
PROJECT: 20-1090 R, Skookum Creek RM 6.5 Restoration

Sponsor: South Puget Sound SEG Program: SALMON ST PROJ Status: Application Complete

MEETING: Initial Review

Shared: 7/27/2020

Review Status: Needs more information

Considerations: Other

Topics	Comments
Review Status - Initial	
	Design report needed to review Preliminary Design Plan set
Review Panel Comments - Initial	
Questions (response required)	
	What is the long-term maintenance and funding plan for managing RCG and blackberries following completion of project? Please provide information about invasive species treatment tools that will be used throughout the project site. ASN where (GW channel, upstream in pasture...)

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Reply: As shared by Sarah Zaniewski during the virtual site visit call, the Tribe is committed to long-term stewardship of this property, which they own. The Tribe has been successful in the past at obtaining grants specifically for treating invasive species and maintaining riparian plantings. One such grant source has been Bureau of Indian Affairs tribal grants for native plantings. The Tribe expects to continue procuring funding and implementing riparian and invasive maintenance actions on this site beyond the period of this grant. For the active period of this grant, there is funding built into the budget to conduct initial removal and treatment of non-native, invasive vegetation throughout the project site, to plant native trees, and then to conduct maintenance to control invasive vegetation and care for native plantings.

Specific invasive vegetation treatment tools to be used are as follows:

- Groundwater Channels (downstream end): Reed canary grass sod and roots will be removed mechanically within the groundwater channels and along their edges. Judicious and limited use of herbicide will be used to treat additional reed canary grass in the adjacent areas. Native, woody species including willow will be planted into reed canary dominated areas adjacent to the channels. Continued maintenance in this zone may include herbicide application one time per year for up to three years and/or mechanical treatment to reduce grass competition on native species. Complete, long-term eradication of reed canary grass is likely unrealistic for this site (as with most sites), and so the goal is short term control to allow scour channels to form in the groundwater channels, and for native species to become self-sustaining.
- Riparian Corridor along creek (middle section): Blackberry will be mechanically removed from this section, prior to and concurrent with LWD placement. After the initial removal, root grubbing and continued removal of re-sprouting blackberry will occur for up to one season. Once most of the blackberry is gone, native trees will be planted in the riparian corridor. Follow-up maintenance will then occur seasonally for up to four years which may include mechanical removal or mowing of blackberry and grasses around native trees.
- Grass pasture (upstream end of site): In this field tree rows or rings will be initially prepared by tilling and disking the pasture grass multiple times to deplete root energy, followed by planting of a cover crop to reduce weed reoccurrence. Once native trees have been planted, yearly maintenance to reduce grass competition may include selective use of herbicide (seedling release) once per year and/or mowing and manual removal of grass sod.

Please explain why design shows placement of rootwads on bank rather than in the channel which is how large wood naturally deposits during flood events and provides a greater amount of scour than the trunk.

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	<p>Reply: We submit here the concept that not all large wood naturally orients with the root wads in the stream. "Key Pieces" sometimes include large trees that fall over with the trunk into or across the stream and the root wad remaining above BFW. These types of key pieces often provide the foundation for log jams or accumulations of logs that form in-stream wood complexes. However, we acknowledge that root wads do also orient into the stream sometimes and that this orientation is also often used in restoration because of the benefits the root wads provide. In this case, the placement technique for the LWD deviates from the often used technique of driving in, or digging in, large piles to secure the key pieces and root wads. Rather, this design utilizes existing riparian trees, in combination with groupings of other placed logs, to anchor the wood using low impact techniques and not requiring the placement of piles (except for the two racking structures), which is often highly disturbing to the stream and riparian area. In this manner, the design allows for the placement of many pieces of wood throughout the reach, which is an often sought after outcome that is not easily achieved by building single "jams". The root wads that are to be placed upland of the stream are providing mass that performs the function of anchoring the trunks and resisting shear tension that will move the logs.</p> <p>The designs have also been updated to include more rootwads in the stream.</p> <p>Additionally, the design approach used here is loosely modeled after other projects completed by the engineering team. Specifically, a project on the Teanaway River utilized this approach. See Design Report.</p>
Improvements to Make Project Technically Sound (response required)	
	<p>Add maps of spawning locations through time in the reach to identify any potential "hot spots" for spawning that are used year after year. This is a WDFW index reach for spawner surveys so it likely has high levels of use through time.</p>
	<p>Reply: A graph showing chum escapement numbers over time has been attached. According to WDFW and the Squaxin Island Tribe, maps of specific redds or hot spots do not exist.</p>
	<p>Please label the ground water channels more clearly on the design map. Add a legend to the plan set.</p>
	<p>Reply: This has been added to the designs.</p>
	<p>Add a statement about the temperature gradient throughout Skookum Creek and why this section may or may not be thermally limited.</p>

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	<p>Reply: We have attached a report of an aerial Thermal Infrared (TIR) survey of Skookum Creek that was conducted in August of 2004. The longitudinal profile of summer temperatures shows the project reach at RM 6.5 had temps. less between 16 and 17 degrees celsius. The 2 mile reach upstream of the project site had cooler temps., while the downstream reaches warmed rapidly as the stream moved into the open agricultural fields and areas with poor canopy cover. Thus, in terms of temperature the project site is in a transitional area between the coldest section of the creek and those with the warmest temperatures.</p> <p>While temperature improvements are not a primary goal of this project, we expect that the LWD treatments and improvements to the long-term riparian condition could lead to slightly decreased temperatures in the project area. Additionally, the protection of, and improvements to the groundwater rearing channels on the project site will contribute to conditions favorable for salmonids at the site scale as well as for adjacent downstream areas.</p>
	<p>Add information about approach to landowners on adjacent properties. When/how will contact be made with these land owners?</p>
	<p>Reply: There isn't currently a direct connection with adjacent landowners. Conducting outreach and determining what actions might be feasible on those properties will take some time and capacity. This work is considered a future phase of potential work in the valley. However, our hope is to begin this outreach work during the upcoming work planned for this site.</p>
	<p>Add some information on the context (map) of this project with other projects in the watershed. How are the efforts connected and complimenting each other?</p>
	<p>Reply: Attached in Prism is a map showing concepts for multiple project sites throughout the valley. This map was part of an initial planning effort by the Tribe to identify restoration and protection concepts. Created by Waterfall Engineering, the concept map shows the major and minor projects that are being targeted for salmon and environmental recovery. Projects #1 and #11 (This proposal) on the map represent both of SPSSEG's grant proposals for Skookum Creek in 2020 and are also the most downstream and upstream projects, respectively (This project at RM 6.5 is the last one shown upstream). We have added annotations to the concept map showing the two grant proposals for this year as well as two prior completed projects near RM 1 and 1.5. Annotations are shown in red callout boxes. One of the larger projects shown on this map is at the "Skookum Ranch" site near RM 3. This is a large property with a significant length of Skookum Creek, many wetlands, floodplain, and riparian areas which has been acquired by the Squaxin Island Tribe partially with SRFB/RCO funds. Planning effortst are underway to conduct large scale restoration on the that site.</p> <p>And so the concept map shows the spectrum of completed projects, in-process projects, and planned projects. Our two proposals for Skookum Creek in this 2020 grant round will occur on tribally owned properties that will afford conservation protection to the projects and these projects will contribute to the broader, comprehensive plan to restore the watershed.</p> <p>Additionally, we have also attached a summary of the "Skookum Watershed Summit", an earlier meeting hosted by the Tribe which gathered professionals of various capacities who are helping to craft the restoration vision for Skookum Creek. Included within this document is a treasure trove of ecological and physical data about the watershed and planned restoration efforts.</p>

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MEETING: Final Review

Shared: 7/27/2020

Review Status: Conditioned

Considerations:**Conditions:**

The review panel will review final designs before moving to construction. Modeling included in final design process will include HEC RAS 2D modeling of proposed conditions to assess predicted floodplain connectivity between station 5+00 and station 14+00.

Topics	Comments
Review Panel Comments - Final	
General Comments	
	The preliminary design relies on the use of wood structures to aggrade the channel and reconnect the floodplain. Substantial low-lying areas are present between stations 5+00 and 14+00 in the 2-HEC RAS model of the existing conditions. These areas would be great to reconnect with the instream flow to achieve the floodplain connectivity goals. Modeling of the proposed conditions is needed to assess the level of connection that is likely to be achieved as part of this project action.