Attachment 1

FULL PROPOSAL FORM

Lewis River Aquatic Fund

Form Intent:
To provide a venue for an applicant to clearly indicate the technical basis and support for proposed project. Specifically the project's consistency with recovery plans, Settlement Agreement Fund objectives and priorities: technical studies and assessments which support the proposed action and approach.

Full Proposal format:
Please complete the following form for your Full Proposal. Maps, design drawings and other supporting materials may be attached.

The deadline for a Full Proposal Form submission is **February 3, 2020**. Please submit materials to:

Erik Lesko
PacifiCorp – LCT 1800
825 NE Multnomah Street
Portland, OR 97232
Erik.lesko@pacificorp.com

1. Project Title

Lewis River 21 Phase III

2. Project Manager (name, address, telephone, email)

Greg Robertson
Fisheries Habitat Restoration Biologist
Mt Adams Ranger District
2455 Hwy 141
Trout Lake, WA 98650
360-395-3412
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3. Identification of problem or opportunity to be addressed

Summarize information about the problem or opportunity addressed by your Full Proposal.

The Lewis River 21 Phase III project area site problems are unstable off channel habitat and banks, shallow pool depths, limited floodplain connectivity, and both low levels of suitable spawning gravels and large embedded key wood pieces which would offer long term stability. These problems contribute to the primary limiting factors identified as key habitat and sediment load in the Lower Columbia Fish Recovery Plan for Spring Chinook, coho and winter steelhead top critical life stages in the Upper Lewis River.

The poor channel stability, fine sediment routing, and limited key habitat are from the lack of large wood causing relatively homogeneous water depths throughout the project reach. These poor channel conditions have led to simplistic habitat, poor refugia during winter flows, inadequate summer rearing opportunities, and limited spawning area potential (especially for spring Chinook).

The large wood complexes created in the Lewis River 21 Phase III project is an opportunity to enhance fish habitat quality by improving three limiting factors; channel stability, habitat diversity and key habitat which will provide:

- Habitat complexity and diversity in main stem and side channels,
- Refugia during winter flows for juvenile salmonids,
- Rearing opportunities for juvenile salmonids during summer months, and
- Increased available spawning opportunities for adult salmonids.

4. Background

Provide information related to how this project fits into greater watershed objectives and any previously collected information at the project site (e.g. fish surveys, habitat delineation, etc.)

The proposed Lewis River 21 Phase III project is located at approximately River Mile 6.7-7.1 (RM) upstream from Swift Reservoir along the N.F. Lewis River, WA, Skamania County immediately upstream of Little Creek confluence (Figure 1). Please note that Salmon Port description of Reach 21 is between Rush Creek and Little Creek although currently Little Creek confluence with Lewis River is not where depicted in Salmon Port.

Lewis River Reach 21 Phase III is located at the upper most portion of the reach. The hydraulic changes with Phase III implementation will not affect the hydraulics of Phase 1 and are separated by 0.7 miles. The Lewis River Trail #31 will not be affected by the proposed project.

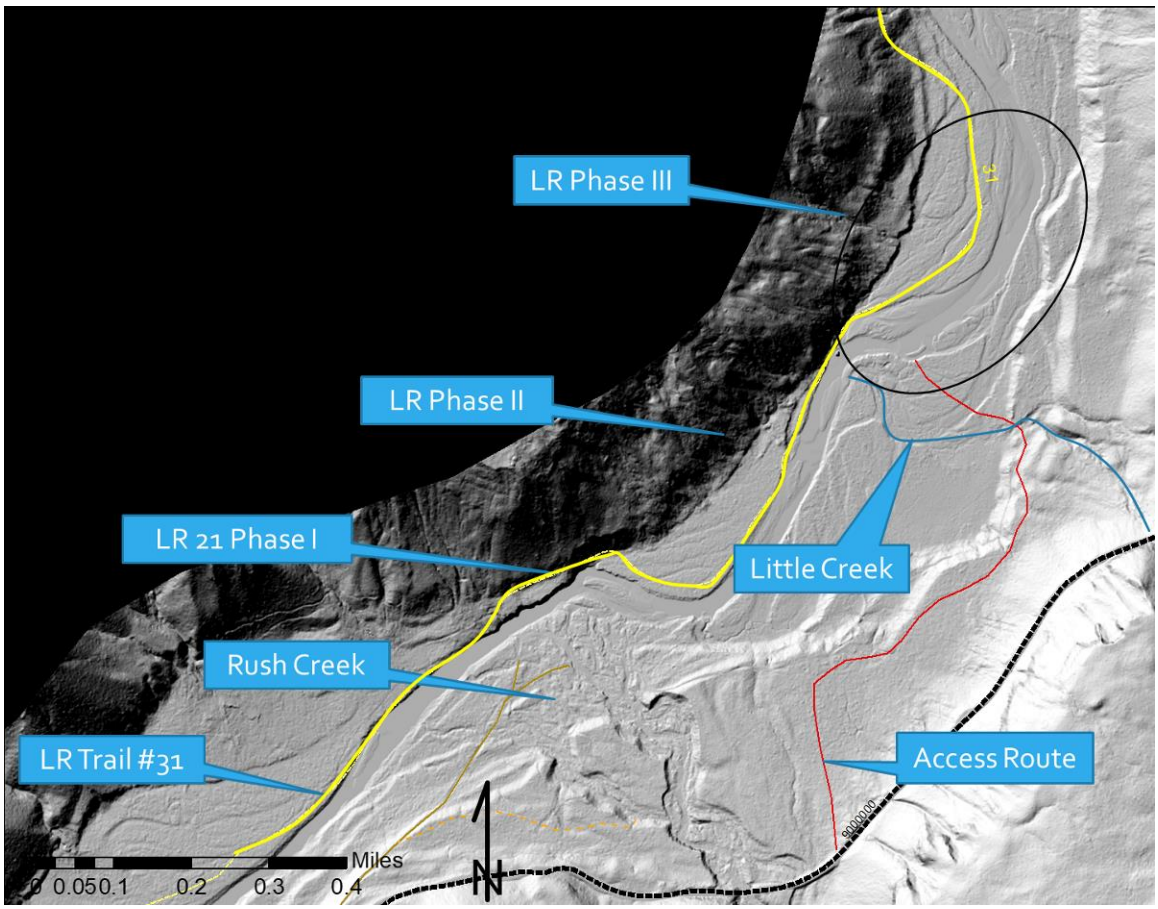

Figure 1. Lewis River 21 Phase III at RM 6.7-7.1.

The LCFRB Plan (2010) summarized the limiting factors for Upper Lewis salmonid species, spring Chinook, coho, and winter steelhead life stages (LCRFRB). The most critical life stage was egg incubation and the second most critical life stage was 0-age summer rearing for all three species. For spring Chinook egg incubation, channel stability and sediment were primary limiting factors, and key habitat a secondary limiting factor. Competition (hatchery) and habitat diversity were primary limiting factors, and food, predation and key habitat secondary limiting factors for spring Chinook 0-age summer rearing.

Specific to Lewis 21 reach, egg incubation was ranked as the top critical life stage for spring Chinook and winter steelhead while pre-spawner holding/migration was ranked top critical life stage for coho. The primary limiting factors for spring Chinook, coho and winter steelhead top five critical life stages in Lewis 21 Reach were key habitat quantity and sediment.

Ronni and Timm (2016) reviewed existing habitat and environmental assessment data for spring Chinook, coho and winter steelhead and conducted a limiting factor analysis to identify limiting habitat and life stages. Like the LCRFRB Plan, summer rearing habitat was identified to be limited in stream systems above Swift Dam. Ronni and Timm emphasized estimating suitable rearing habitat in the reservoir, and depth criteria changes of one or two meters had a large influence in determining if spawning habitat would be

limiting. Sediment load in Lewis 21 reach was the factor affecting summer rearing for all three species. For Lewis River 21, large wood placement was recommended along with road restoration to improve summer and winter rearing.

D. J. Warren & Associates, Inc. (2016) used the EDT model to generate habitat limiting factors (defined on page 11) and reach restoration analysis. The EDT model determined habitat factors that limited salmon and steelhead production based on the differences in habitat inputs between current and historical conditions. Using this methodology, limiting factors for spring Chinook were key habitat for Lewis 21 and habitat diversity and channel stability for Lewis 22.

The U.S. Forest Service identified the Upper Lewis River mainstem habitat as high priority reaches for Chinook and steelhead, while side channels and other slow water habitats were identified as high priority for coho. The mainstem habitat has been negatively affected by past timber harvest which reduced large wood recruitment and by past sediment production from roads which was delivered to the mainstem during past high flow events.

Lewis River Reach 21 Phase III design for each structure include information from a 2 D HEC-RAS model (year 2018) that was used in conjunction with LiDAR data (year 2016) and field measured channel characteristics (years 2016-2018) such as longitudinal profile, cross-sections, and pebble counts.

5. Project Objective(s)

State the objectives of your Full Proposal including how the project is consistent with Aquatics Fund objectives and priorities, and recovery plans. Clearly describe the biological benefits and expected outcome of your project. Describe the technical basis for the objectives including the identification of any supporting technical references. Identify biological metrics to help quantify the benefit of the project. Describe effects to other resource areas such as recreation and wildlife.

Objective 1: *Benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species.*

This project will contribute to the recovery of coho, spring Chinook, and winter steelhead by increasing the amount and quality of side channel rearing habitat and by increasing the amount of mainstem spawning areas. In addition, greater pool depths will be associated with the log complexes.

Objective 2: *Support the reintroduction of anadromous fish throughout the basin.*

Juvenile anadromous salmonids will have consistent quality rearing and refugia when this project is complete, promoting juvenile survival and directly contributing to the spring Chinook and coho salmon, and steelhead trout reintroduction efforts.

Objective 3: *Enhance fish habitat in the Lewis River Basin-, with priority given to the North Fork Lewis River.*

Lewis River Reach 21 is in the North Fork Lewis River Basin. It is well documented that coho salmon juveniles prefer slow water habitat with large wood components and Chinook salmon prefer mainstem spawning habitat. This project restores and creates additional spawning area in the mainstem channel and high-quality rearing habitat in the side channels.

Specific project objectives to address the problems are:

- Construct five log complex structures at naturally occurring large wood depositional areas that are at the entrances to disconnected side channels at bankfull flows,
- Stabilize and increase off channel habitat by adding apex log jam and increasing complexity with large wood to improve rearing habitat,
- Increase floodplain connectivity with five log complex structures at locations to displace water onto the adjacent side channels, and
- Increase available spawning gravel and increase pool depths with apex bar and bank structures by sorting and retaining gravels in two pool tail crests and creating constriction flow scour in two pools.

6. Tasks

State the specific actions which must be taken to achieve the project objectives. [NOTE: if the project will cause any latent, dangerous condition (e.g. submerged wooden structures in a waterway used by boaters and/or tubers) include installation of permanent warning signs in the project tasks.]

Task 1: NEPA and required permits.

- Field work for this NEPA document was accomplished during the fall of 2019 and a final decision memo is to be signed in February 2020. The project would be implemented in August/September 2020 for large wood staging and July 2021 for instream work.
- Instream restoration activities are covered under the Memorandum of Understanding with Washington Department of Fish and Wildlife (MOU), and Aquatic Restoration Biological Opinion programmatic consultation with the USFWS and NOAA (ARBO II). The project will be in compliance with ARBO II which allows the project to meet the terms and conditions of the regional US Army Corps of Engineers RGP-8 permit.
- The Forest Service is the landowner and project sponsor, and the District Ranger is supportive of this project.

Task 2: Project Contracting.

- Project contracting for the large wood harvest and haul and instream implementation would occur when project funds are obtained which would likely be May 2020.

Task 3: Project Implementation

- Year 1 (2020): Wood acquisition, mobilization and staging
- Year 2 (2021): Instream placement of wood
- Qualified USFS personnel will administer the contract to ensure project specifications are met and Best Management Practices are implemented.

Task 4: Monitoring

- Baseline monitoring will occur pre and post project implementation and include a longitudinal profile, cross-sections, pebble counts, and photo-documentation.
- A monitoring report will be completed in February 2023.

Note: Currently no boaters or tubers use this section of stream

7. Methods

Describe methods to be used, by including the following:

- Preliminary Design including existing site plan with bankfull width indicated, plan view drawing overlaid with proposed actions of specific dimensions, and project profile and cross-sections at important project locations showing water surface elevations relevant to the design including design flows. Structure design details should also be provided for instream projects involving large wood.
- Identify sources of Best Management Practices (BMPs) and how they will protect resource values.
- Describe how the restoration methods relate to specific fish habitat benefits and seasonal flow conditions, including expected short- and long-term functional habitat responses.

Year 1 (2020): Wood acquisition, mobilization and staging.

Wood acquisition would occur off the Wind River Highway approximately six miles from the project site and the trees will be tipped by an excavator and hauled to the project site by a log truck. From the project site, the trees will be skidded to the wood staging area at the end of the access route (Figure 2). The skid to the wood staging area is approximately 1,500 feet. The size of the trees ranges from 12-14" Diameter at Breast Height (DBH) and up to 70 feet in length to a minimum 8-inch stem at the bole taper. It is expected that most of or if not all the hauled wood will have rootwads intact due to the size of the trees at DBH. The tops and branches will be used to remediate the soil disturbance and is part of that specific Best Management Practice (BMP).

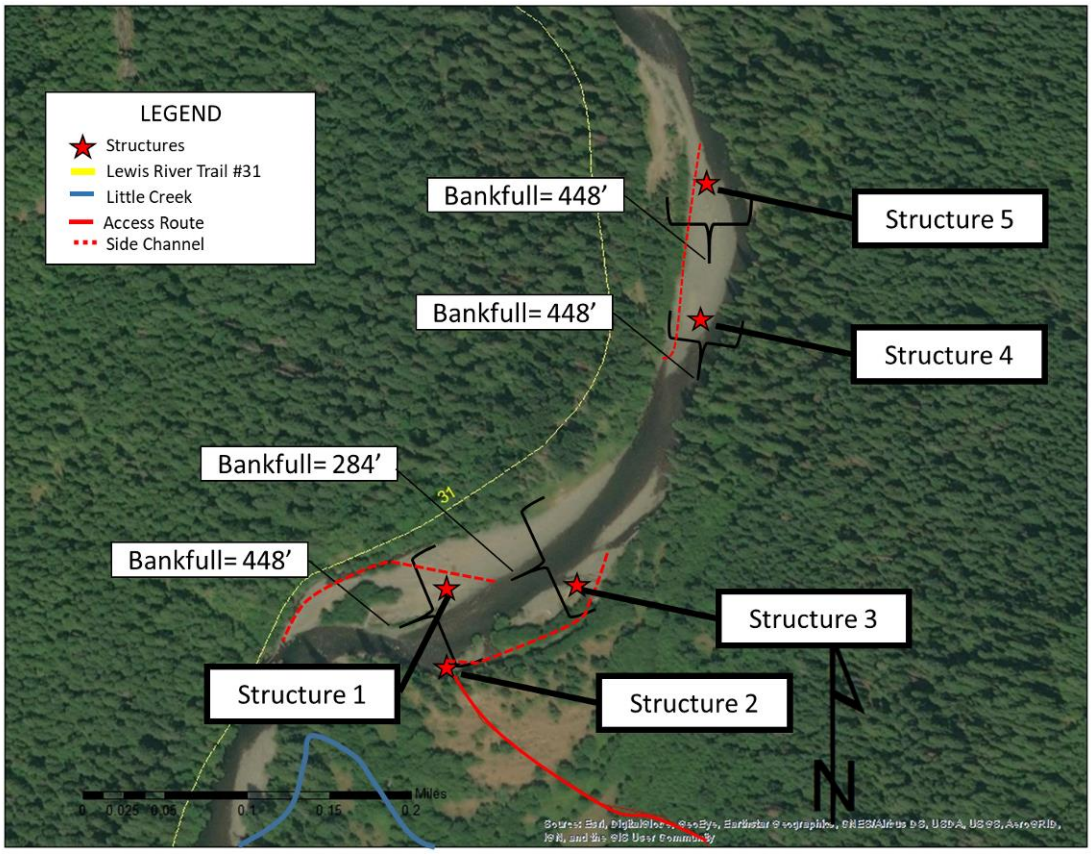

Figure 2. Existing site plan with structure locations and bankfull widths at each structure.

Year 2 (2021): Instream placement of wood.

The project will construct five log complexes consisting of four apex structures to dissipate mainstem flow and to maintain perennial flow into three side channels, for a total of approximately 2,500 feet of side channel (Figure 2). Previous work in 2014 placed large wood in the two lowermost side channels and this proposed project will add large wood to the uppermost side channel to provide additional complexity. The four apex large wood structures (Figure 3) would be constructed in areas of natural wood deposition such as point bars (structures 1, 4, and 5) and gravel bars (structure 3). The expected result is to collect additional wood at the structure locations to enhance and maintain the structure in both the short and long term. Structure 2 is designed to maintain the channel dimensions to allow for the maintenance of the opposing side channel and associated structure 1 while also mitigating the access route into the project area. Structure dimensions ran in the 2D HEC-RAS model are presented in Table 1 along with the approximate numbers of wood used for each structure and for side channel complexity. A typical Formidable Multi-Faceted (FMF) margin and apex structure design diagram plan and cross-section views are included in Figures 4, 5, and 6. The cross-sectional view of the structures with dimension details and relevant project design discharges are presented in (Figures 7-14).

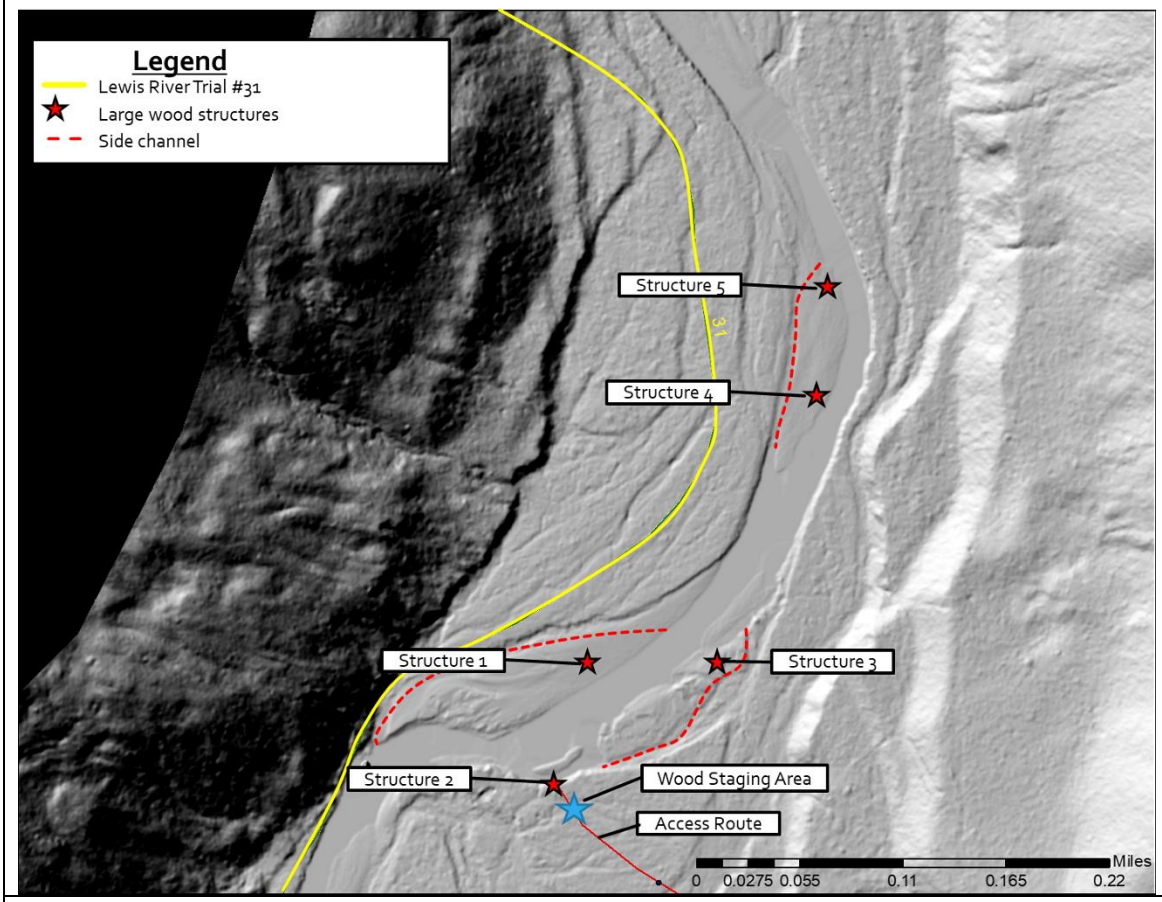

Figure 3. 2D HEC-RAS structure locations ran in the model and numbers for reference.

Table 1. Final structure dimensions modeled in 2D HEC-RAS for Lewis River 21 Phase III.

Lewis River Structure Modeled Dimensions					
Structure Type and Number	Width (ft)	Height (ft)	Length (ft)	Approximate Pieces of Wood 12-14" DBH 40-70' in length	Key Pieces <36" DBH 60-120 feet in length
Apex #1	60	12	60	120.0	5
FMF #2	15	12	40	50.0	0
Apex #3	30	12	60	70.0	5
Apex #4	40	12	40	100.0	5
Apex #5	40	12	60	100.0	5

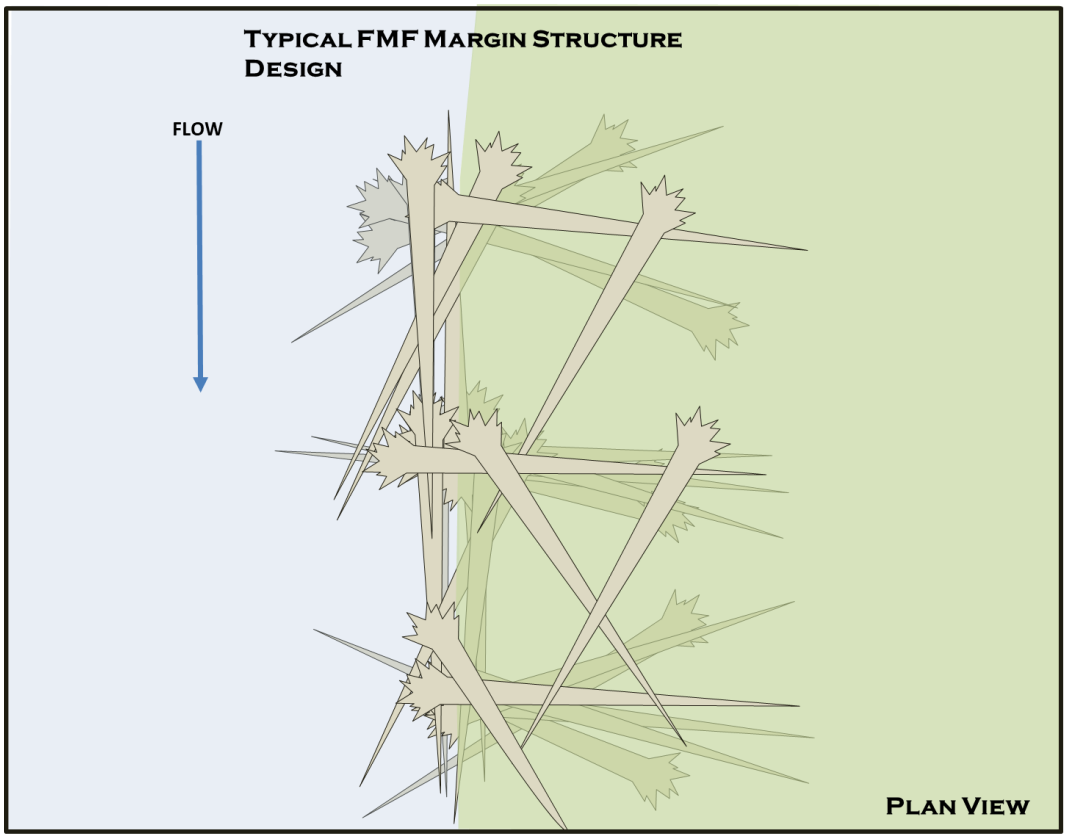

Figure 4. Typical FMF margin structure design plan view. Refer to Table 1 and 2 for structure dimensions and predicted scour depth.

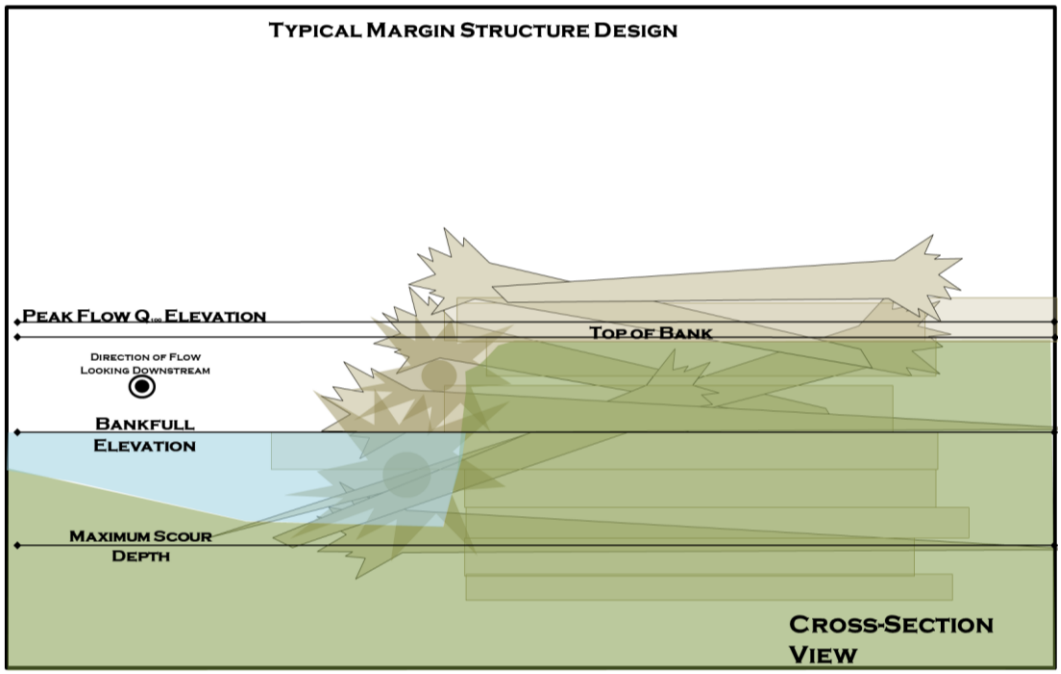

Figure 5. Typical FMF margin structure design cross-section view. Refer to Table 1 and 2 for structure dimensions and predicted scour depth.

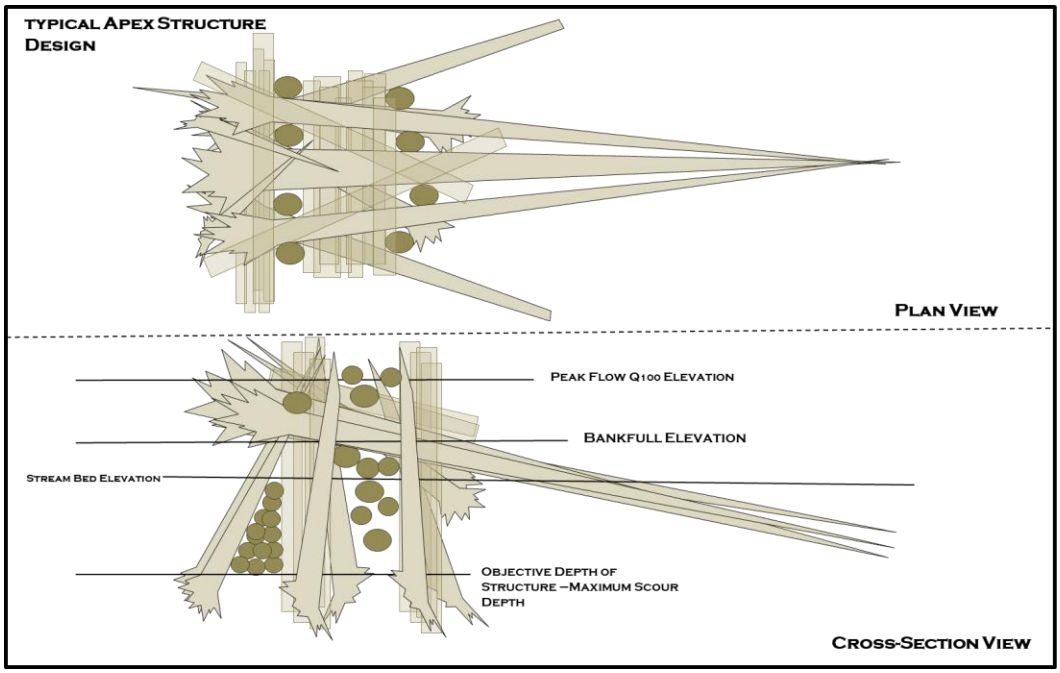

Figure 6. Typical apex structure design plan view and cross-section view. Refer to Table 1 and 2 for structure dimensions and predicted scour depths.

Cross-sections at structure site where the wood structures will dissipate flow energy and allow side channels to have perennial flow are presented at bankfull and 100-year discharges (Figures 7-14)

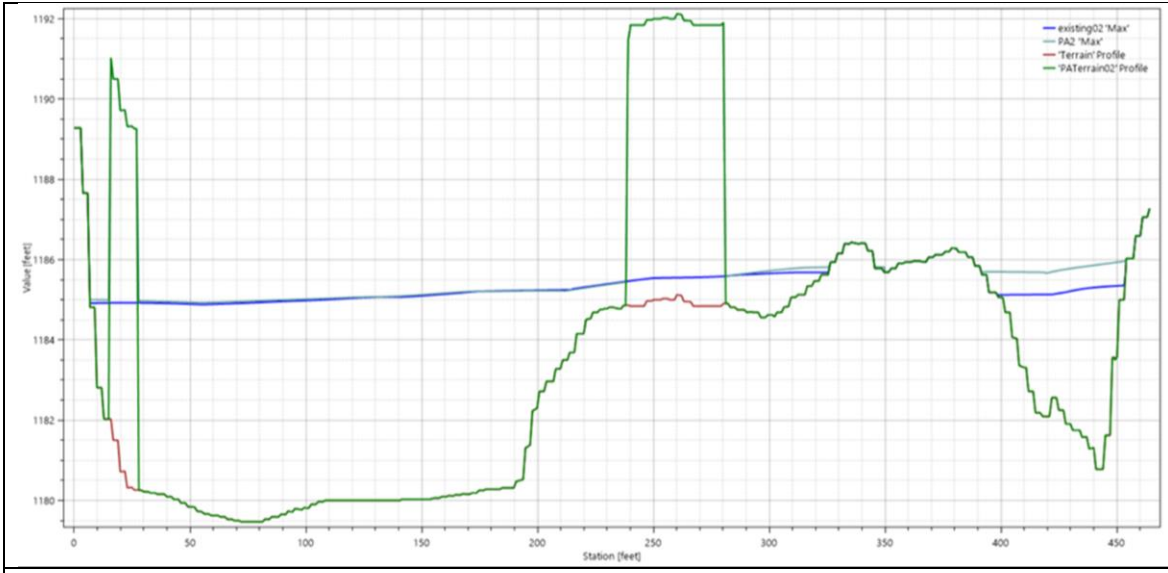

Figure 7. 2D HEC-RAS model of structures 1 and 2 (center) at bankfull discharge of 8,850 cfs. Existing (dark blue line) and proposed (light blue line) bankfull water surface elevation along structures 1 and 2 cross-section. Green is proposed terrain and red is existing terrain.

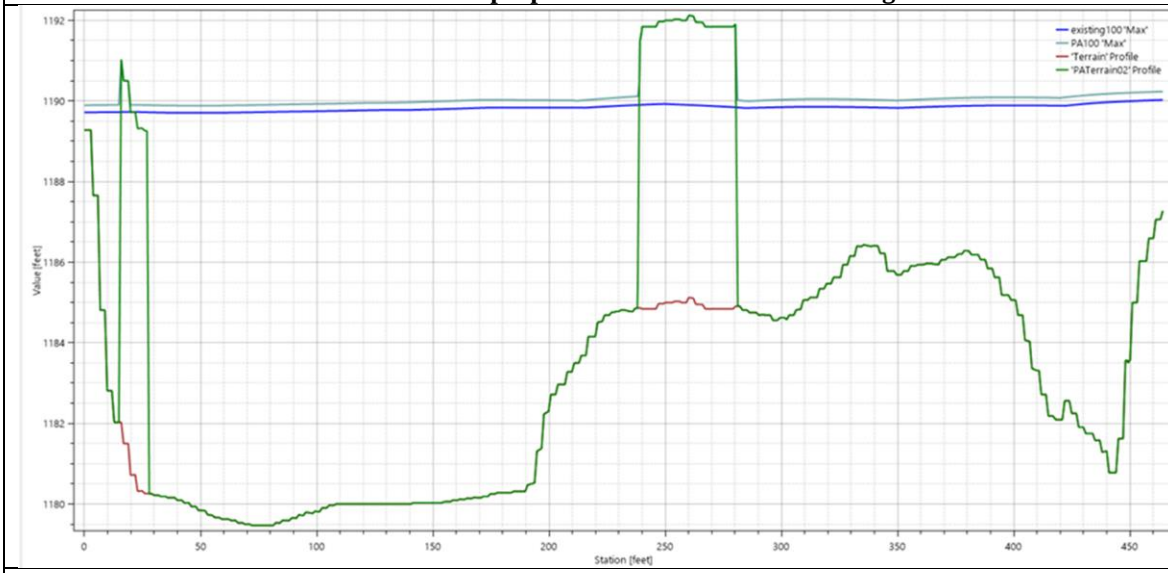

Figure 8. 2D HEC-RAS model of structures 1 and 2 (center) at 100-year discharge of 28,200 cfs. Existing (dark blue line) and proposed (light blue line) 100-year discharge water surface elevation along structures 1 and 2 cross-section. Green is proposed terrain and red is existing terrain.

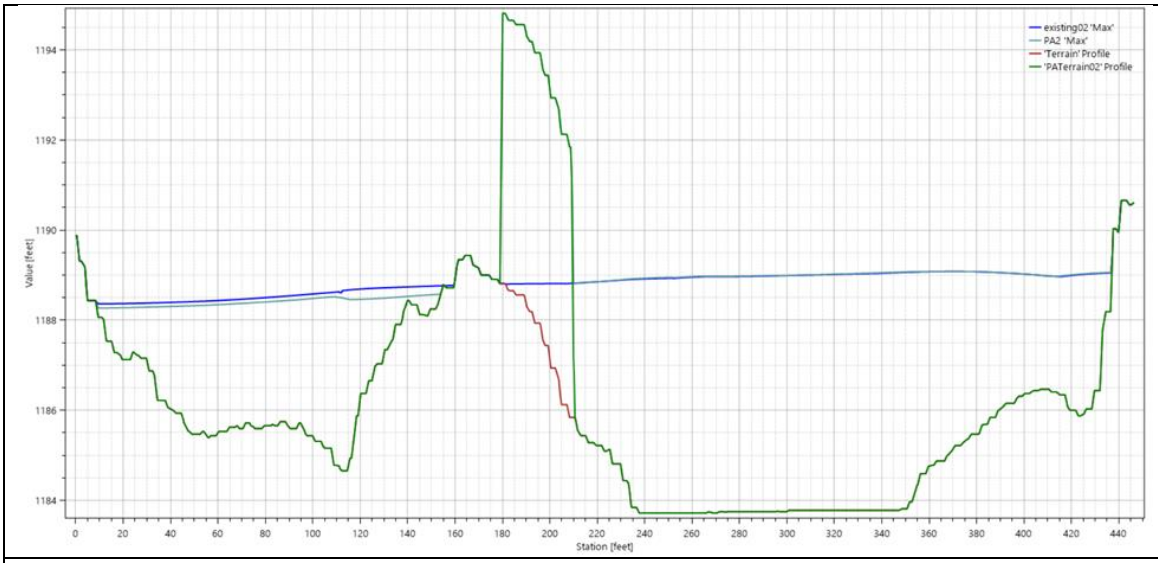

Figure 9. 2D HEC-RAS model of structure 3 at bankfull discharge of 8,850 cfs. Existing (dark blue line) and proposed (light blue line) bankfull water surface elevation along structure 3 cross-section. Green is proposed terrain and red is existing terrain.

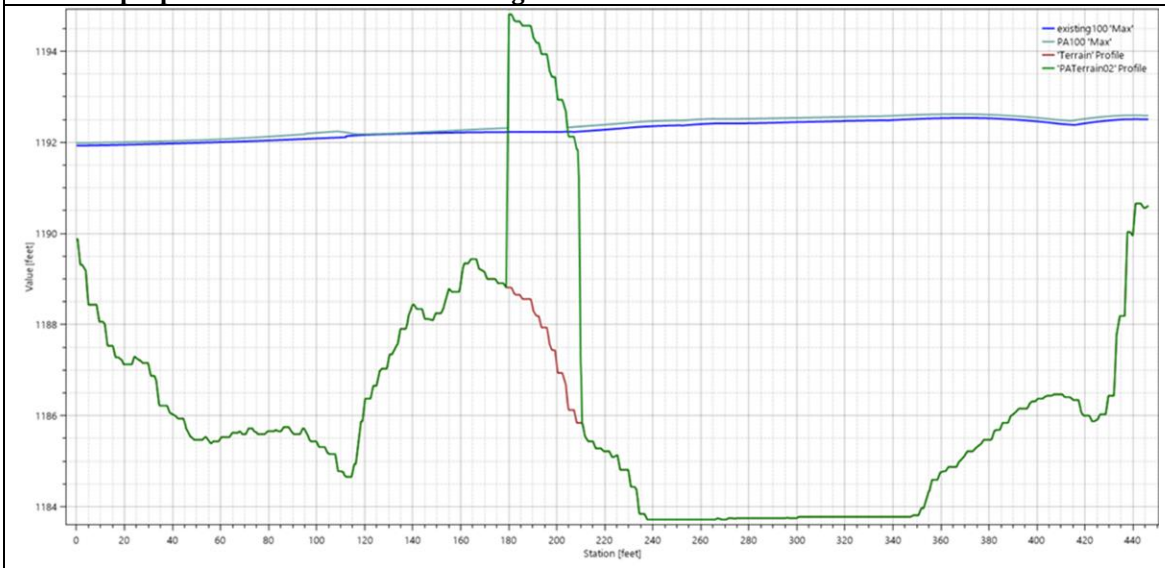

Figure 10. 2D HEC-RAS model of Structure 3 at 100-year discharge of 28,200 cfs. Existing (dark blue line) and proposed (light blue line) 100-year discharge water surface elevation along structure 3 cross-section. Green is proposed terrain and red is existing terrain.

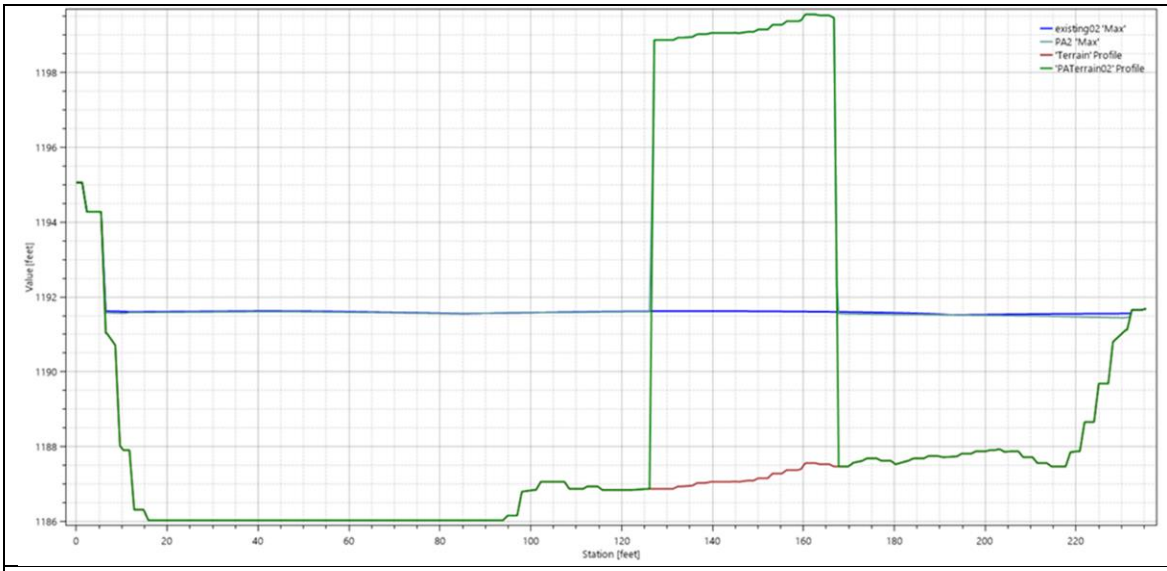

Figure 11. 2D HEC-RAS model of structure 4 at bankfull discharge of 8,850 cfs. Existing (dark blue line) and proposed (light blue line) bankfull water surface elevation along structure 4 cross-section. Green is proposed terrain and red is existing terrain.

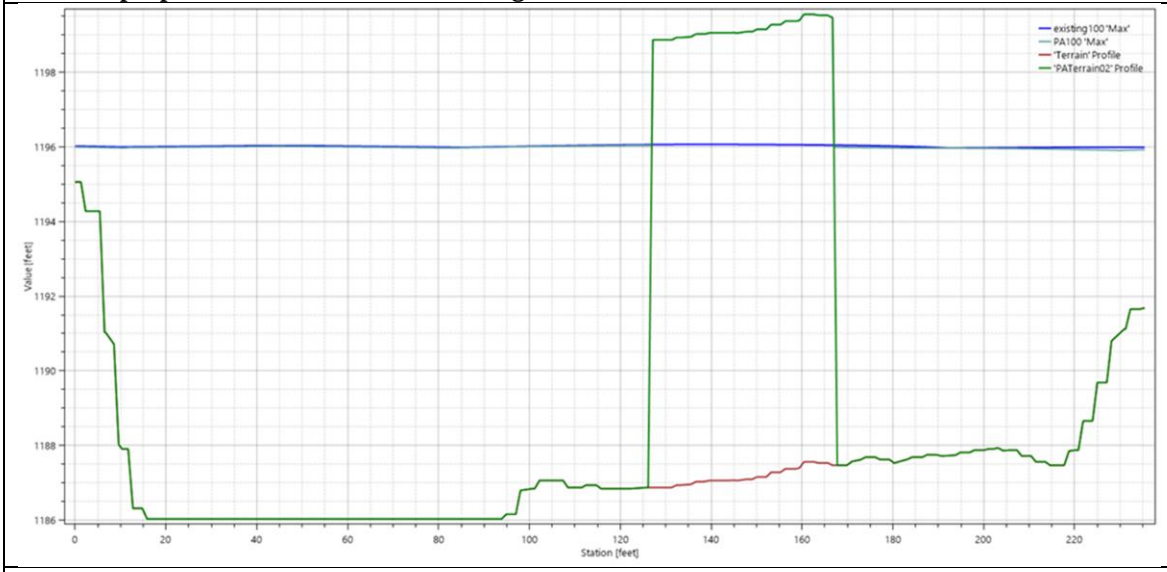

Figure 12. 2D HEC-RAS model of structure 4 at 100-year discharge of 28,200 cfs. Existing (dark blue line) and proposed (light blue line) 100-year discharge water surface elevation along structures 4 cross-section. Green is proposed terrain and red is existing terrain.

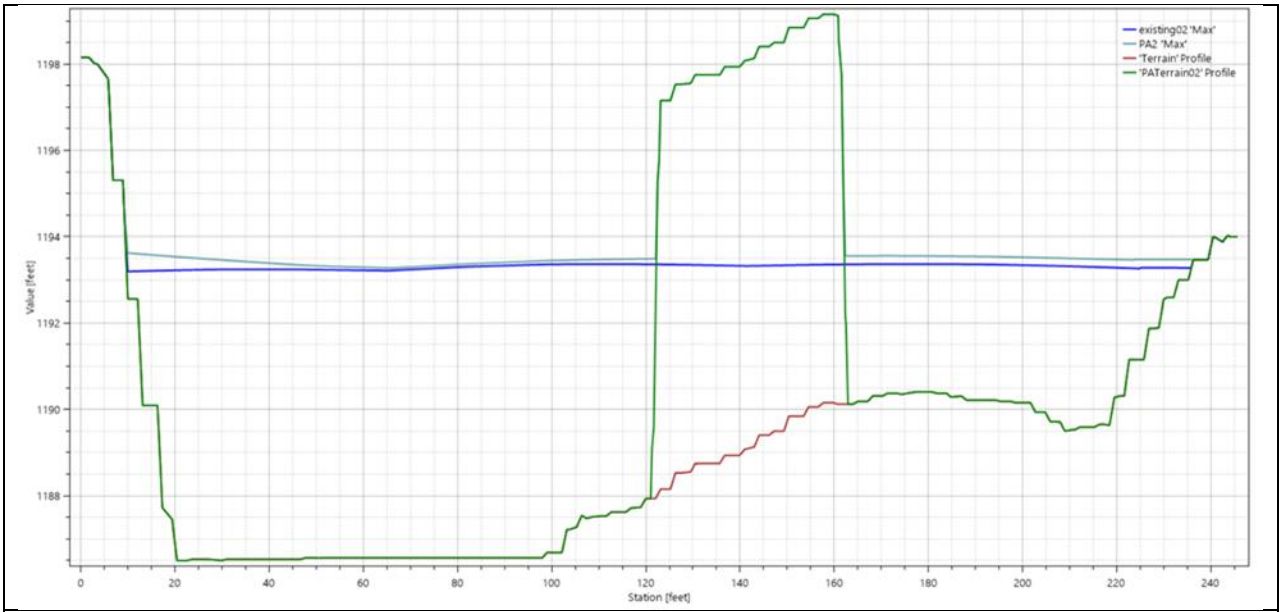

Figure 13. 2D HEC-RAS model of structures 5 at bankfull discharge of 8,850 cfs. Existing (dark blue line) and proposed (light blue line) bankfull water surface elevation along structures 5 cross-section. Green is proposed terrain and red is existing terrain.

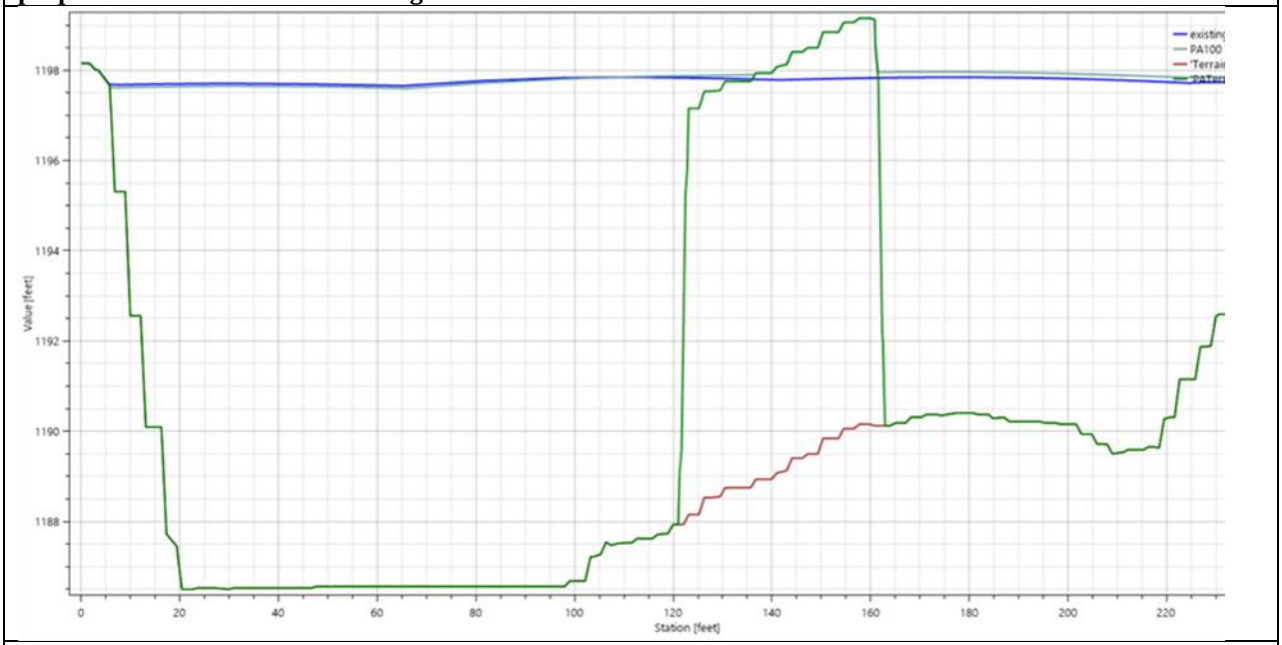

Figure 14. 2D HEC-RAS model of structures 5 at 100-year discharge of 28,200 cfs. Existing (dark blue line) and proposed (light blue line) 100-year discharge water surface elevation along structures 5 cross-section. Green is proposed terrain and red is existing terrain.

Scour at the structure locations were calculated from Karaki and Richardson's equation for scour (Pierre Julien, River Mechanics p. 313) at 28,200 cfs and using the 2D HEC-RAS Froude number model values (Figure 16). Froude values approaching 1 are green and values approaching zero are red.

$$d_s=1.1(L_e/d_1)^{0.4}\cdot Fr^{0.33}\cdot d_1$$

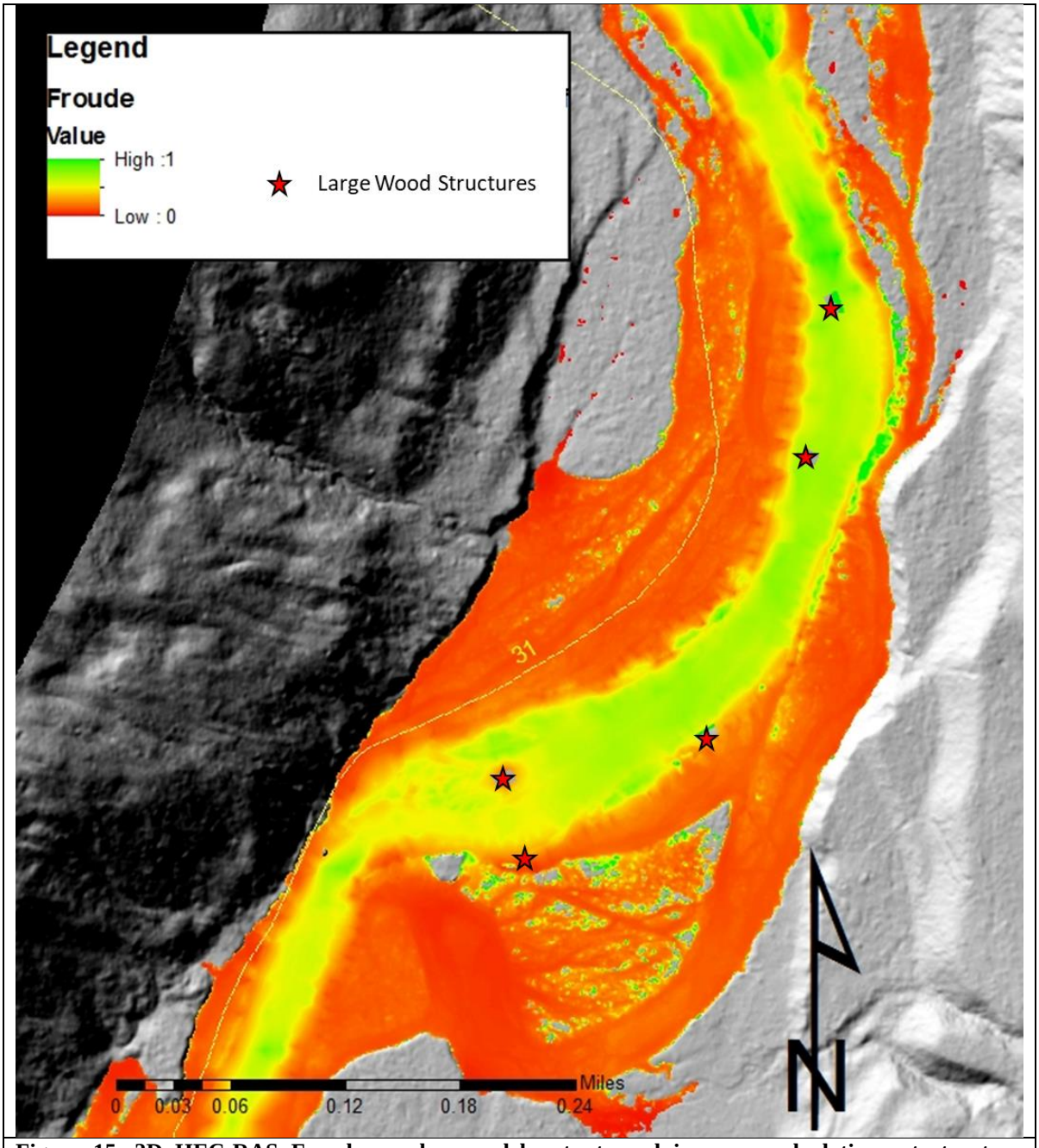

Figure 15. 2D HEC-RAS Froude number model output used in scour calculations at structure locations for Lewis River Reach 21 Phase III at the 100-year discharge of 28,200 cfs.

All Froude values were less than one at all structure sites, indicating subcritical flows and avoiding high potential for scour at structure sites (Table 2). Froude values were higher at the river side of the structure where flow velocities were the greatest. Froude values less than 1 are subcritical while values greater than 1 are supercritical flows with critical flow equaling 1. Supercritical flows are considered a high energy flow state in which there is a high potential for scour at the structure site. An example of supercritical flow would be a white water rapid. The highest Froude value is at structure 5 and is due to the narrow bankfull width that concentrates flow at that cross-section. However, it is still less than one, indicating subcritical flows allowing r high confidence in structure durability.

Table 2. Variables used to predict scour at each structure location. Output is predicted scour and feet of side channel expected to receive maintenance flows due to structure placement.

	Scour Calculation Variables							
Structure Type and Number	**Upstream Flow Depth (ft) @28,000 cfs**	***Froude* Number (2D HEC-Ras Output)**	**Slope at Strucuture (pool head-pool tail)**	**Channel Top Width (Bankfull)**	**Channel Bottom Width (Wetted)**	**Manning's n value**	**Predicted Scour (ft) @ 28,000 cfs**	**Feet of Side Channel**
Apex #8	5	0.4	0.0083	448	200	0.04	11.07	980
FMF #9	10	0.1	0.0083	448	200	0.04	6.43	
Apex #10	6	0.6	0.0083	284	105	0.04	10.79	850
Apex #11	9	0.8	0.0036	242	85	0.04	16.7	
Apex #12	9	0.9	0.0036	182	92	0.04	17.36	635

The placement of apex structures to dissipate flow into side channels will not result in sediment deposition within the side channels during channel forming flows, 8,850 cfs. Boundary shear stress ranged from 0.5 to 2.5 lbs./ft^2. This was estimated by comparing bed shear and sediment analysis as described below.

Bed shear was calculated with the 2D HEC-RAS model (Figure 16). D_{50} Pebble counts taken from the Phase III structure locations reach ranged from 63-66 mm and D_{84} ranged from 173-216 mm which averaged 65 and 198 mm, respectively (Figure 17). The D values represent a sediment size in the cumulative distribution curve in which the sediment size is finer than the value. For example, the sediment size for which 84% of the sediment sample is finer than the 84th percentile.

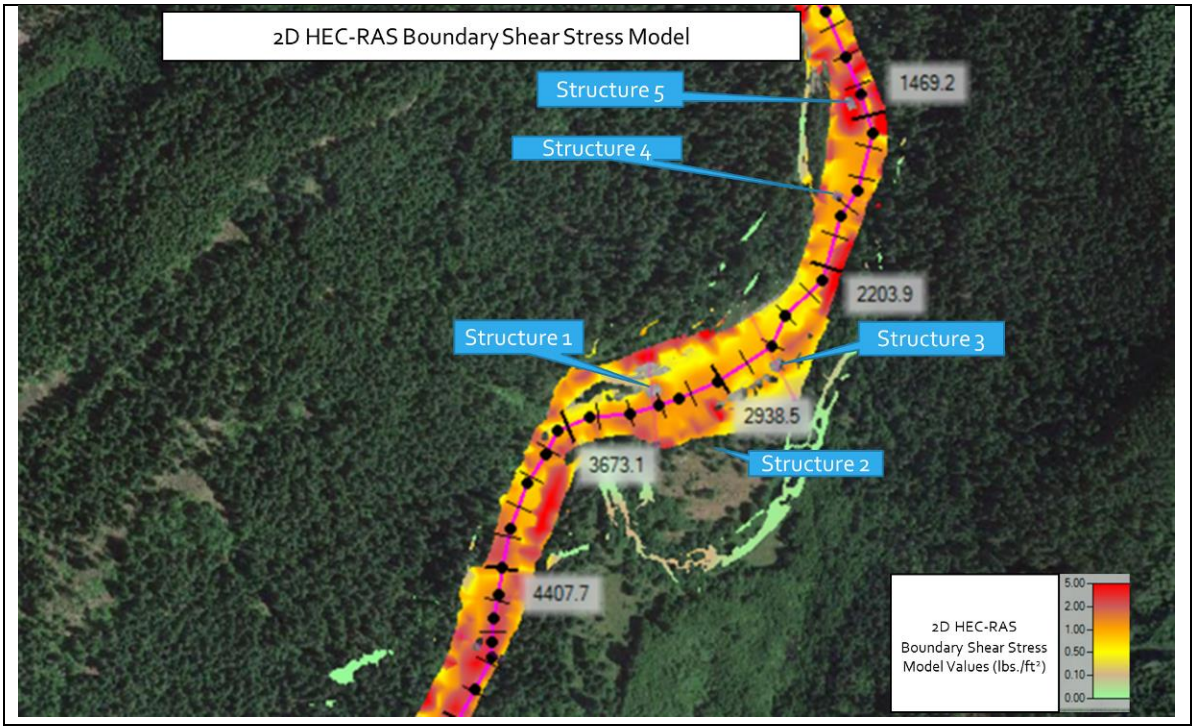

Figure 16. 2D HEC-RAS bed shear model at bankfull channel forming discharge (8,850 cfs) showing reach station numbers (feet) in the gray cells and the bed shear values (lbs./ft^2) in color. The project area is approximately from station 1462.4 to 3673.1.

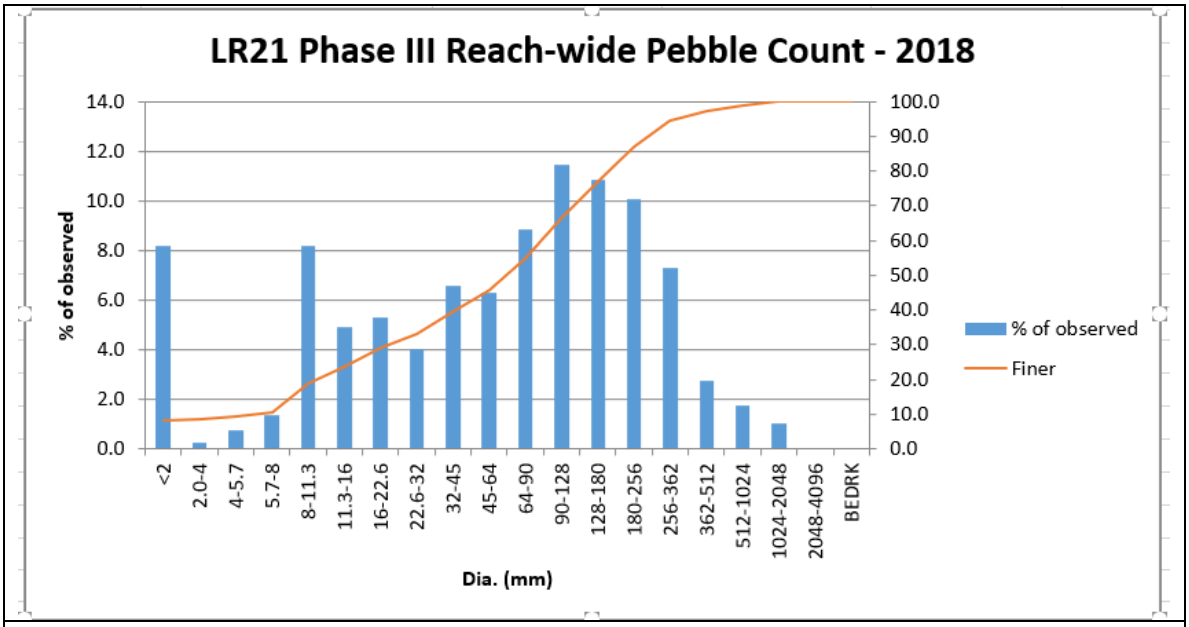

Figure 17. Frequency distribution histogram and cummulative frequency distribution curve for the Lewis River 21 Phase III project area.

The D values can be compared to the critical shear stress at bankfull discharge of 8,850 cfs, (typical channel forming flow), to determine what sized particle would be entrained (Table 3). Bed shear and sediment analysis show that the boundary shear stress values ranged from 0.5 to 2.5 lbs./ft^2. This range allows confidence that by placing apex structures to dissipate flow, the side channels will be maintained as perennial flow and not become depositional channel features.

Table 3. Critical shear stress for particle sizes needed to entrain the smallest particle size in the number interval (D (mm)). Modified from Julien 1995, Journal of Fluid Mechanics.

Particle size classification	*Particle size, D (mm)*	*Angle of repose, ϕ (degrees)*	*Shield's parameter, τ^**	*Critical shear stress, τ_c (lb/ft^2)*
very large boulders	*> 2,048*	*42*	*0.054*	*37.37*
large boulders	*1,024-2,048*	*42*	*0.054*	*18.68*
medium boulders	*512-1,024*	*42*	*0.054*	*9.34*
small boulders	*256-512*	*42*	*0.054*	*4.67*
large cobbles	*128-256*	*42*	*0.054*	*2.34*
small cobbles	*64-128*	*41*	*0.052*	*1.13*
very coarse gravels	*32-64*	*40*	*0.050*	*0.54*
coarse gravels	*16-32*	*38*	*0.047*	*0.25*
medium gravels	*8-16*	*36*	*0.044*	*0.12*
fine gravels	*4-8*	*35*	*0.042*	*0.057*
very fine gravels	*2-4*	*33*	*0.039*	*0.026*

Specific BMPs for the Lewis River 21 Phase III project are specified in the NEPA document. The project will meet the provisions within the MOU. ARBO II specifies resource protection requirements. The project will be in compliance with ARBO II which, as intended, incorporates the terms and conditions of the regional US Army Corps of Engineers RGP-8 permit.

Using BMPs, the provisions of the MOU and requirements within ARBO II ensure that minimal resource damage will occur when implementing instream projects. Examples include worksite isolation to minimize instream turbidity or erosion control measures that limit sediment delivery to the waterbody.

The short-term benefits of the project will be the immediate juvenile refuge from high flow events in the side channels and large wood structure habitats during the first winter months and future winter flows. Long term benefits will include deeper pools maintained

by high flow scour, increased spawning gravel habitat from gravel sorting by the added channel roughness.

Other benefits of the apex structure occupying the cross-sectional area to maintain side channel longevity is the encouragement of other natural processes such as channel migration and the retention of nutrients within the reach.

8. Specific Work Products

Identify specific deliverable results of the project. Project managers will be required to provide status updates with submission of project invoices.

Deliverable 1: Contract submission to the Forest Service contracting department for the Lewis River 21 Phase III project will be completed the first week of April 2020 and obligated to a qualified contractor by June 2020.

Deliverable 2: Tree harvest on USFS land will begin August and will be completed and hauled to the project site September 2020.

Deliverable 3: Instream work will be completed within the instream work window (July 15-August 15) in 2021.

Deliverable 4: A project completion report with project narrative, financial information, description of project successes and lessons learned, and photo documentation will be submitted to the ACC by February 8, 2023.

9. Project Duration

a. Identify project duration. Note that duration of a project funded from Fiscal Year 2020 appropriations may extend beyond the end of the fiscal year.

b. Provide a detailed project schedule to include:
- Initiation of project
- Completion date for each milestone or major task
- Project close-out site visit (with PacifiCorp, Cowlitz PUD, and ACC representatives)
- Monitoring & reporting on results

Project duration will be from spring 2019 through February 2023
Task 1: NEPA and required permits will be completed by February 2020.
Task 2: Harvest and haul of trees from USFS stand 103099 will start in August 2020.
Task 3: Instream Implementation will be completed by August 15, 2021
Task 4: Monitoring will be completed by October 2022.
Task 5: Project site visit would occur during June 2022 after one year of flow.
Task 6: The final report will be submitted in February 2023

10. Permits and Authorizations

Identify any applicable permits and resource surveys required for project. Please include timeline for obtaining and any action taken to-date. Applicant will be responsible for securing all such necessary permits.

Obtain permission of all owners of land used for access to and completion of the project. **Landowner(s) must sign PacifiCorp's Release Agreement prior to finalization of a Funding Agreement with PacifiCorp (Attachment C).**

Resource surveys have been completed for the Phase III project area and NEPA will be completed March 2020. As per requirements under ARBO II programmatic consultation with the USFWS and NOAA, tipped trees are selected by a wildlife biologist during a site visit immediately prior to implementation.

BMP are specified in the NEPA and include the provisions within the MOU. The project will be in compliance with the requirements of ARBO II which allows the project to meet the terms and conditions of the regional US Army Corps of Engineers RGP-8 permit.

11. Matching Funds and In-kind Contributions

If applicable, describe any matching funds and/or in-kind contributions that you have secured or have requested through other means. Matching funds are those funds contributed to the project from other funding sources. In-kind contributions may include donated labor, materials, or equipment. Please be specific in your description of contributions and use of volunteers (e.g. ACE construction is donating 8 hours of backhoe operation including operator).

Table 4. USFS In-Kind funds for the Lewis River 21 Phase III project.

USFS IK Funds		
Lewis River 21 Phase III		
Pre-Treat Weeds	Skamania County Youth Success	$5,000
NEPA Analysis @400/day		
	Heritage	$2,000
	Hydrology	$2,000
	Botany	$2,000
	Fisheries	$2,000
	Wildlife	$2,000
	Silviculture	$2,800
HEC-RAS Model		
Contracting	Contracting Officer	$2,000
Trees @ $50/tree (w/rootwad)	500	$25,000
Project Management; Administrative, reporting, site visits, monitoring lead, etc.	70 days	$28,000
	USFS In-Kind SUB-TOTAL	**$72,800**

12. Peer Review of Proposed Project

It is encouraged that the Full Proposal be reviewed by an independent resource professional prior to submission for funding. Focus of such review should be on biological value, site selection and proposed methodology. Please note who completed the review and contact information. This does not have to be a third party review, and can come from someone associated with the sponsoring organization. For large wood projects in the mainstems of the Lewis or Muddy River, a peer review is required.

The Lewis River Phase III project was peer reviewed by Brian Bair, Watershed Restoration Projects Lead, USFS, Washington D.C. Office, Enterprise Program. brian.bair@usda.gov

13. Budget

Provide a **detailed** budget for the project stages (Final design, Permitting, Construction, Signage, Monitoring/Reporting) by work task. Include:

- Personnel costs
  - Labor and estimated hours for each project employee
  - Operating expenses
  - Supplies and materials
  - Mileage
  - Administrative overhead
  - Insurance expense, in accordance with Appendix A

If in-kind contributions have been acquired, please note contributions according to project stage within the budget.

Table 5. Requested funds from the ACC for the Lewis River 21 Phase III project. Project request includes engineering support in the amount of $77,000.

Requested ACC Funds		
Lewis River 21 Phase III		
Full Engineering Design; Quantities, Durability, Ballast, and Risk Assessment		
Civil Engineer (P.E.)	14 days @ $1,040/day	$14,560
Civil Engineer (Watershed Restoration Certifed)	14 days @ $1,040/day	$14,560
Project Lead	5 days @ 1,000/day	$5,000
Geomorphologist	72 hours @ 125/hour	$9,000
Travel, Lodging, Per Diem, and Misc. for site visit	Air= $850, Lodging =$470, Per Diem= $330, Misc.=$200	$1,850
Engineering Construction Oversite (Including transportation Per diem and Lodging)		
Civil Engineer (P.E.)	112 hours @130/hour (12 hour days)	$14,560
Civil Engineer (Watershed Restoration Cert)	112 hours @130/hour (12 hour days)	$14,560
Project Lead	24 hours @125/hour (12 hour days)	$3,000
Travel, Lodging, and Per Diem for Oversite	Air= $1,700, Lodging =$2,068, Per Diem= $1,265	$5,033
Mobilization (based on current BPA task order cost) for Harvest/Haul and Instream Implementation	Lump Sum	$12,500
Harvest and Haul	Lump Sum	$90,000
Implementation		
Skidder (150 for initial and 50 hrs for tipped trees and misc.)	200 hrs @ $135	$27,000
Excavator #1 Instream	200 hrs @ $165	$33,000
Excavator #2 Instream	200 hrs @ $165	$33,000
Erosion Control/Revegetation/ Pre-treat Weeds (Ska Co.)	Road fabric, plants, and weed treatment	$8,500
Laborer/Sawyer (Silt fence, saw, etc,)	40 hrs @ $65	$2,500
COR Construction Oversite/ Implementation	30 days @ $400 (12 hour days)	$12,000
Monitoring/ Reporting	Hydro Technician (2) 200/day 12 days	$4,800
	ACC SUB-TOTAL	**$305,423**

14. Photo Documentation (*Per National Marine Fisheries Service's Biological Opinion for Relicensing of the Lewis River Hydroelectric Projects – August 27, 2007*):

    Identify process or methodology project will include and provide "*photo documentation of habitat conditions at the project site before, during and after project completion".*

    a. "Include general views and close-ups showing details of the project and project area, including pre- and post-construction".

    b. "Label each photo with date, time, project name, photographer's name, and documentation of the subject activity".

    Please provide schedule of when photo documentation will be provided to the ACC.

Photo documentation will be collected by photo point locations marked by rebar and identified with latitude and longitude. To provide a similar pre and post photographic view, azimuths will be included. Each photo will be labeled with a date, time, project name, photographer's name, and documentation of the subject activity. Both close-up and panoramic views will be included.

Photo documentation will be included in the completion report provided to PacifiCorp in January 2023.

15. Insurance. All qualifying applicants shall comply with PacifiCorp's insurance requirements set forth in Appendix A. The policy limits are deemed sufficient by PacifiCorp for project activities involving significant risk, including placement of large woody debris in navigable waterways, and are presumed to be sufficient for all activities likely to be funded under this Full Proposal Form. Should applicant's insurance program not meet these requirements, bid pricing should include any additional costs applicant would incur to comply with these requirements.

Appendix A
Insurance Requirements
(Risk Mgmt to evaluate risk by project and report needed insurance limits to Lewis River Project Coordinator)

1. INSURANCE

Without limiting any liabilities or any other obligations of [CONTRACTOR], [CONTRACTOR] shall, prior to commencing the Project, secure and continuously carry with insurers having an A.M. Best Insurance Reports rating of A-:VII or better the following insurance coverage:

1.1 Workers' Compensation. [CONTRACTOR] shall comply with all applicable Workers' Compensation Laws and shall furnish proof thereof satisfactory to PacifiCorp prior to commencing the Project.

All Workers' Compensation policies shall contain provisions that the insurance companies will have no right of recovery or subrogation against PacifiCorp, its parent, divisions, affiliates, subsidiary companies, co-lessees, or co-venturers, agents, directors, officers, employees, servants, and insurers, it being the intention of the parties that the insurance as effected shall protect all parties.

1.2 Employers' Liability. Insurance with a minimum single limit of $1,000,000 each accident, $1,000,000 disease each employee, and $1,000,000 disease policy limit.

1.3 Commercial General Liability. The most recently approved ISO policy, or its equivalent, written on an occurrence basis, with limits not less than $1,000,000 per occurrence/ $2,000,000 general aggregate (on a per location and/or per job basis) bodily injury (with no exclusions applicable to injuries sustained by volunteers working or participating in the Project) and property damage, including the following coverages:

a. Premises and operations coverage
b. Independent contractor's coverage
c. Contractual liability
d. Products and completed operations coverage
e. Coverage for explosion, collapse, and underground property damage
f. Broad form property damage liability
g. Personal and advertising injury liability, with the contractual exclusion removed
h. Sudden and accidental pollution liability, if appropriate
i. Watercraft liability, either included or insured under a separate policy

1.4 Business Automobile Liability. The most recently approved ISO policy, or its equivalent, with a minimum single limit of $1,000,000 each accident for bodily injury and property damage including sudden and accidental pollution liability, with respect to

[CONTRACTOR]'s vehicles whether owned, hired or non-owned, assigned to or used in the performance of the Project.

1.5 Umbrella Liability. Insurance with a minimum limit of $4,000,000 each occurrence/aggregate where applicable to be provided on a following form basis in excess of the coverages and limits required in Employers' Liability insurance, Commercial General Liability insurance and Business Automobile Liability insurance above. [CONTRACTOR] shall notify PacifiCorp, if at any time their minimum umbrella limit is not available during the term of this Agreement, and will purchase additional limits, if requested by PacifiCorp.

In addition to the requirements stated above any and all parties providing underground locate, engineering, design, or soil sample testing services including [CONTRACTOR], subcontractor and all other independent contractors shall be required to provide the followings insurance:

Professional Liability: [CONTRACTOR] (or its contractors) shall maintain Professional Liability insurance covering damages arising out of negligent acts, errors or omissions committed by [CONTRACTOR] (or its contractors) in the performance of this Agreement, with a liability limit of not less than $1,000,000 each claim. [CONTRACTOR] (or its subcontractors of any tier) shall maintain this policy for a minimum of two (2) years after completion of the work or shall arrange for a two (2) year extended discovery (tail) provision if the policy is not renewed. The intent of this policy is to provide coverage for claims arising out of the performance of work or services contracted or permitted under this Agreement and caused by any error, omission for which the [CONTRACTOR] its subcontractor or other independent contractor is held liable.

Except for Workers' Compensation insurance, the policies required herein shall include provisions or endorsements naming PacifiCorp, its affiliates, officers, directors, agents, and employees as additional insureds.

To the extent of [CONTRACTOR]'s negligent acts or omission, all policies required by this Agreement shall include provisions that such insurance is primary insurance with respect to the interests of PacifiCorp and that any other insurance maintained by PacifiCorp is excess and not contributory insurance with the insurance required hereunder, provisions that the policy contain a cross liability or severability of interest clause or endorsement, and that [CONTRACTOR] shall notify PacifiCorp immediately upon receipt of notice of cancellation, and shall provide proof of replacement insurance prior to the effective date of cancellation. No required insurance policies, except Workers' Compensation, shall contain any provisions prohibiting waivers of subrogation. Unless prohibited by applicable law, all required insurance policies shall contain provisions that the insurer will have no right of recovery or subrogation against PacifiCorp, its parent, affiliates, subsidiary companies, co-lessees, agents, directors, officers, employees, servants, and insurers, it being the intention of the Parties that the insurance as effected shall protect all parties.

A certificate in a form satisfactory to PacifiCorp certifying to the issuance of such insurance shall be furnished to PacifiCorp prior to commencement of the Project by [CONTRACTOR] or its volunteers or contractors. If requested, [CONTRACTOR] shall provide a copy of each insurance policy, certified as a true copy by an authorized representative of the issuing insurance company, to PacifiCorp.

[CONTRACTOR] shall require subcontractors who perform work at the Project to carry liability insurance (auto, commercial general liability and excess) workers' compensation/ employers' or stop gap liability and professional liability (as required) insurance commensurate with their respective scopes of work. [CONTRACTOR] shall remain responsible for any claims, lawsuits, losses and expenses including defense costs that exceed any of its subcontractors' insurance limits or for uninsured claims or losses.

PacifiCorp does not represent that the insurance coverage's specified herein (whether in scope of coverage or amounts of coverage) are adequate to protect the obligations [CONTRACTOR], and [CONTRACTOR] shall be solely responsible for any deficiencies thereof.