King County

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: Mason Thorson Extension Repair – 2011 Project Manager: Mark Ruebel

River/River Mile/Bank: Middle Fork Snoqualmie/RM 1.5/Left Bank Date: June 7, 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 goal of this project is to repair damages to the upstream end of the Mason Thorson Extension Levee sustained during the high flow events of the past winter. This repair is needed in order for the levee to function as originally designed and to limit the potential for progression of the damages during future high flow events with resulting risk to public safety and/or potential significantly higher repair costs.

The design includes reconstruction of the eroded bank by installation of several layers of coir wrapped soil lifts, installation of large wood embedded into the toe of the levee at the waterline, installation of angular and rounded rocks, and planting the repaired area with willow stakes and cottonwood trees. The large wood will provide the hydraulic function of locally reducing velocities near the toe of the levee.

The project is consistent with two (1 and 2) of the three principal goals of the 2006 Flood Hazard Management Plan. The goals are: 1. To reduce the risks from flood and channel migration hazards. 2. To avoid or minimize the environmental impacts of flood hazard management. 3. To reduce the long-term costs of flood hazard management. The third goal is being addressed through long-term planning of a management strategy for the Middle Fork Snoqualmie including this reach. This longer term strategy is expected to result in a coordinated set of capital projects to improve the effectiveness of flood hazard protection facilities along the Middle Fork.

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 site is located along the west bank of the Middle Fork Snoqualmie River at River Mile 1.5. This location is near the east margin of the river's historic alluvial fan after it exits a more confined reach near Tanner. The reach historically had abundant large wood which was almost entirely removed during the early and mid 1900's to facilitate logging. Additional snagging was done during the middle of the century and evidence from local landowners suggests that this activity continued through the 1970's and 1980's. In the recent past, single pieces of naturally recruited wood often occur in this reach as well as several isolated logjams.

The Mason Thorson Extension Levee is aligned along the left bank of the Middle Fork Snoqualmie to restrict westward migration of the river channel. This alignment has resulted in repetitive damage to the levee particularly at the upstream end during the last couple of years. Large wood was installed as part of a repair project in the 1990's in the Mason Thorson Extension levee approximately 200 feet downstream from the current damage site.

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?

The levee is located on private property in a low density residential area in unincorporated King County near the City of North Bend. The right bank of the river borders the Mount Si Natural Resources Conservation Area.

According to American Whitewater, this section of the Middle Fork from Tanner to North Bend, the Club Stretch, is popular with beginner whitewater boaters. The upper part of this reach is often used for kayaking instruction with the typical take-out at the Blue Hole approximately one half of a mile upstream of the site. Typical put-ins include: Tanner, Mt Si Bridge, and Mason Thorson Ells (Blue Hole). King County's Three Forks Natural Area is located 1.5 miles downstream. Use is moderate during fall, winter and spring for kayak training classes and other recreational kayaking. American Whitewater references that kayakers often take-out at Blue Hole rather than float the lower reaches which are mostly free of whitewater.

Medium to High use is indicated by MacIlroy (2009) for swimmers, waders and floaters, primarily during the summer. MacIlroy points out that the level of and extent of recreational use is uncertain between Blue Hole and the Three Forks Natural Area.

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.

The preliminary (30%) design includes four 24-inch diameter, 25-foot logs with rootwads and two deflector logs with the same dimensions and no rootwads. The logs will be placed in the toe of the levee along the 70 foot scour length of the project site. The deflector logs will be placed at the upstream end of each group of logs with rootwads and at the same elevation to serve as a means for recreational users to navigate around the rootwads.

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 logs will serve to locally reduce flow velocities and reduce erosion potential at the toe of the facility. They will also provide hydraulic diversity for fish and aquatic organism use. The project is not intended to recruit woody debris at this site.

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.

The placement of the logs is designed to protect the levee as well as be compatible with boaters and floaters using the river for recreation.The six key steps are addressed here:

i. The design team gathered data from the American Whitewater website and the recreation report completed by Carol MacIlroy in 2009. A characterization of recreational use based on these sources is described in response #3 above.
ii. The location, orientation, elevation and size of wood placement were considered with respect to the known recreational uses of the river section. Further design work will include determining the method of anchoring for the logs. Input from the public comments will be considered during further design work.
iii. The conceptual design process included a review of the project goals and objectives as well as a consideration of the recreational use of the river on the Middle Fork Snoqualmie. While the log placement is designed to reduce erosion of the levee toe, the deflector logs are specifically designed to protect recreational users from being swept into the rootwads, allowing them an opportunity to push off the wood and move towards the center of the channel.
iv. The design team includes several engineers with extensive design experience and construction experience of facilities along rivers. The team also includes a river ecologist and a licensed geologist with experience in river and floodplain management design and construction.
v. The team's engineers who design the project and who review the design are Licensed Professional Civil Engineers in the state of Washington.
vi. The team ecologist is consulted during the design and will undergo review of the design to ensure that habitat objectives can be met while addressing public safety concerns.

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

The schedule for completion of the 30% design was met in May 2011. Public input was received during the Large Wood Public Meetings on May 10 and 11th, 2011. Additional comments can be submitted directly to the project manager of the project, Mark Ruebel P.E, until June 21, 2011. Comments will be considered and incorporated as appropriately in to the final design.

Final design is planned to be complete on July 15, 2011.

Construction is planned for August 2011 during the in-water work window for the Middle Fork Snoqualmie River.

6-7-11

Project Manager Date

6-7-11

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*

8. 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.

9. The Rule requires project review and approval by a Licensed Professional Civil Engineer. The Engineer will ensure appropriate application of engineering studies and design standards. Describe the design review and approval process for the project, including review by the licensed professional engineer, as well as reviews by other licensed technical staff such as 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. Was the review and approval completed?

10. The Rule requires project review and approval 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. The Ecologist will 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? Please describe steps undertaken by the Ecologist.

11. 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.

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

13. Describe how the Public Outreach requirements in Rule Section V.3. have been addressed.?

14. Describe the input received from the public and how, if appropriate, the project team has responded to this input.

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

16. 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.

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Project Manager Date

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Supervising Engineer, Project Supervisor or Unit Manager Date

III. Post-Construction Actions or Project Modifications

17. Have any answers provided in Sections I and II at the Preliminary design and Pre-Construction phases changed in the interim? If so, provide the new answers and the rationale for the change.

18. In accordance with the requirements of Rule Section V.4.,describe post-construction monitoring and inspection activities planned for the project.

19. If post construction monitoring or inspections result in modifications to the project, please describe the action taken and the rationale (See Rule Section V.4.).

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Project Manager Date

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Supervising Engineer, Project Supervisor or Unit Manager Date