Project Review Comments

PROJECT: 21-1079 R, Uncle Henry's Lake Elochoman River Restoration

Sponsor: Wahkiakum Conservation Dist Program: SALMON ST PROJ Status: Application Resubmitted

MEETING: Initial Review

Shared: 4/2/2021

Review Status: Needs more information

Considerations:

Topics	Comments
Review Panel Comments - Initial	
Questions (response required)	
	Was there any type of alternatives analysis conducted to evaluate opportunities for more extensive process-based restoration work?
	Reply: We explored several alternatives with the landowners. We completed a project last hydraulic window that functioned beautifully through several high waters last winter. Both landowners have been quite impressed with the function of that project and are quite open to continuing the work onto their ownerships.
	What is the potential for restoration of the eastern floodplain side channel that is on the back side of the proposed 9-acre Florek riparian restoration work?
	Reply: I believe Steve referenced the side channel in the presentation. I did not have LIDAR in front of me at the time and thought he was referring to a relic side channel that we had surveyed in the field during the Bortner project. He was correct in that the eastern floodplain side channel is the side channel we are proposing to improve. A Lidar screen shot is attached to PRISM illustrating this channel.
Improvements to Make Project Technically Sound (response required)	
	The project sponsor should include a LiDAR bare-earth shaded relief of the Uncle Henry project area to help show the geomorphic characteristics of the site. A simple screenshot of the project area from the Washington Department of Natural Resources LiDAR portal would be satisfactory.
	Reply: It is attached in PRISM.
	Please provide more details on the budgeted tasks related to surface and hydrologic modeling. What type of models will be used and what will be analyzed? The Review Panel recommends the use of a 2-D HEC-RAS-type of hydrological model. We would also recommend conducting a wood stability analysis to help identify stable key piece sizes.
	Reply: We will likely import LIDAR into a 2-D version of HEC-RAS. We run a stability analysis on the wood structures we propose to install and then rerun that analysis on the as-built structure. The wood stability analysis is intriguing. We have observed old growth logs up to 70 feet in length mobilized within the system during the 1996, 2006, and 2009 flood flows. We salvage several old growth cedar and fir logs and repurposed them within the Elkinton project. Wood is dynamic and mobile, WDFW permit requirement of withstanding the 100-year flood event results in emphasis being placed on anchoring proposed structure. We tend to favor channel margin structures with log ends buried in the streambank the majority of their length. Equally effective, for us, has been the use of vertical pile. However in the Elochoman ability to effectively install pile is limited without specialized equipment. We will use the largest wood available and fit the anchoring needs accordingly.

	Please provide more information on the rate of bank erosion on the right bank where mechanical shaping of the bank and log structures are being proposed.
	Reply: The rate of bank erosion along the right bank is not tremendous on an annual basis. We have observed sections of bank calving off about 3-5 during flood flows. The bank shaping is being proposed more to allow root strength to be establish along the river and to reduce the opportunity for excessive erosion during flood events in order to ensure successful establishment of trees and shrubs that will restore riparian function.
	Please provide more details on the current connectivity of the right bank 'side channel' and the flows at which the side channel is activated. The 'side channel' appears to be part of the mainstem river and regularly flooded by high flows. How much of an increase in habitat quantity is expected with the proposed work in the 'side channel'?
	Reply: During the 2020-21 winter flows three events were observed that engage the proposed side channel (left bank). During more typical years the channel may only be engaged once. During more typical winter flows the channel aggrades with sediment and is infrequently engaged. The side channel that was installed as part of the Bortner project was engaged all winter long and was highly utilized. We are proposing to increase connectivty to this side channel and install wood to assist in local scour that will help maintain connectivity. This type of habitat is woefully lacking in the watershed.
	The application states that 16 habitat structures will be placed in the Elochoman River, but the cost estimate has a quantity of 24 structures. Please clarify the actual number of structures being constructed and ensure that the current cost estimate is accurate.
	Reply: The cost estimate is accurate and includes structures proposed within the side channel.
	Please elaborate on SMART objectives to identify biological goals that are specific and measurable (e.g., reduce invasive species area by 90% , reconnect at least 500 feet of side channel length, add at least 200 conifer trees per acre of riparian area). The current objectives are simply implementation goals.
	Reply: Installation of 16 wood based structure to promote channel margin habitat within the Elochoman River. Installation of 8 wood based structures to promote in stream habitat within side channel habitat. Afforestation of about 2 acres of open field to restore riparian function by planting the site on an approximate 10 foot spacing (436 trees per acre) Reforestation with shade tolerant species into canopy gaps to bring riparian buffers to a fully stocked condition and increase the conifer composition of the buffer on about 22 acres. Improve connectivity and habitat quality of 650 feet of side channel habitat. Shape about 670 feet of the right bank of the Elochoman River to reduce fine sediment deliver and to allow effective establishment of riparian vegetation.
	The proposed wood barb structures appear to be very small relative to the size of the Elochoman River. The project would be strengthened by considering more robust debris jams/engineered log jams and engaging more of the left-bank floodplain area. The 'side channel' referenced in the application appears to be part of the mainstem channel, while the left bank includes a true floodplain side channel that likely could be engaged on a more frequent basis with minimal restoration work.

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	Reply: The project is proposed based upon the project recently completed at the adjoining Bortner site. This project has met our objectives and is functioning beautifully. The same type of structure is being proposed and has proven very effective at increasing habitat along the channel margin during typical winter flows up to the three bank full events witnessed during winter 2020-2021. These structures held resident fish during summer low flow, adults migrating upstream, fish attempting to get out of flood flows, as well as providing rearing for juveniles.
General Comments (response not required)	
	The strength of the project is the on-going Elochoman Community Watershed work that links many smaller projects into a larger strategy of salmon habitat restoration on private agricultural lands.
	Reply: We appreciate recognition of the District's efforts and nuances of working with non-industrial private owners.

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MEETING: LE Review

Shared: 4/15/2021

Topics	Comments
Lead Entity Comments	
Questions For Applicant	
	Include details on the rationale for excluding the wall-based channel from the proposal.
	Reply: The original project concept included opening some or all of an historic wall-based channel at the upstream end of the project reach along the left bank of the Elochoman River. The area of interest has evolved into a tributary system which is located almost entirely on a neighboring parcel. The landowner is interested in meeting with us to assess opportunities but after he works through the regulatory process for improving his bridge access to the property. Therefore, the opportunity will be assessed for a future project within the Elochoman River Community Watershed project.
	Are there any restoration opportunities at the gravel ponds? Restored gravel mines have been demonstrated to support overwintering coho.
	Reply: There may be restoration opportunity within the gravel mine ponds. However, the outflow is ephemeral and only starts flowing after fall rains begin. Outflow does not occur until the pond stafe reaches the outlet overflow. This may or may not coincide with Coho migration into the basin. We will begin working with the Bedell's (owners of lower pond and outlet creek) to assess any opportunities to get fish into the ponds. Uncle Henry's Lake and the Bedells have have expressed concerns for sediment build up within the ponds and connectivity to the river during flood flows. Their concerns include the river avulsing to occupy the ponds. The primary opportunity appears to be ensuring connectivity with the Elochoman River through the outflow channel.
	What is the condition of the left bank side channel on the back side of the nine acre riparian restoration area? Lidar imagery of this area will support a more thorough review.
	Reply: I believe Steve brought up a LIDAR image and questioned the side channel location. You were right, I had help with the map and the conceptual side channel is in the wrong location. They illustrated a channel visible on the aerial photo. The true proposed side channel is further to the East. There is actually a third scar that my technicians surveyed that would be to difficult to develop and connect. I have attached a screen shot of LIDAR image.
	What is the condition of the side channels in the project area, and restoration opportunities for these habitats?
	Reply: We created a side channel along the lower right bank bar deposit last hydraulic window. It was highly utilized last winter. We have plans to manage the upstream connection with the Elochoman to ensure longevity this hydraulic window. The proposed side channel is currently connected at about the 2-year flood flow. Within the side channel the substrate is impacted by fine sediment accumulation which will be alleviated through increased connectivity and the placement of wood to increase local scour.
	It would be helpful to identify the Channel Migration Zone through the project reach to help reviewers better understand where the river historically has been and may be in the

	future.
	Reply: The channel migration zone used to extend about a mile to the west to the base of the hill. Channel scars are evident throughout the fields. This of course has been limited to the state highway (Elochoman Valley Road) today. The migration zone to the East is limited due to hillslope in the Upper half of the project reach. In the Lower half it would extend to the hillside at the east end of the gravel pits. Downstream of the gravel pits, channel migration is effectively limited by residential development.
	Providing better historical and geomorphic context would help in understanding how landowner-led project opportunities relate to salmon restoration needs.
	Reply: I am not sure what is being sought with this question/comment. Our work in the Elochoman is District Led with landowner collaborators. The historical and geomorphic context begins with pre white man, and the river was unconfined, multi-thread with wetland habitats bordering the river. The river was basically confined to the east wall and a highway installed resulting in a confined, single thread channel with very limited room to migrate. Anytime the river encroaches on the highway or a residence, steps are taken to halt the encroachment typically using rock armor. The district uses the salmon recovery plan and habitat strategy when working with landowners to essentially broker the best possible project for the site. The salmon recovery plan recognizes the watershed-based processes that have been impaired and the district attempts to connect all the project dots to address these processes.
	Include a Lidar map to provide greater watershed context for proposed work. DNR has data available on their website.
	Reply: A lidar image has been attached to PRISM.
General Comments	
	This is another example of the great relationship building the Conservation District has achieved with rural landowners in key salmon recovery watersheds.