

# INSTREAM PROJECT CHECKLIST

*For Construction and Maintenance of Flood and Erosion  
Protection Facilities and Habitat Restoration Projects  
that may include large wood elements*

Project Name Lower White River Countyline to A Street project Project Manager Deborah Scheibner\_\_\_\_\_

River/River Mile/Bank RM 4.92 to RM 6.21\_\_\_ Date March 30, 2011

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

*(Provide general information at a conceptual level)*

1. Describe the goals and objectives of the project and its relative importance to the success of DNRP program goals and mandates. (Note: If the project is comprised of emergency work, then fill out and file this form within 30 days of completion of emergency work.)

The proposed project is a combination of property acquisition, levee modification and floodplain restoration along the left bank of the lower White River between the A-Street and Eighth Street bridges in the cities of Pacific and Sumner. The three primary goals of the project include flood hazard reduction by increasing flood conveyance and storage capacity in the project reach; restoring riverine processes and functions to the lower White River and its floodplain within the project area in order to enhance salmonid rearing habitat, in particular for spring and fall Chinook, coho, and steelhead; and designing and constructing a project that best meets the goals and objectives of the project using the most cost-effective means. These goals will be achieved by removing a portion of an existing edge of bank levee and revetment and constructing a setback levee and biorevetment along a floodplain terrace, which will reconnect the main stem White River channel with approximately 85 acres of a forested wetland-floodplain complex. Engineered Log Jams (ELJ's) will be placed in key locations in the forested wetland to deflect and disperse flows to protect adjacent property and infrastructure and areas of potential erosion.

The project is identified in and consistent with the primary objectives of the adopted 2006 King County Flood Hazard Management Plan, as well as the Salmon Habitat Protection and Restoration Strategy for the Puyallup and Chambers/Clover Creek Watersheds ([external link](#), PDF 869KB) - Water Resource Inventory Area 10 and 12.

This project is intended to address several flood hazard related risks identified in the 2006 King County Flood Hazard Management Plan Policy G-2, which include:

- Risk to public safety if residents are caught unaware of flood conditions or attempt to enter or reenter flooded areas;
- Risk to public safety if fire and rescue personnel are called upon to aid those unable or unwilling to evacuate flooded homes;
- Damage to public infrastructure, primarily drainage systems and streets and a flood protection facility; and
- Damage to public structures.

2. Describe the existing (and historic, if relevant) site and reach conditions, including structural features, channel form, and the presence of naturally-deposited large wood.

The White River in the vicinity of the cities Pacific and Sumner is a highly confined alluvial system that is prone to flooding and large amounts of sediment deposition. The project reach is bounded by the A Street and Burlington Northern Santa Fe (BNSF) Railway bridges at the upstream end (River Mile 6.1) and the

Eighth Street Bridge at the downstream end (RM 4.9), and is named the Lower White River Countyline to A Street project as it spans the King-Pierce county boundary.

Edge of bank levees and revetments line both sides of the river throughout the project reach. An existing left bank levee extends southwest approximately 2,800lf from the BNSF Railway bridge where it transitions to a revetment that extends 3,650 lf southwest to Eighth Street Bridge. Landward of the left bank levee is an approximately 85 acre forested wetland comprised primarily of deciduous broadleaf trees of primarily cottonwood with less than 2% conifers. Naturally-deposited large wood in the channel accumulates on the apex' of gravel bars located throughout the project reach. Wood accumulations also occur at the central piers of A-Street Bridge at Eighth Street Bridge. The City of Auburn conducts periodic removal of wood debris that accumulates on the A-Street Bridge.

3. 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?

Floodplain development on the right bank in the immediate vicinity of the project includes residential and commercial development, and recreational uses such as the City of Pacific Park. On the left bank in the immediate vicinity of the left bank floodplain, which will be reconnected with the removal of an existing levee, are parcels in the City of Pacific and the City of Sumner, currently used for agriculture, open space, and light industrial with one private residence at the northeast end of the project site near the BNSF Railway bridge. Nearby schools are located on the left bank upstream of A Street Bridge and include Auburn Riverside High School. Nearby trails include the City of Auburn's paved walking trail through Roegner Park.

Recreational use in the project area is year-round but is limited to passive recreational use (walking, other pedestrian traffic) as access to the left bank levee is limited by the A Street Bridge and BNSF bridge crossing to the north and a single gated access point at the south off Eighth Street, maintained by Pierce County. Properties adjacent to the forested wetland are private. Recreational uses on the right bank include passive recreation at the City of Pacific Park and along the edge of bank levee and revetment.

River recreational use in the project reach is limited due primarily to high turbidity through the year which greatly limits visibility, and relatively cold temperatures due to its source from Mt. Rainier. Recreational use includes kayaking, fishing, boating, and occasional rafting (observed near R Street), which is generally highest in the spring and summer months. Nearby boat access locations (upstream in Auburn) for small water craft include Roegner Park north of Auburn High School, Game Farm Park off R Street, and Game Farm Wilderness Park upstream of R Street (City of Auburn Parks and Recreation). White water kayakers also make use of the Lower White between Buckley and Auburn (listed as Class II by American Whitewater), with launch points at the parks listed, and also at R Street Bridge and A Street Bridge (americanwhitewater.org).

4. 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.

By removing the edge of bank levee and bank hardening along the revetment, the project will reconnect the main stem channel with the forested wetland, increasing flood conveyance capacity and reducing flood elevations in the project reach. The landward boundary between the forested wetland and the developed land to the east is an irregularly shaped terrace edge. A 5,186 lf biorevetment will be constructed along the wetland terrace. The biorevetment will be constructed into the bank of the wetland terrace with pilings providing lateral support and key logs, and racking material which will be in contact with moving water at a range of flows. Wood slash will be packed into the interstices of the key logs and racking to prevent piping of granular fill and ballast from the embankment.

Six engineered log jams (ELJ's) will be strategically placed in the wetland complex. The ELJ's are clustered in two locations with three ELJ's at the north end of the forested wetland to protect adjacent buildings and three ELJ's at the south end to protect the left bank terrace and adjacent commercial properties. Each ELJ is approximately 90 feet in width and 85 feet in length and is constructed using timber piles, key structural logs with and without root wads, racking logs, wood slash material interlaced between key logs to prevent piping of ballast in the interior, and select fill used as ballast material in the interior. The backfill zone of each log jam will be topped with topsoil mulch and plantings.

5. What is the intended 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 woody debris that may be floating in the river?

The biorevetment will be constructed along the wetland terrace to prevent erosion of the terrace edge and protect the setback levee and adjacent properties. The six engineered log jams (ELJ's) will be strategically placed in the wetland complex to deflect and split flows away from areas of high erosive impact and protect developed properties on the left bank during flood flows as well as collect downed wood recruited from the site and upstream areas. The biorevetment and ELJ's provide critical elements of the project design to meet two project goals: 1) Prevent an increase in flood hazards outside of the project area due to the project, and reducing flood hazards, and 2) Restore riverine processes and function to the lower White River and its floodplain within the project area (inside the levees) in order to enhance salmonid rearing habitat, in particular for spring and fall Chinook, coho, and steelhead.

6. Describe how public safety considerations have been incorporated into the project design [see section 1.B.2 of Ordinance 16581] and include a description of how the six (6) key steps provided in Public Rule LUD 12-1, Appendix A. (Rule) Section V.2.A. i)-vi) have been addressed.

Public safety considerations during conceptual design included limiting placement of wood elements in the forested floodplain of the project to only those locations required for flood hazard reduction and excluding the use of engineered wood installations in the active channel. Preliminary hydraulic modeling results indicate that velocities of flow through the project reach are expected to be relatively slow and deep as compared to the flow in the active channel. The six steps are addressed below:

- i) Information on recreational usage of the Lower White River, including types of usage and launch locations was gathered from the City of Pacific, City of Auburn Parks and Recreation Department, American Whitewater, and anecdotal information.
- ii) The location, orientation, elevation and size of the wood placements were considered with respect to known recreational use on the Lower White River. Further detailed hydraulic modeling will be used to refine the design of wood elements during 60% design including the preferred method for hardware (e.g. chaining) that may be used to connect logs to piles and other logs. Two public meetings scheduled for May 2011 will be used to present the conceptual design and gather feedback before initiating 60% design of wood elements.
- iii) The conceptual design process for the biorevetment and ELJ's included a review of project goals and objectives and development of project constraints and opportunities with respect to recreational usage in the reach.
- iv) Herrera Environmental Consultants were retained for the design of the biorevetment and ELJ's. They have specific experience and expertise in this field including numerous constructed engineered log

structures in similar riverine environments from which to draw experience from. Conceptual designs submitted by the consultant were reviewed by the King County project design team. The same consultant will be completing final design of the engineered wood structures in the project.

- v) Plans and analyses for all engineered wood elements were reviewed by Licensed Professional Engineers at Herrera and King County during conceptual design. Licensed Professional Engineers at Herrera and King County will review all interim and final designs.
- vi) Sarah McCarthy, senior ecologist for the Green and White River basins, was assigned to the King County design team and has been actively involved in the development of the project concept. She is an integral part of the design team, and worked collaboratively with the consultant and King County's design team during the conceptual design development and review process for the engineered wood structures and will continue to be assigned to the project through final design.

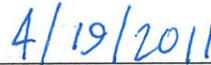
7. What is the anticipated schedule for completing project milestones (30-40% design, final design, major construction/earthmoving) and for soliciting public input)?

Project milestones are summarized below:

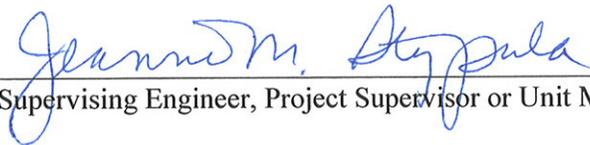
40% conceptual design, plans, and engineers estimate	April 2011
Recreational safety public meeting	May 2011
60% plans, specifications and engineers estimate	October 2011
90% plans, specifications and engineers estimate	February 2012
100% plans, specifications and engineers estimate	May 2012
Construction Year 1	May 2013-October 2013
Construction Year 2	May 2014-October 2014



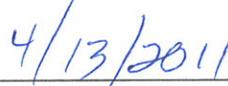
Project Manager



Date



Supervising Engineer, Project Supervisor or Unit Manager



Date

**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*