King County

INSTREAM PROJECT DESIGN CHECKLIST

For Design and Construction of Flood and Erosion Protection Facilities and Habitat Restoration Projects that May Include Large Wood Placement or Natural Wood Recruitment

Project Name Scott Property, Judd Creek Habitat Enhancement Small Habitat Restoration Project

Project Manager Paul Adler

River/River Mile/Bank Judd Creek – Estuary to RM 0.5 Date 5/13/15

Check one or both:

X Project includes placement of large wood elements

X Project may influence the recruitment, mobility and accumulation of natural large wood.

Note: If the project is comprised of emergency work, then fill out and file this form within 30 days of completion of emergency work.

I. Project Background and Preliminary Design (30-40 Percent) Information

(Provide general information at a conceptual level)

1. Describe the overall river management context, strategy and objectives for the river reach. Refer to pertinent plans, policies or documents pertaining to flood hazards, salmon recovery, etc.

   This reach of Judd Creek is managed for open space and habitat values. Judd Creek is a wadable stream that does not have enough flow to be boatable. The Judd Creek estuary is a mud-flat at low tide and is only accessible by small boats with minimal draft at high tide. The restoration of the mouth of Judd Creek is a priority recommendation by the WRIA 9 technical committee, and is part of action NS 17 in the WRIA 9 Salmon Habitat Plan.

2. Describe the goals and objectives of the project and its relative importance to the success of DNRP program goals and mandates. Identify funding source(s) and describe any applicable requirements or constraints.

The purpose of the project is to conserve and restore natural processes by the placement of woody debris that was naturally and historically more common on Puget Sound shores and streams. The project objectives are:

- Restore natural habitat forming processes by placing large and small woody debris into Judd creek and the Judd Creek estuary.
- Promote long-term stewardship of Judd Creek and the Judd Creek estuary by coordinating with stakeholders including WRIA 9; the Vashon Maury Island Land Trust; adjacent property owners; the Muckleshoot, Puyallup and Suquamish Indian Tribes and the King County Historic Preservation Program.
- Avoid and minimize impacts to cultural resources.

The project is funded by a Cooperative Watershed Management Grant from the King County Flood Control District and by Small Habitat Restoration Program (SWM) funds.

3. Describe the existing (and historic, if relevant) site and reach conditions, including structural features, channel form, and the presence of naturally-deposited large wood. Describe known utilization by salmonids and any important or unique biological or ecological attributes.

Judd Creek is one of two major salmon-bearing creeks on Vashon Island, and is used by coho and chum salmon, cutthroat trout and rainbow trout. It flows southward from headwaters in Island Center Forest towards Quartermaster Harbor. Within the project stream reach, the creek averages 15' wide and has summer stream flows of < 10 CFS. The Judd Creek estuary consists of low-lying tidal flats which are exposed during low tide. The tidal flat contains deposited silts and sands, as well as existing woody debris that is mostly dead fall from the adjacent forested slopes. The estuary is utilized by Chinook, coho, and chum salmon; cutthroat trout and forage fish.

The property is owned and managed by the Vashon Maury Island Land trust for Open Space. King County holds a conservation easement on the property. The previous property owners maintain a lease on the property. The site currently has rural residential use and site contains an existing home, garage, barn and other outbuildings. Prior to 2013, this reach of stream was privately owned.

The conservation of the mouth of Judd Creek is a priority recommendation for inner Quartermaster Harbor by the WRIA 9 technical committee, Final Report Prioritization of Marine Shoreline of WRIA 9 for Juvenile Salmonid Habitat Protection and Restoration. The conservation and restoration of this parcel is part of action NS 17 in the WRIA 9 Salmon Habitat Plan.

4. Describe what is known about adjacent land uses and the type, frequency, and seasonality of recreational uses in the project area. Are there nearby trail corridors, schools or parks? What is the source(s) of your information?

The adjacent land use is rural residential properties and open space parcels. There are trails and passive recreation on the undeveloped Vashon School District property to the north. Recreational use of the stream reach is currently limited by the lease of the property to the previous property owner. The future use of the property will be for open space. Future aquatic recreation of the creek is limited by the size of the creek. Judd Creek is a wadable stream that does not have enough flow to be boatable. Recreation use is limited to hiking along creek, fish and wildlife viewing and enjoyment of the natural setting.

Existing use of the estuary is limited to passive recreation such as to hiking along shoreline, boating in kayaks or small boats entering from Quartermaster Harbor, fish and wildlife viewing, fishing and enjoyment of the natural setting . Kayaks and small boats with minimal draft are known to explore the estuary during high tides. These boats have to navigate around the existing wood in the estuary. The Judd Creek estuary is a mud-flat at low tide.

Information was gathered from background research, technical studies, site surveys, and interviews with neighbors.

5. If the project includes wood placement, describe the conceptual design of large wood elements of the project, including, if known at this stage in the design, the amount, size, location, orientation, elevation, anchoring techniques, and type of interaction with the river and stream at a range of flows.

The project consists of a stream component and an estuary component. Approximately 60 logs with root balls will be placed, about 30 each in the steam and estuary. The typical log is 12-18 inches diameter (diameter at breast height) and 30 feet long.

In the stream reach, logs will be placed individually or in clusters that form small wood jams as shown on the project plans. The logs will be placed without mechanical anchors. The majority of logs will be placed with the root balls in the creek and the stem on the banks, or buried into the banks. Stems will be placed with the stem placed between live trees on the banks (i.e. keyed into existing trees), in a small notch in the bank, on a bank higher than 6 feet high, or buried into the bank. In the upstream part of the stream reach, some log clusters will be placed entirely on the streambed with the logs crossed, stacked on top of each other, and with the root balls upstream. The logs in these clusters will be tied together with natural fiber rope. The logs in the stream reach will interact with the stream at all flows.

In the estuary reach, logs with root balls will be placed individually or in complexes as shown on the plans. Individual logs will be placed with the root balls on the mudflat and the stem keyed into and tied to existing trees on the bank. Log complexes will be anchored around existing trees on the bank using chain. These log complexes will sit partially on the banks and partially in the water. They will float with the tides, until they become waterlogged. In addition, two log rafts will consist of multiple logs chained together and anchored to the bed with mechanical earth anchors and chain. These logs will also float with the tidal inundation, until they become waterlogged. Logs in the estuary will be delivered on trucks to a boat launch in Quartermaster Harbor and floated into the estuary using motorboats. The logs will be winched into position with portable winches and hand labor.

6. If the project includes wood placement, what is the intended structural, ecological or hydraulic function of the placed wood? What role does the placed wood have in meeting the project's goals and objectives? Is the project intended to recruit or trap additional large wood that may be floating in the river?

The purpose of the project is to conserve and restore natural processes by the placement of woody debris that was naturally and historically more common on Puget Sound shores and streams. The wood placements are designed to minimize construction impacts and to mimic existing wood found on the site and in reference reaches in Judd Creek and on shorelines on Vashon. Woody debris provides structure, cover and hydraulic complexity in streams and provides structure, cover, substrate for marine organisms and spawning forage fish that are an important and limited resource for Chinook salmon.

7. Is the project likely to affect the recruitment, mobility or accumulation of natural large wood, e.g., by encouraging wood deposition on or near the site or promoting bank erosion that may cause tree toppling? Describe expected site evolution and its potential effects on natural wood dynamics.

While the project may recruit a small amount of natural large wood, it is unlikely to recruit a significant quantity of additional wood. Judd Creek is a small creek that does not have the ability to move large pieces of wood and any wood that is mobile in the channel is limited by the sinuosity of the channel. Within the Judd Creek estuary reach, wood that falls into the estuary from the banks tends to remain in the reach. Additional wood does not tend to float into the estuary reach and accumulate because of the location and orientation of the estuary in Quartermaster Harbor. Wood that is floating in Quartermaster Harbor accumulates at the north end of the harbor, driven primarily by the prevailing winds from the south. The east-west orientation of the estuary and the location of the estuary north of the Burton peninsula limit the potential for free-floating wood to be deposited in the estuary reach.

8. Describe how public safety considerations have been incorporated into the preliminary project design. For placed wood, address each of the considerations:

   a. Type, frequency, and seasonality of recreational use;

   b. Wood location, positioning, and anchoring techniques;

   c. Maximizing achievement of project goals and objectives while minimizing potential public safety risks;

   d. Use of established and recognized engineering, geological, and ecological expertise.

This reach of Judd Creek is managed for open space and habitat values. Judd Creek is a wadable stream that does not have enough flow to be boatable. The Judd Creek estuary is a mud-flat at low tide and is only accessible by small boats, with minimal draft, at high tide. The proposed wood placement will not block existing low flow channels and will not exclude recreational use of the estuary. The project does not pose hazards to the existing or potential recreational use of the project area. Boating and floating is not possible within the stream reach because of the creek size. Kayaks and small boats with trawling motors are known to explore the estuary which will not be adversely affected by the project. The project design team includes an ecologist and engineer with experience in wood placement, wood mobility, habitat benefits and public safety concerns.

9. Has the project been reviewed and approved by a Licensed Professional Civil Engineer? Please list other licensed technical staff who have reviewed and provided input on the design (e.g., Licensed Geologist and Licensed Engineering Geologist). Specify the Engineer of Record for the design and any other Licensed Professionals who have sealed their portion of the design plans. Were all reviews and approvals completed?

   Will Mansfield, Professional Engineer, is the Engineer of Record for this project. He reviewed all project design elements and will stamp the project plans. Alex Hallenius, PE, CFM, is the project engineer and completed a design review and wood mobility analysis for wood placements.

10. Has the project been reviewed and approved by a King County Professional Ecologist (e.g., person with an advanced degree in aquatic and/or biological sciences from an accredited university or equivalent level of experience) if ecological benefits are an intended project objective, to evaluate the consistency of the design with project goals, existing environmental policies and regulations, and expected or known permit conditions? Specify the Reviewing Ecologist for the project. Was this review and approval completed?

    The project manager is a King County design ecologist with over 15 years' experience designing and building habitat restoration projects that incorporate LWD. The project design has been reviewed and approved by King County Senior Ecologist Mason Bowles.

11. What is the anticipated schedule for completing project milestones (30-40% design, final design, major construction/earthmoving) and for soliciting public input)?

    The project design review included evaluation and input for stakeholders including, the Vashon-Maury Island Land Trust, The King County basin steward, the WRIA technical team, King County Historic Preservation Program staff and local tribes. The project was also presented to the public at the 2014 Projects Involving Large Wood Placement public meetings on June 10, 2014 Project Construction is anticipated during the summer of 2015.

Project Manager — Date: 5/15/2015

Supervising Engineer, Project Supervisor or Unit Manager — Date: 5/14/2015

II. Pre-Construction Information (70% or 100% design with permits) *These questions relate to the designed and permitted project. Information should include input resulting from permit review process, SEPA, boater safety meetings and any other stakeholders.*

12. Have any answers provided in Section I at the Preliminary Design Phase changed in the interim? If so, provide the new answers and the rationale for the change.

    No Changes

13. What regulatory review or permits are required for the project (e.g. HPA, Clearing and Grading permit, COE permits)? List any conditions or requirements included in the permit approvals relevant to placement of large wood in the project.

The project has received all necessary permits. The project was permitted via the Stream-line JARPA for fish habitat enhancement projects. Compliance with local permits including grading and WA State Shoreline Management Act were completed by S. Bottheim, King County Department of Permitting and Environmental Review, as part of the Streamlined JARPA review process. The Washington Department of Fish and Wildlife issued HPA # 2014-4-136 on 8/26/2014. The project is exempt from further SEPA review per RCW 77.55.181.

14. What specific actions or project elements were employed to address public safety in the final, permit-approved design?

    No additional measures were necessary.

15. Describe how the project team solicited public input on the preliminary design. Describe the input received from the public and how, if appropriate, the project team has responded to this input.

    The project design review included evaluation and input for stakeholders including, the Vashon-Maury Island Land Trust, The King County basin steward, the WRIA technical team, King County Historic Preservation Program staff and local tribes. The project was also presented to the public at the 2014 Projects Involving Large Wood Placement public meetings on June 10, 2014.

16. Describe any additional design modifications or mitigating actions that were or will be taken in response to the public comments.

    No modifications were required.

17. Will further educational or informational materials be made available to the public to heighten awareness of the project (e.g., public meeting, press release, informational website, or temporary or permanent signage posted in the vicinity of the project)? If so, explain.

While not needed for public safety, public outreach is planned as part of the project.

18. If the project is expected to influence the recruitment, mobility or accumulation of natural wood, has a Public Safety Management Plan been completed?

Not applicable

Project Manager — Date: 5/14/2015

Supervising Engineer, Project Supervisor or Unit Manager — Date: 5/14/2015