

Restoration, Acquisition, and Combination Project Proposal

Project Number	15-1165
Project Name	Pressentin Park Restoration Phase 2 and 3
Sponsor	Skagit Fisheries Enhancement Group

List all related projects previously funded or reviewed by RCO:

Project # or Name	Status	Status of Prior Phase Deliverables and Relationship to Current Proposal?
13-1055	In progress	Pressentin Park Side Channel Feasibility

If previous project was not funded, describe how the current proposal differs from the original.

1. Project Location.

Pressentin Park is located at in Skagit County at 60060 State Route 20 in Marblemount, WA 98237. The park is on the Upper Skagit River including on-site side-channels and is adjacent the mouth of the Cascade River.

2. Brief Project Summary.

The Pressentin Park Project will enhance historic and existing side channel habitat in Pressentin Park, located in Marblemount, WA. Pressentin Park is part of the Skagit County Parks system and is largely undeveloped, providing open space and hiking trails for local residents. The park contains both existing functional side channel habitat as well as a relic Skagit River Channel that was likely active prior to construction of the Highway 20 bridge and development of Seattle City Lights hydroelectric projects, which resulted in flow controls and flood reduction starting in 1925. The proposed project focuses on restoring and reconnecting the relic side channel to re-establish floodplain habitat at the site that can be activated by the current flow regime and provide increase salmon habitat for Chinook, steelhead chum and other salmonid species. This proposal represents Phase 2 (Final Design) and Phase 3 (Construction) of the project.

3. Problems Statement.

A. Describe the problem including the source and scale.

The Upper Skagit River floodplain has 2,473 hectares of floodplain with 48% isolated or impaired by roads, hydro-modifications, or other floodplain structures (SRSC and WDFW 2005). Flood control has also affected the connectivity of floodplain habitats by reducing peak flows in the watershed. Floodplain habitats associated with the Skagit River provide critical freshwater rearing habitat for juvenile salmonids, but are a relatively rare habitat type in the upper Skagit River. The 2005 Chinook Recovery Plan indicated that there is very little natural off-channel or backwater habitat in the two kilometer reach of the Skagit River just upstream from the bridge in Marblemount.

Pressentin Park contains one currently active floodplain channel, as well as an historic channel that has been disconnected from the Skagit River by filling at the inlet and outlet and by reduced high

flows. Side channels are formed as the mainstem river migrates back and forth across the floodplain. When the river abandons part of its channel that area slowly fills with sediment, but continues to transmit flow both via groundwater along the former channel bed, and during floods when water in the mainstem is high enough to reoccupy the old river corridor. Small tributary streams flowing off the valley sideslopes also frequently intersect then flow along these old river channels before joining the mainstem. All of these factors mean that habitats associated with such channels are relatively stable in terms of sediment transport and temperature, lower velocity and often less turbid than the mainstem, and highly complex with a mix of habitat types. As such they are extremely important habitat for juvenile Chinook, steelhead and other salmon species.

B. List the fish resources present at the site and targeted by your project.

The Skagit River in the vicinity of Pressentin Park supports Upper Skagit summer Chinook and upper Cascade Spring Chinook (SRSC and WDFW 2005) as well as coho, chum, and pink salmon. The area also supports ESA-listed steelhead and bull trout as well as sea-run cutthroat trout. The currently active side channel within Pressentin Park is known to support high densities of chum spawning; in 2014 over 100 chum redds were documented there.

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	Endangered Species Act Coverage (Y/N)
Chinook	Egg, juvenile, adult	Decline	Y
Steelhead	Egg, juvenile, adult	Decline	Y
Bull Trout	Egg, juvenile, adult	Decline	Y
Coho	Egg, juvenile, adult	Decline	N
Chum	Egg, juvenile, adult	Stable	N
Pink	Egg, juvenile, adult	Stable	N

C. Describe the limiting factors, and limiting life stages (by fish species) that your project expects to address.

Juvenile steelhead, and some stocks of Chinook overwinter in the Skagit system. During this time juvenile fish often enter off-channel habitats to find food, escape high flow velocities in the mainstem, and avoid turbid water. Recent research in the Skagit basin suggests that juvenile stream-type Chinook may prefer large side channels with relatively small substrate in the winter (Lowery, pers. Comm. 2015). The proposed Pressentin Park side-channel is located near the junction of two rivers known to produce a large proportion of stream-type Chinook, and will have a bottom width of about 20-feet and gravelly substrate, and thus is likely to provide the rearing conditions preferred by these fish. Young of the year Chinook may also enter such areas to rest and feed as they move downstream during the spring and early summer. Steelhead, chum and coho would all also be expected to utilize this habitat. Our preliminary design analysis indicates that the proposed project would provide approximately 89,661 square feet (2 acres) of floodplain channel rearing habitat that would during the winter (November through March) when juvenile stream type Chinook are overwintering in the area. The new channel would remain wetted by inflow from the Skagit River for almost 90% of the time in winter, and has been designed to intercept groundwater, which would maintain year round connectivity at the downstream end.

4. **Project Goals and Objectives.**

A. **What are your project's goals?**

The goal of the Pressentin Park Side Channel Phase 2 and 3 is to restore connectivity and improve floodplain function, increasing the amount of stable spawning habitat and winter floodplain rearing habitat available to juvenile Chinook, steelhead, bull trout and other salmonid species in the Upper Skagit River.

B. **What are your project's objectives?**

- Obtain public input on the project and park-related restoration project components (trails, interpretive signs, salmon viewing areas etc) to ensure that the project addresses local concerns and is in sync with long-term planning for park improvements.
- Complete final designs and obtain all necessary permits.
- Construct new side channel that will provide approximately 89,661 sq ft (2 acres) of juvenile rearing habitat for Chinook, steelhead, bull trout and other salmonids.
- Re-establish 11 acres of native floodplain vegetation along the new channel.
- Construct new sections of trail (mown grass and/or hog fuel) as needed to maintain park access (RCO requirement resulting from purchase of Park property using LWCF)
- Design and install a salmon viewing area and interpretive signs for public education.

C. **What are the assumptions and constraints that could impact whether you achieve your objectives?**

One of the issues brought up during the initial Phase 1 SRFB site visit was a question about Cultural Resources in the area. We have been working in close cooperation with the Upper Skagit Indian Tribe (USIT) to ensure that cultural resources have been properly assessed, and that restoration project designs avoid impacts to known areas of concern. ERCI completed an extensive archaeological survey of the area. We anticipate continuing this collaboration throughout the design and construction Phases, and have thus included funds for additional sampling and for archaeological oversight during construction. Staff and contractors working on construction will be given training to recognize artifacts, and on the Unanticipated Discoveries Protocol (UDP).

Another concern that was identified early on by SFEG was the potential for adverse impacts to the existing high quality spawning channel and/or the Cascade-Rockport Road Bridge. The potential for adverse impacts to surface or groundwater flows in the side channel has been assessed and alternatives that could result in adverse impacts have been modified or excluded from further consideration. We will continue to collect groundwater data at the project site throughout the design process.

The project site is located within the Skagit River floodway, and thus project impacts on flood levels have also been evaluated and designs have been modified to minimize effects. We do anticipate that this project will NOT qualify for streamlined permitting, and have assumed that we will need to complete consultation, obtain a no-rise flood certification, and complete the Skagit County permitting process.

We also recognize that the project site is a County Park and that any work done in support of this project must be consistent with ongoing recreational uses, as well as access requirements resulting

from purchase of the property using RCO LWCF funds. Maintenance of the trail system, including design of pedestrian bridges that will allow continued access to park areas south of the new channel has been identified as an objective that will be addressed during the final design Phase. The Skagit County Parks Board has also indicated that they would like to work with the community to plan some additional park improvements unrelated to the restoration work. We will take advantage of that opportunity to work with the Board and citizens of Marblemount to develop a final plan that enhances both fish habitat and the community value of Pressentin Park.

5. **Project Details.**

A. **Provide a narrative description of your proposed project.**

The Pressentin Park Side Channel Restoration project is intended to restore connectivity and habitat in a relict side channel that crosses Pressentin Park near Marblemount, Washington. In Phase 1 of the project, SFEG worked with Skagit County Parks, USIT, and Herrera, Inc. to identify and evaluate restoration alternatives. A draft report on that work, and preliminary restoration plans are included as Attachments to our PRISM application.

Our current request includes funds to cover both Phase 2 and 3 work. Phase 2 of the project will involve completion of final design and permitting. SFEG will work with the Skagit County Parks Board to host a series of Public meetings to solicit feedback on the plan and to get public input on park amenities included in the final design(trails, footbridges, signs etc), or proposed by parks to be funded separately from this proposal. We will also continue to work closely with USIT to ensure that cultural resources questions are addressed. Phase 2 will also include permitting. We assume that the project will not be streamlined and will require full consultation with the USACE and Skagit County.

When Phase 2 work has been completed and approved by the SRFB and local lead entity, SFEG will initiate Phase 3 work. Phase 3 will involve development of the new side channel, planting and construction of new bridges, trails etc. that are required to maintain public access to the south side of the Park. Following completion of construction SFEG will plant a 100-foot wide buffer on either side of the new channel (approximately 11 acres).

B. **Provide a scope of work.**

Public Outreach – SFEG will work with Skagit County parks to conduct public outreach. We anticipate convening at least 2 additional meetings in 2016 (an introductory meeting will be held in Marblemount in June 2015) to solicit input on the proposed designs. This will open a discussion regarding public questions, comments and concerns and ensure that the final outcome is supported by the Marblemount community.

Final Design/Permitting – Final designs will be complete by Herrera, Inc. under contract to SFEG, and will incorporate feedback received during the initial public meeting(s). Design deliverables will include a set of permit level designs (~60%) that includes detail on bridges and other structures. Design work will include ongoing groundwater data collection and analysis. We also anticipate that additional survey and archaeological sampling will be required to support final design and confirmation of appropriate access routes, staging areas and spoils disposal sites. The design and permitting process is scheduled to take place from the fall of 2015 through 2016. [SFEG will submit 60% designs and an](#)

[updated Engineers estimate of cost to the SRFB and the local SWC Technical Working Group for review and approval prior to moving forward with design completion and construction.](#)

[Following SRFB review and approval,](#) SFEG will convene a site visit with WDFW and other permitting agencies in early 2016 to solicit feedback on those designs prior to submittal of permit applications. After permits have been approved Herrera will incorporate any changes required by the permitting agencies, and will produce a final set of 100% design drawings and a bid specification package.

Construction – SFEG will select a contractor via a public bid process in the spring of 2017, with construction expected to occur in 2017. Herrera Inc. will provide construction management services, and ERCI will be contracted to provide archaeological oversight during the construction process. Construction will include hiring a licensed contractor, who will excavate and grade ground to connect the relic channel to the Skagit River. The contractor will dispose of spoil removed from the channel in an area pre-designated by Skagit County Parks.

Planting - SFEG will be responsible for relocating trails, planting and installation of interpretive signs and a salmon viewing area. Trail routes and interpretive signs will be designed by a ecosDesign under contract to Skagit County. We anticipate that plants and signs will be installed via a series of volunteer work parties in the fall of 2017 and spring of 2018. Work parties will include community members, school groups from the Concrete Middle School, and local service clubs such as the Wildcat Steelheaders. SFEG will put together a plan to prevent invasive plant species from infesting the new restoration area and continue to maintain the site with the help of volunteers.

C. Explain how you determined your cost estimates.

Herrera Inc. provided a detailed construction cost estimate as part of the Phase 1 deliverable. That estimate has been posted to PRISM as part of our application package. SFEG worked with Skagit County parks, Herrera, and other consultants (ERCI and Semrau Survey and Engineering) to determine the overall project costs, including the final design process and permitting. These costs were based on our experience completing other similar projects, including the recent Howard Miller Steelhead Park off-channel habitat enhancement project that was completed by the same partners (SFEG and Skagit County Parks) in 2012. [Costs are based on the preliminary designs, and will be further refined as part of the final design process.](#)

D. Describe the design or acquisition alternatives that you considered to achieve your project's objectives.

SFEG considered three channel restoration designs before deciding on a hybrid option that combined elements of both Alternative 2 and 3. The decision is based on multiple aspects. First, there is already a functional side channel that flows through the park. SFEG monitored and mapped groundwater flow in the site to ensure that if the relic channel was reconnected to the Skagit that it would not influence the flow in the current channel. From the surveys it was found that the current channel is not influenced by groundwater from the landscape; rather it is connected with the flow of the Skagit. Second, archaeological surveys were conducted to ensure that construction would not disturb cultural aspects at the site. SFEG also worked closely to ensure that local tribal organizations were involved with the decision making process and that they were comfortable with SFEGs choice of alternatives. Third, SFEG also worked with the landowners, Skagit County Parks and the parks Board, who were part

of the decision making process and ultimately selected the restoration design that SFEG proposes to bring forward to final design.

E. How have lessons learned from completed projects or monitoring studies informed your project?

One of the most important lessons learned from the Howard Miller Steelhead Park project was the importance of having technically sound engineering plans developed by a consistent team of consultants. Such an approach provides a sound basis for making cost estimates, and ensures that aspects of the project that may seem peripheral at first (e.g. trails or public outreach) are considered early and often throughout during project development.

We have also learned through experience that making sure other stakeholders and the public are informed and involved in the decision making process will bolster a projects likelihood of success. We greatly appreciate USITs early comments on the Phase 1 proposal, and ongoing involvement in Project development. We have kept up an ongoing dialog with the Skagit County Parks Board to ensure that our project is consistent with and supportive of long-term park goals. We also expect to begin a series of public presentations, to the County Commissioners and the community of Marblemount to get feedback that can be incorporated into ongoing project design work.

The project also benefits from ongoing research into the freshwater rearing preferences of juvenile Chinook salmon that is being supported by the SRFB and SCL. That research confirms that floodplain habitats such as the one being restored in Presentin Park are vital winter rearing areas for young fish, and therefore important targets for restoration and enhancement.

F. Describe the long-term stewardship and maintenance obligations for the project or acquired land.

One of the key design parameters for the reconnected channel is that it be self-sustaining. Because the inlet will be located downstream of the hydroelectric projects and upstream of the Cascade Rivers, sedimentation is less likely to be a concern than for other locations in the Skagit River system. Herrera also incorporated a redundant inlet, with two channels to ensure the likelihood of continued function in the unlikely event that one of them becomes plugged with LWD. The inlet location on the inside of a meander bend and just downstream of the bridge will also help promote long-term stability.

SFEG will continue to maintain the plantings for the duration of the grant, and will likely seek additional maintenance funds or convene ongoing volunteer work parties in order to ensure that native riparian plants outcompete invasive weeds. Skagit County Parks will continue to maintain trails for public use. SFEG plans to involve volunteers and school groups for 'salmon tours' at the park and setup salmon 'viewing stations.' The environmental tours and site maintenance can be continued outside the life of the grant with the help of volunteers.

6. Context within the Local Recovery Plan.

A. Discuss how this project fits within your regional recovery plan and/or local lead entity's strategy to restore or protect salmonid habitat.

The Skagit Chinook Recovery Plan (2005) identifies lack of freshwater rearing areas in floodplains as a key factor that currently limits population sizes of Chinook salmon in the Skagit River basin. As a result mainstem river, floodplain, and tributaries within the floodplains of the Skagit and Sauk Rivers from Sedro Woolley upstream to Marblemount that provide rearing habitat for multiple Chinook populations are considered a Tier 1 Target Area under the Skagit Watershed Councils [2010-2015 Strategic Approach](#). The proposed project focuses on restoring access to, and geomorphic processes within these critical habitat areas.

Information ~~of on~~ Chinook use of freshwater habitats in the Skagit system is still being developed (Beamer et al. 2010). Early data suggest that stream type Chinook preferentially utilize floodplain channels during the winter (Lowery et al. 2013). Juvenile steelhead and sub-adult bull trout exhibit a more generalist pattern of habitat use year round, but both are found in floodplain channels during the winter (Lowery et al. 2013). The availability of freshwater rearing habitat has been identified as a limiting factor for these species, and thus projects that improve the connectivity and restore geomorphic processes within such habitats are important for recover of these species.

Beamer, E., J.P. Shannahan, K. Wolf, E. Lowrey, D. Pflug, 2010. FRESHWATER HABITAT REARING PREFERENCES FOR STREAM TYPE JUVENILE CHINOOK SALMON (*Oncorhynchus tshawytscha*) AND STEELHEAD (*O.mykiss*) IN THE SKAGIT RIVER BASIN: PHASE 1 STUDY REPORT. Unpublished Project report, Skagit System Cooperative, LaConner, WA. available online at: <http://www.skagitcoop.org/index.php/documents/>

~~Beechie, T. and M. Raines, 2010. Skagit Watershed Council Year 2010 Strategic Approach. Skagit Watershed Council, Mount Vernon, WA. 15 p. Available online at: http://www.skagitwatershed.org/uploads/council_docs/pdf/SWC_Strategic_Approach_2010.pdf~~

Skagit Watershed Council, 2015. Skagit Watershed Council Year 2015 Strategic Approach. Adopted March 5 2015. Skagit Watershed Council, Mount Vernon, WA. 18 p. Available online at: <http://www.skagitwatershed.org/resources/documents-archives/>

Lowery, E.D., J.N. Thompson, J.P. Shannahan, E. Connor, D. Pflug, B. Donahue, C. Torgerson, D. Beauchamp. 2013. Seasonal Distribution and Habitat Associations of Salmonids with Extended Juvenile Freshwater Rearing in Different Precipitation Zones of the Skagit River, WA

B. Explain why it is important to do this project now instead of later.

The Skagit Watershed Council's ~~2010~~ [2015](#) Strategic Approach for meeting the goals of the Skagit Chinook Recovery Plan focuses on Chinook salmon. The 1st Tier target areas identified in the Strategic Plan include river floodplains that provide rearing habitats for juveniles of multiple Chinook salmon populations. These areas currently constrain Chinook salmon recovery, and therefore have the highest potential benefit to Skagit wild Chinook salmon. The 2005 Recovery plan states that the Skagit basin has lost approximately 37% of the historic side channel habitat that provided critical rearing and refuge functions in the floodplain. Reconnecting isolated floodplain areas such as the relict side channel in Pressentin Park was identified as a priority objective of the [2010-2015 Strategic Approach](#).

We are requesting ~~full~~ funding for Phases 2 and 3 at this time ~~because of the amount of funding available in 2015 for several reasons~~. ~~First, w~~While construction funds will not be needed until 2017, applying for full funding at this time allows us to ensure that progress on the project is not interrupted by a lengthy wait during a third SRFB application and review process. While the funding request could be broken up into two distinct phases, doing so would delay the project by at least a year, since we do not anticipate having Phase 2 work complete and permits in hand until late in 2016. ~~In addition, the amount of future funding is uncertain, so applying now gives both SFEG and the~~

~~Skagit Lead Entity time assurance that available funds can be allocated completely without delaying the project.~~ Second, a commitment of partial funding for Phase 3 (contingent on approval of 60% designs) will allow us to leverage funds from other sources by showing that we have secured match.

C. If your project is a part of a larger overall project or strategy, describe the goal of the overall strategy, explain individual sequencing steps, and which of these steps is included in this application for funding.

This proposal represents Phases 2 and 3 of a three Phase Process. The work builds upon Phase 1. Complete preliminary project plans and a draft report are available in PRISM. The final report will be uploaded by June 30.

7. Project Proponents and Partners.

A. Describe your experience managing this type of project.

The Skagit Fisheries Enhancement Group is one of 14 Regional Fisheries Enhancement Groups in Washington State. We have been managing and implementing restoration projects in the Skagit basin since 1990. Our project manager for this project will be Sue Madsen. Ms. Madsen joined Skagit Fisheries Enhancement Group in 2009. Prior to joining SFEG she worked as a consulting geomorphologist for R2 Resource Consultants. Ms. Madsen has over 15 years' experience in managing large assessment and restoration projects. Her experience as a consultant provides the insight and expertise needed to effectively manage contracts and consultants retained to complete the proposed project.

SFEG has successfully completed several large SRFB-funded feasibility studies over the past 10 years, including the Wiseman Creek Feasibility Study, Lower Day Creek Feasibility Assessment, the Swan Lake Engineering Feasibility Assessment, and the Davis Slough Hydrologic Analysis and Feasibility Assessment. The Day Creek Restoration Feasibility Assessment has resulted in a successful LWD placement project, 42 acres of riparian restoration projects, and replacement of 2 barrier culverts. The Davis Slough project culminated in construction of a 60-foot bridge on the South Skagit Highway that opened up 4.5 acres of off-channel rearing habitat in 2014.

SFEG previously complete a successful similar project with Skagit County Parks in 2012. That project, the Howard Miller Steelhead Park Off-channel Habitat Enhancement Project successfully created over 11 acres of off-channel habitat and restored almost 26 acres of associated floodplain forest. Limited sampling conducted in 2014 and 2015 confirmed that the area is being used by juvenile Chinook, and by numerous overwintering coho.

B. List all landowner names.

Skagit County Parks and Recreation

C. List project partners and their role and contribution to the project.

Skagit County Parks and Recreation is the landowner and our primary restoration partner. The Parks Department is contributing staff time, and has hired a landscape architect from eccosDesign to assist with the design of pedestrian bridges, trail layout and interpretive signs.

SFEG is also working with Skagit County Public Works to identify low costs spoils area. Spoils disposal is one of the largest costs identified in our current engineer's estimate of cost. Spoils disposal at a County pit or other site will represent a significant portion of the match for this project.

D. Stakeholder Outreach.

Pressentin Park is an area known to be culturally sensitive. Local tribes had used the site historically, and artifacts had been found in the general area before. As a result, USIT expressed concern and interest in the project when Phase 1 was proposed in 2012. SFEG engaged an archaeology firm (ERCI) to complete a cultural resources assessment of the site prior to initiating the design process. USIT has participated in alternatives development and design review. SFEG will continue to work closely with ERCI and USIT as part of the Phase 2 design process.

The project area is a Public Park, and thus we expect there will be great interest in work proposed there. Skagit County Parks ability to develop the site is constrained due to its location in the floodplain, and because of cultural resources concerns. Parks is supportive of the restoration planning process, and plans to continue to work with SFEG to ensure that recreational uses are enhanced by the project. We expect that trail improvements that will be required to maintain access will enhance the parks appeal, and are also planning to include signage and a salmon viewing area in the final design so that in the future the park can be used as a destination for tours and community outreach and education events. Parks plans to use the restoration project development process as a vehicle for engaging the public in a dialog about what other uses they would like to see at the site in the future, and will likely work with SFEG to seek additional funding for compatible recreational amenities (e.g. connector trails, picnic area, information kiosk, parking outside of the floodplain) from other sources such as the Land and Water Conservation Fund, [WWRP's Local Parks program](#), WDFWs ALEA program, or other suitable grant programs.

There are no known public safety concerns associated with the project. Flood elevation increases were identified early on as a design constraint. Herrera modified the design to ensure that no appreciable increases in flood elevation would occur near private lands. We anticipate that Skagit County Planning will require a no-rise flood certification as part of the County permit process, and are working to ensure that the design will meet the requirements. Information on flood elevation modelling will be shared with neighboring property owners to ensure any questions or concerns they may have are addressed.

Supplemental Questions

Restoration Project Supplemental Questions

Answer the following supplemental questions:

- A. Will you complete, or have you already completed, a preliminary design, final design, and design report (per Appendix D) before construction?**

Yes

1. If no, please describe your design process and list all pre-construction deliverables you will submit to RCO for review. *Including riparian planting plans.*

**B. Will your project be designed by a licensed professional engineer?
Yes**

1. If not, please describe the qualifications of your design team.

C. If this project includes measures to stabilize an eroding stream bank, explain why bank stabilization there is necessary to accomplish habitat recovery.

Not applicable

D. Describe the steps you will take to minimize the introduction and spread of invasive species during construction and restoration.

SFEG is well-versed with invasive plant management. The organization already has completed a riparian planting project at the site that included some invasive species management. With this information SFEG will continue to monitor the site for invasive plants from the time when equipment is mobilized at the park for construction to when riparian planting is completed. SFEG will work with the contractor to visually check that no new invasive plants are introduced to the site during mobilization. Then SFEG will work with the contractor to ensure that no invasive plants are accidentally carried off site on equipment by making sure that all of it is properly cleaned.

Comments

Use this section to respond to the comments you will receive after your initial site visits, and then again after you submit your final application.

Response to Site Visit Comments

SRFB Technical Review Panel:

Comment: The preliminary design is based on careful modeling/evaluation of relevant hydraulic conditions, observation of fish utilization in reference conditions and consideration of impacts (real or perceived) to neighboring landowners. Identification of the historical context of the project would be helpful for understanding the key issue of sediment transport and the sustainability of channel inlet design. Further information about the causes of initial disconnection of the relic side channel would be helpful.

SFEG Response: *Herrera Environmental Consultants Inc. compiled and reviewed existing historical images as part of their geomorphic assessment. Those images are included as Appendix B of the preliminary design report. The earliest available photo date from 1947; however there is also a reproduction of a historical GLO maps of the area dating from 1894. That map does not show an active secondary channel that would be consistent with the location of the relic channel proposed for reconnection. However, it does suggest that the inlet of the existing Marblemount Slough channel was located directly across from the mouth of the Cascade River, almost 1000 feet south of its current location. Our topographic surveys suggest that the current northern inlet to Marblemount Slough may actually have historically drained into the relic side channel, however map and photo evidence suggest that if this was the case it occurred prior to European settlement. As of 1894 lands in the area were claimed and building had commenced (a house and store are noted).*

The former inlet of Marblemount Slough is clearly visible on the 1947 aerial photo, however it is also clear at that time the side channel occupied its current locations. That channel appears to have remained stable from at least 1947 to the present day.

Soils in the test pit that was excavated east of the relict channel and north of Marblemount Slough were characterized by relatively minimal organic soil (~10 inches) overlying a deep deposit of very sandy loam with a texture consistent with current flow sediment deposits. Rounded river bed cobbles and coarse gravel were encountered at 8.5 feet. These deposits are composed of material that is consistent with the bed materials observed in Marblemount Slough and the Skagit River. It is also notable that no cultural artifacts were encountered within the existing floodplain/floodway, while evidence of historic native use was common elsewhere. This suggests that the area was flooded frequently enough to either discourage frequent use and/or that materials that may have been present were washed away by flooding.

Neither deep exaction for groundwater instrumentation, or extensive cultural testing encountered evidence that the inlet or outlet had been artificially filled, and thus we presume that disconnection of the channel inlet and outlet most likely occurred naturally as a result of floods that occurred prior to settlement and hydropower regulation.

With respect to the sustainability of the inlet, our design was developed to mimic conditions observed at the existing inlet to the adjacent Marblemount Slough. Geomorphically it is located in the same general hydraulic position (i.e. on the inside of a meander bend, upstream from the confluence of a major tributary). As noted above, Marblemount Slough has remained active but stable for at least the past 68 years. Our proposed inlet is located even further away from the Cascade River confluence (a significant source of sediment), and thus we expect that it will exhibit a similar stability and that sedimentation will not be an issue. However, the design has incorporated multiple inlets so that if one becomes blocked with debris and/or sediment the other should continue to allow inflows.

Comment: As described during the project site visit, the existing channel, riverward of the proposed channel, is proposed as a reference site for the new channel. More information about the current level, timing, and life-stage specific use of the existing channel is needed to evaluate the potential fish benefit for this project. Consider a more detailed breakout of depth gradations for YOY juvenile chinook use. Modeling 0.6 to 1.3 feet would be useful for juvenile chinook. Can you combine the velocity and depth criteria to identify area with low velocity and low depth?

SFEG Response: *Figures 18-29 of the Draft Conceptual Restoration Analysis and Preliminary Design Report depict predicted depth and velocity distributions over a range of flows for Alternative 4 (the current preferred alternative). Those classes include 0.5 to 1ft and 1-1.5 feet for depth, and 0.5-1fps and 1-1.5 fps for velocity. We are conducting additional analyses to respond to this request, and will include that information in the final report. That report will be posted in PRISM by June 30.*

As discussed in the field, lack of site specific data on pre-and post-project fish use are a chronic problem that arises from: 1) the requirement for an ESA permit to conduct many types of fish sampling; and 2) the lack of funding for project monitoring. SFEG is in the process of applying for ESA coverage, and hope to be able to collect additional information on fish use in Marblemount Slough as part of the ongoing project. We will also explore partnerships with USIT and SCL biologists on the option of conducting snorkel surveys.

Comment: The costs of the combined phases of the project are high. Because removal of excavation spoils is a major component of the construction cost estimate, extra effort should be made to identify construction alternatives, such as on-site spreading or selling to other projects that do not involve paying for trucking soils off site. Even if the permitting costs are higher for disposal on site, that may result in substantial savings: it would be assumed that any flood level rise caused by on-site spoils disposal would be more than offset by the extra flow capacity of the new channel.

SFEG Response: *Identification of specific spoils disposal options is part of the Final Design Phase. We have initiated discussions with the county regarding opportunities for on-site storage and/or no cost storage at other County owned sites. The project will not qualify as a streamlined project under the WDFW HPA process, and thus we will need to complete the county permitting process which includes an assessment of flood levels and a no-rise certification. Completion of analyses required for that permit will allow us to assess options for on-site-storage.*

Comment: The specific intended function of wood structures in the design needs to be clarified. Costs to the project may be realized by reducing the amount of wood proposed as part of the project.

SFEG Response: *The preliminary plans included typical sketches for a variety of LWD structures. The placement of large bank roughening LWD structures at the channel inlets, and the flood fence are key to project success and have been specifically designed to achieve specific project goals. The final amount and placement of individual LWD elements including small bank roughening structures and mid-channel roughening structures is still conceptual and will be refined as part of the final design process. In-channel LWD is intended to break the channel (longitudinal) slope to increase hyporheic flows in order to ensure functional spawning habitat. Bank structures are intended to provide velocity breaks that would provide areas of refugia for small fish during high flows. SFEG and Herrera will work with local experts to identify a combination of LWD elements and wood loading that will optimize habitat. Specific amounts and placement locations will be detailed in the Final Design.*

Comment: **Two other issues that SFEG might want to consider are: 1) spending some more money to better characterize the direction of groundwater flow at the site (such as installing three wells in a north to south transect across the project area) to be confident that diverting flow into the new channel won't dewater the existing side channel at low flows and 2) doing more research of historical documents to determine if the relict channel was ever active in historical times, as this information could be used to argue for getting a Section 404 Nationwide Permit No. 27.**

SFEG Response: *Installation of additional piezometers is a complicated process that not only would cost more but would require archaeological oversight and obtaining permits for installation of well ports > 10 feet deep (note that the ground surface between the channels is generally higher than the area where ports are currently installed. However, we agree that additional information of GW level trends would be valuable. An alternative way of addressing question is to conduct periodic surveys of water level in Marblemount Slough when it is not connected to the river. During such times groundwater upwelling can be observed, and should be representative of the ground water level in the slough. Such conditions also represent the time of greatest concern with regards to diversion of flow away from that channel. We will attempt to supplement the existing data by surveying slough water levels at sites where upwelling is observed at that are roughly in line with and south of our existing data collection sites.*

See the discussion of historical analysis in our response to SRFB Technical review comment 1.

Comment: **The detailed budget provided in the project application was very helpful. One additional budget element that would help would be a break out of costs for Phase 2 and Phase 3 separately.**

SFEG Response: *The table below represents the cost breakout for Phases 2 and 3. We are adjusting our SRFB request to formally phase this work and seek funds from other sources. More information is provided below in our response to the local Technical Review Committee.*

Phase 2 costs	SRFB Funds	Secured Match	Phase 3 Costs	SRFB Funds	Secured Match	Unsecured match
Permits	\$22,000		Final bid specs and contract	\$20,000		
Cultural assesement (access route & extended footprint)	\$20,000		Construction	\$1,361,921	\$275,000	\$500,000
Survey, geotechnical & modelling	\$124,000		Construction supervision	\$59,600		
Landscape architecture		\$10,000	Archaeological Observation	\$50,000		
Public outreach	\$15,000		Planting	\$58,600	\$20,000	
Parks Admin		\$5,000	Public outreach	\$5,000		
Equipment	\$2,500		Parks Admin		\$5,000	
SFEG A&E	\$13,760		SFEG A&E	\$23,760		
Supples/misc	\$2,000		Supples/misc	\$2,000		
Phase 2 subtotals	\$199,260	\$15,000	Phase 3 subtotals	\$1,580,881	\$300,000	\$500,000
Phase 2 Total Cost	\$214,260		Phase 3 Total Cost	\$2,380,881		
Grand total	\$2,595,141	\$2,595,141				
Total SRFB Request	\$1,780,141					
Total SRFB match	315000					
Total unsecured match	500000					

Staff Comments: Presentin Park was original acquired with WWRP-Local Parks funds by Skagit County (PRISM #92-110). Another parcel, between the park and the Skagit River, known as “Sakshaug” was purchased by The Nature Conservancy (TNC) with a SRFB grant (PRISM #07-1783). The proposed restoration project needs to be compatible with the recreation long-term obligations per the WWRP – LP funding program. On that note, please re-evaluate the number of bridges proposed and the type, to reduce overall budget, while meeting the recreation long-term obligations.

SFEG Response: Preliminary bridge cost estimates were based on vendor quotes and previous project costs. Footbridges for this project will be placed in a state park that is utilized by the general public and therefore must meet Skagit County safety standards for construction and loading. Because of the top width of the side channel (~60-feet) our initial assumption is that pre-fabricated bridges specifically designed for pedestrian use will be the most cost effective option. The final number of bridges will be determined in conjunction with the Skagit County Parks Board as we work through the larger parks planning process. The Parks Board has retained a landscape architect to assist with trail layout and identification of final bridge locations. The number and location of bridges may also be affected by ongoing cultural resources study. Whatever final design is selected will meet the long-term recreational obligations of the WWRP-LP program. Please see our response below regarding budget reductions.

Skagit Watershed Council TRC -Critical comments:

Comment: The sponsor was asked to address a variety of budget questions.

- More specificity on the prices and a scoping of less expensive options for the bridges was requested.
- Soil management was identified as a significant cost issue. The sponsor was asked to assess and report on options for keeping down the costs of disposing of the dredging spoils, including different off site options, and the possibility of leaving some of the dredging waste on site.
- The sponsor was asked to look into federal highway, state or local \$ to help lower costs for some of the recreational components for the project.
- Align budget with a set of phasing options, in case project is phased further.

SFEG Response: *The goal of the Phase 1 Restoration Analysis and Preliminary Design was to confirm that a restoration project that would benefit ESA-listed Chinook salmon and other species project was feasible, and to generate a preliminary cost estimate. The majority of budget question asked during the site visit pertained to specific elements that will be included in the Final Design. The requested specificity and refinement of costs will occur as designs are moved from 30 to 100% completion as part of Phase 2. SFEG is hopeful that costs for footbridges and soil management can be reduced as designs are refined, and we appreciate input and suggestions provided by the committee. However, it is our experience that while the costs of many individual items can be used as design progresses, the costs of other items may go up as we collect additional information on geotechnical constraints, structural requirements, the location of cultural resources etc.*

Given current available funding, we are reducing our current request from \$2,208,841 to \$1,708,841. Our intent is to work with the Parks Board to identify alternate funding sources that can support restoration work as well as cover the cost of recreational elements such as bridges, signs etc. Potential alternate grant sources include the Washington Wildlife Recreation program (WWRP) or Land and Water Conservation Fund (LWCF), and the state Aquatic Lands Enhancement Account (ALEA) program.

In addition, we propose that, if our request is approved, funding would be awarded in stages. As noted above, the amount of our current SRFB request that would be used for Final Design would be \$199,260. Our expectation would be that 90% designs and a revised engineer's estimate of cost would be submitted to the SRFB and local technical review panel by October 2016. Release of Phase 3 construction funds (\$1,509,581) would be contingent upon approval of the 60% designs and costs.

Awarding funds for both Phases 2 and 3 now results in several benefits for this project. Firstly, approval of a portion of Phase 3 funding will allow us to leverage additional funding by showing that we have secured funds. Second, awarding funding for the combined Phases 2 and 3 of this project now should ensure that construction can occur in 2017, or 2018 at the latest. If we were to reduce our request to only the Phase 2 funds then we would not be ready to apply for Phase 3 funding until 2017, which would delay construction until 2019 at the earliest.

In the meantime, SFEG and Parks will continue to seek ways of reducing construction costs and investigate alternate sources of funding. If we have not identified alternate funding sources by the spring of 2017 we would reserve the right to request remaining funds from the SRFB.

Comment: *The amount of large wood designed for the outlet channel and the off-channel habitat goals there should be specified in the final proposal. Please describe the species targeted and what are the potential trade-offs.*

SFEG response: *Please see our response to the SRFB Technical Review comment #4. Final specifications and design details for LWD placement will occur as part of the final design Phase.*

Comment: *What would be expected changes to channel if inlet channel(s) are plugged? What habitat benefit would a backwater and/or groundwater blind channel have – depth, velocity, recurrence interval and duration of flooding? Can you describe risk of siltation and channel filling?*

SFEG response: *Please see our response to SRFB Technical Review Panel comment #1 above for information on the risk of siltation and channel filling.*

In the unlikely event that the side channel inlet were to become completely plugged that habitat benefits would be similar to those described for Alternative 1, which involved construction of a blind, groundwater-fed backwater channel. Such a channel would provide approximately 0.79 acres of wetted habitat at the 7600 baseflow (exceeded approximately 75% of the time at this site), and as much as 2.08 acres during the 2-year flood (approximately 25,000 cfs). The majority of this habitat (>98%) would have little to no velocity (<1.5 fps). Figures depicting the distribution depth and velocity for this alternative are included in Appendix F of the Preliminary Design report.

Response to Post-Application Comments

Please describe how you've responded to the review panel's post-application comments. We recommend that you list each of the review panel's comments and questions and identify how you have responded. You also may use this space to respond directly to their comments.