

Skagit Watershed Council Technical Work Group (TWG)

Final Notes

April 16, 2020, 1:00pm-3:30pm

(numbered attachments in parentheses, actions underlined)

Attendees: All participated by Zoom meeting. Alison Studley (SFEG, Chair), Rick Hartson (Upper Skagit Indian Tribe), Bob Warinner (WDFW), Aundrea McBride (SWC), Kari Odden (Skagit Land Trust), Jeff Fisher (Seattle City Light), Tom Slocum (Skagit Conservation District), Doug Bruland (PSE), Emily Derenne (Skagit County)

Absent: Jeremy Gilman (USFS),

Guests: Richard Brocksmith (SWC), Devin Smith (Skagit River System Cooperative), Jenna Friebel (Dike District #22), Jenny Baker (WDFW), Eric Mickelson (SRSC), Marc Duboiski (RCO), Erin Murray (PSP), Channing Syms (WDFW), after 3:00: Arron Lee (Consultant for Skagit County), Anne Streufert (Consultant for Skagit County)

Beginning Business

Approved March notes

Membership: Steve Hinton with Salish Alliance has asked to be on the TWG. Tabled until he can attend.

Committee Reports

Board of Directors –Virtual meeting 4/2/20 meeting

- Appointed Greg Hood co-chair of M&AM Subcommittee
- National Forest Foundation pass-through grant for SRSC Skiyou planting approved
- South Fork 2 property greenlighted for purchase
- Approved allocation of PSAR return funds to SFEG/County Presentin Side Channel construction

M&AM Subcommittee—Hasn't met since last TWiG meeting.

Protection Subcommittee—Hasn't met, but accomplished tasks off line

- Greenlighted partial Aldon Creek property for purchase following rescore by staff
- Referred South Fork 2 to the Board for review

Wiley Slough Dike Raise Information Sharing and Q and A

Background : The original project was constructed in 2008-2009. The dike overtopped in 2016. There has also been some seepage at the dike within the project site. The goal of the original

project was to restore lost fish habitat while doing no harm to adjacent land uses. At this time the dike is not functioning as intended. There is not yet agreement about the link to the original project or if this was a pre-existing condition. WDFW is asking for salmon funds to fix these problems, paying for construction. They have done extensive research and modeling to determine what the ideal dike would look/function like at the site. They presented their perspectives on this work to the TWiG, the purpose of this meeting being information sharing only. Responses provided in the presentation reflect their perspective. (See TWiG Box site for presentation and read ahead materials).

Previously provided questions being addressed by WDFW:

1. What's wrong with the existing levee (related to Corps and DD22 needs/requirements) and what's the data you have to prove that something's wrong?
 - a. Dike "height and stability" and "seepage" at neighboring farms. This proposal addresses height and stability directly, and seepage indirectly by studying it and building a heavier levee and dike.
2. What specific federal criteria or quantitative measures are required for inclusion in ACOE programs (if there are any) and how does the dike fail to meet them?
 - a. NRCS recommends 25-year storm flood protection plus 2 ft. of freeboard. The ACOE re-evaluated the standards in the late 2000's and revised them from 10-year flood protection plus 2ft. of freeboard in the 2000 era manual to a 50-year flood protection—after the original project. The design recommendations in this proposal are based on the revised criteria.) 'There are criteria for evaluating exit gradient.' Shannon and Wilson conducted a geotechnical study of exit gradient using the current design manual recommendations/criteria. 'This analysis was done in the recent stuff by Shannon and Wilson on repair alternatives. It wan't done on the existing levee or dike. I (Jenna) would suspect that the existing [Wiley] dike, just because it is smaller and narrower, would not meet this criteria for dike stability either.' Shannon and Wilson applied the visual inspection criteria to the site, with a result of unacceptable over all, though some individual criteria did score as acceptable ('visual evidence of seepage and boils, erosion were unacceptable).
3. WDFW indicated that surrounding dikes are set to a higher flood elevation (10 vs 50 yr). Are there elevation surveys, modeling or other quantitative information about the surrounding dike network that you could provide?
 - a. 'Yes, there is a lot of other information around. All of the levees in [this part of the Skagit were certified] for a 50 year flood elevation. That doesn't mean there is a single elevation.' You need to understand your specific site conditions. Skagit dikes were evaluated by the ACOE in 2015 and the Wiley dike does not meet the 50 year flood protection level.
4. Are you addressing problems due to the project or due to outside factors such as SLR?

- a. To answer I [Jenna] have done a high level technical review of Wiley Design Report. Baseline Conditions Chapter: There was no stand alone evaluation of pre-project flood protection infrastructure so it makes it difficult to know how it is being characterized. It didn't look at wind set up or effects of river. Design Considerations and Criteria Chapter: no reference to ACOE criteria or flood control evaluation. Recommended Actions Chapter: 'Crest elevation chosen to match the elevation of exterior levees.' Tie in elevation to levee immediately up stream was not discussed. Two levee system not discussed. Flood infrastructure or site-specific hazards not evaluated.
5. Why is this proposed dike three feet taller than adjacent dikes on the bay front?
 - a. The risk is higher at the upstream end based on water surface elevation models by Shannon and Wilson. The levee elevation to provide the same level of protection is higher. It's what the ACOE would recommend.
6. Why should salmon funds be used to build flood infrastructure that is so much over and above what is already there ?
 - a. We are not proposing to build infrastructure that is so much above. We need to be using best engineering practices and ethics. We are using public funds. In other areas we don't build things based on how it was done 100 years ago. At least from an engineering perspective it is like that. One of the original project goals was to provide for agricultural land use. It was not designed using current engineering standards and it is not functioning to meet that goal. We don't own the land. We are asking folks who are responsible managing for floods and for protecting homes and farms to accommodate our goals for conservation. We can't transfer risk to them. Not fixing this site with best engineering practices risks that they won't participate in the future, which slows or stop conservation progress. We need to be working in the best practices that we can. If we are asking someone to move infrastructure for our goals we need to operate in their best interests.
 - b. That is part of the proposal. We are not sure the seepage wasn't there before, or how much the project effected the seepage. It is still up in the air. We will study it with this proposal.
7. What is the PL8499 eligibility standard? What is the minimum level of correction needed to address the problems?
 - a. Depending on whether it is an existing or new dike the eligibility is different. The PL applies to the section from the tide gate to the boat launch. It requires the ACOE guidelines, and you have to work with the property owner to meet their requirements for protection. The engineering guidelines are minimum recommendations. The owners are the one with the risk so they have an

important voice in terms of what the minimum level of care is. They decide how much risk they want to incur. They set that level at 50 year flood protection.

WDFW did not compare the minimum with the 50 year protection desired by the DD. WDFW did due diligence to minimize the height and meet corps standards.

8. Has WDFW looked at any alternatives and their costs besides the proposed dike construction?
 - a. The proposed dike construction is the best practice and meets current guidance.
9. What role does sea level rise play in issues identified?
 - a. SLR accounts for a few inches of water level.

New questions asked by the TWiG and comments/discussion:

1. SLR accounts for a 3.5 inches of water level, but not the three feet of dike elevation that the new design requires.
2. What guidance was available from NRCS (marine) and ACOE (river) in 2005 when the original project was designed, and what is the difference between guidance for replacing levees within an existing system versus completely new? [This question was asked during the presentation]
 - a. Specification docs were available (2002 guidelines would have applied).
Decisions are based on the guidance and the owner's wishes. There is a significant difference between the rigor necessary for replacing existing levees and building new. "If you have a levee and you are a local sponsor and you want to join the PL8499 Program, there is no way to go back and figure out how these [100 year old] dikes were built, so you would go through a visual inspection," and a determination of whether or not the levee meets the minimum score/requirements of the ACOE before the ACOE agrees to the cost share. For new levees you have to meet current ACOE standards. They are very different processes." The proposal uses the current design standards and best practices ('highest standard of professional integrity') for new dikes, with input from the levy owner related to the owner's assessment of acceptable risk.
3. The objectives of the restoration project were to not impact the current system, but replace it as existing. The question of what would an improved system look like was not asked. The goal was the same level of protection that existed with the 2007 dike, and to not make it worse. Improving flood infrastructure was not a goal of the original project, and it wasn't pointed out at the time that improved flood protection was a goal.
4. What's going to prevent flooding to the west of the Wiley Dike? [asked during talk]. You go a couple thousand feet up river before you get to 3 feet higher based on the LiDAR analysis. Why isn't the dike designed to that hydraulic line? The downstream portion will still flood won't it?

- a. The site is complicated because the upstream tie in needs to be designed to different standards. The downstream dike has a different set of risks and analysis. The Shannon and Wilson design is to the 50 year standard and their method results in this higher dike (15.5 ft). You could redo the analysis to the 10 year standard or the NRCS 25 ft recommendation. Engineering 'standard of care' is the non-technical reason that explains why you would build a dike higher at this site.
5. Why should salmon money be used to protect private property in such a piecemeal, uncoordinated way? I look at the Stillaguamish delta and over 20 years we have done a really coordinated effort. It is discouraging to me that there is not this opportunity, after all our strategic planning. What does it take to get a strategic project instead of just reacting to overtopping?
 - a. This was a really early project. Unless someone want to take on a more coordinated approach, that's the way it happened.
6. Will the proposed design address the seepage issue as well?
 - a. No.
7. Is it out of sequence to not know the seepage solutions given their cost before constructing a new flood protection system?
 - a. If the dike needs to be wider and higher it will be heavier. We think the weight of the new dike will address most of the seepage. We can reassess seepage after the dike repair.
8. Are we investing money now before knowing what the seepage mitigation costs will be?
 - a. We don't know that there is a seepage problem because of the original project. We are already addressing it by doing the dike raise.
9. Once you calculate the volume of fill required you ought to be able to calculate/model if the seepage would go away. Have you done that?
10. Has WDFW looked at any alternatives and their costs besides the proposed dike construction? What about buying the land that floods?
 - a. This doesn't feel like it would be keeping good faith. There are ag easements. The land is not for sale. This has been investigated.
11. There are a bunch of other implications and solutions. What are the other alternatives?
12. We haven't seen an analysis of options. The property being protected is the lowest ground on Fir Island. Maybe that fact wasn't taken into consideration originally.
13. We should be there to support our partners. If we don't, what is the willingness and perception going to be in the future. This has made an impression on the farming community.
14. If the proposal went forward, would the dike elevation increase gradually to the higher dike?

15. The big ticket item is the fill. How was that amount calculated?
 - a. A lot of that fill widens as well as raises the dike to accommodate the road required by the diking district. They used AutoCad to calculate it.
 - b. It doesn't look like enough.
 - c. It does seem a little low, but is close to what we saw at Fir Island.
16. Is wind set up a new part of the ACOE standards?
 - a. It's part of storm surge. It was part of the ACOE standard. **Jenna will look it up and get back with us.**
17. RCO has determined that the project is likely eligible because of its nexus with the original project objectives.

Review of a New Alternative for Ovenell Restoration Site

Background: The original proposal for fixing a fish passage barrier was a 120ft bridge with a 41ft channel. Subsequent geomorphic evaluation has determined that a smaller channel and bridge could be used without changing the geomorphic function of the slough (see TWiG Box site for presentation materials). Full removal is not an option. A 14 ft. channel is the minimum to meet fish passage criteria. The smaller configuration would also meet revised ADA requirements for the site. Total cost savings could be ~\$80,000, though the consulting team has yet to fully investigate appropriate structures to meet decreased channel size. The question to the TWiG is would the TWiG support downsizing the passage to a ~15ft channel with a smaller bridge or culvert?

- Culvert was not a supported alternative by the TWiG.
- The 15-20ft channel would provide adequate fish passage and the 20ft would address slough conditions (would not impound flow from the spring fed system). There may be an effect at the 100 year flood, when the whole area is flooded.
- Since we can't take out the road fill, and the 20ft option is fine for meeting velocity and fish access criteria for the slough, it is worth the savings.
- Culvert is more maintenance than a bridge and would take more discussion/redesign.
- Agreement on channel width comes before any detailed determination on design.

Decision: The TWiG supports revising the design downward for a smaller channel width (20 foot) given the results of the new geomorphic assessment and functions provided.

Adjourned 3:45

Upcoming TWG Meetings

- Site Visits May 5, 6, 7 for TRC
- **No Meeting May 21**