

# 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: The Circle River Ranch Risk Reduction      Project Manager: Ashagrie Gelaw  
River/River Mile/Bank: SF Snoqualmie / RM 1.42 - 1.49/ Right Bank      Date: August 17, 2023

Check one or both:

- Project includes placement of large wood elements.
- 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.**

Strategy and objectives for the Circle River Ranch Flood Risk Reduction Project were developed as part of the South Fork Snoqualmie River Capital Investment Strategy (CIS). The CIS identified homes and infrastructure at risk from erosion and flooding associated with the river's migration into a new side channel closer to residential development. The project area includes the residential area located on the right bank of the South Fork Snoqualmie River between River Mile (RM) 1.3 and 1.6.

**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 goal of the project is to protect neighborhood homes downstream of the project site. The Circle River Ranch Flood Risk Reduction Project will repair the damage to the upstream end of the existing revetment (at approximately 10119 416th Ave SE) through construction of a buried setback revetment, approximately the same length as the damaged area. The buried setback revetment will provide added erosion protection to the properties downstream from the repair site.

The project is funded by the King County Flood Control District. Constraints on project implementation include:

- The need for multiple permits which may require lengthy review and approval processes.
- Construction management will need to ensure that impacts to two very close neighbors are minimized.

- 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.**

The South Fork Snoqualmie River valley in the Circle River Ranch area is part of the upper Snoqualmie River valley, a large, unconfined composite alluvial fan underlain by hundreds of feet of stream sediments deposited by the three forks of the Snoqualmie River. Historically, the South Fork Snoqualmie River had a meandering, multi-channel form downstream from RM 7, actively migrating back and forth and storing sediment across the floodplain. The South Fork channel in the study area has migrated across the floodplain for thousands of years. There is extensive wood accumulation upstream of the project area both in the main river and side channel.

A section at the upstream end of the revetment was damaged as result of flooding. Upstream of the revetment, where the downstream end of a side channel meets the main channel, is an area known as the “fishhook” (RM 1.5) due to the sharp meander bend (hairpin turn) forming the shape of a “fishhook” when viewed from above. The embankment landward of the “fishhook” appears to be partially composed of a clay lens and therefore may be more resistant to erosion than other substrates. This causes the sharp hairpin turn in the channel, and the right bank is undercut and armored with a private riprap revetment. However, based on geotechnical explorations, the clay layer is likely localized to the fishhook, but the full extent of the clay layer is unknown. Predominate salmonid species in the Upper Snoqualmie River system and south Fork Snoqualmie River include coastal cutthroat trout (*Oncorhynchus clarki clarki*), rainbow trout (*O. Mykiss*), westslope cutthroat trout (*O. clarki lewisi*), and and mountain whitefish (*Prosopium williamsoni*). Other fish species present include largescale sucker (*Catostomus macrocheilus*), longnose dace (*Rhinichthys cataractae*), western brook lamprey (*Lampetra richardsoni*), and several sculpin species (*cottidf*).

- 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?**

Properties adjacent to this right bank project are zoned for rural residential use with a density of 10 unit per 5-acre parcel (RA- 10). There are five parcels with homes in addition to the King County owned parcel behind and downstream from the Circle River Ranch revetment. Across the river is an open space called the Meadowbrook Farm which is owned by the City of North Bend.

The South Fork Snoqualmie River is used for small boats, rafts and tubes. Floating the river in tubes or small rafts is limited to summer recreational activity, mostly by residents of North Bend.

- 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.**

Two ballasted logs with rootward will be embedded below the Ordinary HighWater Level (OHW) in the setback revetment which is approximately 30 feet away from existing bank of the river. Moreover, one log with rootward will also be attached to the existing revetment at the repair section. This log may be moved by flood or may recruit more wood during high flood.

- 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 intended function of the attached log on the bank of the existing revetment and the two ballasted logs imbedded in the setback revetment is to enhance habitat at the project area if the mainstem of river continues to erode at the project site and engages the buried setback revetment. As the two imbedded logs in the setback revetment will be placed lower than the OHW level the project is not intended to recruit or trap additional large wood.

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.**

Current patterns of wood mobility or accumulation are not likely to change as a result of the project.

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;**

Floating the South Fork Snoqualmie River particularly around the project area in tubes or small rafts is not a common recreational activity.

- b. **Wood location, positioning, and anchoring techniques;**

The two ballasted logs will be imbedded in the setback revetment at OHW level, and a single log will be attached at the bank of the existing revetment with the root wad pointing river ward.

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

Public safety has been a design consideration from the beginning of project design. The current design strives to use wood to reduce erosion risks and improve habitat while minimizing potential public safety risks to recreational floaters.

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

The project team consists of licensed professional engineers, ecologists, and engineering geologists utilizing established and recognized design methods for these types of projects.

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?**

Tetra Tech consulting firm is providing the lead design engineer for the project, who will stamp the final design plans. Reviews are being done by a team of licensed engineers, geologists, and geomorphologists that includes Ashagrie Gelaw, and Chase Barton, P.E. All reviews and approvals of the 30% design have been completed.

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

The project has been reviewed by John Klochak (Project Ecologist) and Matt Knox (Supervising Ecologist) to evaluate the design with regard to project goals, environmental regulations, and expected permit conditions. 30% design of the project has recently been completed and approved, final design is anticipated to be complete in the second quarter of 2024, and construction is scheduled to take place in the third quarter of 2024 (from mid-August to mid-September). Public input will continue to be solicited at appropriate stages in the design process, including at the 30% design stage via posting of this Project Design Checklist and the 30% design plans.

*Ashagrie Gelaw*

Project Manager

08/18/2023

Date

*Chase Barton*

Supervising Engineer, Project Supervisor or Unit Manager

8/22/23

Date