



ENVIRONMENTAL CHECKLIST
RIVERBEND LEVEE SETBACK AND FLOODPLAIN RESTORATION

A. Background

1. Name of proposed project, if applicable:

Riverbend Levee Setback and Floodplain Restoration Project

2. Name of applicant:

Sarah McCarthy, Senior Ecologist
King County Department of Natural Resources and Parks, Water and Land Resources Division

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

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Seattle, WA 98104-3855
(206) 477-4766

4. Date checklist prepared:

October 2018

5. Agency requesting checklist:

King County Department of Natural Resources and Parks
Water and Land Resources Division

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

The construction target is 2019-2020, depending on funding, permitting and contracting.

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

The purpose of the project is to restore natural riverine processes such as channel migration, sediment deposition and transport of sediment and large wood at the project site. These natural processes are

dynamic and the exact timing and scale of responses cannot be entirely predicted. Therefore, some adaptive management actions may be needed in the future. For example, alterations to the engineered log jams or the newly constructed setback revetment may be needed in the future to maintain protection of residential structures from channel migration. In addition, King County may return to the site at some point in the future to remove the remaining levee and access road in order to more fully restore natural processes. Because this work is dependent upon property and funding which are not currently available, any future action to further connect the floodplain will be evaluated as a separate proposal.

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

- Critical Areas Report for Riverbend Floodplain, King County Water and Land Resources Division, August, 2018.
- Riverbend Levee Setback and Floodplain Restoration, Preliminary Design Report, RCO #14-1330PLN, King County Water and Land Resources Division, March, 2017.
- Riverbend Levee Setback and Floodplain Restoration Project: Wildlife Study, King County Water and Land Resources Division, May 2017.
- Cedar River – Riverbend Technical Memorandum Addendum: Hydraulic and Geomorphic Analysis of 30% Design and Alternatives, Inter-Fluve Consultants, December 22, 2017.
- Draft Geotechnical Engineering Report, Riverbend Levee Setback and Floodplain Restoration, Shannon & Wilson, Inc., March 2018.

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 Marine Fisheries Service and US 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 Development Permit (King County)
- 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
- King County Park Division Special Use Permit

11. Give 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.)

King County Water and Land Resources Division (WLRD) is proposing to restore riverine processes and reduce flood hazards along the Cedar River at the Riverbend project site. The Riverbend Levee Setback and Floodplain Restoration Project site is located in unincorporated King County between River Mile 6.5 and 7.4. Previous property purchases and structure demolitions have prepared the site for the restoration project. The project will reconnect approximately 52 acres of floodplain, enhance connection to existing off channel habitats and create over 5,000 linear feet of new side-channel habitat on the site. This will be accomplished by removing approximately 3,000 linear feet of existing levee/revetment, excavating approximately 170,000 cubic yards of fill, raising the bottom elevation of a relict gravel mine (Cavanaugh Pond) to surrounding floodplain elevation and placement of over 450 pieces of large wood within the newly created channels and active floodplain. Large wood, placed as single pieces, in clusters or as jams will be strategically placed to provide instream cover, help stabilize channels and create roughness and promote habitat formation within the floodplain. The project will also include approximately 1,600 linear feet of new buried setback revetment outside of the floodplain that will protect SR 169, the Cedar River Trail and adjacent private property from damage from potential future channel migration.

The proposed restoration of natural processes is expected to significantly increase off-channel habitat availability and improve existing juvenile and adult salmon habitat. The loss of these types of off-channel habitat features due to bank armoring and disconnection of off-channel habitat 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* and would bring the watershed 40% closer to its goal of 130 acres of floodplain reconnection by 2025.

The project will perform the following actions with the intent to:

- Improve floodplain connectivity
 - Remove approximately 3,000 linear feet of bank armoring on the left bank;
 - Lower the surface of the floodplain and construct two permanent side channels in the previous location of the Riverbend Mobile Home Park;

- Connect with the upstream Cedar Rapids Floodplain Restoration Project to provide over 80 acres of restored floodplain;
- Improve juvenile salmonid rearing and refuge habitat:
 - Create at least two side channel and one backwater habitat access points at all flows, with at least four side channel access points at 700 cfs and above;
 - Reduce depths in Cavanaugh Pond to preferred rearing depths (less than 4 feet deep);
 - Increase the amount of low velocity edge habitat by at least three fold to meet reference conditions;
- Improve the quality of salmon spawning habitat:
 - Reduce velocities in the mainstem during flood events by approximately 1 foot/second on average during the 2-year flow;
 - Increase available gravel-dominated substrate of preferred spawning depth (0.5-4') within Cavanaugh Pond by at least two fold;
- Moderate the rate of change, focus change in desired areas and create complex habitat:
 - Retain a 1,400 LF section of the existing levee with vehicular access to allow for inspection and maintenance following construction;
 - Raise the bottom elevation of a relict gravel mine (Cavanaugh Pond) in order to protect against the negative effects of a channel avulsion into Cavanaugh Pond and resulting upstream headcut (channel bed erosion). The new bottom elevation will be more consistent with off channel habitats created by the river.
 - Install a fish-passable culvert under the access road, upstream of Cavanaugh Pond to prevent full channel capture in the near-term (NOTE: the culvert, access road and remaining levee may be removed in the future if property acquisitions, channel evolution and funding allow),
 - Install over 450 pieces of large wood (plus additional small wood pieces and slash) in the restored side channel and backwater areas;
 - Protect existing mature trees and revegetate 31 acres with tree and shrub species that will provide shade and future sources of large wood to the river and side channels;
- Protect Cedar River Trail, Highway 169 and adjacent private property from channel migration:
 - Construct an approximately 1,270 linear foot buried setback revetment outside of the floodplain on the upstream side of the project site;
 - Extend protection of the Cedar River Trail and State Highway 169 by 370 feet at the upstream end of the Cedar River Trail facility.

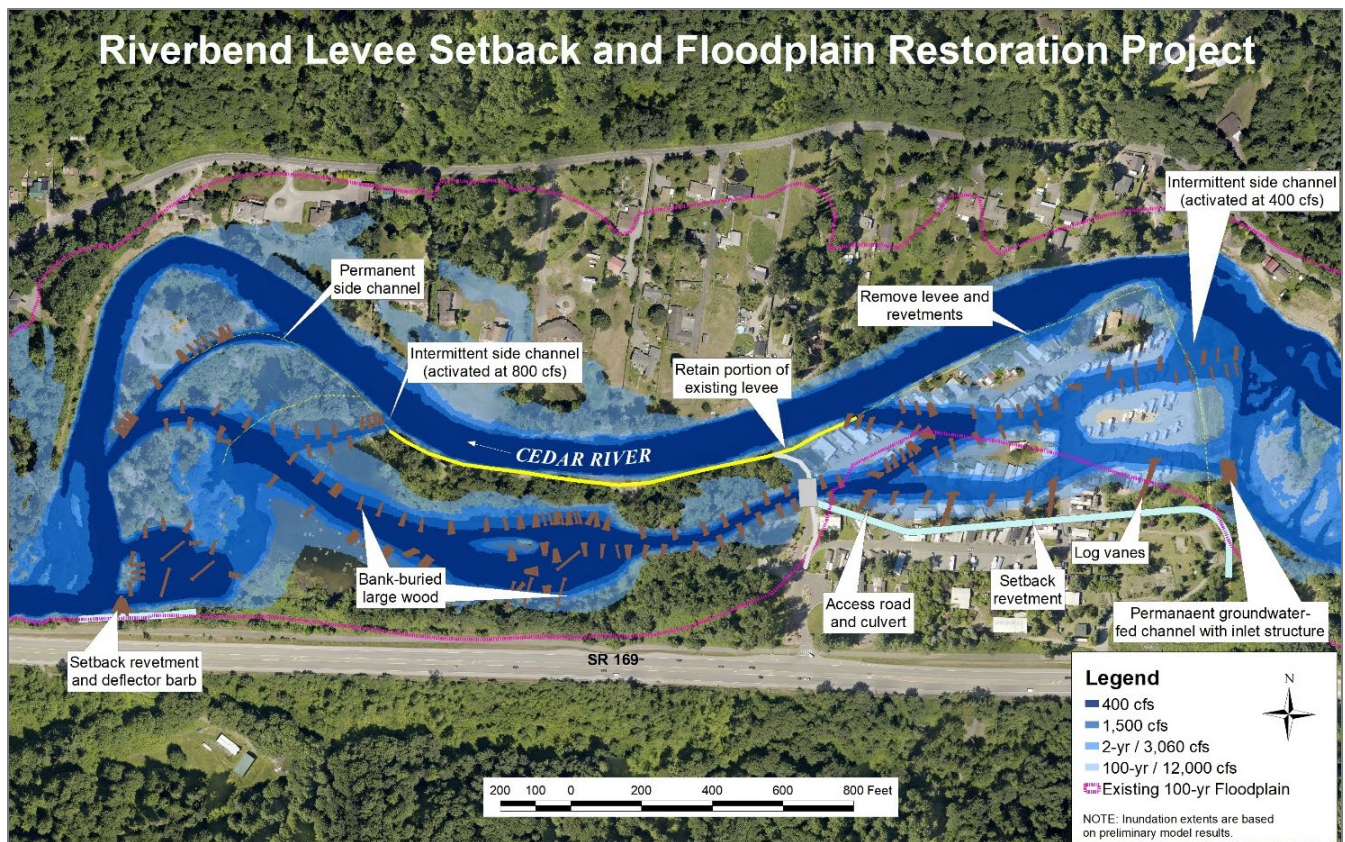


Figure 1. Proposed project elements.

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 site is located between the Cedar River and State Route 169 (Renton-Maple Valley Highway), from River Mile (RM) 6.5 to RM 7.4, STR 23-24-05, as shown in Figure 2.

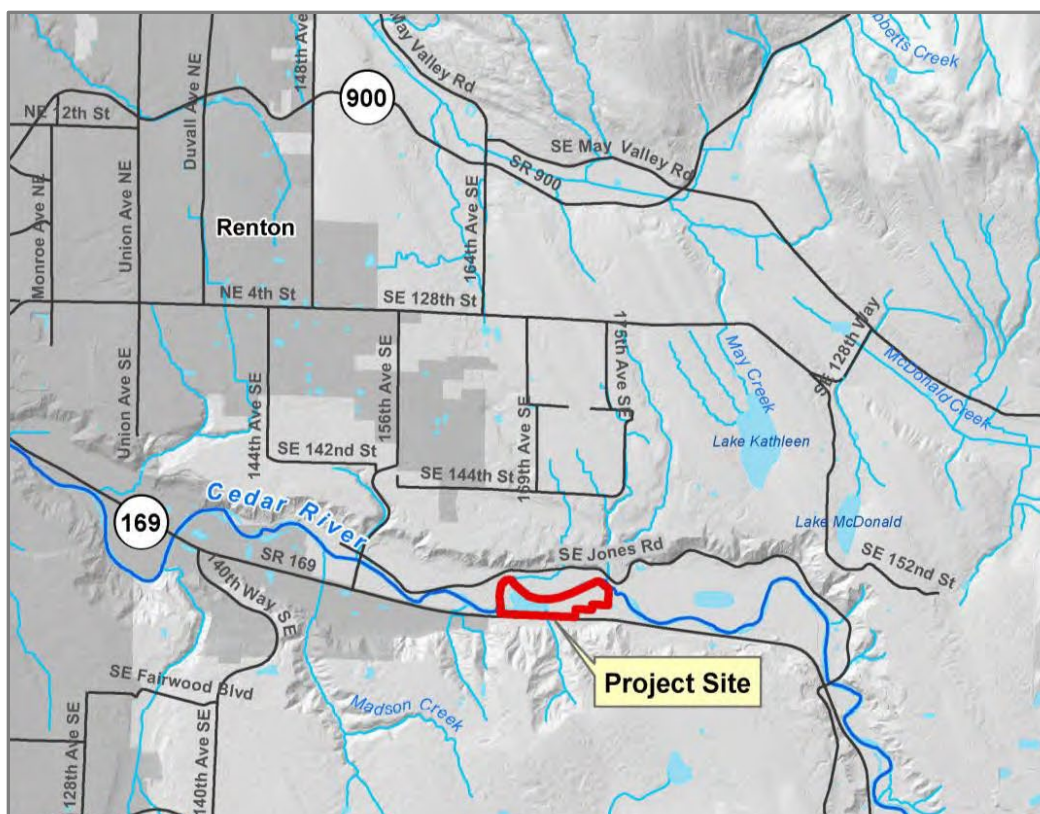


Figure 2. Vicinity map.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site:

(circle one). Flat, rolling, hilly, steep slopes, mountainous, other _____

The project site is located on the left bank of the Cedar River in the Cedar River valley floodplain. The site is generally flat. Along most of the southern edge of the site the floodplain transitions to an embankment that rises to meet the Cedar River Trail and SR 169 beyond.

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

The steepest portion of the embankment rises 15 ft over 35 ft for a slope of 42%.

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 agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The soils on the project site are divided between 40% Riverwash (Rh) at the riverine edges of the project site and 60% Puyallup fine sandy loam in the interior of the project site. Riverwash is

characterized as frequently flooded alluvium (hydric) with 0 to 3% slopes and a depth to water table of 0 to 24". Puyallup fine sandy loam is a droughty soil with parent material of alluvium. It is more developed than Riverwash with a gradient of ashy fine sandy loam at the surface down to sand at depths over 34". It is a well-drained soil with water table at a depth of 48 to 60". There are minor components of wetland soils associated with Cavanaugh Pond and the swale running along the toe of the slope including Briscot, Newberg, Woodinville, and Oridia formations. Soil information was obtained at the Natural Resources Conservation Service Web Soil Survey, accessed April 17, 2017.

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

There is evidence of channel migration related erosion of Riverwash soils at the upstream end of the project site riverward of the Riverbend Upper levee. The Riverbend levee has been periodically repaired from the time of its construction in the early 1960's due to channel migration in high water events, including a breach into the gravel pit (now Cavanaugh Pond) in the 1960s. There is no evidence of landsliding within the project site.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

Approximately 3,000 linear feet of bank armoring on the left bank will be removed to reconnect the floodplain. Approximately 170,000 cubic yards of fill will be removed from the upstream half (mobile home park) of the site. Of that fill, approximately 120,000 cubic yards of native alluvium will be added to the downstream half of the site (relict gravel mine, now Cavanaugh Pond) to raise the bottom of the pond to surrounding floodplain elevation. Approximately 1,640 linear feet of setback revetment will be constructed outside of the floodplain to protect the Cedar River Trail, Highway 169, and adjacent private property from channel migration.

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

Erosion and deposition throughout the riverbanks and floodplain within the Riverbend site are expected and are desirable outcomes of the proposed project. Levee and revetment removal will allow more frequent flows to leave the main channel of the Cedar River and flow across the Riverbend floodplain. While more areas will be subject to inundation, velocities and scour potential are expected to be reduced as a result of increased conveyance. Increased inundation area 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)?

Approximately 2% (1 acre) of the site will be impervious due to existing development that will be retained (parking lot and clubhouse). The remaining 98% of the site will be pervious or open water.

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 WA State Water Quality Standards (WQS) 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.
- 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 exceed WA State WQS 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 during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

The project is expected to generate approximately 300-400 metric tons of CO₂-equivalent greenhouse gas during construction. It is expected that within 2-3 years of construction completion, new trees planted at the site will have sequestered a quantity of CO₂ at the site that outweighs the construction impacts. After that point in time, the site will become a net sink for greenhouse gases.

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

No.

c. Proposed measures to reduce or control emissions or other impacts to 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. 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 Water:

- 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 type and provide names. If appropriate, state what stream or river it flows into.

The Cedar River is a Class 1 stream and Type S rural shoreline that flows through the project site. Cavanaugh Pond is situated in a large depression created during a former gravel mining operation within the floodplain of the Cedar River and the Cavanaugh Pond Natural Area. It is classified in the Cowardin system as Palustrine wetland, Vegetated Shallows and Deepwater Aquatic Habitat. The wetland area within Cavanaugh Pond is further classified as Emergent/Scrub-Shrub. It is 4.74 acres in size. Two unnamed perennial spring fed streams flow into Cavanaugh Pond through culverts under SR 169.

- 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.

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 WA State WQS 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 Cavanaugh Pond and the floodplain. This grading is intended to improve floodplain connectivity by removing fill from the upstream portion of the site and raising the bottom of the relict gravel mine (Cavanaugh Pond) within the downstream portion of the site to match surrounding floodplain elevations. This work is an essential project element to restore floodplain elevations and prevent head-cutting or avulsion through the reconnected pond.

- 3) Estimate the amount of fill and dredge material that would 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 2,500 cubic yards of large angular rock will be removed from below the ordinary high water mark of the Cedar River. Approximately 180,000 cubic yards of silt, sand and gravel will be removed from the eastern third of the project site to restore floodplain connection to the Cedar River mainstem. Approximately 120,000 cubic yards of this material will be used to raise the bottom of Cavanaugh Pond to an elevation more consistent with the mainstem of the Cedar River.

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

The downstream end of Cavanaugh Pond may be temporarily blocked with alluvium during construction to allow suspended sediment to settle and turbid water to infiltrate through a temporary berm before reentering the Cedar River. In-water work within the Cedar River (levee and revetment removal) is more likely to be managed using turbidity curtains as opposed to water diversions.

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

Substantial portions of the project are within the 100-year floodplain (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 Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? 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 stormwater):

- 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.

King County will remove any remaining abandoned septic systems from the Riverbend Mobile Home Park as part of this project. The contractor will be required to follow Washington Department of Health best management practices for containment and disposal of septage.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposed project will not impact off-site drainage, but will create new drainage pathways throughout the site. Several new side channels for fish habitat will be created and those will interact with groundwater bringing more surface water discharge through the floodplain.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern 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 WA State 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 BMPs (silt booms, pumps, water detention structures, etc.) as necessary.

The work within Cavanaugh Pond will be isolated by constructing a temporary filtration berm at the downstream boundary of Cavanaugh Pond, installing silt curtains within the pond to divide the work into cells and limit fine sediment mobility, and working slowly to encourage infiltration through the berm at the downstream end.

4. Plants

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

- ☒ deciduous tree: alder, maple, aspen, other
- ☒ evergreen tree: fir, cedar, pine, other
- ☒ shrubs
- ☒ grass
- ☐ pasture
- ☐ crop or grain
- ☐ Orchards, vineyards or other permanent crops.
- ☒ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
- ☒ water plants: water lily, eelgrass, milfoil, other
- ☐ other types of vegetation

The project site includes floodplain, wetland and upland vegetation communities as well as relatively barren areas at the site of the mobile home park. Among these communities there are hundreds of mature and over-mature conifers and deciduous trees, a dense shrub layer and patchy herbaceous layer. The tree canopy is largely native while the shrub and herb layers are a mix of noxious and unregulated weeds and native plants.

The floodplain area of the site is largely disconnected disturbed riparian habitats as well as a wetland area that formed in the abandoned gravel pit excavated behind the levee. The floodplain forest is dominated by black cottonwood, red alder, and Western red cedar. The shrub layer is dominated by red-twig dogwood, salmonberry and Nootka rose. Wetland emergent species include reed canary grass, small-fruited bulrush, buttercup and skunk cabbage. Invasive species such as Bohemian knotweed, English ivy and Armenian blackberry, are pervasive throughout the floodplain and wetlands. The upland forest canopy is dominated by black cottonwood, red alder, big-leaf maple, Douglas fir, Western red cedar, with a shrub layer of snowberry, vine maple, Indian plum, beaked hazelnut and Nootka rose. European grasses and common garden weeds dominate the herbaceous layer at forest edges.

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

There are more than 350 significant trees (>20-m tall) behind the Riverbend levee system. Among those approximately 30 will need to be removed in order to restore the site. Clearing extents will be carefully considered to minimize impacts to mature trees. All wood will remain onsite, either incorporated into wood structures or left on the ground as intact as practicable for habitat enhancement.

As owner of the property, King County will continue to control noxious weeds in keeping with local and state requirements, as well as permit requirements.

King County Parks has worked extensively with volunteers for the past two decades restoring native plant communities around Cavanaugh Pond. Project design and construction will honor this tremendous effort by minimizing impact to these plantings to the extent practicable.

- c. List threatened and 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 (accessed 4/18/2017) 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:

Prior to construction a survey of noxious weeds will be conducted and pre-treatment applied to minimize the potential for movement of weed propagules across the site through grading activity. During construction high visibility flagging or fencing will be installed to protect existing native trees and shrubs. Once construction is completed, approximately 31 acres will be revegetated with native plants to stabilize disturbed areas and enhance existing plant communities.

- e. List all noxious weeds and invasive species known to be on or near the site.

Regulated noxious weeds including spotted knapweed and tansy ragwort (both class B) have been observed on the southern roadside edges of the project site. On the river's edge Bohemian knotweed (Class B, regulated to OHWM on the Cedar River) and garlic mustard (Class A) are common (King County iMap, accessed 04/18/2017). Other common non-regulated invasive species include evergreen and Armenian blackberry, herb Robert, and English ivy.

5. Animals

- a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:

mammals: deer, bear, elk, beaver, other: bobcat

fish: bass, salmon, trout, herring, shellfish, other: sculpin, stickleback, suckers

The Cedar River reach 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, black-tailed deer, bobcat,

and smaller mammals including river otter, muskrat, beaver and various rodents.

Although there are numerous mature trees at the project site that could provide habitat for raptors such as hawks, no nests were observed. And no snags (dead trees) that stood out above the other trees were present that birds like Osprey prefer. Snags present did not show a great deal of woodpecker activity, possibly because the snags tended to be smaller from red alder. Snags were also present from cottonwood trees. Waterfowl such as Wood Ducks, Mallards, Bufflehead, Pied-billed Grebes, and Canada Goose use the open water portion of the wetlands on the project site, and Common Mergansers use Cedar River within the project area. The project site is located along the Pacific Flyway.

Cavanaugh Pond is used by northwestern salamanders, Pacific tree frogs, Northern red-legged frogs and American bull frogs for breeding. Several fish species have been documented in Cavanaugh Pond, including sockeye salmon, cutthroat trout, sculpin species, largescale suckers, bridgelip suckers, three-spine stickleback, northern pikeminnow and largemouth bass. Juvenile coho and Chinook salmon have been observed using the outlet of Cavanaugh Pond, but not the pond itself.

b. List any threatened and 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. The project site is located about 0.8 miles west of where the King County Wildlife Habitat Network runs through the Cedar River and south into Peterson Creek.

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.

e. List any invasive animal species known to be on or near the site.

American bullfrog

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 as the finished project will have no energy demand.

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.

- 1) Describe any known or possible contamination at the site from present or past uses.

Four polyaromatic hydrocarbons (PAHs) above laboratory testing limits were detected in one test pit near the prior location of the mobile home and RV park laundry facility. Though the levels were below MTCA cleanup levels, these materials will be exported to a disposal facility and not reused onsite.

- 2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

Several underground septic systems that were installed in the 1960's (some subsequently repaired) will be excavated as an initial part of project grading. These systems will be decommissioned in accordance with local health regulations.

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Hydraulic fluid and fuel will be used to operate heavy equipment.

- 4) Describe special emergency services that might be required.

None.

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

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.

Septic systems will be decommissioned in accordance with state and local requirements. All septage will be removed by an approved pumper. Septage and septage biosolids will be disposed of at approved locations. Septic system materials, including any lids, tanks, and pipes will be excavated to the extent of the project clearing and grading limits and disposed of at an approved facility.

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 which may affect your project (for example: traffic, equipment, operation, other)?

Heavy highway traffic from SR-169 is in the area, but the noise will not 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, 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 7 p.m. on weekends. 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):

- Heavy equipment: 7am to 7pm weekdays, 9am to 7pm weekends
- Impact equipment (not anticipated for this project) – 8am to 5pm weekdays, 9am to 5pm weekends
- All other construction activities – 7am to 10pm weekdays, 9am to 8pm weekends

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

Past site use was split approximately in half along the divide between King County Parks property (downstream) and a mobile home park upstream which has since been purchased by the King County Flood Control District. The downstream half was a gravel extraction site through the 1970's and more recently an public open space. Current site use is all open space. The proposal will enhance this use by restoring vegetation and natural processes throughout the site.

- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

No

- 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

No

- c. Describe any structures on the site.

Vacant mobile home park structures and a clubhouse.

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

The above-ground mobile home park infrastructure was demolished in 2017. Underground infrastructure such as septic systems will be demolished in conjunction with project construction in 2019 or 2020.

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

RA-5: Rural area, one development unit per 5 acres.

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

Open space and rural area.

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

Rural Shoreline, Natural Shoreline, Conservancy Shoreline

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

Yes. The site includes seismic hazard, erosion hazard, wetland and stream 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:

Not applicable. Prior tenants of the mobile home park were relocated in a prior project under the provisions of the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

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

The project restores critical area lands from rural residential to natural resource lands improving habitat for endangered salmonids and reducing flood hazards to regional infrastructure by increasing flood conveyance and lowering velocities in the reach.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

Not applicable. There are no commercial forest or agriculture lands in the project area.

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:

None

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?

No above grade structures proposed.

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

None.

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

Not applicable, no new structures 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?

No.

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

None.

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

Not applicable, no light or glare impacts associated with project.

12. Recreation

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

The project site is located on King County property, the upstream half of which was recently acquired for flood hazard reduction and habitat restoration. As such, the upstream half does not provide any formal recreational facilities. The downstream half of the property is owned by King County Parks. The site features a smooth gravel levee access road that leads to a shoreline beach and is a popular site for birdwatching, volunteer stewardship, and accessing the river for swimming, fishing, and floating. The project site is adjacent to a regional trail (Cedar River Trail) which is a popular recreational amenity providing opportunities for walking, jogging, bicycling and river viewing.

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 informal trails within the project site and in the Cedar Rapids reach upstream.

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:

King County hosted a series of public meetings pertaining to recreation in the development of the Cedar River Corridor Plan: Capital Investment Strategy. Parking for shoreline access was among the most commonly cited needs to improve recreation in the river corridor. This project will maintain parking for the Cedar River Trail and site (walking) access.

Recreational opportunities provided by the project will include walking, river viewing and nature watching. Users will not be prevented from accessing the river for swimming, fishing and floating, though access opportunities are likely to shift over time as the site changes. 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. Outreach to stakeholders has occurred at the annual large wood meetings and on King County's large wood website at kingcounty.gov/large-wood. Post-project, safety concerns will be addressed 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.

13. Historic and cultural preservation

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe.

The mobile homes and associated structures were documented and assessed for significance and eligibility for designation as King County Landmarks (KCL) and for listing in the Washington Heritage Register (WHR) and National Register of Historic Places (NRHP). Due to poor integrity and the property's inability to meet criteria for eligibility, the mobile home park and associated structures are not recommended as eligible for the WHR, NRHP or as a KCL. The project area is bounded by an archaeological site (Columbia & Puget Sound Railroad railbed), but no determination has yet been made regarding the site's eligibility for inclusion on the NRHP.

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

There is no evidence of Indian or historic use or occupation of the project area. Three cultural resources investigations in the project area (Hayman et al. 2015; Trexler et al. 2017/NADB 1690531; Kassa-Kleinschmidt 2018) and one on the property adjacent to the east (Hoyt et al. 2008/NADB 1351834) did not identify any archaeological or significant above-ground resources. The likelihood of precontact-era use of the site is high due to the location along the river. However, the potential for intact cultural resources is considered low due to the active nature of the Cedar River along the project area and evidence of dramatic channel migration (Hayman et al. 2015; Kassa-Kleinschmidt 2018).

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The King County Historic Preservation Program (HPP) reviewed versions of this project in October 2015, March 2017, and December 2017 for the presence of archaeological and historic above-ground resources and for the probability of an inadvertent discovery of such resources during project construction. This screening included a review of historic registers, databases (including the Washington Department of Archaeology and Historic Preservation's "WISAARD"), historical maps and aerial photographs, and predictive GIS modeling. HPP concluded that the project area has a Moderate Probability of containing archaeological sites based on environmental factors, but that it has a Low Probability of containing intact archaeological sites. Historical maps and aerial photographs show that the Cedar River channel occupied much of the project area at some point between 1865 and 1985.

King County had three site-specific assessments of the property to determine if historic above-ground and/or archaeological resources are present and/or if the project has the potential to adversely affect such resources on adjacent properties. Evaluations were completed by consultants with expertise in historic and cultural resource identification and preservation. The consultants reviewed local, state and federal records and databases, work by previous investigators and conducted on-site inspection of the site, including above-ground structures and subsurface soil conditions (monitoring of five geotechnical borings and 18 test pits).

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

The project will require a federal Clean Water Act Section 404 permit from the US Army Corps of Engineers, which then requires that the project comply with Section 106 of the National Historic Preservation Act. In addition, the project is subject to review by the King County Historic Preservation Program required by King County Executive Procedures for Cultural Resources (LUD 16-1 AEP) to ensure compliance with Washington state laws, including RCW 27.53, 27.44, 68.60 and 68.50.

The project actions 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 above-ground or archaeological resources on the site, there is always the potential for discovery of unknown and/or uninventoried materials. Work crews will be familiar with HPP's Archaeological Resources in King County so that they can recognize archaeological materials and understand and follow proper procedures should archaeological materials or human remains be found during the project. King County will ensure that an inadvertent discovery plan is in effect for all ground-disturbing activities.

14. Transportation

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

Access to the site is from 174th Ave SE north of Highway 169.

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

Yes. Metro operates a flexible transit service along Highway 169, DART route 907. Stops can be made off-route on demand and there is a large Metro Park and Ride one mile west of the project site.

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The completed project, as proposed, would not include additional parking spaces. The existing parking area for the Cavanaugh Pond Natural Area may be reconfigured onsite to provide an equivalent amount of parking.

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

No.

- e. Will the project or proposal 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 or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

None.

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

No.

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

Not applicable, no post-project transportation impacts.

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, 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. Circle utilities currently available at the site:

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

- d. 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 which might be needed.

No utilities proposed.

C. Signature [\[help\]](#)

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: 

Name of signee: Sarah McCarthy

Position and Agency/Organization: Senior Ecologist, King County Dept of Natural Resources & Parks

Date Submitted: 10/24/18

Greenhouse Gas (GHG) Emissions Worksheet

Project Name: Riverbend Levee Setback and Floodplain Restoration

Project Manager: Jon Hansen

Assessment Completed by: Alex Hallenius

Date of completion: 10/22/2018

Project Description: Setback levees and revetments along the Cedar River and construct new aquatic habitat on a 52-acre site

Construction-related Greenhouse Gas Emissions

	Pounds	Metric tons
Emissions from fuel-burning activities (in CO ₂ e):	237695.49	107.847316
Emissions from embedded materials (in CO ₂ e):	464250	210.639746
Emissions resulting from site impacts (in CO ₂ e):		
Total Emissions (in CO₂e):	701945	318.4871

Project-Related Carbon Sequestration

	Pounds	Metric tons
Total Carbon Sequestration 35 years after planting:	16.846881	37130.5263
Years Required for Carbon Sequestration to Equal Total CO ₂ e Emissions:		2