

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

Anderson NF Lewis River Restoration

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

Darin Houpt, 2125 8th Avenue; Longview, WA 98632, ccdmgr@ccdandwcd.com, 360-425-1880 extension 3514.

3. Identification of problem or opportunity to be addressed

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

Several factors contribute to the problem(s) addressed by this project proposal. Hydromodifications in the NF Lewis River has resulted in an imbalance between hydrology and sediment routing in the river. The prior landowner effected one of the primary modifying factors influencing the hydrology to sediment balance by removing the riparian buffer vegetation. The result was a loss of root strength in the soil contributing in accelerated erosion of the riverbank. Channel geometry at the project site exacerbates the erosion and lateral migration. The channel bend turns over 270 degrees essentially forming a horseshoe. Channel configuration results in a backwater condition. Bedload has been dropping out at

the Anderson location for decades. The aggradation of bedload is encouraging lateral migration. The combination of lost root strength (riparian function) and channel conditions culminates in excessive erosion of the right bank through the Anderson parcel. The riverbank erosion delivers fine sand to the river. The fine sediment delivery is influencing habitat at the project reach but more important within the downriver reaches. The loss of riparian buffer vegetation has resulted in lost riparian function. Of importance at the site are root strength in the erodible soils, shade, wood recruitment, and allochthonous detritus. All are high priority resource concerns for the NF Lewis River mainstem reaches below Merwin dam.

The current landowner represents an opportunity to address these resource concerns. In cooperation with Cowlitz Conservation, this proposal will treat the riverbank to, in the short-term establish a roughened condition that will encourage the river to slow lateral migration and continue routing bedload through the reach. The riverbank will be shaped to facilitate establishment of riparian vegetation to restore absent riparian functions to manage the project reach over the long-term. The reduction of fine sediment delivery will improve water quality and downstream fish habitat. The project encompasses downstream land ownership and proposes to address concerns for fine sediment (sand) embedding the cobble substrate effectively reducing rearing habitat for 0-age fry.

The shear cost of restoration limits the landowner's ability to effectively address the resource concerns he acquired without some form of assistance. Unfortunately, riverbank stability is a priority resource concern identified in the recovery plan for the middle reaches of the NF Lewis River (3-5) and there are several that believe non-industrial private ownership should not benefit from assistance. It will be difficult to implement the salmon recovery plan, if this section of the ownership is left out of consideration.

4. Background

The proposed project encompasses 3670 feet of the right bank in EDT Reach Lewis 5. The project engages three landowners with highly diverse habitat associated with a point bar feature in the river. The Anderson parcel is on the upstream end of the point bar and is the parcel with riverbank erosion concerns. The concerns originate due to river morphology and the loss of riparian function. The river backwaters as it flow around a horseshoe (>270 degree) meander bend. The backwater promotes sediment deposition in the river adjacent to the Anderson parcel. The sediment deposition, highly visible as mid-channel bar deposit, encourages the river to widen and seek a path of lesser resistance. The prior landowner removed the riparian vegetation eliminating the root strength in the riverbank. Lateral migration eventually recruited encompassed the residence and the landowner sold the property. Downstream of the Anderson parcel is the Levesque parcel. This parcel is located at the cross over in the river just upstream of the meander bend. This parcel is not developed and is predominantly forested. The stand conditions are poorly to moderately stocked mixed conifer and hardwood stand that is mature. The parcel serves as its own an analog for the treatment proposed. The river has recruited mature Douglas-fir trees over the past few years. These have entered the river and the canopy has swung downstream. The whole tree

paralleling the riverbank results in accumulation of bedload along the channel margin encouraging the cross over to shift toward the left bank. These trees persist for a year or two until they continue their journey on down the watershed during high water. The project proposes to incorporate whole tree structure along the bank but anchor the trees so that they persist. The Lewis River Golf Course (Stading) parcels are located on the downriver side of the point bar. The property is located along the tail out of the large scour pool on the meander corner. According to WDFW, this portion of the project reach is highly utilized by Chinook, Coho, and historically Chum. The resource concern in this portion of the project reach is the sand that is accumulating and embedding the cobble substrate used by rearing juveniles.

The North Fork Lewis Subbasin chapter of the Washington Lower Columbia Salmon Recovery and Fish and Wildlife Plan is separated into the Lower NF Lewis and the Upper NF Lewis River. The Lower NF Lewis includes the mainstem and tributaries downstream of Merwin Dam. The proposed project succinctly fits into the strategies and priorities presented in the plan. Key priorities to “Restore Floodplain Function, Riparian Function and Stream Habitat Diversity”, “Manage Growth and Development to Protect Watershed Processes and Habitat Conditions”, and to “Address Immediate Risks with Short-term Habitat Fixes” are well aligned with the proposal. The project will restore riparian function along 3670 feet of the right bank and install wood-based structure to improve and maintain stream habitat diversity. The Anderson parcel is a perfect example of land use changes that impact habitat conditions. The current landowner is attempting to work cooperatively and collaboratively with many stakeholders to address the resource concerns impairing reach conditions. The proposed project implements short-term habitat fixes to address reach level limiting factors and priorities while providing long-term practices that will continue to address limiting factors and aid in implementing the restoration strategy for the lower NF Lewis River.

The Lower Columbia Salmon Recovery and Fish and Wildlife Plan Habitat Strategy identifies the restoration needs and the primary limiting factors for priority life stage for each species on a reach by reach basis. Within the tier 1 Lewis 5 reach “floodplain function and channel migration processes, riparian conditions and functions, stream channel habitat structure and bank stability, and water quality are high priority restoration needs for Chum (Primary population with high reach potential), Coho (Contributing population with high reach potential), Fall Chinook (Primary population with moderate reach potential), and Winter Steelhead (Contributing population with low reach potential). Primary limiting factors for Chum are predominantly habitat diversity and quantity for holding and migrating fish, spawning, egg incubation, and fry colonization life stages. According to WDFW, Chum have historically been observed spawning on what is now sand laden floodplain. For coho primary limiting factors also include habitat diversity and quantity of spawning through rearing life stages. The proposed structures on the Stading parcels will help improve rearing habitat particularly for the 0-age rearing life stage. A reduction in fine sand delivery may assist with improved substrate condition that could influence spawning on the pool tail out along the Stading parcel. As for coho, Fall Chinook primary limiting factors include habitat quantity for spawning through rearing life stages. Reduction in fine sediment delivery and creating localized scour along the Stading parcel will help address these concerns. Winter Steelhead limiting factors are similar to those identified for coho and Winter Steelhead.

WDFW input into the design process recognized that reduction of the fine sediment delivery from the Anderson parcel riverbank is a high priority with respect to addressing impacts observed to rearing habitat well downstream of the impact site.

Left unchecked the existing riparian buffer vegetation will continue to unravel and be recruited to the river. The rate of fine sand delivery to the river will increase exponentially. Instead of trending toward the positive, riparian function will decline within the reach. Water quality will continue to degrade due to excessive inputs of fine sediment from the riverbank. Local fisherman shared their observation of fish spawning in the reach especially downstream of the meander scour pool. Their observations indicate that excessive sands embedding the gravels make redd construction increasingly difficult. The riverbank tends to deliver fine sand in slugs to the river during freshets. Once eggs are in the gravel, a rapid input of fine sand can easily smother eggs decreasing egg incubation.

The riverbank condition has been a concern of local landowners beyond the project parcels. Neighboring ownerships have invited Portland News to their property yet have expressed concern with the eroding riverbank at the Anderson Site. Their individual concern is whether their property is next. They expressed concerns regarding the rate at which the erosion appears to be happening and the inability to find and implement a solution to the concern. The proposed project may present a much-needed public relations boost within the watershed to demonstrate that local solutions can be realized.

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.)

5. Project Objective(s)

GOAL

The goal of this proposal is to continue to add to the collective body of restoration work in the Lewis River that addresses the primary limiting factors for priority life stages of Chinook, coho, steelhead, and chum salmon in order to recover salmon in the subbasin.

Objectives

- 1) Reduce the accelerated rate of fine sediment from about 400 feet of rapidly eroding riverbank. This directly aligns with subbasin strategies to restore riparian function and to manage growth and development to restore watershed processes. The objective addresses reach level limiting factors including water quality, sediment, habitat diversity and habitat quantity. Several practices will be implemented to achieve this objective including:
 - installing wood-based structure that will provide several functions including:
 - retain river cobble: gravel along the toe of the slope
 - reduce shear stress along the toe of the slope effectively reducing erosion that is undermining the riverbank
 - reduce velocity (and shear) influencing the lower riverbank

- provide a stable point from which to shape the upper riverbank.
 - Shape the upper riverbank to provide a suitable site (slope) onto which riparian restoration practices can be implemented with priority on re-establishing effective root strength in the riverbank soil. Bank shaping will include a provision to incorporate organic matter into the riverbank soils to improve plant growth if a viable source can be solicited.
 - Protect the shaped bank from both rainfall and river flow erosion by seeding the bank with a suitable erosion control seed mix (30 lbs./ac.), installing mulch fabric and overlaying mulch fabric with a jute geogrid, anchoring the fabrics with dead stakes, and planting the slope with live cuttings of willow and red osier dogwood.
- 2) Install whole tree spruce style structure along the Levesque parcel to protect the toe of the slope and to encourage the accumulation of a cobble and gravel substrate matrix that will further promote rearing habitat. This object meets limiting factor priorities for habitat quantity and habitat diversity.
 - 3) Install single log, or log with rootwad, structure along the Stading parcel to promote localized scour that will reduce the volume of fine sediment embedded in the substrate. The intent is to promote rearing habitat particularly 0-age life stage. This object meets reach level priority limiting factors including sediment, habitat diversity, and habitat quantity.
 - 4) Implement Riparian Restoration on about 12 acres of riparian buffer. This objective includes two approaches. The first planting prescription is for establishing the riparian buffer along the eroding riverbank on the Anderson parcel. This includes high density planting of shrub cuttings on the shaped bank to immediately establish root strength in the slope. Beyond the shaped bank riparian buffer vegetation will shift toward typical species composition including red alder, western red cedar, and Douglas-fir intermixed with shrub species. The second prescription is for interplanting shade tolerant conifer into the existing riparian buffer. The intent is to promote natural succession and to elevate buffer density to a fully stocked condition. This objective meets subbasin strategies to restore riparian function and to manage growth and development to restore watershed processes. This objective also provides benefits to upland wildlife.

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.

The Aquatics Fund Subgroup to the ACC has completed a Lewis River Aquatic Fund Priority Reaches (Priority Reaches) document which provides priority rankings for stream reaches within the Lewis River watershed. The Priority Reaches document is aligned with the LCFRB Interactive map which is found on their website at

www.lowercolumbiasalmonrecovery.org/mappage. The interactive maps provide a wealth of information that should help project proponents in selecting areas to focus their habitat improvement efforts. For consideration of funding the proponent must demonstrate that they have reviewed both the Priority Reaches and the LCFRB Interactive map and selected appropriate projects/reaches from those two tools. Additionally, proponent must show how proposed project is consistent with fund objectives and priorities. Projects proposed in reaches other than those identified in the Priority Reaches document or high priority reaches in the LCFRB habitat strategy (Tier 1 and Tier 2) need a clear explanation of why they still support Lewis River Aquatic Fund goals.

6. Tasks

1) Develop project specifications document to accompany design sheet plan set: This task is to basically prepare the contracting package to provide to potential contractors. This document provides equipment and material specifications, describes the planned structures in detail, and general requirements such as spill prevention, worksite isolation, and administrative processes. The specifications document is designed to aid the contractor with developing a bid and to guide successful implementation of the project.

2) Complete a cultural site investigation: This is a requirement to satiate federal permitting requirements.

3) Obtain all applicable local, state, and federal permits: We intend to apply through the streamlined JARPA for fish enhancement projects. We anticipate that local (county) permits will be waived however we do solicit any feedback offered by county regulators. State review will result in a hydraulic project approval and conservation license from Department of Natural Resources for projects on State Owned Aquatic Lands. Department of Ecology 401 water quality certification should be accounted for through the federal permitting process. Federal review will include a 404 permit from the Army Corps of Engineers. WDFW biologist have reviewed the project plan set and have visited the site. The Area Biologist is supportive of the proposed project and no permit issues are anticipated. A cultural field assessment will be completed to round out federal permitting needs. WDNR SOAL staff have visited the site and have issued the landowner acknowledgement. This does not guarantee a conservation license to construct the project. The DNR SOAL manager indicated that she liked the project and the project approach. We do not anticipate any issues with obtaining the conservation license.

4) Enter into project agreements with landowners: Cowlitz Conservation District enters into a landowner agreement for all project work based on agreement language adopted from salmon recovery funding processes.

5) Complete field construction staking and project layout. This will include establishment of permanent photo points for monitoring the project: Structure locations, grading limits, material stockpile and disposal sites will be delineated in the field prior to contracting site show. An attempt is made to identify photo documentation sites; however, it is not uncommon to add additional sites during and following construction to better monitor the project. Monitoring includes effectiveness of constructed wood-based structure and establishment of riparian

vegetation.

6) Collect pre-construction photo documentation from fixed photo points: This task will photo-document the existing condition to provide the basis from which the project can be assessed.

7) Competitive bid process to select construction contractor and riparian restoration contractor: The District will adhere policies regarding from solicitation of contracted services to construct the project and to conduct riparian restoration activities. Policies are derived from those provided by the Washington State Conservation Commission “Grant Program Administrative Procedure manual.

8) Procure large woody debris necessary to construct the project, erosion control fabrics and dead stakes, and trees/shrubs necessary for riparian restoration: The district attempts to provide materials needed for construction of the project. This helps ensure that quantity and specifications for materials are adhered to. It also helps ensure that contractors can see exactly what they are expected to handle in order to construct project elements.

9) Construct the project including documentation of as-built conditions and construction photo documentation. Construction includes installing signage typically required by the DNR Conservation License to address safety concerns with recreational use. An additional subtask to address boating hazards includes removal of a well casing in the thalweg. The residence recruited to the river included the well. About 2 feet of the casing is visible during the usual boating window. The plan is to have the casing cut and capped at bed elevation to alleviate this hazard. District staff provides construction oversight to ensure that the project is constructed in accordance with plans and specifications and to document the as-built conditions to ensure that structure stability is fully accounted for.

10) Summer plant shaped bank with live stakes: This task may include reforestation contractor or in-kind contribution provided by the landowner. The intent is to install live stakes that help secure erosion control fabrics and to initiate establishment of root strength within the riverbank. Successful establishment rates have varied between 50% and 90% depending on local soils and climate conditions heading into winter. The site will be monitored to determine survival with plans to restock the live stake cuttings during the more customary February to march planting window.

Summer planting consists of planting the slope with cuttings on a 1-foot spacing for the first five feet of elevation and 3-foot spacing to the hinge at the top of bank. Cuttings will average 1-inch in diameter and range from three to five feet in length. Cuttings will be planted on 1 foot spacing in alternating rows as lives stakes to help secure erosion control fabric and to establish root strength. This treatment will be installed in the first five feet of elevation from the top of wood up. From the five-foot elevation up to the hinge at the top of bank cuttings will be planted on a 3-foot spacing in alternative rows. Cuttings will consist of both willow (*Salix spp*) and red osier dogwood (*Cornus Sericea*). Cuttings are installed with a slight lean in the upstream direction. This serves to secure erosion control fabrics and adds to resistance of the fabric lifting from the slope.

11) Conduct any required site preparation treatments to create planting sites for interplanted trees and shrubs: Areas of afforestation (adjacent to Anderson riverbank treatment) will have planting sites prepared by clipping the grass and preparing planting sites through chemical spot spray. Planting spots will be treated on an approximate 10-foot spacing (436 trees per acre). Spots will be a minimum of 3-foot diameter. This practice will likely be an in-kind contribution by the landowner. Within the existing riparian buffer site preparation will include chemical treatment and mechanical treatment of invasive weeds (blackberry thickets) and shovel scalping planting sites while planting. Mechanical treatment includes scarification with the toothed bucket of the excavator as it accesses structure installation locations. Chemical treatment will include a foliar spray via backpack sprayer using an aquatic grade of triclopyr (example tradename Garlon 3A).

12) Plant riparian buffer and assess effectiveness of summer planted live stakes (restock as needed): The existing riparian buffer shall be planted with shade tolerant species. Site preparation needs primarily encompass treating thickets of invasive weeds (blackberry). Some of this will be managed with toothed bucket on the excavator employed to install wood structures. The remainder will consist of a herbicide treatment. A shovel scalp will be employed during planting to ensure that roots are fully engaged with mineral soil. Live stakes summer planted into the erosion control fabric will be assessed for survival. Any mortality will be replanted during winter months to improve survival.

In the areas to be afforested, planting will include species typical of riparian corridors in southwest Washington including red alder (*alnus rubra*), Douglas fir (*pseudotsuga menziessi*), western red cedar (*thuja placate*) and a compliment of shrub species including blue elderberry (*sambucus cerulea*), service berry (*Amelanchier alniflora*), Snowberry (*Symphoricarpos alnus*), Cascara (*Rhamas purshiana*), and wild rose (*Rosa nutkana*). Trees will be planted in groups befitting their ecological niche in the buffer. Shrubs will be planted in small clusters 5 shrubs per planting spot scattered throughout the tree matrix. Cascara will be planted along the roadside edge of the buffer.

The remainder of the buffer is currently stocked. Density ranges from poorly to moderately stocked. The plan is to underplant the stands with shade tolerant species to promote natural succession including Western Red Cedar (*Thuja plicata*) and Grand fir (*Abies grandis*), . Along the river edge, hardwood trees will be interplanted amongst existing willow. These species will include Red Alder (*Alnus rubra*) and Black Cottonwood (*Populus trichocarpa*). Planting sites will be prepared during planting by shovel scalping planting site.

Plantings will be inspected at minimum twice a year, once in the spring and once in the fall. Monitoring will key in on survival, identify agents of mortality, and generate prescriptions to ensure successful establishment. The monitoring strategy will include establishment of randomly located fixed radius plots that will be used to monitor survival and identify agents of mortality (microclimate, vegetative competition, and wildlife damage). Monitoring data will be used to prepare prescriptions that will be implemented to improve survival. Anticipated prescriptions include interplanting, vegetative controls (mechanical or chemical), and physical or topical deterrents for wildlife damage.

13) Work with landowner(s) to monitor project site during storm events (freshets): Landowners who are on site daily are expected to continuously monitor the project site and keep the District informed. The District will monitor the site at minimum twice a year to further assess effectiveness of the design to address resource concerns. This will include conducting photo documentation and assessing riparian vegetation establishment via zigzag transects or fixed radius plots (whichever is preferred by the grantor).

14) Compile monitoring documentation and report as required: The District intends to adhere to documentation requirements as set by the grantor.

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.]

7. Methods

A topographic and bathymetric survey was completed using a construction grade total station and data recorder. The survey data was reduced and entered into a CAD program. The CAD program was used to develop a design surface. The design surface was used to extract cross sections for input into a HEC-RAS 1-dimensional flow model and for design purposes. Planned structures were fit to cross sections to allow for structure stability analysis and to ensure structure design met flow elevations of concern. The design plan set is attached.

The conservation district uses information from a wide range of sources including lessons learned from other project sponsors, latest research from academia, guidance from other resource agencies and private industry, and conferences and seminars. However, the primary source of best management practices draws upon the Standards and Specifications provided by the USDA NRCS Field Office Technical Guide. This includes engineering guidance for river restoration projects to biologic guidance such as riparian buffer specifications. Cowlitz Conservation District has successfully utilized these sources for numerous salmon recovery and water quality projects. These best management plans continue to be effectively employed to implement farm plans for agriculture and forest land uses and to implement natural resource programs such as the Conservation Reserve Enhanced Program and Environment Quality Incentive Program.

The project design is directly aligned with the subbasin strategies and habitat measures for the Lower North Fork Lewis River as identified in the salmon recovery plan. Key priorities to “Restore Floodplain Function, Riparian Function and Stream Habitat Diversity”, “Manage Growth and Development to Protect Watershed Processes and Habitat Conditions”, and to “Address Immediate Risks with Short-term Habitat Fixes” are well aligned with the proposal. The plan strategies identify reaches 3-6 has being priority reaches for sediment reduction and riparian restoration.

The habitat strategy provides reach level priorities for priority life stages for each species present in the reach. The restoration rank for the reach is moderately high. The project proposal provides 4 different wood structure configurations that will increase key habitat quantity and habitat diversity a high change in attribute impact in the reach. The proposed streambank stabilization work addresses moderate limiting factors for sediment and channel stability within the reach. The bank work addresses extreme limiting factors for sediment in downstream reaches for egg incubation. Sand being delivered to the river from the riverbank in the project reach during freshets can bury eggs grossly reducing egg incubation. All limiting factors are basically address in the long-term by restoring riparian function. Stream temperature is a moderate limiting factor at the site and in downstream reaches.

The design accounts for seasonal flow conditions. The structure location, type, and vertical and horizontal influence are based upon seasonal changes in flow and the fish utilization during those time frames. The bank stabilization structures are designed to directly engage river flow up to the point that flows crests the left bank and inundates the left bank floodplain. At that stage emphasis shifts over to bank shaping and root strength to protect the right riverbank.

The project provides both short-term and long-term fixes to the restoration and limiting factor priorities resulting in a well-balanced stewardship approach to salmon recovery. Cowlitz CD appreciates landowners that are willing to engage and participate recovery efforts. Their willingness to get involved should be a highly valued consideration, and yes the project should be a win for salmon recovery, should be a win for water quality, and it should be a win with respect to the landowner.

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.*

8. Specific Work Products

The proposed project has simple well-defined opportunities for status updates of the project. Specific work products have been developed around the aforementioned task. These products include:

Contracting the project: This includes completing tasks 1-7. Other grant processes include attaching supporting documents and information. Design documents, permit applications, permits themselves, and secured contractor(s) can all be part of status updates. The proposed

project consists of two project steps. The first is the construction of the project which includes wood-based structure and bank reconfiguration. The second is the riparian restoration activities.

Construction is the biggest item which typically spans the shortest timeframe. Construction is typically completed within a single hydraulic window. Status updates could include as-built drawing of the constructed project as well as photo-documentation.

Riparian Restoration: Planting of the shaped bank should fall within the construction product. The remainder of the riparian restoration tasks start following construction and extend through march of the following year. Documentation regarding status updates would include updates of the number and species of trees and shrubs planted along with initial monitoring data including plot data and photo-documentation.

Monitoring: Monitoring at minimum will be conducted twice a year. We would anticipate submitting an annual update regarding the success of the project including both structural and riparian practices. Included in the monitoring report would be prescriptions developed to adaptively manage the project site to ensure success including the prescription, cost estimate, and implementation schedule.

Adaptive Management: This would include the implementation of prescriptions originating from monitoring efforts. The status of these efforts would simply be conveyed in status update to inform the grantor that adaptive management is occurring as needed.

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

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.*

A lot depends on when final award decisions are made. The Conservation District has a full construction schedule for the 2020 hydraulic window. Our intent would be to have the project ready to construct in the 2021 hydraulic window with riparian restoration to be on the ground by March of 2022.

- 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*

Initiation of project: I am not sure what fiscal year PacifiCorp subscribes to. Project initiation would commence immediately upon project award.

Project startup tasks (contracting, permitting, layout) one through seven (1-7) will commence immediately upon contract award. Many of these tasks may get started prior to contract award. Completing these tasks would target late winter / early spring 2021.

Procurement of Woody Debris (task 8): Request for Quotes for woody debris will go out in late winter / early spring with plans for deliver to occur between May and June of 2021.

Construction tasks (9&10): Construction would occur with the allowed hydraulic window for the Lewis River (assuming July 15 to August 15, 2021). Practices such as installing erosion control fabric and planting live stakes are typically allowed outside the in-water work window and may get completed as late as September 15, 2021.

Riparian Restoration Site Preparation (Task 11): Site preparation will be completed in the fall following construction. Anticipated completion by October 2021.

Riparian Restoration Planting (Task 12): Planting will be completed by March 15, 2022.

Monitoring (Task 13) Monitoring will be completed and reported as requested by the Grantor. Anticipated monitoring periods include pre-project monitoring (May 2021); Post construction monitoring (September 2021); and post riparian restoration (April 2020). The Conservation District intends to continue monitoring woody debris structures, bank shaping, and riparian restoration at least twice a year until riparian vegetation is successfully established (3-5 years). Monitoring will continue regardless of project funding duration.

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.

We intend to apply through the streamlined JARPA for fish enhancement projects. We anticipate that local (county) permits will be waived however we do solicit any feedback offered by county regulators. State review will result in a hydraulic project approval and conservation license from Department of Natural Resources for projects on State Owned Aquatic Lands. Department of Ecology 401 water quality certification should be accounted for through the federal permitting process. Federal review will include a 404 permit from the Army Corps of Engineers. WDFW biologist have reviewed the project plan set and have visited the site. The Area Biologist is supportive of the proposed project and no permit issues are anticipated. A cultural field assessment will be completed to round out federal permitting needs. WDNR SOAL staff have visited the site and have issued the landowner acknowledgement. This does not guarantee a conservation license to construct the project. The DNR SOAL manager indicated that she liked the project and the project approach. We do not anticipate any issues with obtaining the conservation license.

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).

We do not foresee any difficulty in obtaining permission of all owners and execution of PacifiCorp's Release Agreement.

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).

Curt Anderson has already submitted and was approved for a \$50,000 cost share application to assist with the project through the Washington State Conservation Commission. The award is a 75:25 percent cost share to landowner agreement. This means that the landowner will commit \$16,667 dollars in local share to use the \$50,000 cost share award.

The landowners, Curt Anderson, is working with the District to identify other aspects of the project that he can assist with as an in-kind contribution. The simplest is to have him assist with the erosion control practices planned for the shaped bank. This includes installation of the erosion control fabric, site preparation, and tree planting. Erosion control includes seeding the

shaped bank, installing mulch fabric, installing the coir geogrid, installing dead stakes, and installing live stakes. We anticipate that this will require a 3-4-person crew about 40 hours each to fully complete. Site preparation includes clipping existing grass followed by chemical spot spray.

We are exploring a contribution from the Stading to conduct invasive weed treatment and riparian planting amongst the existing buffer vegetation on their ownership.

Cowlitz Conservation District is willing to contribute up to \$10,000 in local discretionary funds to work on tasks 1 thru 7 ahead of project award. This will allow the project to be ready to construct by the 2021 hydraulic window. With other funding processes, pre contract expenses incurred are not allowed as project match contribution.

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 project design was completed in house by the Conservation District. The District solicited input from landowners and agencies with a vested interest to review and provide input on project alternatives. Once the preferred alternative was identified the preliminary design was completed. The initial design included a forest hydrologist with over 30 years of experience with stream restoration projects and 2 resource technicians with collective experience of 20-years in stream restoration. The Southwest Washington Conservation District Regional Professional Engineer reviewed the project.

The preliminary design was offered for review to the Washington State Department of Fish and Wildlife, the Lower Columbia Fish Recovery Board, and Cowlitz County. Lower Columbia Fish Recovery Board representative was Steve West, Salmon Recovery Specialist, and Washington State Department of Fish and Wildlife assisted with project review. Department of Fish and Wildlife reviewers included Lewis River Biologists, Fish Science representatives, Area Biologists (permitting), and professional engineer. Participants included:

Darin Houpt, Forest Hydrologist/District Manager, CCD&WCD 360-425-1880

Gavin Glore, SWCD Region Engineer, 360-249-8532

Steve West, Salmon Recovery Specialist, LCFRB 360-425-3274

Charles Stambaugh-Bowey, Habitat Biologist, WDFW, 360-906-6764

George Fornes, Habitat Biologist, WDFW, 360-906-6731

Josua Holowatz, Fish Program, WDFW, 360-906-6771

Shane Hawkins, Lewis River Biologist, WDFW, 360-696-6211 ext. 6735

Alex Uber, Professional Engineer, WDFW, 360-906-6761

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

A detailed budget spreadsheet is attached.

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

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.

Permanent photo points will be established during construction layout. Existing conditions will be documented at these photo locations. Photos will be acquired at these points during construction to aid in documenting as-built conditions. The photo points will be used to document post construction condition and to monitor the project site through at minimum the first winter. The district will continue to use the photo points to monitor the project for the first 3-years. It is anticipated that during construction additional photo point locations will be added to fully document the project. There may not be existing conditions photos from these points.

We will provide a full report of the project including photo documentation prior to project close out or at anytime requested by the grantor.

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.

The Conservation District is ensured through the state program ENDURIS. Our insurance binder (summary of coverage) is attached. We require the successful contractor to carry insurance coverage per personal services contract, the requirements of which appear directly in-line with PacifiCorp's insurance requirements. We will either add the appendix A requirement to the contract language or update our services agreement to mesh with appendix A requirements. We typically require the contractor to also name all landowners as additional insured on their proof of insurance. We can extend this to include PacifiCorp.

The following appendices have been added to support the full proposal.

- Appendix A: PacifiCorp Insurance Requirements (enclosed)
- Appendix A1: Cowlitz CD ENDURIS Insurance Binder (enclosed)
- Appendix B: Design Plan Sheets (Separate File)
- Appendix C: Budget Spreadsheet (Enclosed)
- Appendix D: Photographs illustrating the project site. (Separate File)
- Appendix E: Response to ACC Pre-proposal Questions (Separate File)

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.

Appendix A1
Conservation District Insurance Binder

BINDER

(Summary of Coverage)

MEMBER:
Cowlitz Conservation District
2125 8th Ave
Longview, Washington 98632

MEMORANDUM #
2020-00-161

EFFECTIVE:
9/1/2019 through 8/31/2020

This is to certify that the Memorandum of Coverage has been issued to the Member named above for the period indicated.

COVERAGE:	COVERAGE TYPE	LIMIT	DEDUCTIBLE
GENERAL LIABILITY <i>General Liability; Professional Liability; Personal Liability</i>	Each occurrence	\$20,000,000	\$1,000
AUTO LIABILITY <i>Hired and Non-Owned; Temporary Substitute</i>	Each occurrence	\$20,000,000	\$1,000
PUBLIC OFFICIALS ERRORS AND OMISSIONS LIABILITY	Each Wrongful Act Member Aggregate	\$20,000,000 \$20,000,000	\$1,000
TERRORISM LIABILITY	Each Occurrence Aggregate	\$500,000 \$1,000,000	\$1,000
EMPLOYMENT PRACTICES LIABILITY	Aggregate Per member	\$20,000,000	20% Co Pay*
CRIME BLANKET COVERAGE WITH FAITHFUL PERFORMANCE OF DUTY	Per Occurrence Member Aggregate	\$250,000 N/A	\$1,000
NAMED POSITION COVERAGE WITH FAITHFUL PERFORMANCE OF DUTY	Per Occurrence Member Aggregate	N/A N/A	N/A
PROPERTY/MOBILE EQUIPMENT/BOILER AND MACHINERY <i>Property; Mobile Equipment; Boiler & Machinery</i>	Replacement Cost	Per Schedule with Enduris	Per Schedule with Enduris
CYBER COVERAGE	Each Occurrence Member Aggregate	\$2,000,000	20% Co Pay*
AUTOMOBILE PHYSICAL DAMAGE	Per Schedule with Enduris	N/A	\$250
IDENTITY FRAUD EXPENSE REIMBURSEMENT	Per Occurrence Member Aggregate	\$25,000 \$25,000	\$1,000

**CoPay may be waived as per Memorandum of Coverage*



1610 S. Technology Blvd. Ste 100 - Spokane Washington - 99224 Tel. (509) 838-0910 - Toll Free (800) 462-8418 - Fax (509) 747-3875

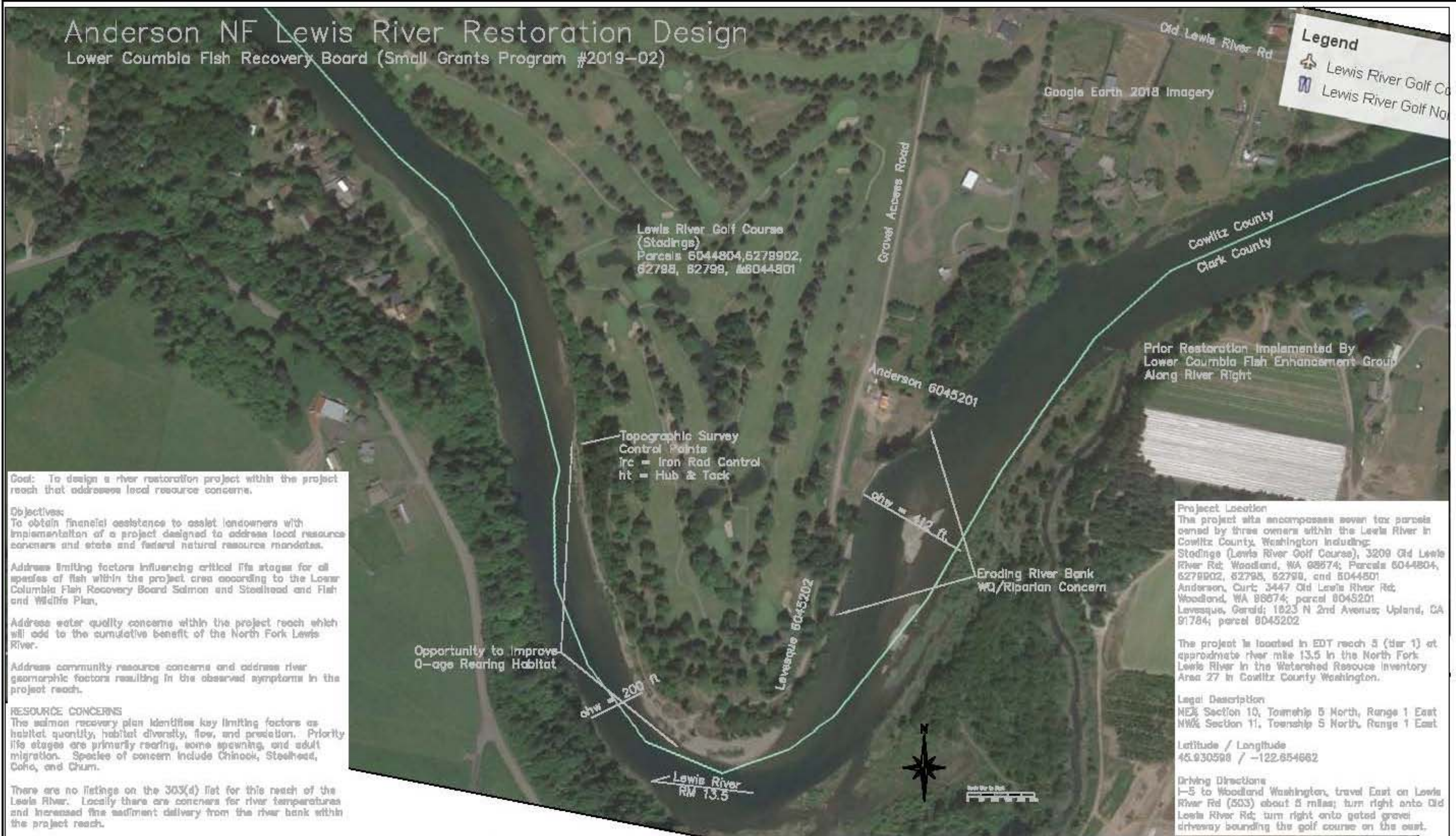
Rafaele Ortiz
Authorized Representative
Chief Operating Officer

Appendix B
Design Plan Sheets

Fit to 11x17 landscape orientation

Anderson NF Lewis River Restoration Design

Lower Columbia Fish Recovery Board (Small Grants Program #2019-02)



Goal: To design a river restoration project within the project reach that addresses local resource concerns.

Objectives:
To obtain financial assistance to assist landowners with implementation of a project designed to address local resource concerns and state and federal natural resource mandates.

Address limiting factors influencing critical life stages for all species of fish within the project area according to the Lower Columbia Fish Recovery Board Salmon and Steelhead and Fish and Wildlife Plan.

Address water quality concerns within the project reach which will add to the cumulative benefit of the North Fork Lewis River.

Address community resource concerns and address river geomorphic factors resulting in the observed symptoms in the project reach.

RESOURCE CONCERNS
The salmon recovery plan identifies key limiting factors as habitat quantity, habitat diversity, flow, and predation. Priority life stages are primarily rearing, some spawning, and adult migration. Species of concern include Chinook, Steelhead, Coho, and Chum.

There are no listings on the 303(d) list for this reach of the Lewis River. Locally there are concerns for river temperatures and increased fine sediment delivery from the river bank within the project reach.

Project Location
The project site encompasses seven tax parcels owned by three owners within the Lewis River in Cowlitz County, Washington including:
Stadings (Lewis River Golf Course), 3209 Old Lewis River Rd; Woodland, WA 98674; Parcels 6044804, 6278902, 62798, 62799, and 6044801
Anderson, Curt; 3447 Old Lewis River Rd; Woodland, WA 98674; parcel 6045201
Levesque, Gerald; 1823 N 2nd Avenue; Upland, CA 91784; parcel 6045202

The project is located in EDT reach 5 (bar 1) at approximate river mile 13.5 in the North Fork Lewis River in the Watershed Resource Inventory Area 27 in Cowlitz County Washington.

Legal Description
NE¼ Section 10, Township 5 North, Range 1 East
NW¼ Section 11, Township 5 North, Range 1 East

Latitude / Longitude
45.930598 / -122.654662

Driving Directions
I-5 to Woodland Washington, travel East on Lewis River Rd (503) about 5 miles; turn right onto Old Lewis River Rd; turn right onto gated gravel driveway bounding the golf course on the east.

Opportunity to Improve 0-age Rearing Habitat

Topographic Survey Control Points
Irc = Iron Rod Control
ht = Hub & Tick

Anderson 6045201

Levesque 6045202

Eroding River Bank
WQ/Riparian Concern

ohw = 412 ft

ohw = 200 ft

Lewis River
RM 13.5

Gravel Access Road

Old Lewis River Rd

Google Earth 2018 Imagery

Cowlitz County
Clark County

Legend

- Lewis River Golf Co
- Lewis River Golf Na

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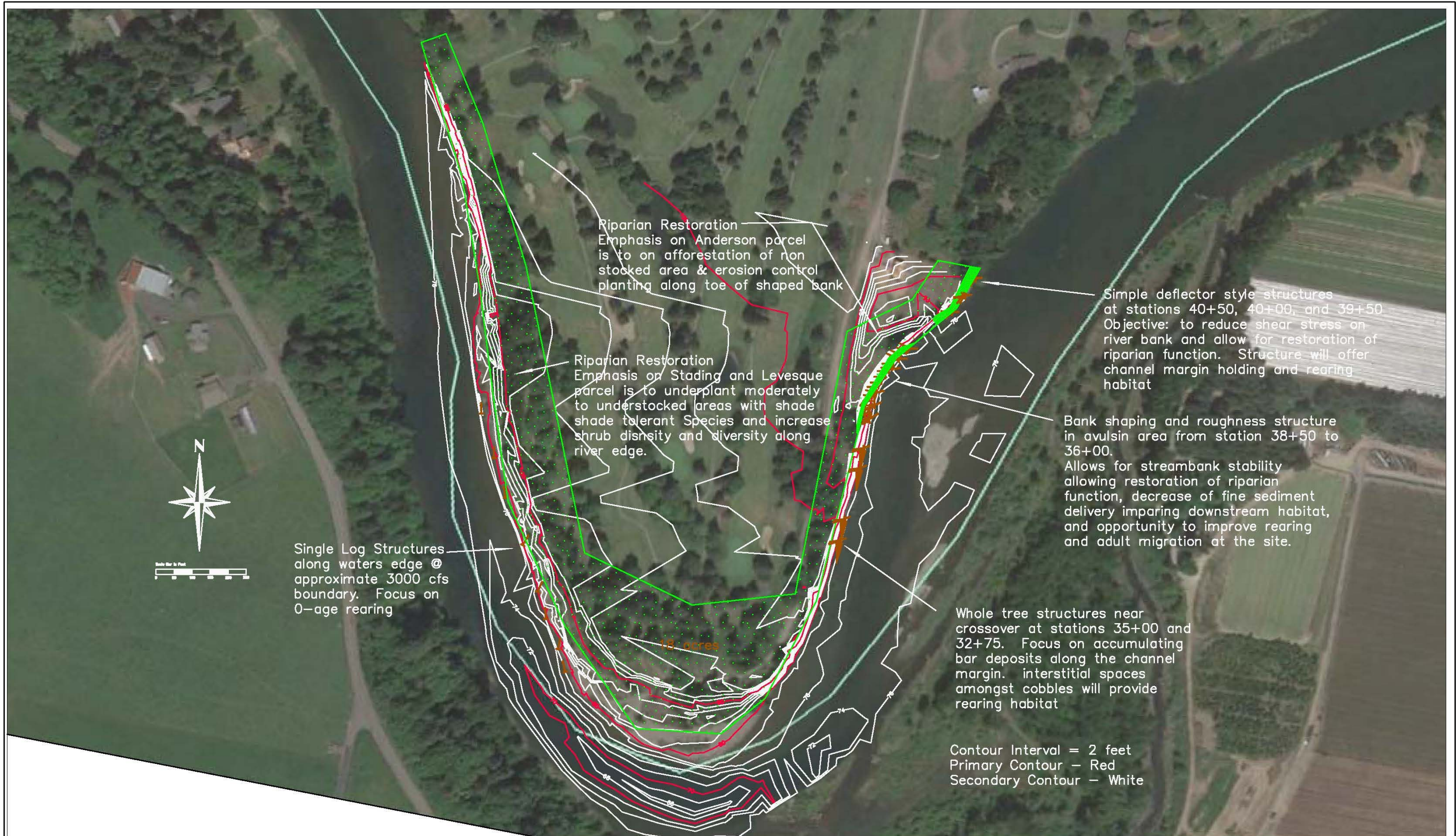
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DRAFTED BY: _____

REVISIONS	DATE	BY

PREPARED FOR:
Anderson NF Lewis River Restoration Project

**Detail Sheet
Existing Plan View**

SHEET
1
OF 8



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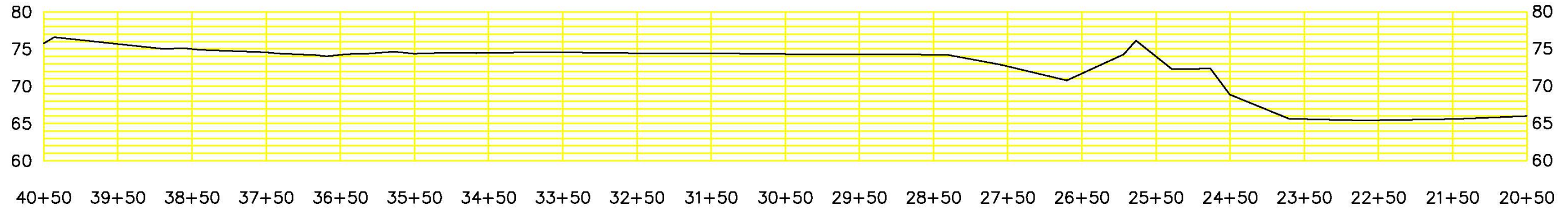
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Detail Sheet
Proposed Plan View

SHEET
2
OF 8

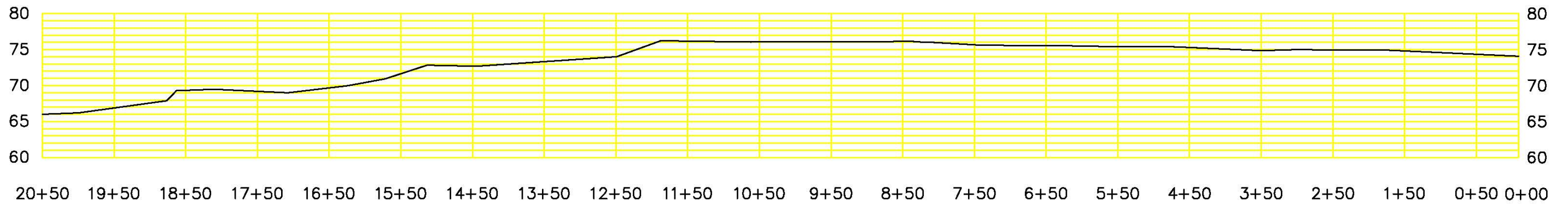


Small deflectors
40+50, 40+00, & 39+50

Bank Shaping & Roughness Structure
38+50 to 36+00

Whole Tree Structure
35+00 and 32+75

Meander Scour Pool



Single Log or Log with Rootwad Structure along channel margin at 3000cfs stage
From Approximate station 17+00 to 8+00

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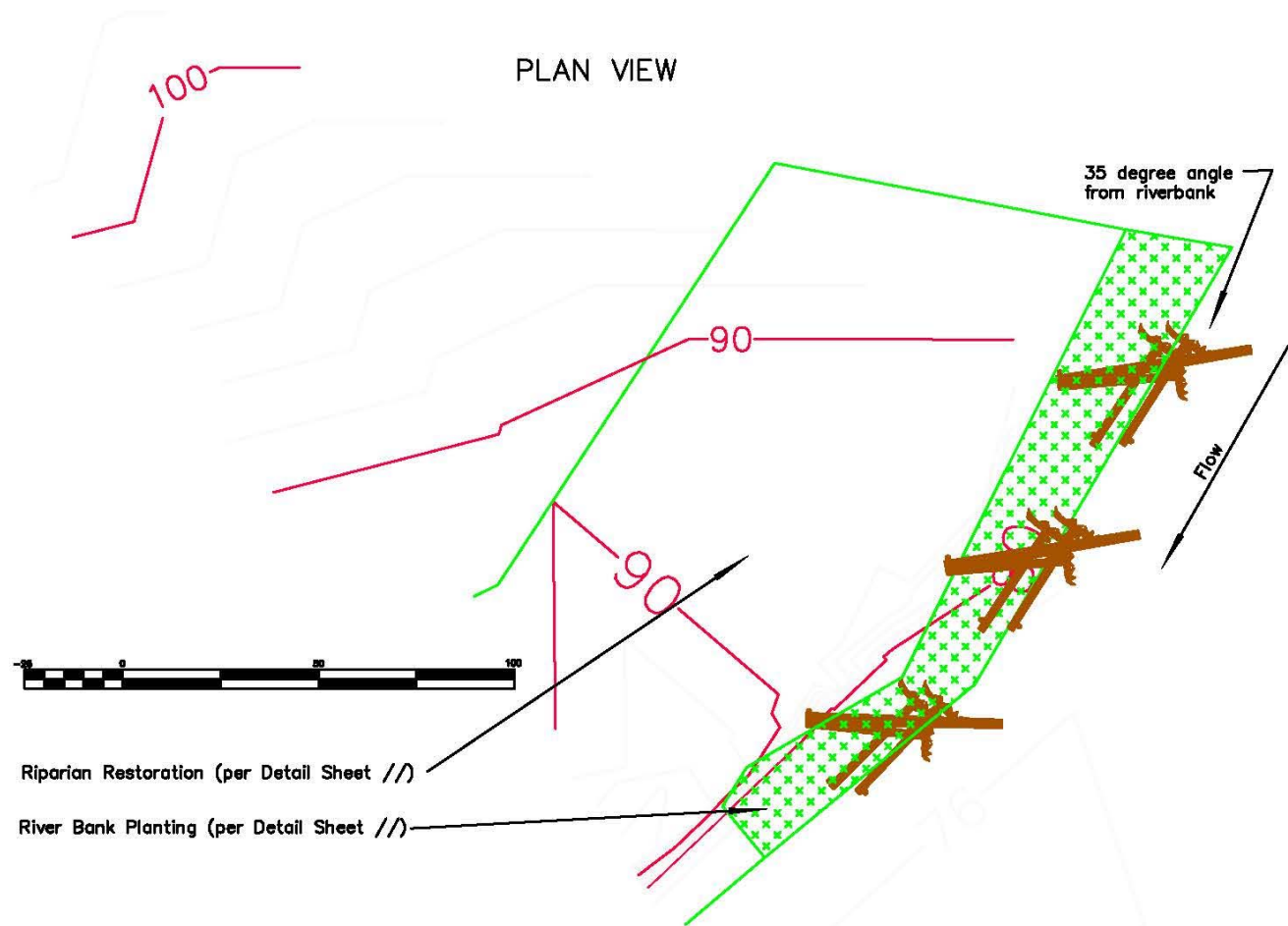
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Detail Sheet
Longitudinal Profile

SHEET
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OF 8

SMALL DEFLECTOR STRUCTURE

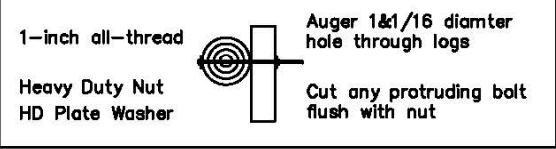
PLAN VIEW



Riparian Restoration (per Detail Sheet //)

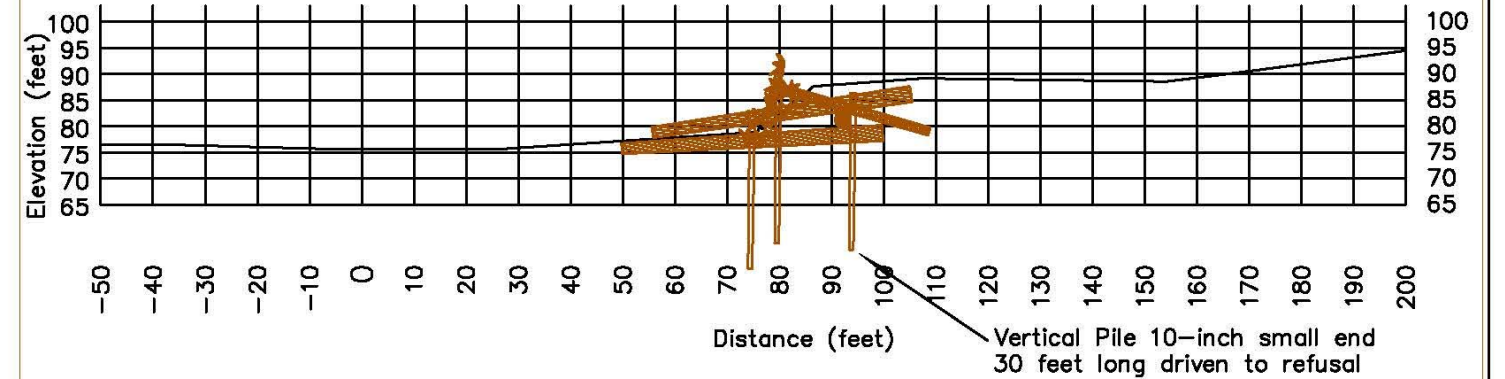
River Bank Planting (per Detail Sheet //)

All-thread Ancor Detail



CROSS SECTION VIEW

Small Deflector (stations 40+50, 40+00, & 39+50)



CONSTRUCTION NOTES

Structure Objective:

- Retain substrate upstream of structure to provide rearing habitat matrix in interstitial spaces.
- Reduce shear stress on river bank allowing establishment of root strength function of riparian buffer
- Shift energy slot 20-30 feet off of toe of river bank

Construction oversight provided by Cowlitz Conservation District to ensure:

- Intent of design is met and structure stability is achieved
- Adherence to all applicable Federal, Stater, and Local permit requirements
- Structure construction documented to allow for as-built stability analysis
- Structure is field fit to ensure protection of highly erodible layers

As-built structure may vary slightly based on size and form of wood delivered to the site and the site conditions encountered during installation.

Structure stability based upon

- Direct burial of logs and logs with rootwads
- Use of vertical pile
- Use of 1-inch diameter all-thread and heavy duty plate washers and nuts to secure key pieces of lwd to vertical pile as guided by Cowlitz Conserwrvation District staff.

All bare soil will be seeded with a suitable erosion control seed mix with major components including annual ryegrass, perennial ryegrass, creeping red fescue, white clover, and red clover at a rate of 30 lbs / acre. All seeded areas will be mulched with weed-free hay or straw at a rate of 1-ton / acre.

Riparian restoration per design sheet ?? and installed by others

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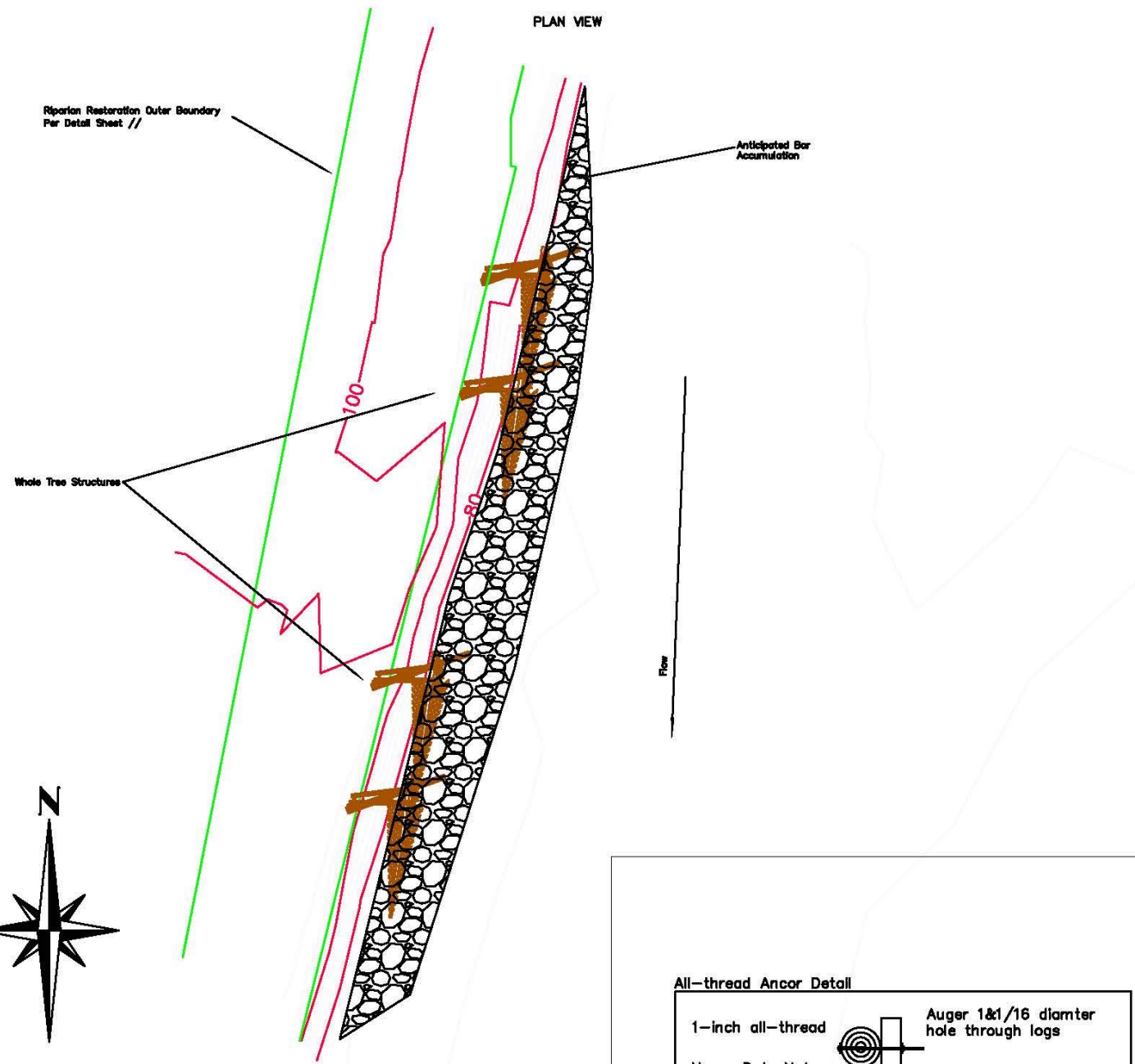
Detail Sheet
Small Deflector Structure

SHEET
4
OF 8

Whole Tree Roughness Structures

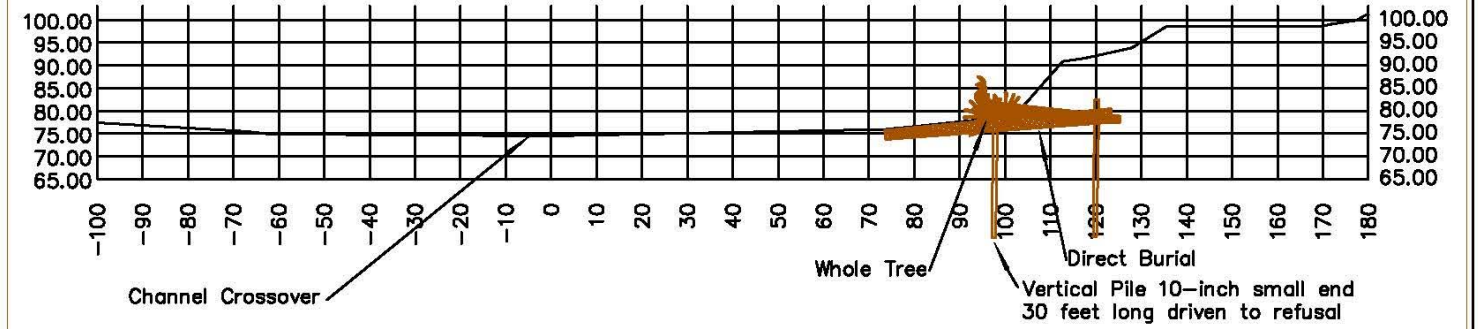
Station 35+00 - 34+50 and
Station 33+00 - 32+50

PLAN VIEW



CROSS SECTION VIEW

Typical Cross Section 35+00



CONSTRUCTION NOTES

Structure Objective:

- Accumulate bar deposits along toe of river bank and provide rearing habitat matrix in interstitial spaces.
- Reduce shear stress on river bank allowing establishment of root strength function of riparian buffer
- Accumulated substrate along river margin will constrict cross section resulting in slight scour of river crossover.

Construction oversight provided by Cowlitz Conservation District to ensure:

- Intent of design is met and structure stability is achieved
- Adherence to all applicable Federal, State, and Local permit requirements
- Structure construction documented to allow for as-built stability analysis
- Structure is field fit to ensure protection of highly erodible layers

As-built structure may vary slightly based on size and form of wood delivered to the site and the site conditions encountered during installation. Whole tree component consists of Sitka Spruce, Noble Fir, or Western Red Cedar depending on local available and or ability to transport material.

Structure stability based upon

- Direct burial of logs and logs with rootwads
- Use of vertical pile
- Use of 1-inch diameter all-thread and heavy duty plate washers and nuts to secure key pieces of lwd to vertical pile as guided by Cowlitz Conservation District staff.

All bare soil will be seeded with a suitable erosion control seed mix with major components including annual ryegrass, perennial ryegrass, creeping red fescue, white clover, and red clover at a rate of 30 lbs / acre. All seeded areas will be mulched with weed-free hay or straw at a rate of 1-ton / acre.

Riparian restoration per design sheet ?? and installed by others

All-thread Ancor Detail



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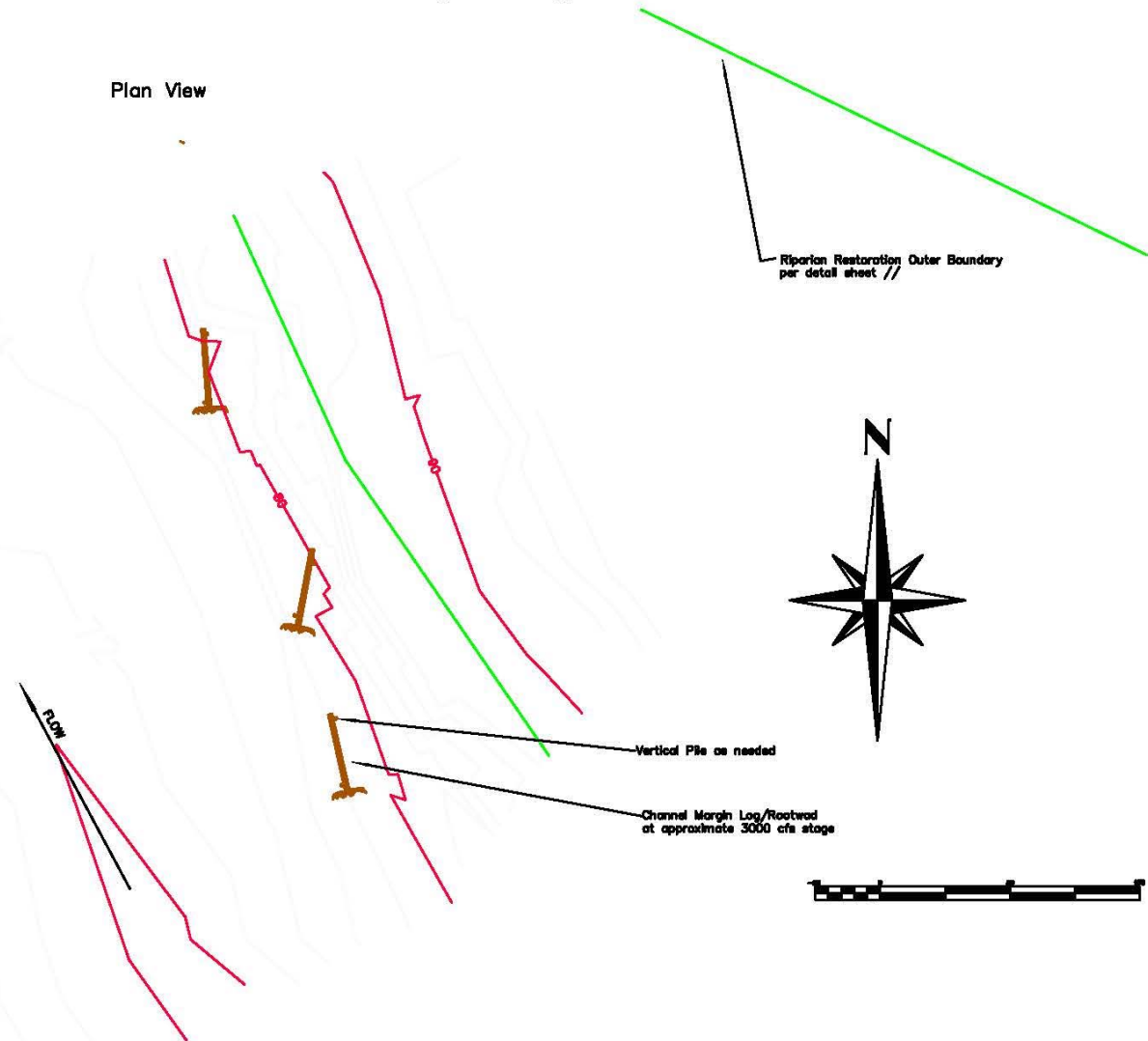
Detail Sheet
Whole Tree Structure

SHEET
5
OF 8

CHANNEL MARGIN LOGS/ROOTWADS

From Stations 18+00 to 9+00 about 70 feet apart as flagged in field

Plan View



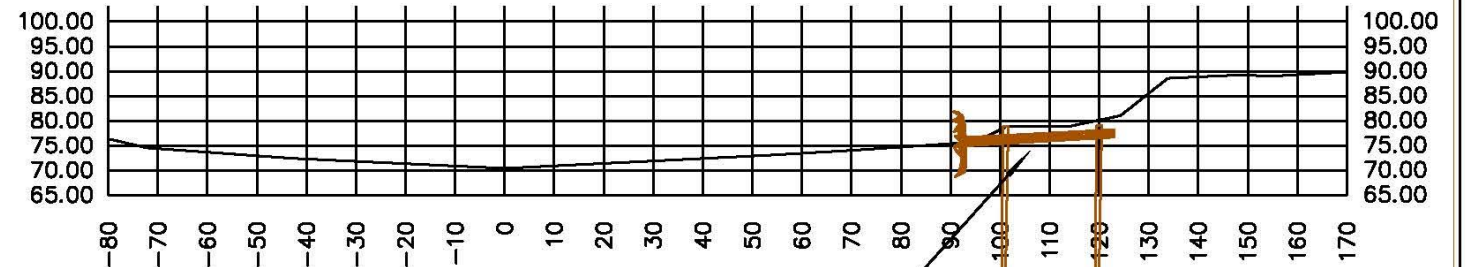
Vertical Pile as needed

Channel Margin Log/Rootwad at approximate 3000 cfs stage



CROSS SECTION VIEW

Typical Cross Section (16+00)



Log may angle down into river bank to improve ballast through direct burial

Vertical Pile 10-inch small end 30 feet long driven to refusal

CONSTRUCTION NOTES

Structure Objective:

- Accumulate bar deposits along toe of river bank and provide rearing habitat matrix in interstitial spaces.
- Reduce shear stress on river bank allowing establishment of root strength function of riparian buffer
- Accumulated substrate along river margin will constrict cross section resulting in slight scour of river crossover.

Construction oversight provided by Cowlitz Conservation District to ensure:

- Intent of design is met and structure stability is achieved
- Adherence to all applicable Federal, State, and Local permit requirements
- Structure construction documented to allow for as-built stability analysis
- Structure is field fit to ensure protection of highly erodible layers

As-built structure may vary slightly based on size and form of wood delivered to the site and the site conditions encountered during installation. Whole tree component consists of Sitka Spruce, Noble Fir, or Western Red Cedar depending on local available and or ability to transport material.

Structure stability based upon

Direct burial of logs and logs with rootwads

Use of vertical pile

Use of 1-inch diameter all-thread and heavy duty plate washers and nuts to secure key pieces of lwd to vertical pile as guided by Cowlitz Conservation District staff.

All bare soil will be seeded with a suitable erosion control seed mix with major components including annual ryegrass, perennial ryegrass, creeping red fescue, white clover, and red clover at a rate of 30 lbs / acre. All seeded areas will be mulched with weed-free hay or straw at a rate of 1-ton / acre.

Riparian restoration per design sheet ?? and installed by others

All-thread Ancor Detail



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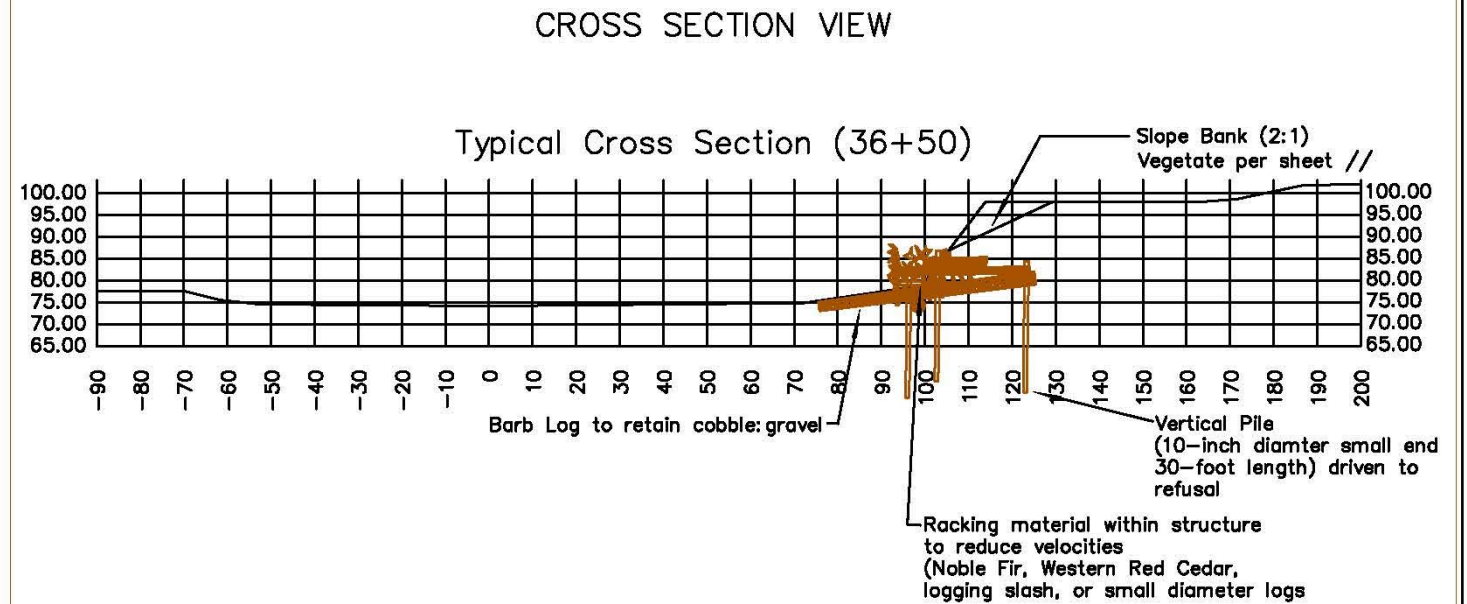
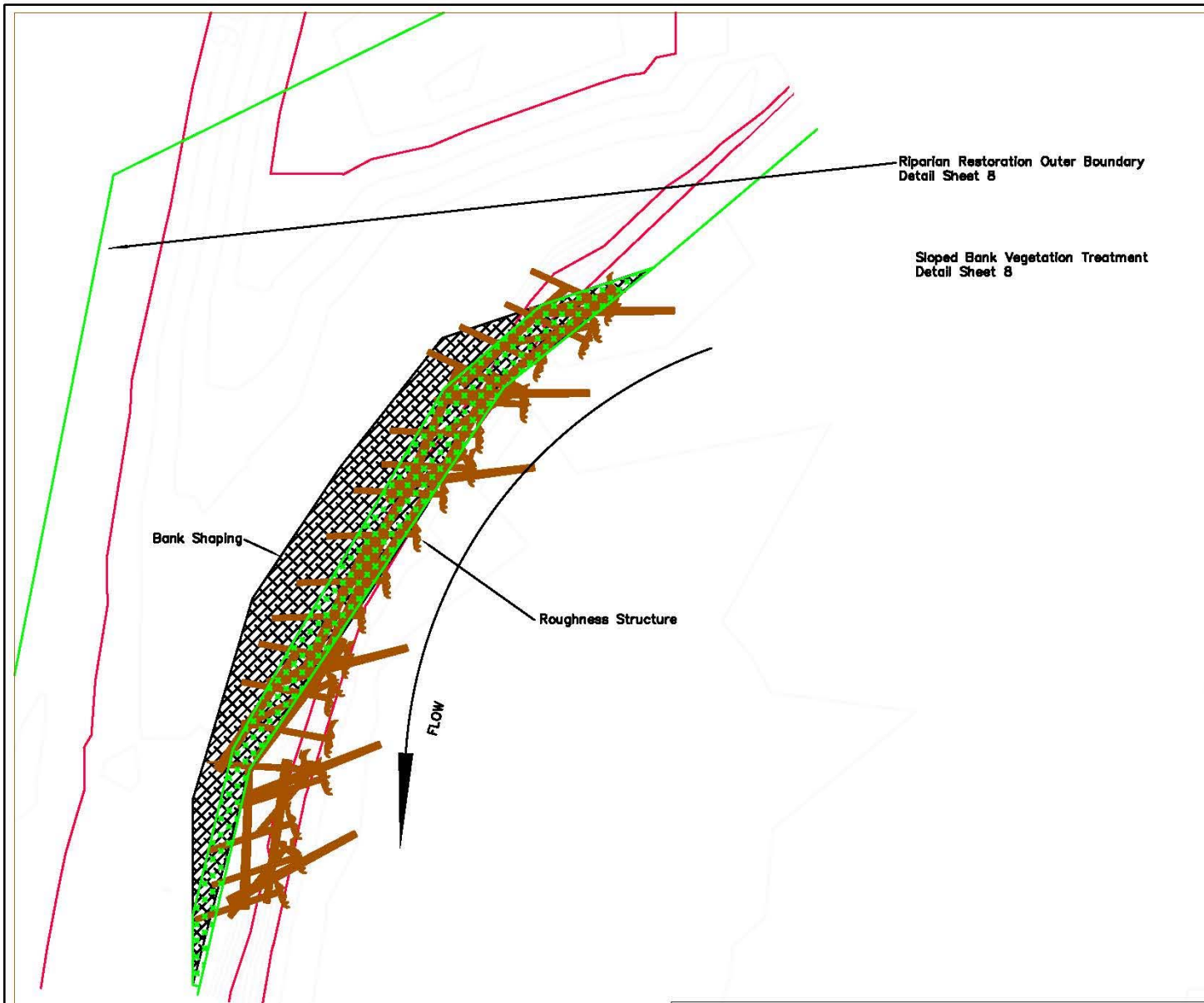
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Anderson NF Lewis River Restoration Project

Detail Sheet
Channel Margin Logs / Rootwads

SHEET
6
OF 8



CONSTRUCTION NOTES

Install wood roughness structure consisting of logs, logs with rootwads, and racking material (whole tree and logging slash) along the right river bank from approximate station 38+50 through 36+00. River bank above roughness structure will be laid back to an approximate 2:1 slope, protected by installation of erosion control fabric, and planted with both herbaceous and woody vegetation.

Structure Objective:

- Reduce accelerated erosion of river bank by protecting erosive layers, minimizing velocity and shear stress acting on bank, and restoring root strength in the soil.
- Retain substrate through use of barb logs oriented upstream and slope to maintain existing substrate to provide rearing habitat matrix in interstitial spaces.
- Provide both rearing and adult migration habitat amongst structure element interacting with river flows.
- Reduce shear stress on river bank allowing establishment of root strength function of riparian buffer
- Shift energy slot 20-30 feet off of toe of river bank

Construction oversight provided by Cowlitz Conservation District to ensure:

- Intent of design is met and structure stability is achieved
- Adherence to all applicable Federal, State, and Local permit requirements
- Structure construction documented to allow for as-built stability analysis
- Structure is field fit to ensure protection of highly erodible layers

As-built structure may vary slightly based on size and form of wood delivered to the site and the site conditions encountered during installation.

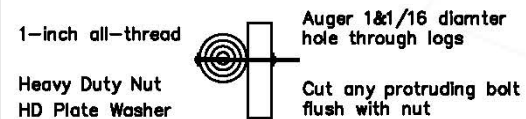
Structure stability based upon

- Direct burial of logs and logs with rootwads
- Use of vertical pile
- Use of 1-inch diameter all-thread and heavy duty plate washers and nuts to secure key pieces of lwd to vertical pile as guided by Cowlitz Conservation District staff.
- Use of erosion control fabric to resist anticipated velocities during flood flows.

All bare soil will be seeded with a suitable erosion control seed mix with major components including annual ryegrass, perennial ryegrass, creeping red fescue, white clover, and red clover at a rate of 30 lbs / acre. All seeded areas will be mulched with weed-free hay or straw at a rate of 1-ton / acre.

Riparian restoration per design sheet ?? and installed by others

All-thread Ancor Detail



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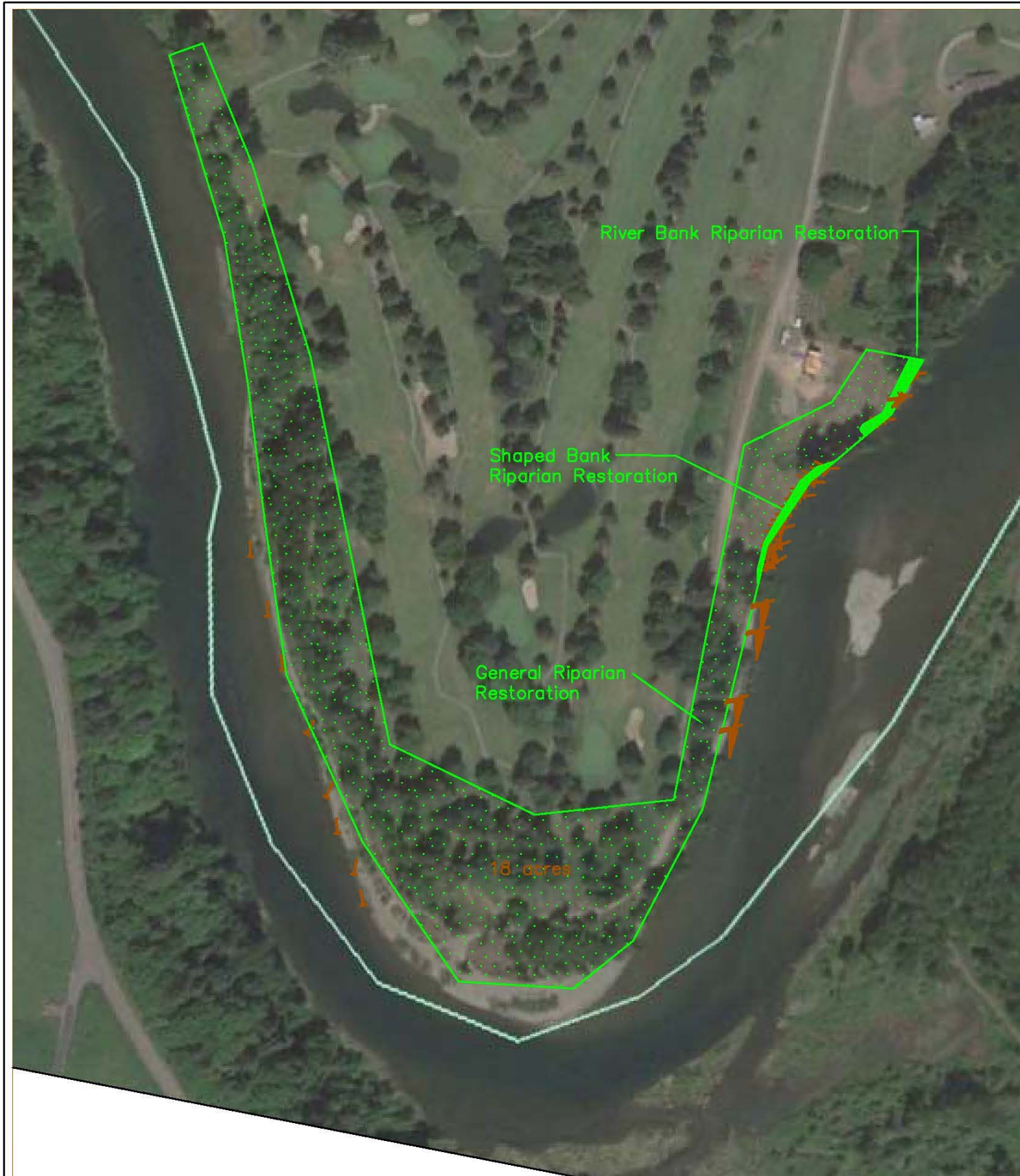
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Anderson NF Lewis River Restoration Project

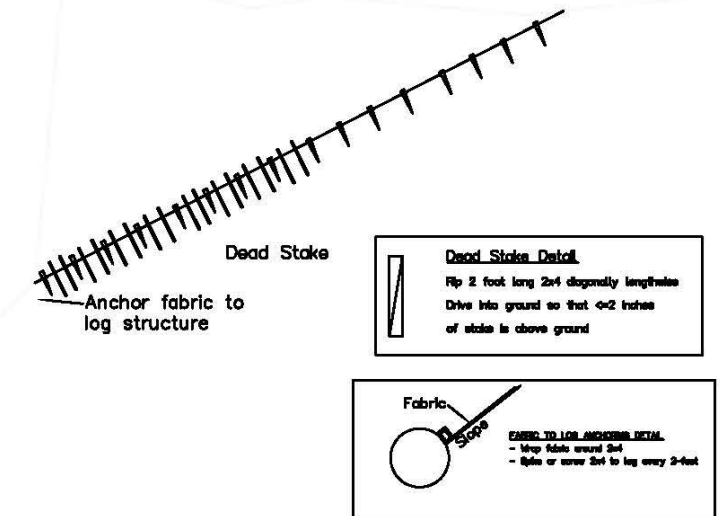
Detail Sheet 7
Bank Erosion Treatment

SHEET
7
OF 8



EROSION CONTROL BANKS

1. Seed slope (30#/acre erosion control mix)
2. Mulch slope either 1 ton/acre weed free straw or mulch fabric (cotton thread mesh - no plastic)
3. Install jute erosion control grid (Dekowe 700 or equivalent); shingle downstream to upstream; Secure toe & top of erosion control fabric in cup trench ~12inch deep; secure fabric with dead stake every 3 feet. (Stake = 2' long 2x4 cut diagonally)
4. Summer plant willow lvestakes on lower 1/2 of project slope. Plant on approximate 1-foot spacing. Stakes will be >=36 inch long 1/2 - 1 inch in diameter and planted 30 inches deep.
5. Lvestakes will angle slightly upstream to facilitate anchoring the fabric. Angle with the slope will maximize root soil moisture interaction.



RIPARIAN RESTORATION

Two treatment areas are defined on the plan view. The first is the river bank treatment area, the second the general riparian restoration area. Both treatment areas will be installed through a reforestation contractor under separate contract.

River Bank Treatment

Objectives:
Establish root strength as quickly as possible to protect river bank soils from continued erosion
Utilize plant materials as lvestakes to aid in anchoring erosion control fabric(s).

Treatment consists of summer planting cuttings and winter planting bare root stock into the erosion control fabric installed over the sloped river bank. Planting density, species, and material specifications will vary with elevation above the toe of slope. Planting amongst the large woody material will be opportunistic. Cuttings will consist of local willow species. Cuttings will be approximately 3/8-inch diameter and 3 feet in length. Cutting will be directly pushed into the river bank or installed using a cutting planting bar. Cutting will be installed nearly horizontal at the bottom of the slope and with an increasing angle with increased elevation. The intent is to ensure that root establishment is not unduly influenced by local water table. Target spacing will be about 1.5 feet between cuttings (16,350 stems per acre).

Cuttings will be planted on a 1-foot spacing for four planting rows immediately above the wood structure or in the first three feet of the erosion control fabric. Cuttings will be staggered between planting rows. Cuttings will be installed on a slight downstream angle to facilitate effectiveness of the cutting to serve as a lvestake to help anchor erosion control fabric. Cuttings will consist of local willow species. Cuttings will be planted on a 1-foot spacing between cuttings and between planted rows (43,560 stems per acre). Cutting will be less than 1-inch diameter and will consist of both 3 and 4 foot cutting length.

The remainder of the slope will be summer planted with cuttings consisting of red oaks dogwood, blue elderberry, and local willow species on an approximate 3-foot spacing (4,840 stems per acre). Cuttings will be planted in groups to mimic how communities of a single species tend to establish in nature.

Survival will be assessed in the fall so that plans can be made to restock the site. Additional cuttings will be installed amongst the large woody material and within the four rows of willow on the lower portion of the erosion control fabric. On the upper portion of the slope any mortality will be replaced with bare root species which will allow for incorporation of additional plant diversity.

General Riparian Restoration

Treatment varies between afforestation and interplanting amongst existing woody vegetation.

Site preparation:

The site will be reviewed by Cowlitz County Noxious Weed Program. Invasive species will be documented and an integrated pest management plan (IPM) will be prepared. The IPM will be implemented prior to construction to avoid spreading invasive species at the site.

Areas target for afforestation will have planting sites prepared by construction activity and spot spraying grass on an approximate 10-foot spacing (436 stems per acre). A tank mix of glyphosate and sulfometuron will be used to treat grass.

In areas targeted for interplanting amongst existing trees planting spots will be prepared either through mechanical scalping/sloping at the time of planting or through the use of a chemical spot spray to manage competing vegetation. The herbicide of choice is triclopyr.

Planting

The site will be planted with bare root seedling consisting of 1-1 stock or better during winter months following construction.

In afforestation areas species shall include:

- Red Alder (*Alnus Rubra*) 100
- Cascara (*Rhamnus Purshiana*) 50
- Douglas Fir (*Pseudotsuga Menziesii*) 100
- Western Red Cedar (*Thuja Plicata*) 100
- Shrubs
- Elderberry (*Sambucus*), Currant (*Ribes*), Indian Plum (*Oenothera Carolinensis*), Snowberry (*Symphoricarpos Alba*)

In areas to be interplanted the focus will be on local shade tolerant species including:

- Western Red Cedar (*Thuja Plicata*)
- Grand Fir (*Abies Grandis*)
- Willow spp (*Salix*) - understocked areas along rivers edge

Maintenance

Site will be inspected in the spring and fall each year to assess establishment. Factors impairing establishing will be assessed and maintenance prescriptions applied. Anticipated concerns including vegetative competition and wildlife damage.

Cowlitz Conservation District
2125 8th Avenue
Longview, WA 98632
360-425-1880

DATE : 12/4/2019
SCALE : per drawing
CHECKED BY :
DRAFTED BY : dbh

REVISIONS	DATE	BY

PREPARED FOR:
Anderson NF Lewis River Restoration Project

Detail Sheet 8
Riparian Restoration Treatment

SHEET
8
OF 8

Appendix C: Budget Spreadsheet

RESTORATION

					OVERALL PROJECT	GRANT REQUEST	MATCH			
					<i>Budget must account for all costs to complete the project</i>	<i>Enter only the amount of the grant request</i>	<i>The Grant Request and Match should equal the total project cost and Budget Check cell should be 0. Sponsors must account for all sources and types of match need to complete the project.</i>			
					Amount	Amount	Match		Source (Grant, Cash, Materials, Labor, Volunteers, etc)	Match Type (federal, state, local)
Construction										
Category (choose one)	Task Description	Qty	Rate							
Mobilization	Construction	1.00	\$ 3,000.00	\$ 3,000	\$ 3,000			Contractor	CCD grant award	State
Surveys	Construction Layout	1.00	\$ 3,000.00	\$ 3,000	\$ -	\$ 3,000		CD Staff	CCD CS Agree TA	State
Cultural resources	Site Assessment	1.00	\$ 3,500.00	\$ 3,500	\$ -	\$ 3,500		Archaeology Contract	CCD CS Agree TA	State
Permits	ACOE, WDFW, County	1.00	\$ 3,000.00	\$ 3,000	\$ -	\$ 3,000		CD Staff	CCD grant award	State
Materials: Small Deflector	LWM (11 mbf) - delivered	11.00	\$ 1,250.00	\$ 13,750	\$ 13,750			Grant		State
Materials: Whole Tree Structure	LWM (15mbf) - delivered	15.00	\$ 1,250.00	\$ 18,750	\$ 18,750			Grant		State
Materials: Single Log Structure	LWM (6 mbf) - delivered	6.00	\$ 1,250.00	\$ 7,500	\$ 7,500					
Materials: Roughness	LWM (90mbf) - delivered	90.00	\$ 1,250.00	\$ 112,500	\$ 62,500	\$ 50,000			CS Award	State
Materials	Anchor Hardware	1.00	\$ 2,500.00	\$ 2,500	\$ 2,500	\$ -	\$ -			
Materials	Erosion Control Fabrics	7,500.00	\$ 2.00	\$ 15,000	\$ 15,000					
Construction	Bank Shaping	2,000.00	\$ 12.00	\$ 24,000	\$ 24,000	\$ -	\$ -			
Construction	Small deflector & Whole Tree	7.00	\$ 2,500.00	\$ 17,500	\$ 17,500	\$ -	\$ -			
Construction	Single Log	10.00	\$ 500.00	\$ 5,000	\$ 5,000					
Construction	Roughness Structure	1.00	\$ 30,000.00	\$ 30,000	\$ 30,000	\$ -	\$ -			
Construction	Erosion Control Fabric	160.00	\$ 50.00	\$ 8,000	\$ -	\$ 8,000		Landowner	Labor	Local
Materials	Plant Materials	5,000.00	\$ 2.00	\$ 10,000	\$ 10,000	\$ -	\$ -			
Construction labor	Site Preparation	18.10	\$ 150.00	\$ 2,715	\$ 2,715	\$ -	\$ -		Labor	Local
Construction labor	Tree Planting	5,000.00	\$ 1.00	\$ 5,000	\$ -	\$ 5,000		Landowner		
Construction labor	Riparian Maintenance	18.10	\$ 800.00	\$ 14,480	\$ 4,480	\$ 10,000		Landowner	Labor	Local
Construction supervision		1.00	\$ 5,000.00	\$ 5,000	\$ 5,000	\$ -	\$ -	CCD Staff (60)		
Construction supervision			\$Total	\$ 304,195	\$ 221,695	\$ 82,500	\$ -			

Administrative, Architechtural & Engineering	Task Description	Qty	Rate							
Category	Surveying	1.00	\$ 5,000.00	\$ 5,000.00	\$ -	\$ 5,000		Small Grant Program	Grant	Local
Data collection	surface model	1.00	\$ 5,000.00	\$ 5,000.00	\$ -	\$ 5,000		Small Grant Program	Grant	Local
Assessments (geologic, hydraulic, etc)	hydrologic models	2.00	\$ 3,500.00	\$ 7,000.00	\$ -	\$ 7,000		Small Grant Program	Grant	Local
Assessments (geologic, hydraulic, etc.)		1.00	\$ 8,000.00	\$ 8,000.00	\$ -	\$ 8,000		Small Grant Program	Grant	Local
Preliminary design		1.00	\$ 25,000.00	\$ 25,000.00	\$ -	\$ 25,000		Small Grant Program	Grant	State
Administrative		1.00	\$ 33,254.25	\$ 33,254.25	\$ 32,204	\$ -	\$ -			
			\$ -	\$ -	\$ -	\$ -	\$ -			
			\$ -	\$ -	\$ -	\$ -	\$ -			
			\$ -	\$ -	\$ -	\$ -	\$ -			
			\$ -	\$ -	\$ -	\$ -	\$ -			
			\$Total	\$ 83,254	\$ 32,204	\$ 50,000	\$ -			

Indirect Costs	Description	Approved Rate	Total Project Base							
	Indirect	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -			
	Indirect	0.000%	\$ -	\$ -	\$ -	\$ -	\$ -			
			\$Total	\$ -	\$ -	\$ -	\$ -			

AA&E Budget Check	\$	91,258.50
AA&E maximum allowed in PRISM	9,054	
AA&E validation		

GTOTAL	\$ 387,449	\$ 253,899	\$ 132,500	\$ -
		PRISM Project Total	\$ 386,399	
		RCD Percentage	Match Percentage	
		65.71%	34.29%	

Appendix D: Project Site Photographs



Photo by Cowlitz Conservation District: Exposed Sand Bank at Anderson Parcel. Bank about 12 feet tall, scallop is about 400 feet long.



Photo by Cowlitz CD looking downstream along Anderson parcel showing bank erosion site and opportunity for riparian vegetation between river and the access road.



Photo by Cowlitz CD looking downriver through the Levesque parcel at crossover in river. Naturally recruited fir tree which had persisted at site for about one and one-half year at time of photo. Note gravel bar buildup upstream through and downstream of fir tree. Analog of proposed whole tree structures design to accumulate bar at toe of eroding riverbank.



Photo by Curt Anderson looking downriver through Stading parcel. Note sand build up on floodplain sand embedment along waters edge. Proposing simply roughness logs to promote localized scour to help mobilize sand and expose cobbles for rearing habitat.

Anderson NF Lewis River Restoration
Response to ACC questions

Lower Columbia Fish Recovery Board

Better explain riparian plan and strategy

The riparian strategy includes three elements; high density establishment of shrubs along treated riverbank, afforestation within open ground, and underplanting with shade tolerant species in currently stocked areas. Wood structures and bank shaping are proposed along the riverbank. A component of this treatment is to lay the bank back, install erosion control fabrics, and plant the slope with cuttings on a 1-foot spacing for the first five feet of elevation and 3-foot spacing to the hinge at the top of bank. Cuttings will average 1-inch in diameter and range from three to five feet in length. Cuttings will be planted on 1 foot spacing in alternating rows as lives stakes to help secure erosion control fabric and to establish root strength. This treatment will be installed in the first five feet of elevation from the top of wood up. From the five-foot elevation up to the hinge at the top of bank cuttings will be planted on a 3-foot spacing in alternative rows. Cuttings will consist of both willow (*Salix spp*) and red osier dogwood (*Cornus Sericea*).

Areas of afforestation will have planting sites prepared by clipping the grass and preparing planting sites through chemical spot spray. Planting spots will be treated on an approximate 10-foot spacing (436 trees per acre). Spots will be a minimum of 3-foot diameter. Planting will include species typical of riparian corridors including red alder (*alnus rubra*), Douglas fir (*pseudotsuga menziessi*), wester red cedar (*thuja placate*) and a compliment of shrub species including blue elderberry (*sambucus cerulea*), service berry (*Amelanchier alniflora*), Snowberry (*Symphoricarpos alnus*), Cascara (*Rhamas purshiana*), and wild rose (*Rosa nutkana*). Trees will be planted in groups befitting their ecological niche in the buffer. Shrubs will be planted in small clusters 5 shrubs per planting spot scattered throughout the tree matrix. Cascara will be planted along the road side of the buffer along the road created edge.

The remainder of the buffer is currently stocked. Stocking density ranges from poor to medium. The plan is to underplant the stands with shade tolerant species to promote natural succession including Western Red Cedar (*Thuja plicata*) and Grand fir (*Abies grandis*), . Along the river edge, hardwood trees will be interplanted amongst existing willow. These species will include Red Alder (*Alnus rubra*) and Black Cottonwood (*Populus trichocarpa*). Planting sites will be prepared during planting by shovel scalping planting site.

Plantings will be inspected at minimum twice a year, once in the spring and once in the fall. Monitoring will key in on survival, identify agents of mortality, and generate prescriptions to ensure successful establishment.

What is the certainty of obtaining a WDNR Aquatics lease?

WDNR SOAL staff have visited the site and have issued the landowner acknowledgement. This does not guarantee an aquatic lease to construct the project. The DNR SOAL manager indicated that she liked the project and the project approach. We believe we will be able to obtain the aquatics lease.

Access appears to be pretty clear and relatively non-invasive. Is this true? Please show access points.

Yes, this is true. Access is via a rockered access road that provides access to the entire project site. The access road is illustrated within the design sheets.

Based on the acreage, and lineal feet, the budget seems appropriate; however, a more detailed budget would be helpful

A more detailed budget is provided as part of the full project proposal. The preliminary design provides more detailed quantity estimates.

Reference to other projects is helpful, but Skamokawa and Monahan (I believe) don't seem to be good proxies. Design details would be helpful

Preliminary design sheets are attached to the full project proposal. Reference to Skamokawa and Monahan (photos) were intended to illustrate the project approach wood structures with erosion control fabrics and more important expected influence on flows.

Provide a more detailed explanation on how this project fits in with other projects in the area.

The proposed project is an additional project with respect to cumulative treatment in the lower river. The proposed project benefits for the reaches downstream. For each foot of erosion from the river bank three hundred cubic yards of sand is delivered to the river. This sand is working its way downstream and settling out along the channel margins and in off-channel slack water. WDFW staff has expressed their concern with the negative impact the sand is having on rearing habitat. There is a proposed project that includes an infiltration gallery that can infuse water into a constructed chum channel. The sand load from this proposed river bank could influence the function of this gallery.

May be helpful to see if there are other release sites (other than the DS Woodland site) US of this project site.

We are unaware of any other release sites for Spring Chinook other than the

PacifiCorp site downstream.

Utilities

Limited benefits for fish recovery (benefit/cost), potential hazard for boating, landowner benefit

As part of the first Salmon Recovery Funding Board proposal the state review panel member assigned to this region met with WDFW biologist working the Lewis River. They met to review the Eagle Island project. Following that review, the Review Panel member asked the biologist what their highest priority project was for the lower river. They took her to what we call the Anderson NF Lewis River project site. The sand delivery is impairing rearing habitat for miles downstream. Allowed to continue the erosion is going to continue to get worse. We are going to lose riparian buffer along the river. Once migration reaches access roads and the golf course a more extreme approach to dealing with the issues will occur under the emergency permit process. The well head in the middle of the channel does present of potential boating hazard. Boaters travel through the reach in the thalweg slot about 40 feet off the bank. The structures are highly visible at boating flows and should not present a hazard to boating. We trust that when flows are high enough to obscure the structures that boaters are smart enough not to be on the river and they will already be aware of the structures. We do intend to leave a pile high on the downstream and upstream end of the bank structure. Signage will be attached to these piles to identify the potential hazard. We will work with the landowners to attempt to remove the well head from the middle of the channel by cutting it off and capping it at bed elevation.

Landowners obviously have concerns for continued accelerated channel migration at the site. The first is the Anderson property. They purchased the parcel after the prior owner cleared the trees from the riverbank and eventually lost the home to the river. Yes, they are in the process of building a home on the parcel much like the other remainder of Woodland and surrounding areas. They did select the best possible location for their home on the property and are relatively removed from recruitment given the path the river has embarked on. The entire family are avid fisherman and they are concerned with the impact the sand recruitment is having on the lower river. They boat and fish the river and have observed firsthand the effect. They will attempt to contribute as much of their resources as possible to resolving the concern.

The second is a parcel owned by an absentee landowner. Over half of the parcel has been recruited by the river. He is willing to allow a project to address resource concerns even though he does not have plans for occupying the parcel. Everyone would not like to see their property vanish.

The third is the Lewis River Golf Course. They are concerned over the eventual loss of the

access road that provides for maintenance and then the eventual impact to the course. Now that the preliminary design has been drafted, CCD will review it with all of the landowners to identify what the local contribution can be.

More clarity and definition of “margin structures” and how these are designed and function

The preliminary design provides detail sheets for the proposed wood structures to address concerns at the site. Channel margin simply refers to the fact that the structures are held tight to the riverbank. The lower river is not a wood driven system. Most wood routed through the lower river either racks up at obstructions or bends in the river or is simply routed through the system. The proposed project mimics the natural accumulation along the rivers edge but encourages stability of the wood. The proposed wood structure provides roughness along the exposed riverbank. Roughness reduces velocity along the bank and therefor shear. Stability of the wood is encouraged by utilizing direct burial and vertical pile to counter both velocity and buoyancy forces acting on individual pieces and the structure as a whole. Key “barb” log components will extend about 25 feet into the channel below existing bed elevation. Logs and logs with rootwads racked in successive layers extend no more than about 15 feet into the channel. Encroachment of wood on the channel decreases with increase in structure elevation. Racked material typical increases in size with increased elevation. This assists with stability of the structure by increasing the mass of the structure during the smaller flow events. Again, direct burial and use of vertical pile anchor the structure. Key pieces are anchored to vertical pile through the use of 1-inch diameter all thread bolts and heavy-duty hardware. Vertical pile typically consists of 30-foot long douglas-fir poles about 10-inch diameter on the small end. Pile is driven to refusal. We fully anticipate an embedded depth of 25 feet. Within the racked layers of wood we incorporate whole tree tops (usually sitka spruce or noble fir) or slash to further decrease velocity working within the structure. The net result, or function of the structure is to reduce velocity along the riverbank. We typically observe sediment accumulating within the structure and velocity dropped to nothing or a back eddy resulting in velocity occurring in an upstream direction. Where opening occur will be planted within the structure to further bind soils through root strength.

National Marine Fisheries Service

Further explanation of limiting factors.

Restoration needs and limiting factors are provided within the salmon recovery plan and habitat strategy as prepared by the Lower Columbia Fish Recovery Board. Restoration needs in the Lewis 5 EDT reach include;

“Floodplan function and channel migration processes” with multi-species priority of High. The proposed project simply proposes to restore a more natural rate of erosion and therefore channel migration to the small length of riverbank. If left unchecked, riparian functions influence on the geomorphology of the site will be lost and the relationship between hydrology and sediment will be out of balance.

“Riparian conditions and functions” with a multi-species priority of High. The proposed project re-establishes riparian function through afforestation of the riverbank (700 feet) and by bringing the remainder of the project reach (3600 feet) to fully stock condition through interplanting with shade tolerant species.

“Stream channel habitat structure and bank stability” with multi-species priority of High. The project proposes four different treatment along the project reach which will provide habitat benefits to fisheries including adult migration and rearing. The bank stabilization aspect of the project will provide a form of stream channel habitat but is most influential with regard to riparian function and water quality. The proposed wood structure will allow for establishment of riparian function and will reduce fine sediment delivery improving water quality within the reach.

“Water Quality” with multi-species priority of High. The proposed treatment will reduce fine sediment delivery from a rapidly migrating 400 feet of riverbank and an additional 500 feet downstream at risk of continued loss of riparian function and increase riverbank instability.

Limiting factors are presented within the recovery plan and habitat strategy are for the top 5-ranked life stages which are predominantly rearing life stages. The limiting factors include habitat diversity and key habitat quantity. The proposed structures provide for habitat diversity and quantity along the edge of river channel which will provide rearing habitat. Benefits will include retaining gravel and slowing velocity along the eroding riverbank which will provide rearing habitat along the river’s edge. Whole tree structures and simple log structures will result in localized scour that will help remove fine sand from accumulating within cobbles. This will improve interstitial spaces in river cobbles used by young rearing life stages.

More detailed budget.

The preliminary design provides improved quantities for preparing a detailed budget that will be attached with the full project proposal.

More detailed monitoring plan.

The District intends to monitor the constructed project as we do all of our projects. First, the project is monitored during construction to ensure consistency with the design sheets and to provide as-built conditions. As-built conditions are re-routed through the stability calculation procedures to ensure that stability expectations are realized. Second, structures will be monitored on a regular (daily) basis by the landowner whom will notify the District if anything appears out of place. The District will establish photo-points and will photo document the structures at least once annually and after any significant flow event to ensure that structure expectations are realized. The riparian restoration component will be monitored at minimum twice a year. Once in the spring and once in the fall. Management prescriptions will be prepared and implemented to ensure successful establishment of riparian function. This monitoring typically includes a series of transects or use of fixed radius plots to assess plant survival. We plan to collaborate with WDFW to determine whether they will assist by including the project reach in their typical monitoring activities.

Cowlitz Tribe

A substantially similar project proposed by the Cowlitz Conservation District in 2018 was declined SRFB funding and designated a “Project of Concern” through multiple technical reviews by the SRFB’s statewide Review Panel. Their concerns were based on WDFW’s interest in preventing bar scour throughout the downstream portion of the project footprint, and the clear focus on stabilizing an eroding bank with little apparent resource value. The Tribe generally agrees that this project has little resource benefit; its primary benefit is to the riparian landowners who wish to enjoy their riverfront property without enduring the vagaries of the river itself.

A similar project was proposed through the Lower Columbia Fish Recovery Board process in 2018. The project was designated a Project of Concern by the SRFB Statewide Review Panel through their review process. However, their concern was not based on WDFW interest but on their own form which asks if bank stabilization is a component of the project. The WDFW Lewis River biologists have actually been very supportive of the proposed project. The local review by the LCFRB TAC raised several questions about bank stabilization and the big concern was the desire for a preliminary design. The project made the funding list and was not awarded due to bank stabilization questions by the State RP.

The project received some funding from the LCFRB for design purposes. The project was re-submitted through the LCFRB process in 2019 with the intent to provide a preliminary design by final proposal. The DNR SOAL process would not submit a landowner acknowledgement so the project was deemed incomplete and the TAC never reviewed the draft preliminary design. Vagaries of the river have been modified by prior owners and to a lesser extent by prior fish recovery processes. We are working with a landowner that would like to restore suited natural process to the riverbank. Should the ACC choose to decide that the proposed project does not fit the program, we will continue to seek river restoration funding through other venues.

The applicant states that this project intends to remedy fine sediment inputs from the eroding bank but ignores the fact that the hydropower projects immediately upstream already cleanse the river of nearly all suspended sediment and bedload; this system is essentially sediment starved. The application states that sediment begins to drop out near Eagle Island, which is at the bottom end of potential spawning, and the head end of tidal influence; fine sediment deposition should be expected in this environment.

Yes, the hydropower projects tend to arrest sediment load moving through the system which elevates the concern for the loss riparian buffer and exposure of the sand riverbank to river flow. The “clean” flows compound erosion at the site. All we are proposing is to get the root strength back into the riverbank to restore balance of discharge and sediment in the system. Sediment begins dropping out in the river cross over immediately downstream of the eroding bank which does present a concern for spawning, egg incubation, and fry colonization life stages. What was meant to be conveyed is that according to WDFW, they are observing filling of the side channel at Eagle Island by sand and that the effects of the eroding bank are being observed down river.

This project may be subject to DNR Aquatic Lands review and lease, right of entry, or other mechanism. If this is not the case, the proponent must attach documentation to a final proposal (if submitted). This is not a permit—the applicant should demonstrate that the riparian landowners also own the entire project footprint.

According to DNR, this project is subject to DNR SOAL conservation license. We are not sure what beyond county tax parcel data the Cowlitz Tribe is seeking to demonstrate ownership of the riparian footprint. +

The Tribe understands that a third-party design report was developed for the eroding bank at this site by Inter-Fluve, with a conceptual-level design cost that was several times the total requested by the applicant. This report should be shared with the ACC if the applicant chooses to submit a final application.

Our understanding is that yes, a conceptual level cost was thrown at a project by Interfluve at the request of the Lower Columbia Fish Enhancement Group. It appears that this was the basis from which the LCFEG moved wood away from the site and did not implement their proposed project to address the resource concern. We do not have a copy of that report. If we can locate it we will share it with the ACC. It does not influence the preliminary design we have prepared and based a budget on. Cowlitz CD has demonstrated our ability to implement projects of this nature well within the budgeted figures. The preliminary design quantities will be used to prepare the final budget. We fully believe that we will be able to implement the designed project within budget.

The potential risk to implementing this project is relatively high; if bank erosion is not arrested, and structures remain, they will become boating hazards. If bank erosion is not arrested and structures wash out, the Aquatic Fund dollars will have been squandered.

If wood structures persist and bank erosion is arrested, then another successful project will reduce sediment load to the river that according to many is a concern for fisheries habitat in the lower river. Squandering funds could be applied to any project funded that do not successfully serve to meet design objectives.