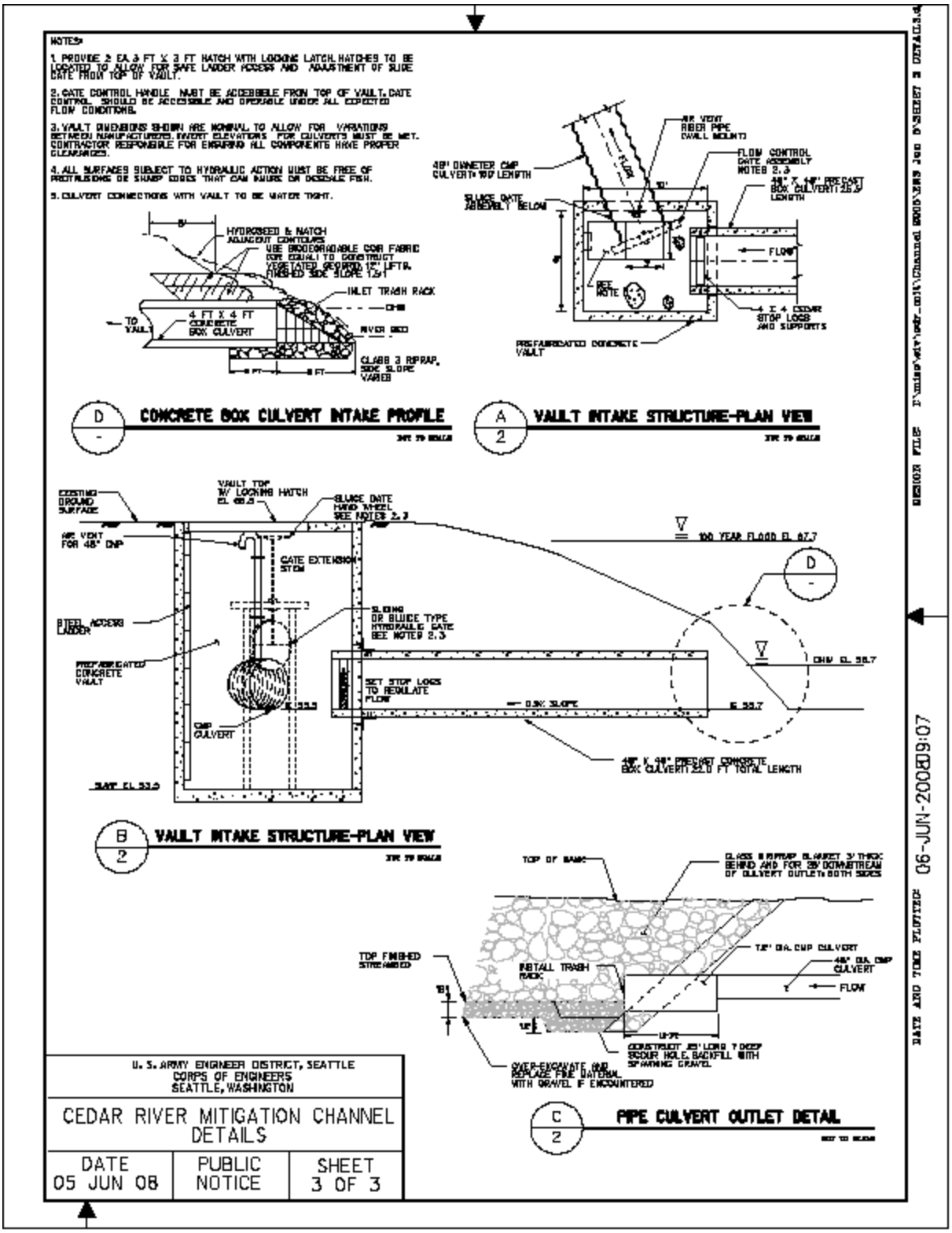
conducted a comprehensive evaluation of a spawning side channel as a mitigation component in the context of the Cedar River Flood Control Project, and as the features of the Flood Control Project have been constructed and have long been in operation, this EA will focus primarily on an analysis of whether the proposed replacement channel comprises a functional equivalent to the spawning side channel as assessed in the 1997 EIS, and as it was constructed in 1998-2000. The EA will also evaluate whether the environmental impacts directly associated with the construction of the replacement spawning side channel are consistent with those evaluated for the original Cedar River Spawning Channel. Preparation of this EA is currently underway.

The Corps invites submission of comment on question of functional equivalence of the proposed replacement spawning side channel, as well as the environmental impact of entailed in the process of construction of the proposal. Comments will also be considered in determining whether it would be in the best public interest to proceed with the proposed project. The Corps will consider all submissions received by the expiration date of this notice. The nature or scope of the proposal may be changed upon consideration of the comments received. The Corps will initiate a Supplemental Environmental Impact Statement (EIS), and afford all the appropriate public participation opportunities attendant to an EIS, if significant effects on the quality of the human environment associated with the replacement of the spawning side channel are identified and cannot be mitigated.

Comments should reach this office, Attn: Environmental Resources Section, not later than 15 days from the date of this notice to ensure consideration. Requests for additional information should be directed to Tim Shaw, Project Manager, at 206-764-6978.


PROJECT
RENTON
VICINITY MAP
NOT TO SCALE
SR-169 (Maple Valley Hwy)
SE 6th
SE 5th Pl
SE 10th St
SE 11th Pl
SE 12th St
Harrington Pl SE
Gisser Creek
CITY OF RENTON PROPERTY
PROPOSED CEDAR RIVER SPAWNING CHANNEL PROJECT
SPU PIPELINE R/W ACCESS EASEMENT
SHADOW HAWK LLC. 20' ACCESS EASEMENT
SEATTLE PUBLIC UTILITIES
WA STATE DNR 50-YEAR RENEWABLE EASEMENT
MAPLEWOOD GOLF COURSE
Maplewood Creek
PROJECT
Shelton
SE 11th St
130th Ave SE
SE 151
Royal Hills Dr SE
Index Ave SE
Lk Youngs Way SE
Glenwo
CITY OF RENTON PROPERTY
U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON
CEDAR RIVER MITIGATION CHANNEL VICINITY MAP
LOCATION MAP
DATE 05 JUN 08
PUBLIC NOTICE
SHEET 1 OF 3


NOTES:
ORDINARY HIGH WATER 8.7 FT
ALCOVE (TYP)
EXCAVATED SPAWNING CHANNEL
WETLAND (EXCAVATE 300 SQ. FT)
CITY OF SEATTLE PROPERTY LINE (APPROXIMATED)
12 FT WIDE GRAVEL MAINTENANCE ROAD
CEDAR RIVER
DEDUCUS
STAKES
SHRUBS
WATER WELLS
MAINTENANCE ROAD
VARIABLE (SEE PLAN)
EVERGREEN
BOULDER, CONIFER LOG OR COIR LOG
CUTTINGS TO HYDROSEED
NATIVE SUBGRADE
10 FT (TYP)
VARY SLOPE OF BANK; 3H:1V WIDE TO 3H:1V NAR. COIR FABRIC ALL SLOPES
TYPICAL SECTION
EXISTING GROUND SURFACE
LAYER OF SPAWNING GRAVEL
3 LAYER OF CLASS II RIPRAP
CULVERT OUTLET SECTION
FLOOD RELIEF CHANNEL
TOP OF BANK
CHANGE WATER SHEET CULVERT
TURNAROUND
PRECAST CONCRETE FLOW CONTROL VAULT
U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON
CEDAR RIVER MITIGATION CHANNEL
GENERAL SITE PLAN
DATE
05 JUN 08
PUBLIC NOTICE
SHEET
2 OF 3
06-JUN-2008 09:04


NOTES:
1. PROVIDE 2 EA. 3 FT X 3 FT HATCH WITH LOCKING LATCH. HATCHES TO BE LOCATED TO ALLOW FOR SAFE LADDER ACCESS AND ADJUSTMENT OF SLIDE GATE FROM TOP OF VAULT.
2. GATE CONTROL HANDLE MUST BE ACCESSIBLE FROM TOP OF VAULT. GATE CONTROL SHOULD BE ACCESSIBLE AND OPERABLE UNDER ALL EXPECTED FLOW CONDITIONS.
3. VAULT DIMENSIONS SHOWN ARE NOMINAL TO ALLOW FOR VARIATIONS BETWEEN MANUFACTURERS. INVERT ELEVATIONS FOR CULVERTS MUST BE MET. CONTRACTOR RESPONSIBLE FOR ENSURING ALL COMPONENTS HAVE PROPER CLEARANCES.
4. ALL SURFACES SUBJECT TO HYDRAULIC ACTION MUST BE FREE OF PROTRUSIONS OR SHARP EDGES THAT CAN INJURE OR DESTROY FISH.
5. CULVERT CONNECTIONS WITH VAULT TO BE WATER TIGHT.
HYDROSEED & MATCH ADJACENT CONTOURS
USE BIODEGRADABLE COIR FABRIC FOR EQUAL TO CONSTRUCT VEGETATED GROUND 12" LIFTS. FINISHED SIDE SLOPE 1.5:1
INLET TRASH RACK
TO VAULT
4 FT X 4 FT CONCRETE BOX CULVERT
RIVER BED
CLASS 3 RIPRAP. SIDE SLOPE VARIES
D
CONCRETE BOX CULVERT INTAKE PROFILE
AIR VENT FOR 48" CMP
48" DIAMETER CMP CULVERT=100' LENGTH
SLUICE GATE ASSEMBLY BELOW
FLOW CONTROL GATE ASSEMBLY NOTES 2, 3
48" X 48" PRECAST BOX CULVERT=25.0' LENGTH
FLOW
SET NOTE
4 X 4 CEDAR STOP LOGS AND SUPPORTS
PREFABRICATED CONCRETE VAULT
A
2
VAULT INTAKE STRUCTURE-PLAN VIEW
EXISTING GROUND SURFACE
VAULT TOP W/ LOCKING HATCH EL 48.5
SLUICE GATE HAND WHEEL SEE NOTES 2, 3
AIR VENT FOR 48" CMP
GATE EXTENSION STEM
100 YEAR FLOOD EL 47.7
STEEL ACCESS LADDER
SLIDING OR SLUICE TYPE HYDRAULIC GATE SEE NOTES 2, 3
PREFABRICATED CONCRETE VAULT
SET STOP LOGS TO REGULATE FLOW
0.3% SLOPE
CMP CULVERT
48" X 48" PRECAST CONCRETE BOX CULVERT 22.0 FT TOTAL LENGTH
B
2
VAULT INTAKE STRUCTURE-PLAN VIEW
TOP OF BANK
GLASS 3 RIPRAP BLANKET 3' THICK BEHIND AND FOR 20' DOWNSTREAM OF CULVERT OUTLET=BOTH SIDES
TOP FINISHED STREAMBED
INSTALL TRASH RACK
72" DIA. CMP CULVERT
48" DIA. CMP CULVERT
FLOW
CONSTRUCT 25' LONG 1' DEEP SCOUR HOLE. BACKFILL WITH SPAWNING GRAVEL
OVER-EXCAVATE AND REPLACE FINE MATERIAL WITH GRAVEL IF ENCOUNTERED
C
2
PIPE CULVERT OUTLET DETAIL
U. S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON
CEDAR RIVER MITIGATION CHANNEL DETAILS
DATE 05 JUN 08
PUBLIC NOTICE
SHEET 3 OF 3
DATE AND TIME PLOTTED 06-JUN-2008 09:07