



King County

ENVIRONMENTAL CHECKLIST Cedar Rapids Levee Setback Repair - 2012

Purpose of the Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21 RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer or if a question does not apply to your proposal, write "**do not know**" or "**does not apply**." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of Checklist for Nonproject Proposals:

Complete this checklist for Nonproject proposals, even though questions may be answered "**does not apply**." In addition, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (PART D).

For Nonproject actions, the references in the checklist to the words "**project**," "**applicant**," and "**property or site**" should be read as "**proposal**," "**proposer**," and "**affected geographic area**," respectively.

A. BACKGROUND1. *Name of the proposed project, if applicable:*

Cedar Rapids Repairs

2. *Name of Applicant:*

King County Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section

3. *Address and phone number of applicant and contact person:*

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4. *Date checklist prepared:*

December 8, 2011

5. *Agency requesting checklist:*

King County Department of Natural Resources and Parks
Water and Land Resources Division
River and Floodplain Management Section

This SEPA Checklist pertains to a project with two construction components:

- Left Bank Project Segment: Repair of the Cedar Rapids Setback Levee between rivermile 7.20 to 7.40 on the left bank of the Cedar River and installation of boulder clusters.
- Right Bank Project Segment: Realignment of the downstream segment of the Cedar Rapids Setback Levee to connect it to the upstream end of the Brassfield Revetment at RM 7.25 on the right bank of the Cedar River. Extend upstream end of the Cedar Rapids right bank setback levee by 25 feet and installation of boulder clusters.

6. *Proposed timing or schedule (including phasing, if applicable):*

Out of Water Work: The following out of water work is proposed to occur approximately between July 1 and September 2012 over an eight week period:

- Repair of the existing Cedar Rapids Setback Levee buried rock toe on the left bank.

- Modification of the right bank at the connection of the downstream end of the Cedar Rapids right bank levee and the upstream end of the Brassfield Revetment, into a new uniform setback configuration. Extend upstream end of the Cedar Rapids right bank setback levee by 25 feet to edge of wetland.
- Several clusters of round natural boulders will be placed along the riverward side of the levees on both banks in order to increase habitat diversity

In Water Work: In accordance with conditions set forth in the U.S. Army Corps of Engineers' (USACE) Programmatic Biological Assessment: Restoration Actions in Washington State, instream project elements are proposed to occur between September 1 and September 15, 2012:

- Reconstruction of the area where the existing Cedar Rapids Setback Levee joins the left bank.
 - Removal of angular rock bank protection placed on the right bank at and near the upstream end of the Brassfield Revetment during an emergency project conducted during the January 2011 flood, and setting back the revetment at this location to connect it to the Cedar Rapids setback levee a short distance upstream.
 - Connection of the downstream end of the new Brassfield Setback Revetment to the upstream end of the existing Brassfield Revetment on the left bank.
7. *Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.*

No.

8. *Is there any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal:*

The project site is owned by King County. A State Salmon Recovery Funding Board-funded levee setback/habitat restoration project was conducted at this site in 2008. That project, as well as this currently proposed project, are consistent with King County Flood Hazard Management Plan (2006) policy guidance on flood risks (Policy G-1), and prioritization for King County actions (Policy PROJ-1) to address flood and channel migration risks.

The following documents provide policy and technical design guidance for this project:

- King County, 2006. Flood Hazard Management Plan: King County, Washington. King County Department of Natural Resources and Parks, Water and Land Resources Division. Seattle, Washington.
- King County Surface Water Management Division. 1993. Guidelines for Bank Stabilization Projects in the Riverine Environments of King County, Washington. King County Department of Natural Resources and Parks, Water and Land Resources Division. Seattle, Washington.
- Cramer, M. and Bates, K. 2003. Integrated Streambank Protection Guidelines/Stream Habitat Restoration Guidelines. Washington State Aquatic Habitat Guidelines Program, Olympia, Washington.

- Federal Interagency Stream Restoration Working Group. 1998. Stream Corridor Restoration: Principles, Processes, and Practices. The Federal Interagency Stream Restoration Working Group, Washington, D. C.

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.*

No.

10. *List any government approvals or permits that will be needed for your proposal, if known:*

- Section 404 Nationwide Permits #27 (Aquatic Habitat Restoration, Establishment, and Enhancement Activities). It is anticipated that the USACE will conduct the ESA Section 7 consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service for this project using the Programmatic Biological Assessment: Restoration Actions in Washington State (July 29, 2008).
- Washington State Department of Fish and Wildlife (WDFW) – Hydraulic Project Approval (HPA) Chapter 77.55 Revised Code of Washington (RCW).
- Washington State Department of Ecology – Clean Water Act, Section 401/402 Permits, Water Quality Standards (Turbidity Mixing Zone), Chapter 173-201A WAC. (Typically applied for during USACE 404 Permit process).
- King County Department of Development and Environmental Services – Shoreline Substantial Development Permit (SSDP) Exemption. (SSDP exemptions are authorized based on criteria for routine maintenance or repair of existing flood facilities, and fish habitat restoration projects per Chapter 90.58 RCW, and Title 173 WAC, provisions of the King County Shoreline Master Program and King County Code Title 25).
- King County Department of Development and Environmental Services – Clearing and Grading Permit (King County Code chapter 16.82, Clearing and Grading and King County Code chapter 21A.24, Critical Areas).

11. *Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)*

This project entails repair of the existing Cedar Rapids Setback Levee along the left bank by installing a buried rock toe along the riverward face of the facility landward of the river channel. The project is similar to the repair of the Cedar River Setback levee on the right bank near SE Jones Road in October, 2011. The rock will be covered with soil and revegetated with native plants.

The project also includes setting back a short segment of the existing upstream end of the Brassfield Revetment and tying it into the existing Cedar Rapids Setback Levee along the right bank near SE Jones Road within a residential property that was acquired by King County in early November of 2011.

The upstream end of the Brassfield Revetment was reinforced by placement of angular rock along the river bank during an emergency bank stabilization project conducted during a large flood in January, 2011. The new Brassfield Setback Revetment will include incorporation of large angular rock placed during this emergency project into a rock toe built within a trench landward of the existing Revetment alignment. In addition, the new setback revetment will be constructed with a flatter, more stable slope angle and improved plan for channel geometry to minimize protrusion of the facility into the channel. The upstream end of the existing setback levee (repaired in the summer of 2011) will be extended by 25 feet to the edge of the wetland.

The tie-in segments of setback facilities on both banks will be densely vegetated with live willow cuttings to restore riparian vegetation along the river bank above the ordinary high water mark. Additional native trees and shrubs will be planted along the top of the bank to restore areas impacted by heavy equipment use.

12. *Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.*

The project is located within the Cedar Rapids Natural Area on the Cedar River between RM 7.2 and 7.4. The levee setback modification along the left bank will occur between RM 7.20 and 7.40, and the revetment setback project on the right bank will occur at RM 7.25. These river locations roughly correspond to the 17600 block of SR-169 (Maple Valley Highway) on the left bank, and SE Jones Road on the right bank.

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. *General description of the site (underline one): Flat, rolling, hilly, steep slopes, mountainous, other: river banks.*

Flat to gently undulating floodplain terraces, and steeper but relatively short banks of the Cedar River.

- b. *What is the steepest slope on the site (approximate percent slope)?*

The top of bank areas within this project site are within the 100-year floodplain of the Cedar River and are flat to very gently undulating (zero to two percent slopes) within undeveloped open space owned by King County. The river bank slopes range from nearly vertical natural bank slopes to armored slopes that are 2V:1H or flatter. The existing setback levees on both

banks are two to four feet in elevation above the adjacent terrain, and have slopes that average 2.5V:1H. The top of bank landward of the existing Brassfield Revetment is at approximately the same elevation as the residential properties adjacent to and downstream from the project site. The segment of Cedar River on which rock armor was placed during the emergency response in January 2011 has an approximately 1.75V:1H slope.

- c. *What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.*

Cedar River: Alderwood gravelly sandy loam, Pilchuck loamy fine sand, Puyallup fine sandy loam and Riverwash.

- d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.*

Instability of the riverbank is generally evident along segments of the natural riverbank within the project reach where the channel has recently widened in response to removal of the former constraints imposed by the old Riverbend Revetment on the left bank and the Ricardi Levee on the right bank, which was constructed as a SRFB project in 2008.

- e. *Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.*

Purposes and Quantities of Filling and Grading:

- (1) On the right bank, the Cedar Rapids Setback Levee will be realigned to tie it in with the upstream end of the Brassfield Revetment, which was severely damaged during a large flood in January of 2011, and improve habitat. A total of 4800 square feet will be graded, and 940 1140 cubic yards of fill (much of it backfill) will be placed.

During this January 2011 flood, an emergency bank stabilization project was conducted at the upstream end of the Brassfield Revetment by placing large angular rock along the toe of the rapidly eroding river bank in order to protect a single family house and public roadway landward of the revetment. The house has since been purchased, and will be demolished during the winter of 2011 to provide space for the levee realignment. Angular rock used in this emergency bank stabilization will be removed from its present location along the river bank and incorporated into the levee realignment. The realignment will be constructed by excavation of a trench within a 1,800 square foot area into which 210 cubic yards of the rock used in the emergency bank stabilization project will be placed, along with 320 additional cubic yards of rock, native alluvium backfill and topsoil. In addition, another 1,800 foot area will be excavated to flatten the existing slope angle where the realigned levee ties into the upstream end of the Brassfield Revetment. Topsoil will be used to cover the upper two feet or so of the top of bank to support the growth of native plants installed on the reconfigured levee face and the newly acquired residential lot. The 25 linear foot extension of the upstream end of the right bank setback levee will require 600 square feet of area and 200 cubic yards of rock, backfill and topsoil.

- (2) On the left bank, 20,000 square feet of the existing Cedar River Setback levee will be affected by grading, and 13,300 cubic yards of fill (a combination of angular toe rock,

native alluvium and topsoil) will be placed to strengthen the toe of the levee. There will be no net expansion of the raised levee prism either longitudinally or laterally as a result of this project element.

The purpose of this project element is to repair the levee by constructing a buried rock toe within a trench excavated landward of the river channel. Excavation will be no closer than 60 feet from the river everywhere except at the point of tie-in to the downstream revetment. All areas affected by earthwork will be covered by topsoil and replanted with native riparian vegetation.

- (3) To diversify habitat and reduce the potential for erosion along both banks, 185 “5 to 6 man” habitat boulders averaging 4.5 feet in diameter and constituting a total volume of 330 cubic yards will be seated in shallow holes excavated from the bank riverward of the setback levees. The excavation is to compensate for fill in the floodplain. Approximately 20 percent of the boulders will be placed near the right bank, and 80 percent on the top of the bank along left bank. If the channel migrates laterally on either bank, some of the boulder clusters may roll onto the toe of the slope, helping to resist further channel migration and improving channel complexity.

Sources of Fill Materials: Clean angular rock and round, natural boulders will be obtained from commercial quarries and other permitted materials sources. Topsoil will be obtained from Pacific Topsoil or another permitted source.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.*

Portions of the site have eroded during recent floods, in accordance with anticipated outcomes of the SRFB project conducted in 2008. The newly acquired residential parcel on the right bank where the Brassfield Setback Revetment will be constructed will have been previously partially cleared and grubbed during removal of a single family home during the winter of 2011-2012. All of the work areas are accessible via existing setback levee roads, so little or no additional clearing will be needed for equipment staging and construction. A narrow undeveloped strip of property within the Riverbend Mobile Home Park on the left bank may be needed for equipment access or construction. If so, such will be provided in accordance with an easement or other formal permission from the property owner.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?*

No new impervious surfaces will be created. Instead, a net decrease in impervious surface will occur due to removal of a house on the right bank adjacent to the existing Brassfield Revetment.

- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:*

Best Management Practices (BMPs) developed from best available science and years of experience conducting river project will be employed to minimizing potential adverse environmental impacts from earthwork. These include:

General BMPs

- The following materials will be staged at the site on a daily basis as needed:
 - Straw or WoodStraw® bales for temporary slope mulching

- Silt fencing for perimeter siltation control
 - Crushed or washed rock for control of soil pumping on exposed soils in heavy traffic areas
 - Crushed rock for staging areas and road shoulders
 - Pea gravel for filter berms and silt fence installations.
 - Hand brooms, street sweepers, and wash trucks for control of sediments on paved traffic surfaces
- Construction limits will be flagged and staked prior to the start of construction to prevent adverse impacts beyond the designated project area. To the maximum extent possible equipment access, staging and operation will be conducted within existing access routes and cleared areas. Clearing of vegetation will be kept to the minimum needed to complete the project.
 - Where necessary and appropriate, silt fences will be installed prior to construction.
 - Depending upon local site, river flow and permit conditions, flow diversions around inwater work areas will be installed prior to inwater construction, and, if needed, fish excluded from work areas.
 - Turbidity monitoring will be conducted at permit agency-approved sampling stations upstream from, adjacent to, and downstream from inwater work areas to facilitate compliance with state water quality standards and permit conditions.
 - Where construction activities must extend into the water column, materials and methods will be selected to minimize potential turbidity.
 - All in-water construction will occur within construction windows approved by the USACE and WDFW.
 - Only clean rock will be installed below the OHWM.
 - All paved traffic areas will be kept free from sediment accumulations by daily sweeping and washing.
 - Instream, Bank Toe and Lower Slope Construction BMPs
 - Construction access ramps and benches will be graded at a gentle angle toward the embankment slope to prevent sediment from reaching the water.
 - Construction equipment will only be operated from the top of the bank and other permitted areas above the water line.
 - Vegetable oil will be used for excavator and bulldozer hydraulic fluid.
 - Non-reusable materials cleared or excavated from the site will be disposed of at King County-approved disposal locations (e.g., Pacific Topsoil, Inc. or the King County Roads Division soil recycling center in Renton).
 - Construction methods and sequences will be chosen to maximize isolation of work areas

from the water column. For example, installation of the toe at the downstream end of the Cedar Rapids Levee on the left bank will require trench excavation below the OHWM perpendicular to the bank-line. Construction of the Brassfield Setback Revetment will require trench excavation the landward of the existing revetment that will be tied into the existing Brassfield Revetment at the downstream end of a trench after trench excavation has extended toward the river in a downstream direction. As much excavation as possible will be conducted leaving an earthen "plug" in place at the riverward edge of the toe excavation area until the final placement of toe rock materials in order to minimize release of sediments into the water.

- Where necessary, toe buttress rocks will be placed to firmly secure reconstructed slope buttresses against undercutting erosion.
- Lower embankment slope lifts will be brought as close as possible to finished grade and mulched with straw or WoodStraw® on a daily basis, as needed, during any anticipated periods of rainy weather.
 - Upper Slope Reconstruction BMPs
- Where needed, topsoil used as a planting medium will be improved with a suitable organic soil amendment (e.g., Groco) to facilitate plant growth. To maximize plant survival, live willow and dogwood cuttings will be installed as soon as possible after harvesting, or stored in the water until installation. All plantings installed during the hot part of the growing season (typically June through mid-September) will be watered following installation until the onset of fall rains in order to maximize plant survival.
- Finished slope vegetated geogrid lifts (which alternate with topsoil-embedded vegetative layers) will be protected by a layer of appropriately sized slope face rock for erosion protection.
- Disturbed soil surfaces will be hydroseeded immediately following completion of construction activities.
- Top of bank areas impacted by clearing and heavy equipment operation will be ripped to alleviate soil compaction, and planted with potted native riparian shrubs and trees during the following plant dormancy season (October 1 through February 28) in order to revegetate areas of the slope where fast-growing willows and dogwoods will not readily grow.
 - Post-construction Erosion/Sediment Control Monitoring
- All repaired levee and revetment slope areas will be monitored for signs of erosion during wet winter months and repairs will be made promptly if needed. Repairs can include straw mulching, straw mulch packing of incipient rills, gravel patching of incised rills; additional placement of topsoil, grass seed, willow and dogwood live cuttings, or potted native riparian shrubs and trees; placement of washed rock filter berms and localized additional silt fencing. The goal is to maintain vigorous establishment of dense, deeply rooted erosion control grasses and native riparian vegetation in all areas disturbed by clearing or grading areas.

- Plant survival at all repaired levee and revetment slope areas will be monitored for at least five years following construction. Dead plants will be replaced to ensure at least 80 percent plant survival.
- Toe and face rock installed at this site will be inspected annually during low flow conditions to ensure that the structural integrity of the flood hazard reduction facilities remains intact and habitat restoration goals are being met.
- Within some project areas, planting may be conducted in successive phases to maximize plant survival and riparian habitat diversity.

2. Air

- a. *What types of emissions to the air would result from the proposal (for example, dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.*

Construction activities may generate airborne dust in the work area. The proposed project, once construction is complete, will emit no gasses or other emissions with the potential to negatively affect health or climate change.

Construction of the proposed project will use various vehicles and pieces of equipment that emit gasses with the potential to affect climate. These gasses include carbon dioxide (CO₂), methane and nitrous oxide, as well as others in much smaller amounts. The global warming potential (GWP) of these compounds is measured in “carbon dioxide equivalents,” or CO₂e, which converts the GWP of various gasses into their equivalent in CO₂. The amount of CO₂e that may be emitted as a result of constructing the proposed project has been estimated by computing the amount of fuel to be used to construct the project, in transit from King County’s Roads Maintenance Shops in Renton where most crews and equipment originate and in transporting materials to and from the site. Fuel consumed was then converted into CO₂e emitted using formulae developed by the Energy Information Administration (EIA) of the U.S. Department of Energy.

We estimate that construction of the proposed project will likely result in the discharge of approximately 15.52 tons of CO₂e to the atmosphere. See the Greenhouse Gas Worksheet appended to this checklist.

- b. *Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.*

No.

- c. *Describe proposed measures to reduce or control emissions or other impacts to air, if any:*

BMPs will be conducted during construction to suppress dust. These will include covering soil stockpiles; applying water or soil binder to exposed soil surfaces during dry, dusty weather conditions; and sweeping exposed paved access roads.

3. Water*a. Surface:*

- 1) *Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.*

The Cedar River (WRIA 08.0299) flows through the project site. A small unnamed right bank tributary flows into the Cedar River near the project site.

- 2) *Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.*

All the work included in this proposal will occur adjacent to and within the Cedar River.

- 3) *Estimate the amount of fill and dredge material that could be placed in or removed from surface water or wetlands and indicate the area of the site that will be affected. Indicate the source of fill material.*

This project does not entail any dredging or filling in surface waters or wetlands. Within a 600 square foot area near the upstream end of the Brassfield Revetment, 210 cubic yards of angular rock bank armor previously placed during the January 2011 emergency bank stabilization project will be removed from the Cedar River.

- 4) *Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities, if known.*

As permitted by USACE and WDFW permit conditions, a temporary diversion will be placed upstream from the inwater construction areas on both banks to direct erosive flows away from the toe of the revetment slope during inwater construction. A temporary flow deflector may be used along the left bank to reduce erosive flows during reconstruction of the downstream end of the existing setback levee where it merges with the natural river bank.

- 5) *Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.*

The entire project site is within the 100-floodplain of the Cedar River.

- 6) *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

No.

b. Ground:

- 1) *Will ground water be withdrawn, or will water be discharged to ground water? Give*

general description, purpose, and approximate quantities, if known.

No.

- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage, industrial chemicals, agricultural, etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground as a result of this project.

c. Water Runoff (including stormwater):

- 1) Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

This project will not be a long-term source of runoff.

- 2) Could waste materials enter ground or surface waters? If so, generally describe.

No.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Please refer to section B .1.h Best Management Practices.

4. Plants

a. Check or underline types of vegetation found on the site:

- deciduous tree: alder, maple, aspen, other: cottonwood, Oregon Ash, bitter cherry poplar
- evergreen tree: fir, cedar, pine, other: hemlock, spruce
- shrubs: willows, dogwood, hardhack, other: ninebark, snowberry, wild rose, thimbleberry
- grass: previously established erosion control grasses; lawn grass
- pasture land
- crop land
- wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- water plants: water lily, eelgrass, milfoil, other
- other types of vegetation: blackberries, butterfly bush, Japanese knotweed,

b. What kind and amount of vegetation will be removed or altered?

The right bank construction zone will be cleared and graded during demolition of a recently purchased house in late 2011. A small number (less than 100) of previously planted immature native plants will be removed to allow equipment access in areas where native vegetation (mostly one gallon potted plants) was installed during the 2008 SRFB project. These plants will be replaced following completion of construction.

c. *List threatened or endangered species known to be on or near the site:*

The plants listed above in Section B.4.a were reviewed against the Endangered Species Act (ESA) threatened and endangered plant listings contained in Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 & 17.12 (U.S. Department of the Interior, U.S. Fish & Wildlife Service, July 15, 1991). None of these plants were listed as threatened or endangered.

d. *Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:*

The Cedar Rapids Setback Levee realignment on the right bank landward of its existing location will include revegetation with live willow cuttings using biotechnical bank stabilization techniques. Riparian areas affected by the project will be planted with native shrubs (e.g., willows, red-osier dogwood, Pacific ninebark, Douglas hawthorn, oceanspray, vine maple, thimbleberry, and salmonberry) and trees (e.g., big-leaf maple, black cottonwood, Douglas fir, western red cedar and Sitka spruce).

An important consideration in design of the setback levee was minimizing impact to existing native trees. In addition, during construction every effort will be made to minimize heavy equipment use within the dripline of trees. If any clumps of willows are removed to allow equipment access, they will be salvaged and stored in the river for later use as live cuttings.

5. Animals

a. *Underline any birds and animals which have been observed on or near the site, or are known to be on or near the site:*

- X invertebrates: aquatic and terrestrial insects, mollusks (freshwater mussels),
other: crayfish
- X fish: bass, salmon, trout, herring, shellfish, other: whitefish, sculpin, stickleback
- X reptiles: snakes, lizards, turtles, other: amphibians
- X birds: hawk, heron, eagle, songbirds, other: kingfisher, merganser, American dipper
- X mammals: deer, bear, elk, beaver, other: otter, muskrat, mink, mouse, vole

The Cedar River contains important habitat for fish species that support major fisheries in King County and in non-terminal fishing areas in Puget Sound, the Strait of Juan de Fuca, the west coast of Vancouver Island, and southeast Alaska.

Salmonid fishes including Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and sockeye salmon (*O. nerka*), steelhead trout (*O. mykiss*), and cutthroat trout (*O. clarki*) are known to migrate and rear within the project site. A population of bull trout (*Salvelinus confluentus*) exists in the upper Cedar River several miles upstream from the site, and it is possible that these fish may occasionally migrate through the project site, although they are unlikely to be present during the summer construction season because of elevated water temperatures. All of these species except bull trout are known to spawn and rear within the site, although not typically during the summer construction season.

In accordance with permit constraints, construction will be timed to avoid impacting these fish species during the spawning season, and to minimize impacts during the rearing and migration seasons. Past observations of fish behavior during construction of levee and revetment projects on the Cedar River indicate fish tend to move away during active construction activities, and rapidly move back into the project area when equipment has ceased operating.

- b. *List any threatened or endangered species known to be on or near the site:*

Fish: Chinook salmon, bull trout and steelhead trout, which are known to occur within the project reach of the Cedar River, are listed as Threatened Species under the ESA.

Wildlife: No ESA-listed wildlife species are known to inhabit the site or nearby areas.

- c. *Is the site part of a migration route? If so, explain.*

Juvenile and adult anadromous and resident fish migrate through the project areas during certain times of the year.

The Cedar River valley is part of the Pacific Flyway, which is used by waterfowl and other migratory bird species.

- d. *Proposed measures to preserve or enhance wildlife, if any:*

At present, there is almost no native vegetation along the upstream end of the Brassfield Revetment or within the residential lot landward of it that can be used by wildlife as browse or cover. The house that currently occupies this lot will be removed to realign the Cedar Rapids Setback Levee on the right bank. The Cedar Rapids Setback Levee on the left bank will be repaired well landward of the river channel. Both setback levee segments and the adjacent riparian zones will be planted with native trees and shrubs. This vegetation will improve wildlife habitat near the river by overhanging the channel and providing shade and cover along the bankline. Terrestrial and aquatic insects that inhabit such vegetation frequently drop into the water, providing food for fish and certain bird species (e.g., swallows) and small mammals. As it matures, native vegetation on both banks will improve habitat for terrestrial species that use this part of the Cedar River riparian zone.

6. Energy and Natural Resources

- a. *What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

Petroleum fuels will be used to operate construction used for this project. Once the project is completed, no further source of energy will be needed.

- b. *Would your project affect the potential use of solar energy by adjacent properties? If so, explain.*

No.

- c. *What kinds of energy conservation features are included in the plans of this proposal? List*

other proposed measures to reduce or control energy impacts, if any:

Energy conservation features are not included in this proposal.

7. Environmental Health

- a. *Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.*

The potential for spills of toxic or hazardous materials, and related risks of fire or explosion, are limited to the petroleum fuels that power equipment used for construction, maintenance and irrigation of this project. Excess fuel will not be kept on site and appropriate spill control plans will be in place, including staging of one or more spill containment kits.

- 1) *Describe special emergency services that might be required.*

The need for special emergency services is not anticipated.

- 2) *Proposed measures to reduce or control environmental health hazards, if any:*

BMPs such as fuel containment and a spill response plans will be used during construction of these projects to reduce and control environmental health hazards.

- b. *Noise:*

- 1) *What types of noise exist in the area which may affect your project (for example: traffic, equipment operation, other)?*

The sources of noise that currently exist within these project areas range from urban traffic (the sound of motor vehicles travelling on Maple Valley Highway and SE Jones Road) to low-level rural sounds (e.g., bird vocalizations). None of these noises will affect this project.

- 2) *What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, equipment operation, other)? Indicate what hours noise would come from the site.*

On a short-term basis, noise will be generated from construction equipment, e.g., truck traffic hauling materials to and from the site, excavator activity, etc. Short-term noise impacts will be minimized by limiting the hours of construction in accordance with applicable regulations. These noise impacts will cease upon project completion, and no long-term noise impacts are anticipated.

- 3) *Proposed measures to reduce or control noise impacts, if any:*

Standard mufflers will be used on all construction equipment, and equipment will operate only during regular daytime working hours (typically 7 a.m. to 3 p.m.).

8. Land and Shoreline Use

- a. *What is the current use of the site and adjacent properties?*

The project site along both banks is used as open space. A house will be removed from a newly acquired lot on the right bank will be incorporated into the existing open space. Adjacent properties are in residential use.

- b. *Has the site been used for agriculture? If so, describe.*

No.

- c. *Describe any structures on the site.*

A vacant house occupies part of the site on the right bank. This house will be removed prior to construction. Previously constructed setback levees are present on both sides of the Cedar River within the project site.

- d. *Will any structures be demolished? If so, what?*

The above-mentioned vacant house on the right bank will be demolished prior to the start of construction.

- e. *What is the current zoning classification of the site?*

The zoning classification of the site is RA-5 (rural residential).

- f. *What is the current comprehensive plan designation of the site?*

The King County Comprehensive Plan 2004 land use designation of the project site Rural Residential (right bank) and King County Owned Open Space/Recreation and Other Parks/Wilderness (left bank).

- g. *If applicable, what is the current shoreline master program designation of the site?*

The King County Shoreline Master Program (SMP) at the site is "Rural."

- h. *Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.*

Yes. The project site includes the Cedar River, a Type S Aquatic Area (with salmonids), and its adjacent 100-year floodplain, both of which are critical areas.

- i. *Approximately how many people would reside or work in the completed project?*

None.

- j. *Approximately how many people would the completed project displace?*

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No displacement impacts are expected; therefore, no avoidance or reduction measures are needed.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The completed project will remain compatible with the existing land uses in the area. Moreover, the completed project will enhance aquatic and terrestrial habitat conditions along these rivers and their banks, and provide the same or better flood protection as the current functioning of the flood hazard reduction facilities at the site.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high-, middle-, or low-income housing.

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high-, middle-, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

No housing units will be affected by these projects; therefore, no mitigation measures are needed.

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas? What is the principal exterior building material(s) proposed?

The existing setback levees on both banks range up to four feet above the adjacent ground surface elevation. No substantial increase in the height of the existing levees and revetments will occur relative to the height of these facilities prior to this project. The Cedar Rapids Setback Levee realignment along the right bank will match the existing grade of the Brassfield Revetment downstream and an existing segment of the setback levee along Jones Road. No aesthetic impacts due to height increases will occur as a result of routine maintenance or flood repair activities. Growth of native vegetative plantings including shrubs and trees will improve the overall site aesthetics over time.

b. What views in the immediate vicinity would be altered or obstructed?

The current views in the project site include an eroded, minimally vegetated rock revetment on the left bank, and relatively recently graded geomorphic surfaces on both banks where the existing Cedar River Setback Levees were constructed in recent years. Portions of the site on both banks have already been planted with native trees and shrubs, but these plants have not yet matured. Over time following completion of the project, views of the river and

floodplain will improve as maturation of planted and naturally colonizing native riparian occurs.

- c. *Proposed measures to reduce or control aesthetic impacts, if any:*

No adverse impacts are expected; therefore, no mitigation measures are proposed.

11. Light and Glare

- a. *What type of light or glare will the proposal produce? What time of day would it mainly occur?*

None.

- b. *Could light or glare from the finished project be a safety hazard or interfere with views?*

None.

- c. *What existing off-site sources of light or glare may affect your proposal?*

None.

- d. *Describe proposed measures to reduce or control light and glare impacts, if any:*

None.

12. Recreation

- a. *What designated and informal recreational opportunities are in the immediate vicinity?*

The site is currently used as an informal public river recreation access point, and for nature appreciation. The site also contains existing flood hazard reduction facilities on both banks that serve as walking paths. Informal recreational opportunities including river viewing, fishing, bird watching, and river recreation.

- b. *Would the proposed project displace any existing recreational uses? If so, describe.*

No.

- c. *Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:*

Trail Safety: A segment of the Cedar River trail will be crossed by a temporary haul route leading to the left bank. Trail closure or caution signs will be posted, and trail traffic (pedestrians, joggers, skaters and bicyclists) will be halted by a flagger a safe distance away from project trucks and other vehicles using this trail crossing.

River Safety: River safety issues related to this project will be addressed in a number of ways:

- 1) Preliminary Project Design Considerations: This project is designed as a modification of an existing levee that was setback from the river in 2008. The preliminary design (30%) that is under current review is primarily a buried rock revetment that will be covered with native soils and vegetation. It is intended to provide resistance to erosion should the river migrate towards the structure. In the locations on the right and left banks where the project meets the existing revetment, the project will be constructed with as smooth a transition as possible to reduce any localized projections into the river that could be a safety hazard.
- 2) Wood Management: Placement of wood is not an element of this project. After construction, the levee will be inspected and maintained by King County's levee maintenance program. Any naturally accumulated wood will be evaluated under King County policies for potential hazard.
- 3) Project Review: The first opportunity for the public to review the 30% design drawings was at the public meeting held on November 15, 2011. In addition, we plan to solicit input and feedback on the proposed design, by way of King County's email list of interested stakeholders, in December 2011. The input of the stakeholders will be considered by King County in preparing the final design plans and permit applications for this project. Project design features may be modified to address specific recreational safety concerns while still meeting the structural and habitat objectives for the project as well as regulatory agency permit requirements.
- 4) Project Site Posting: The Cedar River is heavily used by river recreationists. Highly visible temporary warning signs will be placed at the toe of the slope upstream from the project site prior to the start of construction and remain in place for the duration of in-water construction on the project.

For more information on river safety and King County programs please visit the King County's website (<http://www.kingcounty.gov/recreation/boating/rivers.aspx>), which provides general information on boating and river-related recreation on King County rivers.

13. Historic and Cultural Preservation

- a. *Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.*

No.
- b. *Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.*

A report of a cultural resource survey of the project site was issued in March of 2008 pursuant to requirements of Section 106 of the National Historic Preservation Act. No landmarks or evidence of historic, archaeological, or scientific importance are known to be on or near this site, nor were any cultural materials found on or near this project site during previous construction projects in 2008 and 2010.

c. *Describe proposed measures to reduce or control impacts, if any:*

The cultural resource survey report concluded that the majority of the project site consists of relict gravel bars, old channel and sand deposits generally classified as riverwash. The site lies within the active channel migration zone of the Cedar River within an area bound by steep bluffs, and has therefore been subject to high-energy flood events for thousands of years. The professional archaeologists who conducted the cultural resources survey concluded that past channel migration episodes would have tended to destroy archaeological resources within the migration area. In addition to natural flood-caused disturbance, the project area has been mechanically modified, first through construction and subsequent demolition of single family homes on the site, and subsequently through two large-scale episodes of construction of rip-rap armored flood control facilities. These episodes of excavation and grading also reduced the likelihood of encountering cultural materials.

In the event that cultural resources are observed during construction of this project, work will be temporarily suspended and a professional archaeologist will be consulted to document and assess the discovery. The Washington Department of Archaeology (DAHP) and Historic Preservation and the Muckleshoot Indian Tribe (MIT) will be contacted as well. If human remains are uncovered during construction, work will be halted in the affected area and local law enforcement, DAHP and the MIT will be contacted immediately, and no further work in the affected area conducted until these parties determine how to proceed.

14. Transportation

a. *Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on-site plans, if any.*

The left bank segment of the site is served by Maple Valley Highway and 175th Avenue SE. The right bank segment of the site is served by SE Jones Road.

b. *Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?*

The site is not directly served by public transit.

c. *How many parking spaces would the completed project have? How many would the project eliminate?*

These projects will neither create nor eliminate any parking spaces.

d. *Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).*

No.

e. *Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.*

No.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

None.

g. Proposed measures to reduce or control transportation impacts, if any:

No post-construction impacts are anticipated on transportation; therefore, no measures to reduce or control transportation impacts are needed.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

These routine maintenance and flood repair projects will not create an additional need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any:

There will be no impacts on public services due to these projects.

16. Utilities

a. Underline utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Electricity:	N/A
Natural Gas:	N/A
Water:	N/A
Telephone:	N/A
Sanitary Sewer:	N/A
Other:	N/A

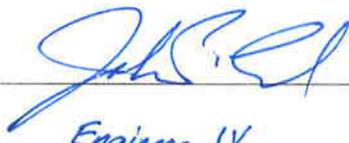
b. Describe the utilities that are proposed for the project, the utility providing the service and the general construction activities on the site or in the immediate vicinity that might be needed.

Utility services will not be needed by this project.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature:



Title:

Engineer IV

Date Submitted:

12-8-11

Greenhouse Gas (GHG) Emissions Worksheet

Cedar Rapids Repairs

Note: The finished project will emit no GHGs aside from those occurring in the environment by natural processes. All emissions are therefore related to construction of the proposed project.

Distance of project site from Renton Shops, where most daily construction-related vehicle trips will start and end: 6.7 miles

Estimated days of construction activity:

<u>Vehicle</u>	<u>Miles/hours</u>	<u>Rate</u>	<u>fuel used</u>	<u>Em. Coef.</u>	<u>Emissions</u>	<u>Tons CO₂e</u>
Pickup	198	20.7	9.57	19.564	187.13	0.09
Pickup	198	20.7	9.57	19.564	187.13	0.09
Pickup	198	20.7	9.57	19.564	187.13	0.09
dumptruck	4800	6.15	780.49	22.384	17470.44	8.74
PC 120 Trackhoe	90	6.3	567.00	22.384	12691.73	6.35
Heavy Equip Transport	26.4	1.9	13.89	22.384	311.02	0.16
TOTAL:					31034.59	15.52