



King County

ENVIRONMENTAL CHECKLIST

RAINBOW BEND LEVEE REMOVAL AND FLOODPLAIN RECONNECTION PROJECT

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 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 a 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. BACKGROUND

1. *Name of the proposed project, if applicable:*

RAINBOW BEND LEVEE REMOVAL AND FLOODPLAIN RECONNECTION PROJECT

2. *Name of Applicant:*

King County Department of Natural Resources and Parks
Water and Land Resources Division (WLRD)

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

Jon Hansen, Project Manager
King County Water and Land Resources Division
201 South Jackson Street, Suite 600
Seattle, WA 98104-3855
Phone: 206-296-1966
Fax: 206-296-0192

4. *Date checklist prepared:*

September, 2012

5. *Agency requesting checklist:*

King County Department of Natural Resources and Parks
Water and Land Resources Division (WLRD)

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

The project will be constructed during the summers of 2013 and 2014. Planting will occur during the winter and spring of 2015.

7. *Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.*

The project will restore natural riverine processes at the project site such as channel migration and deposition and transport of sediment and large wood. These natural processes are dynamic and the exact timing and scale of response cannot be predicted. Therefore, some adaptive management actions may be needed in the future. The existing revetment along the Cedar River Trail, running along the left bank of the river throughout the project area, may need to be maintained as the river changes course in response to the levee removal. Alterations to this existing facility will be made as needed in the future to maintain protection of the trail from channel migration. The intent is to acquire permits and permissions now for a defined (but scalable and movable) amount of bank protection work associated with this adaptive management approach. Although this work may occur in the future, it should be considered part of the proposed project. There are no other plans for future additions, expansion or further activity related to or connected with this proposal.

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

1. Rainbow Bend Floodplain Reconnection Hydraulic Modeling, Draft Memorandum, Tetrattech. April 26, 2012

2. Draft Rainbow Bend Project Monitoring Plan. August 2012.

3. Rainbow Bend Site Restoration; Scoping Team Final Report. November 2009

4. Rainbow Bend Critical Areas Report, August 2012

5. Draft Design report, October 2012.

6. Instream Project Checklist, June 19, 2012.

7. Rainbow Bend Site Restoration Preliminary Geomorphic Analysis, September 2012

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 permits or other authorizations for other proposals are currently pending.

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

- Clean Water Act Section 404 Permit (U.S. Army Corps of Engineers)
- Endangered Species Act (ESA) Section 7 Consultation (National Oceanic and Atmospheric Administration Fisheries and United States. Fish and Wildlife Service)
- National Historic Preservation Act Section 106 Review
- National Pollutant Discharge Elimination System (NPDES) Permit for Construction (Washington State Department of Ecology)
- Coastal Zone Management Consistency
- Section 401 Water Quality Certification (Washington State Department of Ecology)
- Washington Department of Fish and Wildlife Hydraulic Project Approval
- King County Clearing and Grading Permit
- Shoreline Management Substantial Development Permit Exemption (Washington State Department of Ecology)
- King County Flood Hazard Certification
- Aquatic Use Permit (Washington State Department of Natural Resources)
- Procedures for Considering Public Safety When Placing Large Wood in King County Rivers, Public Rule LUD 12-1, King County Ordinance 16581

11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site.

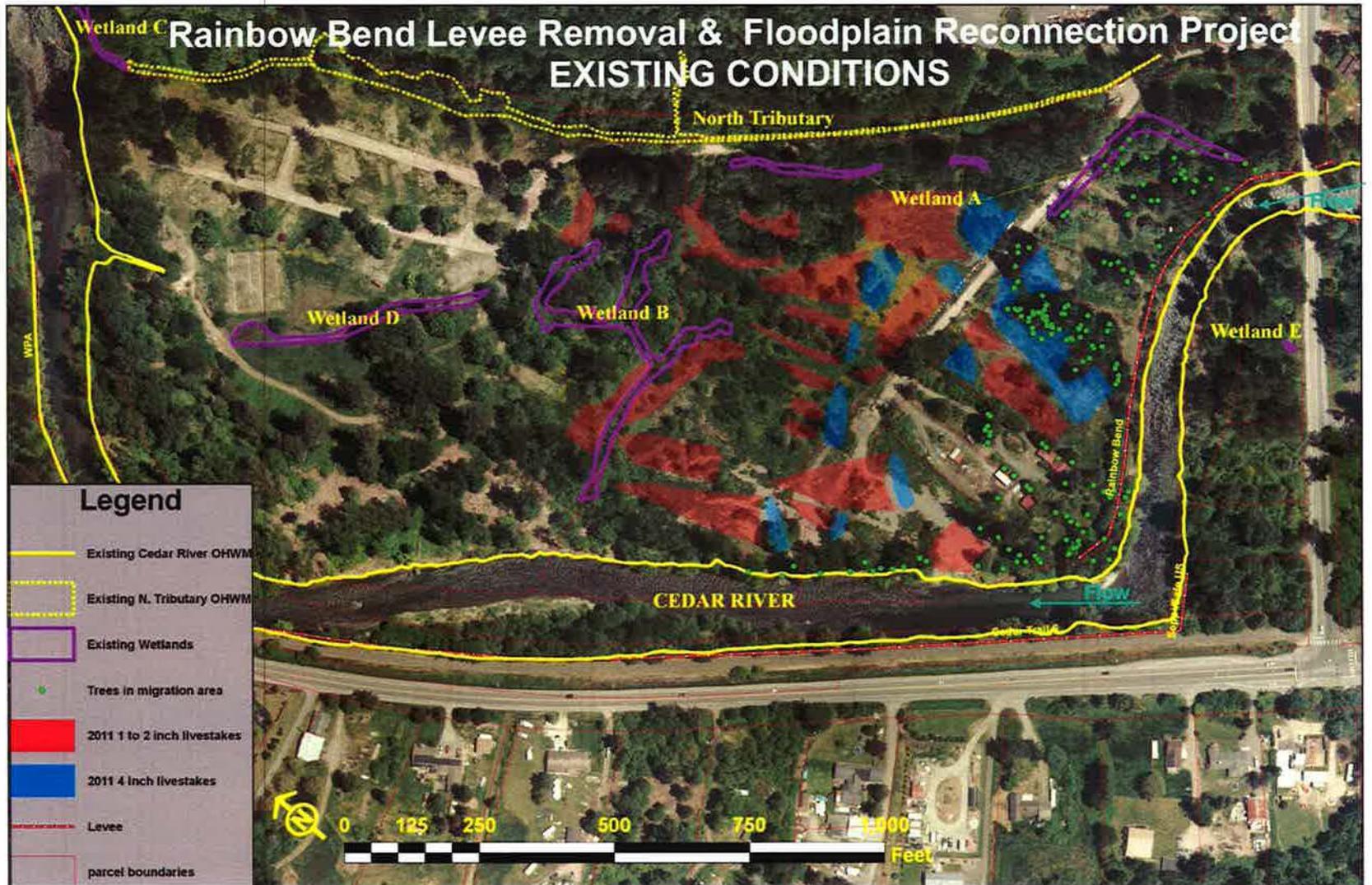
Project Description

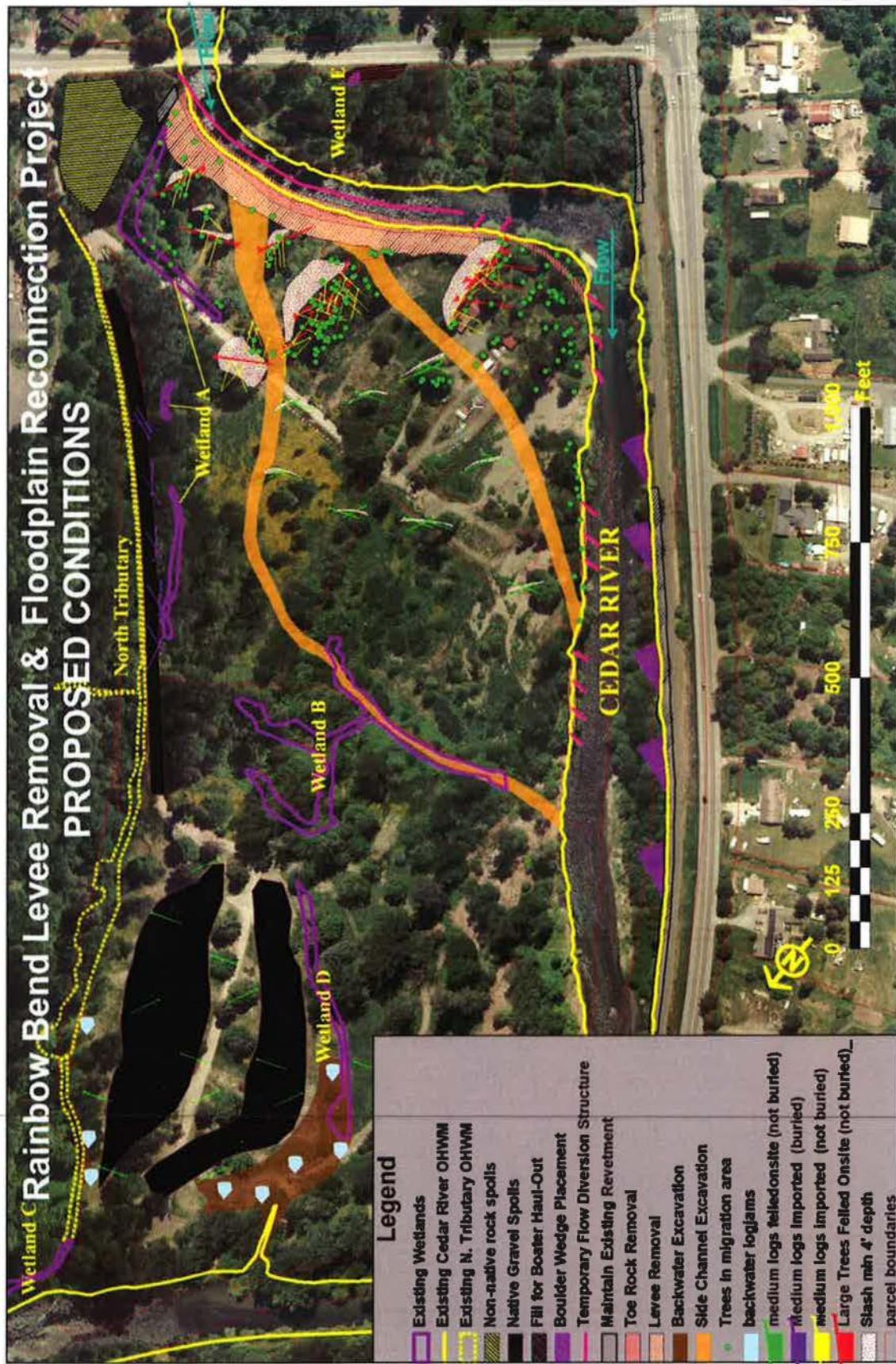
In partnership with Seattle Public Utilities (SPU), King County WLRD is proposing to restore riverine processes and reduce flood hazards along the right bank of the Cedar River between river mile (RM) 11.2 and 11.5. The site consists of sixteen parcels (40 acres) recently purchased on the north side of the Cedar River. These purchases and subsequent structure demolitions have eliminated the flood risk to the occupants of 56 homes located in this flood prone reach of the river and have prepared the site for the restoration of riverine processes. This will be accomplished by removing approximately 1500 feet of toe rock and 900 feet of levee, grading within the floodplain to reconnect historic side channels and the addition of floodplain roughness elements (wood and plants). Channel roughening elements may also be added on the opposite (left) bank of the river to help protect the Cedar River trail, reduce left bank maintenance needs and encourage channel migration toward the right bank throughout the project site.

The proposed restoration of natural processes (e.g. channel migration, flooding, avulsion, flow interactions with large wood and sediment) is expected to improve quality of existing side channel and backwater habitat and create new off-channel and edge features throughout the site. The loss of these types of off-channel habitat features has been identified as a primary factor limiting Chinook salmon productivity in the Cedar River. This project was identified as a very high priority habitat project in the *WRIA 8 Chinook Salmon Conservation Plan*.

The project will perform the following actions with the intent to: (Figures 1 & 2)

- Remove channel constraints
 - Remove up to 1500 feet of angular rock from the right bank revetment in the upper ½ of the site;
 - Remove up to 900 feet of levee from the right bank in the upper ½ of the site;
- Further reconnect the floodplain with the mainstem of the Cedar River:
 - Excavate 1,500 feet of an existing side channel to form a 300 CFS connection
 - Excavate 900 feet long new side channel to form a 1,200 CFS connection
- Enhance existing low velocity off-channel habitat:
 - Excavate 1200 feet of backwater habitat in the lower portion of an existing channel;
- Protect Cedar River Trail and Highway 169 and encourage migration towards right bank:
 - Place up to 300 ft of new revetment at the upstream end of Cedar River Trail facility;
 - Place 5-10 wood and/or boulder clusters along the existing left bank revetment;
 - Maintain up to 1000 feet of the revetment as needed as river adjusts to actions above;
- Protect the northern valley wall from excessive erosion:
 - Place native gravel spoils and wood along several areas of the northern boundary;
 - Install a buried revetment and/or additional floodplain roughness along the northern tributary to reduce the likelihood of avulsion;
- Moderate the rate of change, focus change in desired areas and create complex habitat:
 - Place large and small wood in appropriate locations throughout the floodplain;
 - Revegetate the site with native plants.





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 plan, 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 site is located north of the intersection of State Route 169 (Renton-Maple Valley Road SE) and Cedar Grove Road east of the City of Renton in unincorporated King County. This location is otherwise described as the northwestern quarter of Section 32, Township 23 North, Range 6 East (Willamette Meridian). The site consists of sixteen parcels on the north side of the Cedar River. In 1962 a levee was constructed along both river banks. The levee located on the right bank extends from the Cedar Gove Road downstream for approximately 950 feet. The revetment located on the left bank protects the Cedar River trail and State Route 169.

B. ENVIRONMENTAL ELEMENTS

1. Earth

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

The project is located on the right bank of the Cedar River, which is locally flat to gently sloping. The north boundary of the project site is defined by the toe of a steep slope over 200 feet in length.

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

The steepest slopes on site are the banks of the former side channels and the Cedar River and in some places they exceed 50%.

- 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.*

The Natural Resources Conservation Service (NRCS) soils survey maps the project area as Pilchuck loamy fine sand. Pilchuck soils are found on nearly level surfaces of less than 2% slopes and on terraces adjacent to streams. Pilchuck soils are made up of excessively drained soils that formed in alluvium on low stream terraces under a cover of hardwoods and conifers. Pilchuck loamy fine sand is not considered hydric.

The portion of the levee being removed is a composed of a combination of large angular rock, medium to large angular cobbles and dense gravelly fill material. The levee has been repaired in places with 6" minus quarry spalls.

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

The proposed project is in an area that has been periodically reshaped as the channel of the Cedar River migrated across its floodplain. Construction of the levee in about 1962 restricted this process. However, both the levee and the surrounding areas are still subject to erosive forces of the adjacent

river, especially during high-water events. Patches of the levee have been repaired due to flood damage.

There are unstable steep slopes with a documented history of failure along the north valley wall upstream and downstream of the project site. However, slopes within the project site are relatively stable and appear to have been for the entire period of photo record (1936 to present).

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

Angular Rock

Approximately 3,400 cubic yards of angular rock will be excavated along the right bank to allow channel migration to resume. Approximately 100 cubic yards of this material will be reused to enhance erosion protection around the Cedar Grove Road Bridge including the placement rock around the northern-most pier that lies within the river. The balance of this material will be stockpiled onsite, outside of the floodplain, with the expectation that a portion of it may be used in the future to improve the stability of the existing left bank revetment along the Cedar River trail if deemed necessary.

Native Alluvium (clean cobble, gravel, sand and silt)

Approximately 10,000 cubic yards of native alluvium will be excavated throughout the floodplain to improve connectivity of the river with existing floodplain features (side channels and backwaters) and create rearing habitat for salmonids. All of this native material will be redistributed throughout the site within the floodplain in spoils areas shown on the project plans.

Imported Boulders

Up to 500 cubic yards of large boulders (3-10 man) may be placed along the left bank revetment to encourage the river to move away from the left bank facility that runs along the Cedar River Trail. The boulders will be imported to the site and stockpiled outside of the floodplain with the expectation that they may be placed in the future (1 to 5 years after initial construction) should that be deemed necessary to protect that facility and/or to further encourage channel migration.

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

Substantial erosion and deposition throughout the riverbanks and floodplain within the Rainbow Bend Natural Area are expected and are desirable outcomes of the proposed project. Levee and revetment removal will allow more frequent and higher-velocity flows to leave the main channel of the Cedar River and flow across the Rainbow Bend floodplain. Such flows will likely initiate and maintain secondary high flow channels through scour of the floodplain in some areas. These channels will enhance rearing and refuge habitat for juvenile Chinook salmon and other salmonids. Sediment mobilized and transported from the site is not expected to result in measurable differences in turbidity levels downstream because this erosion will occur during high flow events when turbidity levels in the river are already high.

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

None.

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

Although channel migration and erosion and deposition of sediment within the floodplain are expected outcomes of the project, the following practices and criteria will be used to assure that water quality is maintained during construction:

- High velocity flows will be diverted from the in-water work areas to minimize turbidity and maintain State Water Quality Standards during construction. Erosion and sedimentation will be minimized further during construction by employing all necessary and appropriate Best Management Practices (BMPs),
- Clearing along the streambanks and within the floodplain will be limited wherever possible to preserve existing native vegetation.
- Erosion control will be employed to minimize the potential for erosion from stockpiles and work areas during construction, but much of the floodplain will be left untreated (bare ground) after grading is completed to encourage recruitment of early successional tree and shrub species like alder, cottonwood and willow.
- After levee and revetment removal, the site will be assessed prior to, during and after the first flood season to determine if additional planting or erosion control is warranted.
- Small rain events may release sediment from disturbed areas on site following project construction. This type of release is unlikely to cause downstream water quality to fall below state water quality standards due to the magnitude of flows in the Cedar River (500+ cubic feet per second) relative to surface run-off from disturbed areas on-site (<1 cubic feet per second) during substantial rain events.
- Although substantial fine sediment could be generated from the site during flood events, the site's contribution of turbidity to the mainstem river is unlikely to be significant or measurable during these larger floods.

2. Air

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

The completed project will produce no emissions.

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 consumed by equipment used to construct the project, both during construction and in transit from their home base (assumed to be King County's Roads Maintenance Headquarters Shops in Renton for purposes of estimation). Fuel consumed is then converted into CO₂e emitted using formulae developed by the Energy Information Administration (EIA) of the U.S. Department of Energy.

Using these formulae and estimates, construction of the proposed project will likely result in the discharge of approximately 22.02 metric tons of CO₂e to the atmosphere.

The Greenhouse Gas (GHG) Emissions Worksheet is attached at the end of this checklist

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

Off-site emissions will not have a direct affect on the proposed project. However, continued emissions of CO₂ and other GHGs worldwide may eventually affect the flow regimes of rivers and streams west of the Cascade Mountains. Predicted effects include higher flows in the winter wet season and lower flows in the spring and summer. These changes may alter conditions at the site, but should not negatively affect the functions and values of the completed project.

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

Construction will be performed in accordance with the regulations of the Puget Sound Clean Air Agency. Clearing of vegetation will be minimized. Disturbed areas will be replanted with native vegetation where appropriate. All dump trucks and heavy equipment will run on B20 biodiesel. Engines will not idle unnecessarily and will be kept in proper working order with all filters and other emission control devices functional.

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, wetlands)? If yes, describe the type and provide names. If appropriate, state what stream or river it flows into.*

The Cedar River, which is classified by King County as a Type S water, is located on three sides of the project area. There are three wetlands that are primarily associated with abandoned side-channels within the floodplain. These areas were either tributaries to or former side channels of the Cedar River, largely cut off from the river when the levees were originally constructed in 1962.

- 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 of the levee and revetment removal work will occur within 200 feet of the Cedar River. The project will involve working in the water for a period of about twenty to thirty days while heavy equipment is used to remove toe rock from the base of the levee and revetments. Most high velocity flow will be diverted from the in-water work areas using flow diversion structures. The

water diversion structures and the rate of in-water work will be managed to minimize turbidity and maintain state water quality standards throughout the in-water work window. All in-water work will be done in mid-summer, when flows in the Cedar River are at their lowest.

Additional excavation and fill will occur within the northern tributary and wetlands on site. This grading is intended to improve the function of these features by removing fill and man-made obstructions, providing a more natural floodplain topography and a better connection to the mainstem of 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 would be affected. Indicate the source of fill material.*

Approximately 3,400 cubic yards of large angular rock will be removed from below the ordinary high water mark of the Cedar River. Approximately 1,500 cubic yards of this rock may be placed inside of the OHWM of the Cedar River as needed along the left bank to improve the stability of the left bank revetment. Approximately 500 cubic yards of boulders may be imported to the site and placed in clusters inside the OHWM of the Cedar River to help encourage channel migration away from the left bank. These boulder clusters will not be placed as part of the initial project, but added in the future should the river stay entrained along the left bank revetment.

Approximately 350 cubic yards of silt, sand and gravel will be removed from Wetland B within the existing side channel feature to reconnect this feature with the mainstem of the Cedar River and create high quality off-channel rearing habitat. Approximately 420 cubic yards of silt, sand and gravel will be removed from the western third of Wetland D to expand and enhance existing backwater habitat. Wetland E will be filled using approximately 25 cubic yards of select fill from excavation elsewhere on site.

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

Approximately 90%-100% of the flow of the Cedar River will be temporarily (3-5 weeks) diverted around the primary work area with a three to five foot tall water diversion structure placed in the river. The structure may consist of large bulkbags filled with rock (e.g. supersac cofferdam), a portable dam structure (e.g. Portadam structure (<http://portadam.com/>) or equivalent structure that isolates the work area from flowing water/current. Additional shorter diversion structures of similar design will be used in other work areas. Although work areas will be in water, water velocity will be very slow. Clean water diverted around the work areas will mix slowly with any turbid water released at the downstream end of the work areas. The rate of discharge of turbid water into this clean stream of water will be managed to maintain WA State Water Quality standards (WQS) by controlling the rate of rock removal and slowing discharge of turbid water at the downstream end of the work areas with BMP's (silt booms, pumps, water detention structures, etc.), as necessary.

Water diversion: The diversion structure(s) will take approximately 9 to 11 days to install and remove at the upstream work area. This work will likely involve only hand labor, with laborers

working in the river to install the structure, including placing many sandbags. If a bulkbag coffer dam is used, a crane sitting outside the OHWM may be used to place and remove the bags. Some minor turbidity is expected during installation of the structure, sandbags or supersacs, but turbidity from installation is not expected to exceed state water quality standards.

Upstream revetment removal: The in-water work required to remove the upstream revetment will take approximately two to three weeks. If turbidity monitoring at the downstream end of the work area shows that turbidity is high, in-water work will be slowed or stopped and additional BMP's will be applied to resolve turbidity problems as soon as they are observed.

TOTAL in-water work – 20 to 25 work days (~4-5 week duration)

Water diversion structure installation/removal 9-11 days

Upstream revetment removal 11 to 14 days

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

Yes, the entire project is located within the 100-year floodplain of the Cedar River. See Figure 1.

- 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 waste material will be discharged to surface or groundwater.

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. This project will not withdraw from or discharge to groundwater.

- 2) *Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial containing the following 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 generated or discharged.

c. *Water Runoff (including storm water):*

- 1) *Describe the source of runoff (including storm water) 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.*

Most stormwater runoff within the construction area will infiltrate on the site due to the porous nature of the onsite soils. A small amount of runoff will discharge to the river (see response 1h). No impervious surfaces will be added to the site. Rainfall and groundwater will infiltrate

on the site. The Cedar River will flow through the floodplain at lower flows after removal of the levee and revetments.

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:*

Measures to minimize surface water impacts are the same as those described to control erosion in **Section 3a(4)** above.

The rate of discharge of turbid water will be managed to maintain Washington State Water Quality standards (WQS) by diverting flowing water from the work area, controlling the rate of rock removal and slowing discharge of turbid water at the downstream end of the work areas with BMP's (silt booms, pumps, water detention structures, etc.) as necessary.

4. Plants

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

- Deciduous trees: alder, maple, aspen, other
- Evergreen trees: fir, cedar, pine, other
- Shrubs
- Grass
- Pasture
- Crop or grain
- Wet soil plants: cattail, buttercup, bulrush, skunk cabbage, other
- Water plants: water lily, eelgrass, milfoil, other
- Other types of vegetation: non-native

Wetland emergents include reed canary grass (*Phalaris arundinacea*), small-fruited bulrush (*Scirpus microcarpus*), buttercup (*Ranunculus sp.*) and skunk cabbage (*Lysichitum americanum*). The shrub layer is dominated by red-twig dogwood (*Cornus sericea*), salmonberry (*Rubus spectabilis*) and Nootka rose (*Rosa nutkana*). The forested canopy is dominated by black cottonwood (*Populus balsamifera*), red alder (*Alnus rubra*), and Western red cedar (*Thuja plicata*).

Other native species observed on the upland edges include black cottonwood, red alder, big-leaf maple (*Acer macrophyllum*), Douglas fir (*Pseudotsuga menziesii*), Western red cedar, snowberry (*Symphoricarpos albus*), vine maple (*Acer circinatum*), Indian plum (*Oemlaria cerasiformis*), beaked hazelnut (*Corylus cornuta*) and Nootka rose.

Invasive species such as Japanese knotweed (*Polygonum cuspidatum*), English ivy (*Hedera helix*) and Himalayan blackberry (*Rubus discolor*), are common on site.

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

Although the side and cut-off channel alignments with the least disturbance were chosen, the following number and size of trees will likely need to be cleared to construct those features:

- Up to 200, <6" diameter red alder (80%), mountain ash (16%) and other deciduous species (4%)
- Up to 3, 6"-12" diameter Pacific willow (70%) and cedar (30%) red alder and black cottonwood trees
- Up to 2, >12" diameter Douglas fir - all large trees will be used as floodplain roughness;

In addition to the trees described above for temporary access, several hundred alder willow and cottonwood trees <6" diameter will be permanently removed within the footprint of the levee and toe rock removal. 5 to 10 larger cottonwoods (>12") will also be cleared within this footprint. All small and large wood will be used in the floodplain as roughness elements.

Additional temporary access roads may be established to access left bank protection features. However, the current plan is to use a crane sitting on top of the Cedar River Trail to install these features. If short access roads are necessary for excavator access, minimal clearing of native vegetation will be required for these temporary access roads because they will be established around existing trees, wherever possible.

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

There are no threatened or endangered plant species known to exist on the site. The Washington Department of Natural Resources' (DNR) Natural Heritage Information System indicated no listed species are found on the subject properties or nearby.

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

High visibility flagging or fencing will be installed to protect existing native trees and shrubs. Once construction is completed, disturbed areas will be revegetated with native plants where appropriate. Approximately fifteen acre of the project site within the floodplain and riparian/wetland buffers will be revegetated and maintained after the project to restore native riparian plant communities to areas currently dominated by invasive, non-native plants. Prior to construction, an additional 6 acres of planting and 15 acres of invasive plant control will have also been completed.

5. Animals

a. *Check or underline any birds or animals that have been observed on or near the site, or are known to be on or near the site:*

- Birds: hawk, heron, eagle, songbirds, other
- Mammals: deer, bear, elk, beaver, coyote other
- Fish: bass, salmon, trout, herring, shellfish, other

The reach of the Cedar River adjacent to the project site is used by Chinook, coho, and sockeye salmon, and steelhead for spawning and rearing. The wetlands landward of the levee support a variety of plant species and structure, including forested, shrub and emergent layers. The wetlands and the forested river margin, provide habitat to a variety of terrestrial wildlife such as coyote, deer, and smaller mammals including river otter, muskrat, and various rodents.

Numerous snags (dead trees) and mature trees in the project vicinity provide excellent habitat for raptors such as bald eagles, osprey, hawks and cavity nesting and insect eating birds. Waterfowl such as ducks and geese use the wetlands and the Cedar River within the project area. The project site is located along the Pacific Flyway.

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

Chinook salmon and steelhead trout use the Cedar River for spawning and rearing. Bull trout have also been documented to use the Cedar River for foraging and migration.

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

The Cedar River is used by several species of anadromous salmon (Chinook, coho, and sockeye) and trout (steelhead, bull and sea-run cutthroat). The project site is located along the Pacific Flyway and is likely used by migratory songbirds and waterfowl.

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

The purpose and intent of the proposed project is to restore off-channel habitat to this reach of the Cedar River. The lack of off-channel habitat has consistently been identified as a limiting factor in the health of Chinook and coho salmon runs. Restoring fish access to channels isolated from the mainstem river by the levee is a significant benefit to those species. In addition, disturbed areas, including areas currently dominated by non-native plants, will be revegetated with native plant species, where appropriate.

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.*

The completed project will require no energy.

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

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:*

Not applicable

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.*

There is a very small risk of a hydraulic fluid or other fuel spilling or leaking from heavy equipment.

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

None

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

Excavators and other heavy equipment working within the project area will use a vegetable-based hydraulic fluid. Maintenance and refueling of equipment will be completed in designated areas set up to prevent release of oil, gas, or other pollutants into the stream. Appropriate containment and spill response materials will be present on the site to ensure crews are well prepared to deal with any accidental spills.

b. Noise:

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

The project site is located adjacent to State Highway 169 and Cedar Grove Road, which both have considerable large truck traffic and associated noise. Existing noise will have no impact on the project.

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

Heavy equipment operation will increase noise levels during construction. Construction noise from heavy equipment will be temporary and will occur between the hours of 7 a.m. and 7 p.m. on weekdays and between 9 a.m. and 5 p.m. on Saturdays. The completed project will not change existing noise levels.

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

Construction activities will comply with the provisions of the King County Noise Ordinance (Ordinance No. 3139). Equipment operation will be limited to the hours of 7 a.m. to 7 p.m. on Monday through Friday and 9 a.m. to 5 p.m. on Saturdays.

8. Land and Shoreline Use

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

The project site is a King County-owned property used for passive recreation.

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

No.

c. *Describe any structures on the site.*

The structures on site include the right bank levee, a 1,500 foot long revetment and two roads: SE 180th St and 203rd Ave SE. The right bank levee is approximately 950 feet in length. The revetment consists of large angular rock placed on the river bank adjacent to the levee and for an additional 550 feet downstream to prevent channel migration. The surface of the levee is gravel, unvegetated and maintained for access. The levee surface is ~16' wide, with moderate to steep slopes to the river. Both road surfaces are paved with asphalt, but are generally in poor condition and would not meet current road standards. No other structures are present on the site.

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

The restoration project will remove approximately 900 feet of levee and 1500 feet of revetment. The asphalt and compacted material underneath SE 180th Street will be excavated and removed from the site.

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

RA-5 and RA-10.

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

King County Open Space (Rainbow Bend Natural Area).

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

Currently "Conservancy Shoreline."

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

The project site is classified as a "floodway" on the edge of the Cedar River; the site also contains the Cedar River (a Type S Aquatic Area) under the King County Critical Areas Ordinance (CAO). The three wetlands found in former river channels are regulated as Category II wetlands.

- 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:*

Not applicable.

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

The project is located on King County property and within the floodplain of the Cedar River which severely limit its potential uses. The project proposes to restore natural riverine processes. The project has been identified as an important flood hazard reduction project in the 2006 Flood Hazard Management Plan (King County, 2007). The project is also identified as a high priority, Tier 1 habitat restoration project in the Chinook Salmon Conservation Plan for the Lake Washington/Cedar/Sammamish watershed (WRIA 8). The project is otherwise consistent with the goals of the Critical Areas Ordinance and Shoreline Master program that attempts to maintain and restore important ecological areas.

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:*
Not applicable

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?*
N/A. There are no buildings or structures being built.
- b. *What views in the immediate vicinity would be altered or obstructed?*
None. Numerous mature cottonwood trees will be removed from the project site. Many new native plants will be installed throughout the project site.
- c. *Proposed measures to reduce or control aesthetic impacts, if any:*
Native riparian plantings will be installed, where appropriate, in areas disturbed by construction.

11. Light and Glare

- a. *What type of light or glare will the proposal produce? During 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?*
No.
- 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 project site is located on King County property which was recently acquired for flood hazard reduction and habitat restoration. As such, it does not provide any formal recreational facilities nor is it open for public use. The project site is located across the river from a regional trail (Cedar River Trail) which is a popular recreational amenity providing opportunities for walking, jogging, bicycling, and river viewing. The site is also across the river from the Cedar Grove Natural Area, a public owned property which offers passive recreational opportunities for walking, fishing, birding and wildlife viewing via informal trails to the river.

The adjacent Cedar River is also regularly used by recreational floaters/boaters. Floating the Cedar River, particularly in tubes and small rafts, is a very popular recreational activity. The primary access to the river in the project reach is through the Cedar Grove Road Natural Area (CGNA) which is located immediately across the river on the west side of Cedar Grove Road immediately north of its intersection with Maple Valley Highway (SR 169). The access point on the CGNA property is popular owing to an informal parking area, easy access to the river, its location on public lands, and the fact that there are several publicly-accessible take-out locations downstream - the most popular of these are located in City of Renton parks. The informal trail planned through the CGNA as part of this project will also provide direct connection to the Cedar River Regional Trail.

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

No recreational uses will be eliminated, but changes in the character of the river reach resulting from the levee removal may at times make it less hospitable and/or desirable to recreational floaters. Removal of the levee will initiate channel migration that in time will cause standing trees and downed wood on site to fall into the river as the bank retreats. The widening channel and more accessible floodplain will also encourage deposition of large wood floating in the river from upstream to be retained within the reach. The position, orientation and relative hazard of these future wood accumulations will be determined by river conditions and are expected to change over time as a result of natural river processes. King County is committed to monitoring these conditions after the project is completed and will work closely with the King County Sheriff to evaluate and respond to hazards and recreational safety concerns as they evolve.

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

The project will improve recreational trails and enhance an existing river access point that will allow floaters/boaters the opportunity to take out, scout and/or portage around obstacles that develop within the reach. The project will install informational signs upstream of the site alerting users to changing site conditions and potential hazards. News releases and website alerts will also be used to provide updated information to recreational users of known site conditions. The trail enhancements will also

improve access to the river from the Cedar River Trail. These improvements are intended to provide options for river users, but will not eliminate the inherent risk that users take when recreating in or around the river. Consistent with safe recreational practices, recreational users need to take appropriate precautions, pay close attention to river conditions and make wise decisions consistent with their skills and abilities.

Consideration of potential recreational hazards has progressed through a series of steps during the design process including early identification of risks, data collection to understand specific site conditions that affect those risks, evaluation and assessment using available tools and incorporation of mitigation measures.

A site specific, post project adaptive management plan is being developed and will be finalized using input received from river safety experts, recreational users and the public. Basic elements of the plan will include a series of progressive steps that allow for a flexible response to addressing safety concerns using the least intrusive, yet effective means. Those include: education and outreach, monitoring, public notices, web alerts and signs posted along the river to alert users to conditions, temporary and/or seasonal use advisories, temporary or seasonal closure (by order of Sheriff only) and finally modification of wood accumulations where safe portage or passage is not possible during recreational flows. The plan will be consistent with the goals of the project and the draft Natural Wood Policy being developed by King County that will allow natural processes to drive evolution of the site and limit wood removal/modification to situations where other options will not effectively abate the hazard.

13. Historical 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.*

As part of the early project planning process, King County had a site specific assessment of the property to determine if historic and/or cultural resources are present and/or if the project has the potential to adversely affect such resources on adjacent properties. Two separate evaluations were completed by consultants with expertise in historic and cultural resource identification and preservation. The consultants reviewed local, state and federal records and data bases, work by previous investigators and conducted on-site inspection of the site and subsurface soil conditions. The findings are detailed below.

While there are no inventoried or documented cultural resource sites on the Rainbow Bend property, there are two historic resources close to the project that have been identified. The two sites, a historic railroad grade (45KI538) and the Cedar Grove Bridge, are located just outside of the proposed Area of Potential Effect (APE). The railroad grade has not been evaluated or proposed for listing in the National Register of Historic Places (NRHP), but the Cedar Grove Bridge was previously evaluated for King County Landmark status. The Cedar Grove Bridge was determined to not meet the eligibility requirements for County landmarks, which are the same eligibility requirements as the NRHP (Merrill and Mishkar 2010: 14-15).

- b. *Generally describe any landmarks or evidence of historical, archaeological, scientific, or cultural importance known to be on or next to the site.*

The historic railroad grade runs along the left bank of the Cedar River within the project vicinity, but the rails have been removed and the surface modified to convert it for use as a regional trail. Utilities have been installed in the prism under the trail. The waterward edge of the railroad prism consists of a steep bank heavily fortified with angular rock to prevent channel migration. The railroad prism and the rock embankment (aka revetment) along the perimeter are considered part of a flood protection facility (Cedar River Trail #6) that has been maintained and repaired as necessary in this reach and elsewhere.

As noted above, the Cedar Grove Bridge was proposed, but not determined to be eligible for landmark status.

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

The project may include the addition of rock around the bridge footings and/or along the left bank to enhance protection of these structures; these actions are consistent with repair and maintenance of these facilities that have been undertaken in the past. Neither action will otherwise alter the character or appearance of these features, but will protect them from future degradation by the river.

The project actions within the interior of the site involve working in previously disturbed areas, but the design team has taken precautions including early consultation with historic and cultural resource experts to minimize the potential for adverse impacts. Although there will be no impacts to known historic or cultural resources on the site, there is always the potential for discovery of unknown and/or uninventoried materials. The possibility of uncovering materials of archaeological or historic significance and appropriate response procedures will be discussed during a pre-construction conference with construction crews prior to performing the work on-site. Experts in historic and cultural resource issues will be on-call during construction to evaluate and direct crews should potential resources be encountered.

If cultural or archaeological resources are uncovered or encountered during project construction, work will cease immediately and appropriate steps necessary to protect those resources will be taken prior to resuming construction. If resources are discovered, the Washington State Department of Archaeology and Historic Preservation, the King County Historic Preservation Program, and any affected tribal groups will be notified immediately, and an on-site inspection will be conducted by a state-certified archaeologist and other qualified resource professionals. A mitigation plan will be prepared prior to construction resuming at the site.

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.*

Access to the site is from SE 179th St, west of Cedar Grove Road SE.

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

Yes. The nearest transit stop is approximately .5 mile southeast of the project site on Highway 169.

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

The proposed project 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:*

Not applicable

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.*

No.

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

Not applicable.

16. Utilities

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

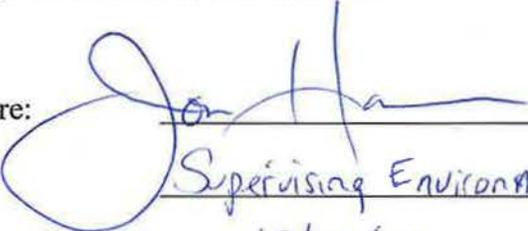
None.

- 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.*

None.

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: Supervising Environmental Scientist
Date Submitted: 10/12/12

Greenhouse Gas (GHG) Emissions Worksheet

Rainbow Bend Levee Removal and Floodplain Reconnection Project

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: 8.5 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	1360	20.7	65.70	19.564	1285.36	0.58
Pickup	1360	20.7	65.70	19.564	1285.36	0.58
Pickup	1360	20.7	65.70	19.564	1285.36	0.58
dumptruck	4000	6.15	650.41	22.384	14558.70	6.60
Tractor /Tub	625	1.9	328.95	22.384	7363.16	3.34
PC 120 Trackhoe	240	6.3	1512.00	4.924	7445.81	3.38
CAT 330	240	8.3	1992.00	4.924	9809.56	4.45
D6 LGP w/13' blade	120	8.3	996.00	4.924	4904.78	2.22
Heavy Equip Transport	51	1.9	26.84	22.384	600.83	0.27
TOTAL:					48538.94	22.02