***BEFORE THE BOARD OF SUPERVISORS OF THE***
***CHEHALIS RIVER BASIN FLOOD CONTROL ZONE DISTRICT***

**APPROVING HDR CONTRACT SUPPLEMENTAL 13 RELATING TO ENGINEERING** ) **RESOLUTION NO. 25-017**
)

**WHEREAS,** the Chehalis River Basin Flood Control Zone District (District) and HDR initially contracted in 2020 for engineering for water retention facility technical services, now more commonly called avoidance, minimization, and mitigation for a proposed flow-through dam for flood control and airport levee improvements to support environmental review of the project; and

**WHEREAS,** the project has progressed through successive rounds of funding and been correspondingly amendment in scope, cost, and duration, as approved by this Board; and

**WHEREAS,** a new contract Supplemental 13 will adjust the HDR contract scope of work and funding to conform to the scope of work funded by the District's recently finalized interagency agreement with the Washington Department of Ecology to support the engineering for this project; and

**WHEREAS,** Supplemental 13 reallocates funds within the previous scope of work and adds new scope of work, resulting in an increase to the total contract compensation of $2,605,000, and prioritizes the work most needed in the order most advisable for environmental review, given available funding; and

**NOW THEREFORE BE IT RESOLVED** that HDR Contract Supplemental 13 is hereby approved. The Chair is authorized to sign.

The foregoing resolution was ADOPTED by the Board of Supervisors of the Chehalis River Basin Flood Control Zone District at an open public meeting this October 21, 2025.

APPROVED AS TO FORM:

By: Interim District Counsel

ATTEST:

Tammy Martin, District Clerk

BOARD OF SUPERVISORS OF CHEHALIS RIVER BASIN FLOOD CONTROL ZONE DISTRICT

Scott Brummer, Chair

Sean Swope, Vice Chair

Lindsey R. Pollock, DVM, Supervisor

**Washington State Department of Transportation**

| **Supplemental Agreement Number** 13 | Organization and Address<br>HDR Engineering, Inc.<br>929 108th Ave. NE Suite 1300<br>Bellevue, WA 98004<br>Phone: | |
|---|---|---|
| Original Agreement Number<br>N/A | | |
| Project Number<br>N/A | Start Date<br>September 1, 2025 | Completion Date<br>June 30, 2026 |
| Project Title<br>Water Retentional Facility Technical Services | New Maximum Amount Payable<br>$16,758,868 | |
| Description of Work<br>Technical support services for the Water Retention Facility and Airport Levee Project. This work is associated with providing information for use in the environmental review of the project (SEPA, NEPA, and associated review and consultation processes). See attached SOW for more information. | | |

The Local Agency of Chehalis River Basin Flood Control Zone District desires to supplement the agreement entered in to with HDR Engineering, Inc. and executed on 12/3/2020 and identified as Agreement No. N/A
All provisions in the basic agreement remain in effect except as expressly modified by this supplement.
The changes to the agreement are described as follows:

I

Section 1, SCOPE OF WORK, is hereby changed to read:

See attached Scope of Work in Exhibit B. Additional guidance concerning reimbursement of travel expenses is included as Exhibit C.

II

Section IV, TIME FOR BEGINNING AND COMPLETION, is amended to change the number of calendar days for completion of the work to read: Until June 30, 2026.

III

Section V, PAYMENT, shall be amended as follows:

The purpose of Supplemental Agreement 13 (SA13) is to amend $817,525 in scope from previous agreements and increase the total contract by $2,605,000. Work may proceed up to the maximum amount payable ($16,758,868) as set forth in the attached Exhibit A, and by this reference made a part of this supplement. Note that this maximum amount payable is $496.85 less than the total available funding from Ecology (See email attached following the Scope of Work in Exhibit B).

If you concur with this supplement and agree to the changes as stated above, please sign in the Appropriate spaces below and return to this office for final action.

By: Olivia Williams, Vice President

Olivia Williams

Consultant Signature

By: Scott J. Brummer, Chair

Scott Brummer

Approving Authority Signature

10-27-25

Date

DOT Form 140-063
Revised 09/2005

# Scope of Work

05 August 2025

Mr. Ryan Barrett
District Administrator
Chehalis River Basin Flood Control Zone District
351 NW North St
Chehalis, WA, 98532

Subject: Chehalis River Basin Flood Control Zone District
Chehalis Basin Strategy
Supplemental Agreement 13 – 2025-2026 Preliminary Design Advancement to Support SEPA and NEPA Process and Analysis

Dear Mr. Barrett:

HDR is pleased to provide this supplemental proposal to provide continued preliminary design development and advancement of the Biological Assessment for a roller-compacted concrete (RCC) flood retention expandable (FRE) curved gravity structure.

Our proposed work scope will support the first year of the 2025-2027 biennium that runs from 1 July 2025 through 30 June 2026. Our scope of work is intended to support and develop responses to the upcoming release of supplemental Draft Environmental Impact Statements in the fall of 2025 as well as continued advancement of climate change operations and fish passage design in support of Endangered Species Act coordination and finalization of the Biological Assessment. Further, the proposed work also includes scope items that are intended to support Chehalis Basin decision makers and stakeholders.

Preliminary design efforts for the FRE structure will build upon the conceptual and preliminary design efforts accomplished under Supplemental Agreement (SA) SA07 through SA12. The advancement of the Biological Assessment to final will also rely on the previous design efforts and the design efforts included in SA13 in conjunction with the updated Biological Assessment completed in June 2025.

HDR is fully committed and vested in the successful completion of this project. Thank you for the opportunity to offer our services for this project. Should you require further clarification of this proposal, please contact Erik Martin at 360-556-9093 or erik.martin@hdrinc.com.

Regards,
HDR Engineering, Inc.

Erik Martin

Erik Martin, P.E.
Project Manager

Olivia Williams, P.E.
Vice President

hdrinc.com

555 110th Avenue NE, Suite 1200, Bellevue, WA 98004-5124
(425) 586-5100

# Contents

# Background

The Chehalis River Basin Flood Control Zone District (District) is participating in a basin-wide planning effort referred to as the Chehalis Basin Strategy (Strategy), the purpose of which is to improve river habitat and reduce flood damage in the Chehalis River Basin. The proposed Chehalis River Basin Flood Damage Reduction Project (proposed project) has been developed through the Strategy and includes construction of a new flood retention facility and temporary reservoir near the town of Pe Ell, Washington, as well as levee improvements around the Chehalis-Centralia Airport in Chehalis, Washington. The U.S. Army Corps of Engineers (USACE) and the Washington Department of Ecology (Ecology) are preparing environmental impact statements (EISs) under the National Environmental Policy Act (NEPA) and the Washington State Environmental Policy Act (SEPA), respectively, to evaluate potential environmental impacts of the proposed project.

The District originally procured HDR Engineering, Inc.'s (HDR's) services under Contract No. #10264664, Engineering Services to Support Environmental Review, Avoidance, Mitigation and Mitigation Efforts (AMM) Support, and subsequent Supplemental Agreements (SAs) 01, 02, and 03 (SA01, SA02, and SA03)to support the current flood retention expandable (FRE) and multi-purpose detention/retention structures that provided flood retention along with storage detention to provide flow augmentation (FRE-FC: Flood Retention Expandable-Future Condition) for environmental enhancement. SA04 and SA05 were executed to support an initial comparative analysis of two FRE structure minimization alignments, one upstream and one downstream of the original alignment, and development of temporary open-channel fish bypass features for each alignment. The agreements further included the development of a Revised Project Description (submittal for Ecology and USACE) to support both the state and federal EIS processes.

SA04 and SA05 further assumed that due to the local proximity of the proposed minimization FRE structure alignments to the original project alignment, the effort would not involve development of new spillway, flow release structure, or permanent fish passage structure configurations. During execution of SA04 and SA05, it was determined that further technical analysis was required to support new National Marine Fisheries Service (NMFS) guidelines on fish passage and subsequently, a reassessment of the spillway and existing outlet works including gates and conduits was warranted. During this effort the upstream alignment was selected as the new FRE structure alignment. Further, the upstream minimization alignment needed to be configured in a curved shape to avoid direct impacts to the original alignment and subsequent currently understood traditional cultural place.

The District procured HDR's services for Supplemental Agreements 06 and 07 (SA06 and SA07) to develop a Revised Project Description Report (RPDR) for the upstream minimization alignment. The RPDR was delivered in April 2024. HDR and the District, during their review of agency comments on the SEPA and NEPA draft environmental impact statements (DEISs), concluded that an advanced understanding of FRE operations is needed to address many of the comments. It was further identified that additional operational analysis is needed to assess avoidance and minimization operational measures and seek opportunities to provide operational flexibility to reduce adverse impacts to sediment transport, vegetation management and ultimately, aquatic species. Within the efforts outlined in SA07, HDR is currently working to update existing hydrologic and climate change datasets to better understand current and potential future conditions and evaluate potential adaptive reservoir operations that also maintain the required flood reduction goals as described in the project's purpose and need.

In addition to advancing hydrologic and hydraulic (H&H) analysis, HDR is advancing the FRE structure and foundation design to the level needed to support the Revised Project Description. This includes advancing the structural design of the FRE roller compacted concrete structure, temporary open-channel fish passage, fish passage conduits, spillway, and future FRE-FC temperature control (selective withdrawal) outlets along with associated gates and valves. The foundation treatment and design advancement is based on phase 1 geophysical and geotechnical data collected on the site but will rely primarily on the geotechnical data collected by Shannon and Wilson for the original FRE alignment. HDR is further assessing existing conditions and measures to maintain access around the FRE pool through proposed erosion treatments and drainage features, supporting Kleinschmidt Associates with their sediment transport analysis and mitigation plan refinements.

Under SA08, the District retained HDR's services for the preliminary design advancement of the FRE structure and Biological Assessment update (located at approximate latitude and longitude coordinates 46.542°N, 123.299°W) along with advanced operational analysis. This work included selecting earthquake and hydrological loads based upon the information available at the time the analysis is conducted and based upon the industry standard of care. These loads will be accepted by District for use in the design. Preliminary design efforts for the FRE structure are built upon the conceptual design efforts accomplished for the RPDR under SA06 and SA07. The two primary goals associated with the advancement of the FRE structure preliminary design are:

1. Support coordination and consultation activities associated with Section 7 of the Endangered Species Act (ESA) and Section 106 of the National Historic Preservation Act (NHPA).

2. Support District and Office of Chehalis Basin (OCB) decision to initiate permitting and related tasks by providing advanced cost estimates, construction schedules and operational understanding.

Summary of Recent Changes: SA09 deobligated $80,000 in fee from SA08 Tasks 18.6 and 33 to support vegetation management plan efforts conducted by others. SA09 further deobligated $173,789 of remaining funds within the fee obligated for SA04 through SA07 and transferred those funds into Task 46, the SEPA/NEPA Coordination scoped in SA08. SA10 deobligated a total of $1,280,000.00 from the overall agreement funds.

SA11 included a fee increase of $323,700. This increase in fee included the addition of scope offset by proposed reduction in scope in SA10 and addition of fees to the fee limit authorized by the District. Scope adjustments presented in SA11 were identified by both the District and HDR and align with the overall project goals agreed upon by the District. The following goals were established for SA10 and reflected the goals for SA11:

1. **Primary Goal** - Informing the Revised SEPA EIS: Provide the resources and expertise to respond to agency, tribal and public questions regarding the revised SEPA EIS.
2. **Secondary Goal** - Supporting and informing the NEPA EIS including Section 106 and ESA Consultation: Continue operational analysis and fish passage design in support of ESA continued consultation and the development of the revised Biological Assessment. Respond to NEPA EIS review questions and support District's Section 106 consultation efforts.

3. **Tertiary Goal** - Refinement of the project opinion of probable construction cost: Focus on the high-dollar construction cost estimate adjustments such as the revised foundation objective and structural modeling.

SA11 concluded adjustments and modifications to SA07 and SA08 and for the 2023-2025 biennium. SA12 was issued in July 2025 as a no-cost time extension to extend the SA11 period of performance from 31 July 2025 to 31 August 2025.

The SA13 scope of work supports the first half of the 2025-2027 biennium and focuses on continuing support of and developing responses for the upcoming release of supplemental DEISs in the fall of 2025 as well as continued advancement of climate change operations and fish passage design in support of ESA coordination and the finalization of the Biological Assessment. SA13 further includes the development of an economic and organizational framework that describes alternatives and opportunities for advancing the FRE through final design, construction and long-term project operations; strategic communications support; Section 106 engineering support; construction water supply analysis; and debris management analysis. These tasks will be supported with new biennium funding and will align with the OCB Board approved scope and budget approved in fall 2024.

The following additional scope of work items will be funded by carry-over funding from the 2023-2025 biennium that ends 30 June 2025. These scope items include finalizing the Department of Army Permit Application (DAPA); development of a cost estimate for the Flood-Retention Only (FRO) configuration; development of a Phase 3 geologic investigation plan and planning level cost estimate; supplementing fish passage/hydraulic design in support of the Biological Assessment; and supporting the OCB's basin-wide plan alternative comparative analysis efforts.

## Basis of Design

The basis of design for the FRE Structure will be a continuance of, and based on, the current Preliminary Design and incorporate new information developed and analyzed. The June 2025 Draft Preliminary Design Report contains the current design criteria for the project.

## Approach

SA13 will provide for additional preliminary design advancement of the FRE fish passage design (located at approximate latitude and longitude coordinates 46.542°N, 123.299°W) along with advanced future climate change operational analysis. HDR makes no warranties or guarantees on future predictions of hydrological conditions that may impact the design, safety, or performance of the dam. Preliminary design efforts for the FRE structure will build upon the conceptual and preliminary design efforts accomplished under SA07 through SA12.

Technical design advancement will focus on climate change operational analysis, fish passage design, construction water supply and debris management analysis in support of the final Biological Assessment (BA) development.

HDR will approach the strategic communications support, SEPA and NEPA supplemental DEIS support and Section 106 engineering support with flexibility and the ability to adapt quickly to address unforeseen needs from the District, OCB and agencies within the bounds of the contracted scope of work.

The cost estimate for the FRO configuration is a key task that both the District and OCB's basin-wide plan alternative comparative analysis efforts and will be prioritized to be delivered in fall 2025. The development of a Phase 3 geologic investigation plan and planning level cost estimate in preparation for possible future investigations is a District high priority and will be completed by the end of the calendar year. Further, HDR's approach to the development of an economic and organizational framework will similarly take priority and be targeted for completion at the end of the calendar year. Both the FRO cost estimate and framework development tasks are expected to feed into OCB's comparative analysis.

For the scope of work items that are inherently unforeseen, HDR will work closely with the District and provide a brief scope of work, budget and schedule for each of the tasks prior to executing and will continually document and track the unforeseen tasks throughout the period of performance.

# Scope of Services

## TASK 1. Project Management

OBJECTIVE

HDR will monitor, manage, and adjust scope, schedule and budget, as well as provide monthly progress reporting, accounting, and invoicing, prepare contract amendments associated with this scope of work and support the District with owner's assistance.

HDR SERVICES

- Update project management plan with additional staff and services provided in this amendment.
- Monitor and adjust the health & safety plan.
- Monitor and adjust the quality assurance/quality control (QA/QC) plan and track quality assurance of deliverables.
- Attend project status calls with District.
- Attend interagency coordination calls with District.
- Attend ESA project coordination calls with District.
- Support District with coordination with Weyerhaeuser, O'Neill and Panesko properties.
- Support District with stakeholder and agency outreach.
- Support District with Board of Supervisors coordination and presentations.
- Support District with Office of Chehalis Basin Board coordination and presentations.
- Provide existing District website maintenance.
- Lead preliminary design review with District.
- Maintain project files and schedule.
- Coordinate project team and subconsultants, including site characterization permission, access, and reclamation requirements.
- Monitor scope, schedule, and budget.
- Prepare monthly invoices and progress reports.

CLIENT RESPONSIBILITIES

- Review and process invoices in accordance with the District's Terms and Conditions.
- Review SA13 deliverables within 15 business days of receipt unless otherwise noted in the individual tasks.

ASSUMPTIONS

- Invoices will be provided electronically.
- Project Management will occur 01 July 2025 through 30 June 2026.
- Attend two 52 weekly virtual project status calls led by the District. Meetings will be up to 30 minutes duration discussing topics identified by the District. Meeting attendance to be determined prior to meeting and will average 1.5 HDR participants for each meeting.
- Lead 52 weekly virtual project management project status calls. Meeting will be up to 60 minutes duration each will be attended by HDR Project Managers, HDR Tech Lead, HDR Engineer of Record, the District, and District subconsultants. Meeting discussions will address topics identified by the HDR project team and District subconsultants. Email summaries will be produced from each call.

- Lead 26 bi-weekly Status and Scheduling Update and Coordination Meetings between HDR Project Managers and HDR Technical Leads; 1.5-hours/meeting.
- Attend 12 monthly virtual interagency and ESA meetings, one-hour in duration each. Up to two HDR staff will attend.
- Attend up to 12, two-hour virtual presentations or meetings with OCB Board and/or District Board of Supervisors. One HDR staff will attend each meeting virtually. A second HDR staff will attend six meetings in person and six meetings virtually. Travel included.
- Attend up to six, one-day in-person meetings with District, Office of Chehalis Basin Board and/or District Board of Supervisors in Chehalis, Centralia or Olympia Washington. Two HDR staff will attend. Travel and preparation included.
- Provide up to 104 hours (two hours/week) of additional project sponsor/owner assistance.

DELIVERABLES

- Draft email summaries for project management status calls.
- Draft meeting notes for Interagency Meetings in Microsoft Word format.
- Draft meeting notes for ESA Coordination Meetings in Microsoft Word format.
- Monthly invoices and progress reports in Adobe PDF format.

## TASK 50. Program Management Delivery Framework Development

OBJECTIVE

The OCB and Tribes have been inquiring about ownership and management of the project if it were to move forward. This effort will identify alternative funding opportunities, District organizational structure and ownership approaches for managing and delivering the FRE and other associated proposed improvements if the project moves forward.

Providing options regarding how the final design and construction will be managed and funded and who will own and operate the facility and how long-term O&M is funded will be a focal decision factor for the District and multiple stakeholders.

Organizational needs will have notable differences during the design, construction and operation phases of the project. Organizational structure, responsibilities, and funding requirements need to be conceptualized for implementation in order to execute project requirements.

HDR SERVICES

HDR will develop an initial, draft and final comprehensive delivery program framework with the goal of bringing clarity to and informing the District, the Chehalis Basin Board and other basin stakeholders of future project economic and organizational structure options, alternatives and opportunities.

The framework and associated table will accommodate collaborative District and external stakeholder coordination and conversations to identify, and then expand upon, alternatives and opportunities to secure economic resources and summarize organizational development that could be employed for future programmatic management and execution of the project. HDR anticipates that this initial table will be populated with draft alternatives and a series of questions and information to initially identify and foster expanded discussions and alternatives development.

HDR will facilitate public and stakeholder outreach and incorporate community leader and project stakeholder input, as identified, coordinated and approved by the District, to address community and stakeholder questions and concerns while further garnering community and stakeholder support.

HDR will develop assumptions and constraints to support economic and organizational structure framework development.

As part of the delivery framework development, HDR will incorporate and define estimated timeframes for executing and delivering actions that support securing economic resources and organizational development, i.e., identify when actions need to be initiated and when they should be fully developed.

Both economic and organizational structures will consider, to the extent possible, relevant and successful project examples. HDR will conduct a critical review of previous projects of a similar nature to support the development of organization and funding alternatives and recommendations.

The development of the initial, draft and final programmatic delivery framework will be accomplished using HDR Senior Planners, Program Managers, Project Managers, Economists and Project Funding Professionals with experience in large scale civil infrastructure and water resource projects. This framework will include identification of programmatic, economic, and organizational needs for future phases of the project including:

1. Preliminary/Final Design
2. Construction (Dam, Airport Levee and Mitigation)
3. Project implementation, Operations, and Maintenance

As a priority for the District, emphasis within calendar year 2025 will be the development of economic and organizational opportunities and alternatives for the project implementation, operations and maintenance phase and subsequent presentation materials.

HDR anticipates involving the following expertise to develop the framework:

- Sr. Program Manager with large civil works/water resources project development experience
- Sr. Project Consultant with experience in planning/permitting, design and construction on projects involving large dams
- Sr. Commercial Manager with alternative delivery experience
- Sr. Funding/Grant Expert with experience in helping clients connect with project funding
- Economist with experience or familiarity with owning/maintaining a large water infrastructure project
- Dams Practice Technical Leadership
- Project Management, strategic and technical resources as needed
- Advisory Services - UMS Teams (O&M) aka Management Consulting
- Real Estate Services
- Sr. Cultural Resources Archeologist with Section 106 consultation experience

CLIENT RESPONSIBILITIES

- Participate in workshops and meetings.

- Identify public, agency and tribal stakeholders.
- Review draft deliverables and provide consolidated comments within 10 working days of submittal.

ASSUMPTIONS

- Up to two, four-hour workshops, will be planned, facilitated and held at a location identified by the District and within the Chehalis Basin. Four HDR staff will be in physical attendance and will prepare agendas and presentations.

DELIVERABLES

- Initial draft Delivery Program Framework Technical Memorandum (TM) in Microsoft Word and Adobe PDF format.
- Presentation Materials to Support Framework Communications with District and Stakeholders.
- Draft and final Delivery Program Framework TM in Microsoft Word and Adobe PDF format.

## TASK 51. Strategic Communications Support

OBJECTIVE

This task provides for Strategic Communications support for presentations and visuals developed to share project updates with agencies, tribes, OCB, community members, and Lewis County. It may include presenting during OCB Board meetings and monthly Section 106 coordination calls, creating or editing web content, drafting outreach, and ongoing communication with community and County officials.

HDR SERVICES

- Management and support for District website updates, through June 2026. This effort will include minor content development.
- Virtual attendance at up to 12, two-hour Section 106 calls.
- Virtual attendance at up to 52 weekly, 30-minute District coordination meetings.
- On an as-needed basis:
    - Development of public outreach talking points and press releases focused on the design uniqueness and climate resiliency features of the FRE.
    - Attendance virtually or in-person at community, OCB, and/or County meetings, including meeting preparation.
    - Development of public, county, OCB and tribal outreach documentation and presentations.
- Support Program Management Delivery Framework Team in the Development of presentation materials.

CLIENT RESPONSIBILITIES

- Distribution of press releases
- Identification of presentation and visual needs and opportunities.
- Scheduling and coordination with agencies, OCB, tribes, or others.

ASSUMPTIONS

- These as-needed services are assumed not to exceed approximately 475 hours or $75,000 in total fee.

DELIVERABLES

- Draft and final Visuals in appropriate format (e.g., JPEG, Adobe PDF, PNG).

- Draft and final Talking Points/Press Releases in Microsoft Word and Adobe PDF format.
- Draft and final Presentations in Microsoft PowerPoint and Adobe PDF format.
- Other deliverables as determined by District needs.

## TASK 52. SEPA and NEPA EIS and ESA Review and Engineering Support

OBJECTIVE

Review agency analysis, address questions; provide general Support for SEPA & NEPA processes. (1) Provide information to state and federal agencies necessary to support the EIS processes (2) substantially add to the important and useful information available for decision makers in the basin. (3) Review Revised DEIS, provide comments and feedback to Ecology. Anticipate providing supplemental clarifications and amendments post DEIS issuance which may require advanced analysis and design. Further, anticipated responses to basin stakeholders are likely to be required.

Revised DEISs will be released during the 25-27 biennium. HDR will support the District in review of the revised DEISs and provide clarifications and commitments based on information released in the revised DEIS. Additionally, HDR will assist the District with state and federal agency questions that may arise during the public comment period.

HDR SERVICES

Specific services are not known at the current time except those identified in sub task below. Previous services included:

- Developing memorandums or technical memorandums to address agency/public comments and requests for information.
- Development of and participation in agency or public presentations.
- Conducting environmental and engineering analysis to support development of memorandums and technical memorandum responses.

As requests for services arise, HDR will coordinate directly with the District and develop a brief scope and planning budget for review and concurrence.

CLIENT RESPONSIBILITIES

- Participate in team coordination meetings.
- Participate in planning and conducting meetings with consultants, agencies, and stakeholders.
- Support coordination with other consultants to obtain data and information necessary to finalize the SEPA/NEPA responses.
- Provide comments on draft deliverables within ten working days.

ASSUMPTIONS

- These as-needed services are assumed not to exceed approximately 1,700 hours or $450,000 in total fee inclusive of an approximate fee of $52,000 for subtask 52.1, Truck Trips and Diesel Consumption described below.

DELIVERABLES

- Draft and final Presentations in Microsoft PowerPoint and Adobe PDF format.

- Responses to Agency Comments and Request for Information.
- Other deliverables as determined by District needs.

### 52.1 Truck Trips and Diesel Consumption Estimate

SUBTASK OBJECTIVE

The objective of this task is to reconcile the diesel consumption estimate during construction and truck trip estimate from various stages of the design process to the current level of design. In addition, the truck trip estimate will be expanded to include off highway trucking during construction. This information has been requested by the state SEPA and federal NEPA teams in past phases of the project. It is anticipated that this updated information may be necessary for the District's comments on the draft SEPA EIS anticipated to be released for public comment in late 2025.

HDR SERVICES

- Update diesel consumption estimate during construction and include summary and attachments in Appendix K.
- Update truck trips estimate during construction for off-highway vehicles
- Refine access road design assumptions in support of updates to truck trip and diesel consumption estimates.
- Conduct internal QA/QC
- Update Appendix K Constructability Report and its attachments submitted with the Draft Preliminary Design Report in June 2025.

CLIENT RESPONSIBILITIES

- Review draft TMs and provide consolidated comments within 15 business days from receipt.

ASSUMPTIONS

- Truck trips will differentiate between light and heavy-duty vehicles
- Truck trip distances will be shown as ranges and are assumptions
- Diesel consumptions will be based on equivalent equipment to what may be used during construction
- The determination of daily truck trips required the assumptions of durations. These durations will be based on HDR's judgement and will be in accordance with the overall anticipated schedule
- Appendix G Access Roads and Best Management Practices and Appendix K Constructability Report included in the June 30, 2025 Draft Preliminary Design Report will be updated with the information developed in this subtask.
- Level of detail will be appropriate with the current design level as determined by the District.

DELIVERABLES

- Draft and final Access Roads and Best Management Practices.
- Draft and final Constructability Report.

## TASK 53. Endangered Species Act Technical Development, Analysis and Consultation

OBJECTIVE

Support ESA efforts and final BA development. These efforts generally include:

- Addressing NMFS requests regarding CFD modeling to improve validation of volitional fish passage. WDFW, USFWS and NMFS have requested additional detail on Trap and Haul Operations specifically to identify the proposed procedures for release within the temporary pool.
- Additional operational analysis refinement. The District anticipates that agencies and stakeholders will have additional questions regarding the operational capabilities that support non-flood benefits or avoid and minimize impacts beyond the analysis currently being conducted.
- Advancement of debris management analysis addressing the relocation and use of large woody debris collected from the reservoir during project operation. The current location and size are based on feasibility-level analyses developed for the Programmatic EIS and refined with minor updates for the SEPA/NEPA DEISs. There is a need to refine the access plan to the debris management area based on the refined location and footprint and considering accessible roads when a reservoir pool is held based on the access road refinements in the Revised Project Description as well as refine debris management area access plan based on refinements to the estimated volume of large wood developed as part of the mitigation plan in the Revised Project Description.
- Advance analysis to refine the requirements for construction water supply to determine if demand could impact aquatic species - and to identify other alternatives for construction water supply when instream flows are low in the summer months. This issue is further important to understanding the potential constraints to seasonal construction periods which will result in a better understanding of construction schedule and potential impacts.

HDR SERVICES
HDR will undertake the following:

### 53.1 Provide Fish Passage Design and Fisheries Services Coordination

SUBTASK OBJECTIVE
The objective of this task is to advance the design of the fish passage elements of the FRE project in support of the ESA consultation document (i.e., Biological Assessment) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The goal of the work in this subtask is to achieve consensus with NMFS (a.k.a. - NOAA Fisheries) that the fish passage design has been developed to a level required to initiate ESA and MSA consultation with NMFS. Whether the fish passage design is advanced to a level required to initiate ESA and MSA consultation is NMFS' sole decision. At the time of writing this scope, NMFS has not identified specific metrics that must be met to achieve a design acceptable to NMFS to initiate consultation. HDR does not determine or know whether NMFS will accept the proposed fish passage design in time for the planned submission of the Biological Assessment to initiate the consultation process.

This subtask includes continuing regular meetings with NFMS regarding NOAA Fisheries WCR Guidance to Improve the Resilience of Fish Passage Facilities to Climate Change - 2022 and design development of the flow-through fish passage and FFPF. The objective of the meetings is to reach agreement on design flows, design criteria, performance requirements, and early preliminary design for permanent and construction phase project features and operation associated with the FRE structure.

HDR SERVICES
- Coordinate and facilitate meetings with NMFS.

- Conduct internal QA/QC of meeting notes.
- Finalize the Outlet Works Layout Option Evaluation TM submitted with the Draft Preliminary Design Report in June 2025.

CLIENT RESPONSIBILITIES

- Facilitate and relay communication between HDR and NMFS, including scheduling meetings and coordination with USACE.
- The District PM will attend scheduled NMFS meetings.

ASSUMPTIONS

- Final selection of a single outlet works layout for fish passage during flow-through operation was made by the District in July 2025, and a verbal concurrence was received by NMFS in July 2025
- NMFS will continue to have at least one dedicated engineering representative and one point of contact.
- Meeting agendas and meeting minutes will be distributed to attendees by the HDR.
- Meetings are anticipated to focus on:
    - Establishing fish passage design flows and criteria that meet NOAA Fisheries WCR Guidance to Improve the Resilience of Fish Passage Facilities to Climate Change - 2022;
    - Developing design of fish passage for flow-through operation that, according to NMFS, is advanced to level of design required to initiate ESA and MSA consultation; and
    - Gathering input from NMFS on potential impoundment operations and their impact on floodplain connectivity and downstream aquatic species.
- HDR is not responsible for the participation or attendance of NMFS staff in coordination meetings.
- HDR will hold up to eight NMFS meetings of up to 1-hour duration each virtually.
    - NMFS will meet regularly on a three-week basis from August 2025 through December 2025.
    - Up to four HDR staff will attend each meeting. HDR staff will include the fish passage design lead, fish passage engineers, biologists, permitting specialists, and other technical experts. Specific HDR staff will be selected to attend to address matters within their technical expertise in accordance with the agenda topics.
    - HDR will develop draft and final meeting notes for each meeting and disperse draft and final meeting notes to meeting attendees. Attendees will deliver consolidated edits and comments to the draft meeting notes to HDR in seven working days or less. HDR will issue final meeting notes to the District to deliver to the attendees following incorporation of comments on the draft meeting notes.

DELIVERABLES

- Draft and final Fish Passage NMFS Meeting Notes
- Draft and final Outlet Works Layout Option Evaluation TM

## 53.2 CFD Modeling to support Fish Passage Design

SUBTASK OBJECTIVE

The goal of the work in this subtask is to advance the hydraulic design of the fish passing structures in support of the fish passage design effort to achieve consensus with NMFS (a.k.a. - NOAA Fisheries) that the fish passage design has been developed to a level required to initiate ESA and MSA consultation with NMFS. At the time of writing this scope, NMFS has not identified specific hydraulic metrics that must be met to achieve a design acceptable to NMFS to initiate consultation. However, NMFS has stated that 3-dimensional (3D) Computational Fluid Dynamics (CFD) modeling must be completed to demonstrate validation of volitional fish passage required to initiate ESA and MSA consultation. HDR does not determine or know whether NMFS will accept the proposed hydraulic design in time for the planned submission of the Biological Assessment to initiate the consultation process.

HDR SERVICES

- Hydraulically model the proposed FRE structure outlet works and engineered channels during normal (flow-through) operation of the FRE for flows within the fish passage design flow range. Hydraulic model runs will include:
    - 3D CFD modeling of the Primary and Secondary Conduits and associated stilling basin;
    - 2D hydraulic modeling of the engineered channels upstream and downstream of the Primary and Secondary Conduits and associated stilling; and
    - Spreadsheet hydraulic modeling of the fishway(s).
- Hydraulically model the proposed construction bypass channels for flows within the fish passage design flow range using 2D hydraulic modeling software.
- Evaluate the potential changes between the existing channel sediment transport and the potential changes with the FRE structure outlet works using sediment transport modeling.

CLIENT RESPONSIBILITIES

- The District will review and provide comments on the draft Technical Memorandums within 15 business days after receipt of each TM.

ASSUMPTIONS

- Existing Topographic and Bathymetric survey is advanced to level to define transition from engineered upstream and downstream channel to existing river sections and otherwise inform the work in associated with this task.
- Hydraulic modeling of the the proposed FRE structure outlet works include the following assumptions:
    - CFD modeling containing a hybrid combination with the shallow water equations to simply model the upstream and downstream channels.
    - Air entrainment and flow bulking are subject to the limitations of the equations and hydraulic characteristics of the geometry. The CFD model will be developed in accordance with current best practices and is anticipated to provide meaningful results.
    - Physical hydraulic modeling of the conduits, fish passage, Flood Fish Passage Facility, and other project features is not included in this scope of work but is recommended for future final design.
    - Some hydrodynamic features may not be resolved with the CFD model. Recirculation patterns and vortices may or may not be appropriately approximated. The smallest scale turbulence formations may not be represented within the results and shear stresses calculated in the solution may not be reportable.

- 6 river flows will be run through the model (model runs) for each evaluated geometry.
- 3 geometry changes to the proposed design.

- Construction Bypass Channel Modeling & Sediment Transport Modeling conducted utilizing HEC-RAS 1D or 2D:
  - 6 flow hydrographs will be modeled for each terrain iterations/structure geometry change.
  - 2 terrain iterations/structure geometry changes will be included in the sediment transport modeling.

DELIVERABLES

- Draft and final update to the Hydraulic Design Report delivered electronically in PDF format.

## 53.3 Trap and Haul Operational Analysis to support Fish Passage Design

SUBTASK OBJECTIVE

The objective of this task is to advance the design of the Flood Fish Passage Facility (FFPF) portion of the FRE project in support of the ESA consultation document (i.e., Biological Assessment) and the MSA. The goal of the work in this subtask is to achieve consensus with NMFS (a.k.a. – NOAA Fisheries) that the FFPF design has been developed to a level required to initiate ESA and MSA consultation with NMFS. Whether the FFPF design is advanced enough to initiate ESA and MSA consultation is NMFS' sole decision. At the time of writing this scope, NMFS has not identified specific metrics that must be met to achieve a design acceptable to NMFS to initiate consultation. HDR does not determine or know whether NMFS will accept the proposed FFPF design in time for the planned submission of the Biological Assessment to initiate the consultation process.

This subtask includes updating the design of elements of the FFPF including the water supply, trapping and holding volumes, lamprey and fish ladder design, the auxiliary water supply, and site civil features, such as access roads.

HDR SERVICES

- Refine the lamprey ramp design based on accepted studies and guidance documents published since the 2018 Collect, Handle, Transfer and Release (CHTR) Report and the selected Outlet Works option.
- Refine the FFPF fish ladder design to reflect the layout in the June 2025 draft Preliminary Design Report and selected Outlet Works Option using the 2023 NOAA Fisheries WCR Anadromous Salmonid Design Manual.
- Advance the trapping, holding, water supply, pump station, and auxiliary water supply designs to reflect the selected Outlet Works Option using the 2023 NOAA Fisheries WCR Anadromous Salmonid Design Manual.
- Update site civil features to reflect the refined FFPF design.
- Update the 2018 CHTR report.

CLIENT RESPONSIBILITIES

- State and federal regulatory agencies may not be able to provide design input in a timely manner. In the absence of or in addition to regulatory design input, the District will make and inform HDR of design decisions in a timely manner so that design decisions do not impact the schedule for delivery of the final Biological Assessment.

ASSUMPTIONS

- Design refinement will be based on the design documented in the 2018 CHTR Report and subsequent design advancements.
- Due to staffing shortages, a changing regulatory environment, or other reasons, NMFS may be unable to provide regulatory input to the design in a timeframe that is needed to meet the schedule for delivery of the final Biological Assessment. Similarly, WDFW has declined to participate in design meetings with the District and HDR while the SEPA EIS is being developed. HDR does not determine or know whether NMFS or WDFW will accept the design decisions made by HDR or the District in the absence of their input or will require changes to the proposed design in future phases of design development.
- Appendix I Fish Passage Design Report of the draft Preliminary Design Report will be updated to document the work performed in this subtask.
- A copy of the updated Appendix I Fish Passage Design Report will be provided electronically to the District for review in MS Word format. Changes will be shown in track changes. The District will provide edits in track changes format and provide consolidated comments in the MS Word document. A final version of the draft Appendix I Fish Passage Design Report will be provided electronically to the District in PDF format without track changes or comments.
- Revised FFPF drawings will be provided electronically in PDF format. Final draft drawings will be included in Appendix A Maps and Drawings of the draft PDR.
- Change the term "CHTR" in the 2018 CHTR report to "FFPF." Rename the CHTR Report to the FFPF Report.

DELIVERABLES

- Draft and final updated Appendix I Fish Passage Design Report.
- Draft and final updated FFPF drawings.
- Draft and final FFPF Report.

## 53.4 Operations Analysis

SUBTASK OBJECTIVE

The Operations Analysis task is a combination of refining current reservoir operations modeling and responding to questions from agencies and stakeholders. Operational refinements will include improvements to non-flood benefits and avoid and minimize environmental impacts through reservoir operations. With requested hydraulic HEC-RAS modeling of a proposed bypass channel near Centralia, additional operations modeling may be needed to support this effort. Debris laydown areas and required time requirements are still being finalized and will be integrated into the operations sets once final. State and federal regulatory agencies and local stakeholders will have additional questions regarding the reservoir's operational capabilities and how environmental impacts are being minimized or avoided in the proposed operations sets.

Additional operational analysis refinement. The District anticipates that agencies and stakeholders will have additional questions regarding the operational capabilities that support non-flood benefits or avoid and minimize impacts beyond the analysis currently being conducted.

HDR SERVICES

- Support and develop responses for supplemental DEISs

- Support finalization of Biological Assessment by refining reservoir operations based on current proposed operations sets using updated current and future climate period of record hydrology and test proposed operations sets for robustness/resiliency/sensitivity
- Accommodate final decisions on debris removal laydown areas/elevations and debris removal time requirements into modeling of proposed operations sets
- Support hydraulic RAS modeling of proposed bypass channel near Centralia with additional reservoir operations modeling
- Run statistical analyses on modeling results to provide anticipated annual exceedance probabilities related to reservoir operations
- Respond to questions and comments to the PDR from the District, OCB, and state and federal regulatory agencies
- Respond to questions and comments to BA from the District, OCB, and state and federal regulatory agencies

CLIENT RESPONSIBILITIES

- The District will review and provide consolidated comments on the draft Technical Memorandum within 15 business days after receipt of each TM.
- State and federal regulatory agencies may not be able to provide design input in a timely manner. In the absence of or in addition to regulatory design input, the District will make and inform HDR of design decisions in a timely manner so that design decisions do not impact the schedule for delivery of the final Biological Assessment.

ASSUMPTIONS

- Existing topographic and bathymetric survey data has been advanced enough to accurately convey flows throughout the modeled basin
- Debris removal laydown areas and required time durations for debris removal will be finalized by HDR in a timely manner so that design decisions do not impact the schedule for delivery of the final Biological Assessment
- Hydrology, including baseflow, tributary flow, and precipitation, is modeled in HEC-HMS to a advanced degree to provide accurate inflows to the reservoir and downstream flows for both the current climate and future climate periods of record
- Operations refinement will be based on operations documented in the 2024 Hydrologic Engineering Management Plan and subsequent operations advancements.
- Draft TM will be provided electronically in MS Word format. Final TM will be provided electronically in PDF format.

DELIVERABLES

- Draft and final Reservoir Simulation Analysis TM

### 53.5 Advance Debris Management Analysis to support Operations and subsequent avoidance and minimization actions.

SUBTASK OBJECTIVE

The Debris Management Analysis will be advanced to support actions to avoid and minimize environmental impacts. The Debris Management Analysis in this subtask will continue to advance the work done in SA11. In SA11 a desktop analysis was performed to estimate the anticipated large woody debris load in the

reservoir for different storm event sizes, refine the size of the debris collection area in the reservoir, identify potential location(s) for debris collection areas lower in the reservoir, and refine the estimated reservoir debris collection rate. The current subtask will refine estimates of debris collection volumes, rates, shoreside collection area(s), collection frequency; develop possible sluicing operation and bedload removal procedures and timing; and consider inclusion of debris fences in the reservoir to reduce volume of debris collected by boat.

HDR SERVICES

- Refine the horizontal footprint and location of the debris management area used to collect and relocate large woody debris collected from the reservoir during project operation. The current location and size are based on feasibility-level analyses developed for the Programmatic EIS and refined with minor updates for the SEPA/NEPA DEISs.
    - Refinements for the evaluation will include a high-level sequencing of activities, including temporary storage during high-debris events, using refined estimate of debris volumes and durations.
    - Refinements will be assisted with the use of GIS.
- Refine the access plan to the debris management area based on:
    - The refined location and footprint and considering accessible roads when a reservoir pool is held based on the access road refinements in the Revised Project Description.
    - The refined estimated volume of large wood developed as part of the mitigation plan in the Revised Project Description.
    - Sequencing will be assisted through GIS detailing to evaluate the location and timing of the large woody debris for various flood events, temporary storage and chipping and removal offsite.
- Add and refine definition of terms related to operations of the FRE facility.
- Develop description of potential conduit stilling basin sluicing operation and potential manual removal of bedload immediately downstream of conduit stilling basin.
- Consider including debris fences in the inundation area to reduce volume of LWD collected by boat.

CLIENT RESPONSIBILITIES

- Participate in debris management meetings with HDR staff.
- Review draft TM and provide consolidated comments within 15 business days from receipt.

ASSUMPTIONS

- One site visit to the proposed laydown areas will be attended by up to 4 HDR staff to visualize laydown area sequencing and road access during operation.
- HDR will hold up to two virtual meetings with the District of up to 1 hour duration each.
    - Meetings will be conducted to establish probable debris management actions undertaken as part of the operation and maintenance.
    - Up to 4 HDR staff will attend each meeting.
    - HDR will develop meeting notes for each meeting and distribute to the District following the meeting.
    - Input received in the meetings from the District will be documented in the updated FRE Debris Management TM.
- Updates to the FRE Debris Management TM will be up to 10 pages in length.

- Discussion of potential mitigation actions will not be discussed within the FRE Debris Management TM because these actions are being developed by the District's mitigation team. The TM will reference mitigation documents when addressing potential relationships between debris management and mitigation activities. For example, if large woody debris, rafted and collected during reservoir drawdown, is proposed to be provided for fish habitat projects elsewhere in the basin, the TM would describe how the debris would be collected, where it would be stored, how it would be delivered to others, and who would collect and deliver the material. It would also reference the mitigation document for additional detail on the material's use in mitigation activities.
- Additional and refined definitions for operational terms will be coordinated with the final Biological Assessment.
- Refinement of debris volumes and collection activities will consider debris fences in the reservoir area proposed by Kleinschmidt in their Mitigation Plan. Debris fences proposed by Kleinschmidt in the July 2024 Mitigation Plan will be reviewed and considered for inclusion in the FRE design. If included, proposed debris fence locations and orientations will be identified; general dimensions, materials, and cross section will be developed; and a description of the debris fences will be developed
- Development of potential regular maintenance action of manual removal of bedload from the area immediately downstream of the conduit stilling basin may include the estimated frequency of occurrence, duration of each operation, description of equipment entering the river, periods of the year when this operation may occur, and best management practices employed to meet regulatory requirements. Description of this action will be commensurate with a conceptual level of design development. Steps and details associated with this maintenance action are expected to change during final design and through collaboration with state and federal regulatory agencies and other stakeholders.
- Development of potential regular operation action sluicing the conduit stilling basin may include the estimated frequency of occurrence, duration of each operation, description of equipment used to facilitate sluicing, periods of the year when this operation may occur, and river flows when this operation may occur. Description of this action will be commensurate with a conceptual level of design development. Sluicing operation steps and details are expected to change during final design and through collaboration with state and federal regulatory agencies and other stakeholders.

DELIVERABLES

- Draft and final updates to the FRE Debris Management TM. The draft TM will be provided electronically in MS Word format. The final TM will be provided electronically in PDF format.
- Draft and final Operations and Maintenance TM. The draft TM will be provided electronically in MS Word format. The final TM will be provided electronically in PDF format.

## 53.6 FRE Construction Water Supply Analysis

SUBTASK OBJECTIVE

In 2024 the Washington State Department of Ecology, to inform their SEPA EIS, asked for more specific information regarding where water used for FRE construction would come from and what the average daily flow rates would be throughout the construction period. There is not enough flow in the Chehalis River year-round to meet the instream flow requirements and supply construction needs. The requirements for

construction water supply need to be assessed in detail to estimate construction water demand rates and to identify options for construction water supply. Identification of potential constraints related to seasonal construction periods will result in a better understanding of construction schedule, construction needs, and potential impacts.

HDR SERVICES

- Identify potential sources of water that may be available to meet construction water demand throughout the construction period and consider the feasibility of their use for construction water supply.
- Develop list of potential construction water demands and estimate peak demand flow rates.
- Perform conceptual-level hydrologic assessment of potential groundwater supply sources and estimate potential flow rates and volumes.
- Perform a feasibility review and describe the process and procedure for permitting construction water supplies with State of Washington Department of Ecology.

CLIENT RESPONSIBILITIES

- Review draft TM and provide consolidated comments within 15 business days from receipt.

ASSUMPTIONS

- Peak construction water supply demand will be about 2 mgd.
- Construction water will need to be supplied from sources other than the Chehalis River, such as from groundwater sources, for most of the year.
- Aggregate for conventional concrete must be washed on-site.
- Surface water supplies from sources not governed by minimum instream flow and sources in non-salmonid-bearing water bodies will be considered.
- Up to 4 different water supply sources and/or locations will be considered.
- Estimated nominal and peak water supply and demand will be developed for the construction period using identified potential water sources.
    - Wet, dry, and average water years will be considered.
- Estimated Construction Water Demand and Supply Schedule will consist of an updated bar chart construction schedule and will include nominal and peak water demand by task to show high-level water demand over the construction period. A CPM schedule will not be produced.
- Adjustments to the construction schedule due to potential, estimated water supply source, flow rate, and volume constraints will be considered.
- A conceptual-level hydrogeologic assessment will include including how many potential groundwater supply sources may be available, their potential peak and nominal flow rates over time, and their locations.
    - The hydrogeologic assessment will be a desktop analysis.
    - The hydrogeologic assessment will include recommendations for groundwater test well location(s) in proximity to key pieces of the Work, including near quarries.
- Potential water supply sources may include water storage on site. Consideration of potential water storage on-site will include sizes (volume & area), locations (off-channel or on-channel), and possible beneficial use (offset peak demand; unlikely to affect nominal demand). Water storage will likely consist of storing water slowly over time to offset peak demand. Types such as ponds, baker tanks, and fiberglass ponds will be considered.

  - It is expected that potential water storage would provide temporary, short-term peak demands; not seasonal water supply.
- Consideration of potential water supply sources may include the technical possibility of using a portion of Pe Ell's water right to supply construction water. Construction water may be taken off existing or upgraded Pe Ell water supply pipeline or taken via new temporary intake and supply pipeline.
  - Use of Pe Ell's water right may include installing permanent or temporary groundwater wells for Pe Ell's drinking water supply and project using the surface water supply for construction.
  - A water rights analysis will not be performed as part of this scope.
- Consideration of potential water supply sources will include a list of basic water treatment that may be required and associated temporary infrastructure.
  - Water quality requirements for each different water demand will be considered. It is assumed that there will only be 2 or 3 sets of water quality requirements that will cover construction tasks.
- This task will NOT consider potable water.
- This task will NOT consider regulatory water treatment requirements.
  - It is assumed water used on-site will be treated to local, state, and federal requirements before being discharged.
- An estimated range of water supply and demand nominal and peak flow rates and volumes will be provided.
- Estimated Construction Water Demand and Supply Schedule will consist of a bar chart construction schedule showing primary water-demand tasks, total project water supply availability line overlaid, and total construction water demand line overlaid.
- Preliminary Construction Water Supply TM will be appended to the Constructability and Schedule Report appendix of the Preliminary Design Report.
- The Constructability and Schedule Report appendix of the Preliminary Design Report will be updated to reflect the work summarized in the Preliminary Construction Water Supply TM.

DELIVERABLES

- Estimated Construction Water Demand and Supply Schedule.
- Draft and final Preliminary Construction Water Supply technical memorandum in Electronic PDF format.
  - TM will be no more than 15 pages, including figures and tables.

### 53.7 Advance Biological Assessment Documentation and Support District during ESA Consultation

HDR will finalize the ESA Section 7 Biological Assessment (BA) using the June 30, 2025 interim BA submitted to the Recreation and Conservation Office (RCO). The final BA will be submitted to the District for submittal to the USACE to review and initiate consultation. Following completion of the final BA and acceptance of the BA by the U.S Fish and Wildlife and National Marine Fisheries Services to initiate consultation, HDR will continue to support the District during consultation through June 30, 2026.

HDR SERVICES

- Three (3) ESA team staff will attend 90-minute, virtual, bi-weekly meetings with the client ESA team for the period of July 1, 2025 through June 30, 2026.
- Up to five (5) HDR staff will attend up to two, 90-minute calls with the Services upon initiation of consultation for the period of July 1, 2025 through June 30, 2026.
- ESA team will prepare a DRAFT FINAL BA using the following documents, that will be completed by others by October 1, 2025:
  - Fish passage design report (prepared to 30% design level)
  - Reservoir operations analysis, including frequency analysis "with climate" for life of FRE facility, with client-selected operational alternative
  - Updated FFPF designs
  - Assessment results from the Ecosystem Diagnostic Tool modeling for the Mitigation Plan (from Kleinschmidt) for Southern Resident Killer Whale prey impact assessment
  - Revised Mitigation Plan (from Kleinschmidt)
- Updated 3D drawings will be prepared for the BA upon selection of the fish passage alternative. Up to 80 hours of GIS time is included in this task to address this effort.
- Upon receipt of client and legal comments, HDR ESA team will respond to comments and prepare a FINAL BA for District submittal to the USACE.
- HDR ESA team will respond to comments on the Final BA from the USACE. Up to 80 hours of ESA team time are included to address USACE comments.

CLIENT RESPONSIBILITIES

- District PM and selected support staff will attend consultation meetings and coordinate directly with the USACE regarding ESA consultation.
- District PM and selected support staff will provide timely reviews of documentation to support the BA, in one consolidated set of comments.
- District PM and selected support staff will assist in review and response of comments from the USACE on the Final BA.

ASSUMPTIONS

- ESA consultation support will continue through the 2025-2027 biennium; however, this scope and fee considers a period of June 30, 2025 through June 30, 2026 and will be supplemented as needed after that date.
- Up to three (3) full-day meetings in Olympia for up to two (2) HDR ESA team members are included in this scope of services.
- A one-day site visit to assess habitat suitability for marbled murrelets is included in the scope, for up to two HDR biologists. No additional site visits, habitat suitability surveys for listed species, or field work is included in this scope of work. Marbled murrelet nesting habitat suitability surveys proposed in the BA will be conducted after the 2025-2027 biennium under a separate scope of work.
- HDR ESA team will review the June 30, 2025 Preliminary Design Report (PDR) to update the Proposed Action for the BA. Substantive changes to the PDR will be relayed to the ESA team and documents will be provided for ESA team review and incorporation into the final BA.
- To finish the Final BA for delivery to the USACE by Q1 of 2026, the ESA team must receive required design updates by October 1, 2025. Design updates received beyond October 1, 2025 may not be considered for the final BA.

- No additional deliverables are included under this scope of services beyond those listed below.
- No additional studies are included under this scope of work. If the Services request additional surveys or studies to support ESA consultation, a scope amendment will be required.
- The FINAL BA will consider effects on ESA-listed or proposed species and proposed or designated critical habitat as of June 1, 2025, including:
    - Humpback whale - Central America Distinct Population Segment (DPS)
    - Humpback whale - Mexico DPS
    - Lower Columbia River Chinook Salmon
    - Upper Willamette River spring-run Chinook Salmon
    - Columbia River Chum Salmon
    - Southern Resident Killer Whale + designated critical habitat
    - Sunflower sea star
    - Southern DPS Eulachon
    - Southern DPS Green Sturgeon + designated critical habitat
    - Coterminous USA Bull Trout + designated critical habitat
    - Northwestern pond turtle
    - Oregon spotted frog
    - North American wolverine
    - Gray wolf
    - Yelm pocket gopher
    - Northern spotted owl
    - Marbled murrelet + designated critical habitat
    - Streaked horned lark
    - Yellow-billed cuckoo
    - Kincaid's lupine
    - Monarch butterfly
    - Suckley's cuckoo bumble bee
- The BA includes an assessment of effects on Pacific Salmon Essential Fish Habitat.
- ESA consultation will continue though the 2025-2027 biennium. Design advancement may be required to continue ESA consultation. The amount of advancement necessary to conclude consultation will depend on the ongoing discussions with the Services. Engineering staff timing for BA support from June 30, 2025 to June 30, 2026 is detailed in Tasks 53.1 - 53.6, and Task 53.8.
- This task includes revising the 3D renderings of the FRE facility to reflect the design changes made as part of this amendment.

DELIVERABLES

- Draft FINAL BA delivered electronically in Word format.
- FINAL BA delivered electronically in Word and PDF Format.
- Revised FINAL BA, responding to USACE comments on review of FINAL BA delivered electronically in PDF format.

## 53.8 Preliminary Design Report Update

SUBTASK OBJECTIVE

Document advancements in the engineering design performed under this scope in the draft Preliminary Design Report (PDR). The PDR submitted at the end of the last biennium (approx. June 30, 2025) will be updated and expanded to incorporate the engineering design performed under this scope.

HDR SERVICES

- Update and expand the draft PDR.
- Populate PDR with updated design summary information and exhibits, figures, reports, and TMs.
- QC the Draft PDR
- Coordinate Draft PDR with District for District Review
- Develop Final Draft PDR
- QC Final Draft PDR
- Submit Final Draft PDR to District

CLIENT RESPONSIBILITIES

- Provide final draft comments on the PDR within 14 calendar days (2 weeks) after delivery of the draft PDR.
- The District will compile comments from the District's reviewers into a single set of comments.

ASSUMPTIONS

- The District will provide review comments and edits in track changes in MS Word for the draft Preliminary Design Report and the deliverables listed in Task 53.1 and 53.6.
    - These deliverables will be submitted for District review at the same time. Individual documents may be mutually agreed to be submitted earlier.
- The following appendix documents will be combined into single reports as appendices.
    - Hydraulic Design Report
        - Appendix D1: Spillway Hydraulic Design TM
        - Appendix D2: Preliminary Hydraulic Design of Fish Passage and Evacuation Conduits TM
        - Appendix D3: Chehalis Construction Bypass Hydraulic Modeling TM
    - Geotechnical Design Report
        - Appendix E1: Geologic Data Report
        - Appendix E2: Foundation Excavation Objective TM
        - Appendix E3: Foundation Treatment TM
        - Appendix E4: Evaluation of Potential Quarry Sites for the Proposed Chehalis Dam TM
    - Constructability Report
        - Appendix K1: Constructability and Schedule Report
        - Appendix K2: Preliminary Design Cost Report
    - Fish Passage Design Report
        - Convert the technical memorandum in the PDR into report format
- Requests for Information #1, 2, 5, and 7 from the Washington state SEPA and USACE NEPA EIS teams, sent to the District, and responded to by the HDR engineering team will be added as an appendix to the PDR.
- The PDR will be updated to reflect changes to the following appendices:
    - Appendix B: Hydrologic Modeling Report

  - Appendix D: Hydraulic Design Report
  - Appendix I: Fish Passage Report
  - Appendix J: Operations & Maintenance TM
  - Appendix K: Constructability & Schedule Report
- Appendices, attachments, figures, etc. in the PDR not specifically noted in this scope to be changed or updated will not be revised.
- The final PDR submitted for this task will be marked DRAFT because it documents a current snapshot in the preliminary design advancement of the FRE. This scope of work is part of the preliminary design. The preliminary design effort will not be finalized at the completion of this scope.
- The final DRAFT Preliminary Design Report will be delivered to the District in PDF format no later than June 30, 2025.

DELIVERABLES

- Draft and final DRAFT Preliminary Design Report delivered electronically in PDF format.

## TASK 54. Section 106 Consultation and Engineering Support

OBJECTIVE

The District will be supporting USACE's Section 106 Consultation process into the next biennium. HDR will continue to support the District through the Section 106 process by developing and providing information to the tribes and state and federal agencies necessary to support and substantially add to the important and useful information available for decision makers in the basin including providing additional archeologist support.

HDR SERVICES

Specific services are not known at the current time. Previous services included:

- Conducting onsite historic and cultural surveys. HDR has developed subconsultant agreements and provided oversight and quality assurance for surveys associated with the geologic investigations and surveys to capture additional impact area resulting from the project alignment modification.
- Development of and participation in project tribal presentations.
- Development of light detection and ranging (LiDAR) exhibits of the project site.
- Development of narrative and exhibits describing proposed actions that are focused on potential impacts to historic or cultural resources.

As requests for services arise, HDR will coordinate directly with the District and develop a brief scope and planning budget for review and concurrence.

CLIENT RESPONSIBILITIES

- Review, comment and/or approve high-level scope of work and budgets.
- Review draft and final deliverables within 10 business days or as needed to meet abbreviated deadlines.

ASSUMPTIONS

- These as-needed services are assumed not to exceed approximately 480 hours or $125,000 in total fee including $10,000 for new Environmental Science Associates support as a subconsultant.
- Environmental Science Associates (ESA) will continue to provide historic and cultural survey services as well as services directly for the District upon request.
- HDR will maintain and provide to the District, formalized updates to the scopes of work and budgets throughout the period of performance.

DELIVERABLES

- Adobe PDF format of reports, presentations, exhibits
- Presentations in MS PowerPoint format

## TASK 55. District Priority Support Tasks

OBJECTIVE

The objective of this task is to execute priority tasks identified by and coordinated with the District through the utilization of carry-over funding resources remaining from the previous biennium ending 30 June 2025. The priority tasks include:

- Developing a opinion of probable construction cost (OPCC) for the FRO (non-expandable) flood retention dam
- Development of a Phase 3 Geologic Exploration Plan
- Finalization of the Department of the Army Permit Application (DAPA) documentation included originally in SA08
- Finalize cultural survey for revised alignment included originally in SA11
- Continuation of operational analysis using future climate data in support of final BA development
- Supplement fish passage design efforts in support of final BA development
- Supporting OCB's basin-wide plan alternative comparative analysis

The fee for these services will be completed on a not-to-exceed budget reflective of the prior fiscal biennium funding estimated to be approximately **$817,525** inclusive of $50,000 for project management support (see Estimated Program Costs section of this proposal). Fee estimates provided for each of the subtasks below are planning-level estimates and may be adjusted during execution and to be adaptive to unforeseen task requests.

For the scope of work items that are inherently unforeseen, HDR will work closely with the District and provide a brief scope of work, budget and schedule for each of the tasks prior to executing and will continually document and track the unforeseen tasks throughout the period of performance.

HDR SERVICES

HDR will provide the following services:

### 55.1 FRO OPCC

HDR will estimate the project cost and schedule savings if the District were to pursue design and construction of the FRO structure compared to the FRE structure. The FRO structure savings are expected to primarily come from the reduced cross sectional thickness and foundation of the dam. Additional

savings may be realized if the reduced size and reduced loadings result in less foundation excavation, less foundation treatment, or steeper dam slopes.

The work breakdown structure (WBS) for the FRE cost estimate will be used as a basis for the FRO cost estimate and adjusted to reflect the design and construction required for the FRO. The work breakdown and OPCC will target an AACE Class 4 cost estimate with some characteristics of a Class 5. While some cost-driving items will be estimated using semi-detailed methodology, other items will be priced using factored or parametric models and the project definition may prevent the estimate from fully meeting a Class 4 definition.

Previous structural stability analysis was conducted assuming the expandable FRE. Revised structural stability analysis will be accomplished to assess foundation and dam section requirements for the FRO. This effort is important to adjusting RCC volume requirements and foundation excavation requirements.

The estimated fee associated with developing the FRO OPCC is $150,000.

DELIVERABLES

- Draft and final Basis-of-Estimate Cost and Constructability TM delivered electronically in PDF format.

## 55.2 Phase 3 Geologic Exploration Plan

HDR will develop a plan for execution of the next phase of geologic exploration for the dam site, quarries, landslides, and other ancillary project features. The next phase of geologic exploration will be assumed to have a total maximum budget of $7 million. Development of the exploration plan will reduce the planning required and reduce overall project schedule once funding is available to execute the next phase of exploration. This plan will include the following recommendations:

- Locations and methods of exploration for the dam foundation, quarries, landslides, potential foundation faulting/shear zones, and other project features. Exploration locations and methods will be developed in general accordance with the United State Bureau of Reclamation (USBR), International Society for Rock Mechanics and Rock Engineering, and applicable ASTM standards, guidelines and suggested methods (SM's).
- Quarry testing program.
- In-situ and laboratory testing of engineering properties of site materials.
- Instrument installations.
- Access to each exploration location and potential staging areas.

HDR will develop a planning level opinion of cost, in current year dollars, to execute currently foreseen exploration activities, a list of required permits and landowner access agreements that would be required prior to exploration activities and bid ready documents to be sent to subcontractors to execute the work.

The estimated fee associated with developing the geologic exploration plan is $100,000.

DELIVERABLES

- Phase 3 Geologic Exploration Plan with attachments delivered electronically in PDF format.
- Phase 3 Geologic Exploration Planning Level Opinion of Cost delivered electronically in PDF format.

### 55.3 Finalize DAPA

Continuation of the effort to update the DAPA originally scoped in SA08, Task 46. The update reflects the revised alignment of the FRE. HDR, in coordination with the District, paused this effort in spring 2025 to focus on finalizing the draft preliminary design and report. HDR will finalize the DAPA update by the end of calendar year 2025.

The revised draft DAPA will include updates to the following components:

- DAPA form
- Impact calculations
- DAPA exhibits

This effort does not include conducting updated wetland delineation.

HDR will prepare for and participate in and in-person meeting with the District and USACE to review the revised DAPA.

The estimated remaining level of effort associated with finalizing the DAPA is $70,000.

DELIVERABLES

- Revised draft DAPA for District review (electronic in PDF format)
- Revised draft DAPA for USACE (electronic in PDF format and paper to USACE)

### 55.4 Cultural Survey – Revised Alignment

Continuation of cultural survey for the revised FRE alignment scoped and funded in SA10 and SA11. Cultural survey was completed in May 2025 by Environmental Science Associates under subcontract with HDR. Report currently under development and Draft Report due mid-July 2025. It is expected to take up to three months in addition for USACE and Tribal coordination to finalize the report.

The approximate remaining budget in ESA's subcontract is approximately $50,000. The estimated carry-over fee to satisfy ESA's subcontract and HDR's review and management of the effort is $57,000.

DELIVERABLES

- Draft Cultural Survey Report for District review (electronic)
- Revised draft Cultural Survey Report for USACE/Tribal Coordination (electronic)
- Final Cultural Survey Report delivered electronically in PDF format.

### 55.5 Climate Change Operational Analysis

Continuation of operational analysis to support the development of the Final BA scoped within SA08 and modified in SA11, subtask 34.10.

Additional refinement to the proposed water control plans (WCPs) to identify the preferred WCP have been ongoing utilizing current climate return period storm events and a period of record analysis. The continuation includes refining the preferred WCP utilizing both future climate return period storm events and a continuous period of record dataset based on future climate projections.

The estimated level of effort associated continuing the refinement of the preferred WCP is **$150,000.**

DELIVERABLES

- Updated draft Hydrology appendix and documentation for the draft PDR
- Updated final Hydrology appendix and documentation for the draft PDR

### 55.6 Supplement Fish Passage Design Effort

Supplement the continuation of Fish Passage Design and Fisheries Services Coordination scoped within Task 53.1 of this Agreement. HDR anticipates the potential for additional resources to support this effort above the planning level estimate established in the fall of 2024.

Northwest Hydraulic Consultant's (NHC) will continue to provide review and consultation support efforts under this effort as a subconsultant to HDR.

The estimated supplemental level of effort to augment Task 53.1 is **$100,000.**

DELIVERABLES

- See Task 53.1

### 55.7 Support OCB's Basin-wide Plan Alternative Comparative Analysis

The OCB is mandated to provide the Governor with a recommendation for long-term flood damage reduction actions in the Chehalis Basin in early 2026. OCB has secured a consultant to conduct a cost-benefit analysis of the proposed flood reduction alternatives. HDR and the District anticipate the need to provide data and analysis regarding the FRE and airport levee to OCB to support the cost-benefit analysis process.

HDR will work closely with the District and provide a brief scope of work, budget and schedule for each of the requested tasks/efforts prior to executing and will continually document and track the tasks throughout the period of performance.

The estimated placeholder fee to support OCB's data/information requests is **$140,525.**

DELIVERABLES

- As coordinated with and approved by the District

## Schedule

HDR proposes to perform the work described in this proposal in general accordance with the schedule provided in the primary deliverable list below. Task durations are preliminary and subject to change depending on the outcome of portions of the work and review comments from the District and other project stakeholders. The schedule provided below assumes receiving a notice to proceed or signed contract amendment no later than August 15, 2025.

Primary Deliverables:

- Project Implementation O&M Economic and Organizational Framework Presentation Tools: December 31, 2025
- Draft Economic and Organizational Framework TM: April 30, 2026
- Final Economic and Organizational Framework TM: June 30, 2026
- *Draft Final Biological Assessment: January 31, 2025
- *Final Biological Assessment: March 31, 2026
- Updated Preliminary Design Report: June 30, 2026

*Dependent on Agency Acceptance

# Estimated Program Costs

HDR proposes to perform the services described in the work scope on a time and expenses basis. A good faith estimate of program costs by task is provided in Table 1 below. HDR's total estimated program costs are based on the assumptions provided, professional judgment, and what was known at the time the work scope was developed. Accordingly, HDR's recommended budget does not cover or accommodate any and every circumstance that may arise. If additional tasks, unforeseen conditions, delays or unforeseen project circumstances arise, additional budget may be needed. Such a request would be the subject of an addendum to this scope, with additional or out-of-scope work performed on a time-and-expense basis.

The total fee for these services that includes a new funding amount of **$2,605,000** and carryover funding amount of **$817,525** is not to exceed **$3,422,525** unless mutually agreed upon by HDR and the District.

Table 1. Good Faith Estimate of Program Costs

| Task | New Funding | Carryover Funding | Total Fee Amount |
|---|---|---|---|
| 1. Project Management | $380,000 | $50,000 | $430,000 |
| 50. Program Management Framework Development | $175,000 | $0 | $175,000 |
| 51. Strategic Communications Support | $75,000 | $0 | $75,000 |
| 52. SEPA & NEPA EIS & ESA Review & Engineering Support | $450,000 | $0 | $450,000 |
| 53. ESA Technical Development, Analysis & Consultation | $1,400,000 | $0 | $1,400,000 |
| 54. Section 106 Consultation & Engineering Support | $125,000 | $0 | $125,000 |
| 55. District Priority Support Tasks | $0 | $767,525 | $767,525 |
| TOTAL | $2,605,000 | $817,525 | $3,422,525 |

Table 2 is provided as a crosswalk of the fees and tasks included in this agreement with the District's Ecology contract.

Table 2. District Ecology Contract Crosswalk

| Supplemental Agreement 13- Ecology Contract Crosswalk | | | | |
|---|---|---|---|---|
| **SA13 Tasks** | **Ecology Tasks** | **Supplemental 13 Total Authorized** | **PM (Suppl 13) Distribution** | **Total Ecology Task Budget** |
| **55** | **Task 2:** District Priority Support Tasks (Carryover) | $ 767,525 | $ 50,000 | $ 817,525 |
| | **Carryover Funding Total:** | | | **$ 817,525** |
| **52** | **Task 3:** Support EIS Process | $ 450,000 | $ 50,000 | $ 500,000 |
| **53,54** | **Task 4:** Support ESA & Section 106 Consultations | $ 1,525,000 | $ 330,000 | $ 1,855,000 |
| **50,51** | **Task 5:** Support Decision Makers | $ 250,000 | $ - | $ 250,000 |
| | **New Funding Budget:** | | | **$ 2,605,000** |
| **1** | *Project Management Budget Total:* | | *$ 430,000* | |
| | **Total Budget with Carryover:** | | | **$ 3,422,525** |

# Terms and Conditions

These services are proposed to be completed under the District's Services Agreement; Engineering Support for Chehalis Basin Avoidance, Mitigation, and Mitigation Efforts (AMM) and associated Terms and Conditions, executed on December 4, 2020 and subsequent amendments.

This proposal is valid for sixty (60) workdays from the date of submission. Thereafter, it may be subject to change.