

**AMENDMENT NO. 5
TO
CONTRACT FOR SERVICES BETWEEN WHATCOM COUNTY FLOOD CONTROL ZONE
DISTRICT AND HERRERA ENVIRONMENTAL CONSULTANTS**

THIS AMENDMENT is to the Contract between the Whatcom County Flood Control Zone District, hereinafter referred to as the "County", and Herrera Environmental Consultants, a consulting company hereinafter referred to as the "Contractor", dated March 19, 2018, and designated "Whatcom County Contract No. 201803009". In consideration of the mutual benefits to be derived, the parties agree to the following:

WITNESSETH

WHEREAS, the County has entered into an agreement with the Contractor dated March 19, 2018, to assist in updating and broadening the scope of the 1999 Lower Nooksack River Comprehensive Flood Hazard Management Plan (CFHMP); and,

WHEREAS, the Contractor is helping to guide the planning process in close coordination with the Floodplain Integrated Planning (FLIP) Team, the FLIP Steering Committee, and Whatcom County staff; and

WHEREAS, additional specific support needs have been identified to further the work of the FLIP Team and Steering Committee and to produce deliverables required under the Washington State Department of Ecology Proviso grant funding; and

WHEREAS, the Contractor has delivered a quality product and has been responsive thus far to the County's needs; and

WHEREAS, the County has requested the Contractor to perform additional services and desires to revise the scope of work, contract amount and contract expiration date.

NOW, THEREFORE, County and Contractor agree to modify the Agreement as follows:

1. SCOPE OF SERVICES

The scope of services is amended to include the additional Scope of Services described in Exhibit A-5, attached hereto and incorporated herein by reference.

2. PERFORMANCE

As consideration for the services provided by the Contractor, the County agrees to reimburse the Contractor for additional services rendered under this amendment at a sum not to exceed \$606,500 DOLLARS based on the cost breakdown detailed in Exhibit B-5, attached hereto and incorporated herein by reference. The revised contract amount is \$1,199,700.

3. TIME SCHEDULE

The duration of this Agreement shall be extended to December 31, 2024.

This Amendment shall be made part of W.C. Contract No. 201803009 by and between Whatcom County Flood Control Zone District and Herrera Environmental Consultants. Unless

specifically stated herein, all other terms and conditions of the original agreement shall remain in full force and effect.

IN WITNESS WHEREOF, Whatcom County and Herrera Environmental Services have executed this Amendment on the date and year below written.

DATED this _____ day of _____, 2022.

CONTRACTOR INFORMATION:

Herrera Environmental Consultants
2200 Sixth Avenue, Suite 1100
Seattle, WA 98121

Contact Name: Mark Ewbank
Contact Phone: (206) 787-8266
Contact FAX: (206) 441-9108
Contact Email: mewbank@herrerainc.com

CONTRACTOR:

Herrera Environmental Consultants

Mark Ewbank, Vice President

WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT:

Recommended for Approval:

Jon Hutchings, Public Works Director Date

Approved as to form:

Christopher Quinn, Senior Civil Deputy Prosecuting Attorney Date

Approved:

Accepted for Whatcom County Flood Control Zone District:

By: _____
Satpal Sidhu, Whatcom County Executive, acting for the Whatcom County Flood Control Zone District
Board of Supervisors

Exhibit A-5 Scope of Work

I. Background

Whatcom County is preparing a major update to its Comprehensive Flood Hazard Management Plan for the Lower Nooksack River, encompassing approximately 36 miles of the river from the confluence of the North and South forks near Deming to the river mouth in Bellingham Bay. The plan update is a collaborative effort with affected governments and stakeholders representing these interests. Reach-scale floodplain management strategies and project concepts will be developed for actions that reduce flood risk, advance salmon habitat protection and restoration, and provide for restored habitat processes to the extent practicable, while sustaining adjacent floodplain land uses. A consultant team led by Herrera Environmental Consultants (Herrera) is assisting the County in this integration effort, including steering committee facilitation and coordination, alternatives analyses, outreach and coordination with planning participants, conceptual engineering design, and plan compilation. This scope of work describes additional services that the Herrera team will provide through December 2024 to continue coordinating with the Nooksack River Floodplain Integrated Planning Team (FLIP Team) and the FLIP Steering Committee, and integrating input from a habitat assessment, geomorphic assessment, hydraulic analysis and floodplain mapping, and stakeholder outreach.

The scope of work supplements the work described in Whatcom County contract #201803009, authorized on March 19, 2018, and in Amendment 1 to the original contract, dated August 22, 2018, and Amendment 3 to the contract dated October 23, 2019. Amendments 2 and 4 were contract extensions and did not include scope of work supplements.

II. Statement of Work

Herrera and its subconsultants, which include Northwest Hydraulic Consultants, Applied Geomorphology Inc., Watershed Science and Engineering, Wheeler Consulting Group, and Cramer Fish Sciences) will perform the services described in the following tasks. Adjustments to the focus and level of effort may be needed as task work proceeds in coordination with County staff and the FLIP Steering Committee to provide the most value. The task numbering used in this amendment follows in sequence with tasks already established on the contract.

Task 10 – Side Channel Enhancement Support

An early action project that is being moved forward involves enlarging the inlet to a Nooksack River side channel adjacent to the Twin View Levee near the city of Everson. Herrera and its subconsultants will assist with design, permitting, construction, and post-construction monitoring and performance evaluation work for this project. This project will serve as a pilot project to evaluate the effectiveness of sediment removal in promoting side channel development to support the development of long-term solutions for the final plan. This task includes:

- preparation of design plans for construction
- coordinating design development with FLIP Steering Committee members and other regulatory and resource agency representatives
- preparing the necessary permit application materials, and assisting in addressing any

questions and comments that arise during permit review

- preparing a cost estimate for construction
- assistance with oversight of the construction contractor in the field
- evaluating changes in the side channel dimensions after March 2023 to assess how it evolved from its constructed condition through a full wet season, and implications for flood flow conveyance

Task 10 Deliverables:

- Draft and final design plans
- Draft and final application content for a WDFW Hydraulic Project Approval, Whatcom County Shoreline Permit Exemption in the form of a Joint Aquatic Resources Permit Application, and Washington DNR Aquatic Use Authorization
- Draft and final SEPA Environmental Checklist
- Draft and final floodplain habitat assessment memo for Endangered Species Act compliance
- Brief memorandum documenting a “zero rise” hydraulic analysis of project effects on the established 100-year flood water surface elevations
- Written responses to questions and comments from regulatory agencies
- A technical memorandum documenting evolution of the side channel from its constructed condition following a full wet season, including hydraulic and geomorphic analyses to assess implications for changes in river flood flow conveyance in the Everson area and biological analysis of effects on fish habitat.

Task 11 – Support for Flow Split Technical Analyses

During large flood events the Nooksack River overtops its north bank near the city of Everson and overflows to the north, eventually reaching Johnson Creek and the Sumas River in the city of Sumas and the Fraser River in Abbotsford, British Columbia, Canada. This “flow split” is central to developing solutions that balance future flood risk reduction, aquatic habitat protection and enhancement, and maintaining viable agricultural lands in the floodplains. Record flooding in November 2021 highlighted the importance of the flow split, resulting in the FLIP Steering Committee focusing attention on additional technical analysis and communications with stakeholders and the public related to improving the accuracy of a two-dimensional hydraulic model of the river and its overflow corridor and developing conceptual solutions to optimize flow split impacts.

Herrera and its subconsultants will assist Whatcom County and the FLIP Steering Committee with the following types of work in this task:

- Preparing a quality assurance project plan (QAPP) for data and other information sources to be used in work listed below
- Scheduling, developing agendas, facilitating, and preparing notes for frequent Steering Committee meetings
- Assisting with communications to the public, stakeholder groups, and elected officials

- Technical support for the Nooksack River International Task Force
- Updating hydrologic and hydraulic information –
 - Update hydrology for Sumas River and lower Nooksack River tributaries
 - Compile 2022 bathymetric grid for hydraulic model update
 - Update 2D hydraulic model with 2022 bathymetry and land use; calibrate model to observed conditions in February 2020 and November 2021 floods; coordinate with USGS on flows and rating curves
 - Review relationship of flow at Deming/Cedarville gage vs. Main Street in Everson and at Ferndale
 - Evaluate changes in flow threshold for start of overflow at Everson that have occurred in the past 30 years
 - Develop modeling approach for incorporating flow and sediment changes associated with climate change
 - Prepare technical memo documenting these analyses and results
- Alternatives development, analyses, and design –
 - Identification of alternatives in collaboration with FLIP stakeholders and regulatory agencies
 - Preliminary layout and concept design of alternatives
 - Hydraulic modeling of alternatives and evaluation of modeling results to refine alternative configurations for desired effects
 - Preparing documentation to communicate alternatives to the public, stakeholders, and elected officials
- Evaluating aquatic, riparian, and terrestrial habitat conditions and potential effects of alternatives on those habitats
- Other technical analysis as may be requested

This task also includes project management activities including monthly invoicing and progress reporting, coordination with subconsultants, coordination with County staff regarding schedule and priorities, and maintenance of project files.

Task 11 Deliverables:

- Monthly invoices and progress reports
- Notes from project management check-in meetings as applicable
- Steering Committee meeting agendas and notes
- QAPP – draft and final
- Iterative hydrologic and hydraulic model outputs
- Technical memo documenting hydrologic and hydraulic analyses
- Sketches and concept design plans for alternatives
- Conceptual alternatives analysis memorandum – draft and final
- Cost estimates for alternatives
- Presentation content for meetings with FLIP audiences
- Detailed design plans for any alternative(s) carried forward as an early action

Task 12 – Other FLIP Assistance

This task provides a basis for other work that may be needed beyond what is done in Task 11, which may include but not be limited to public and stakeholder communications, technical analyses in mainstem river reaches downstream of Everson, and coordination of complementary work being done by the University of Washington Climate Impacts Group, WRIA 1 drainage-based management planning, and the Whatcom Conservation District. Specific work to be done under this task, and corresponding deliverables and budget allocation, will be further defined in an email describing the scope of work, budget and schedule as needs arise. This work must be approved in writing (email) by the County Project Manager before work can proceed.

Exhibit B-5 Compensation

As consideration for the services provided pursuant to Exhibit A-5, Scope of Work, the County agrees to compensate the Contractor according to the hourly rates provided in the Rate Schedule provided below. Other reasonable expenses incurred in the course of performing the duties herein shall be reimbursed. Mileage is to be reimbursed at the IRS rate; lodging and per diem will be reimbursed at a rate not to exceed the GSA rate for the location at which services are provided. Reimbursement for air travel will be at coach rates. Other expenditures such as printing, postage and telephone charges shall be reimbursed at actual cost.

The Contractor will invoice monthly. Invoices will include hours worked by employee by day together with tasks accomplished. Requests for reimbursement of expenses must be accompanied by copies of paid invoices itemizing costs incurred. Costs of alcoholic beverages are not eligible for reimbursement. Compensation shall not exceed the amended contract amount of \$1,199,700. Any work continuing after the completion date of the amended contract, unless otherwise agreed upon in writing, will be at the Contractor's expense.

Herrera Budget Table

Herrera Environmental Consultants

8/12/2022

Cost Estimate for **COMPREHENSIVE FLOOD HAZARD MANAGEMENT PLAN UPDATE**
 Herrera Project No. **16-06477-000**



Herrera Labor based on: Burdened Labor Rates			Task No.	10	11	12	Total
Schedule	Task Start Date	Task End Date	Side Channel Enhancement Support	Support for Flow Split Technical Analyses	Other FLIP Assistance		
	7/1/2022	7/3/2023					
Staff	Title	2022 Burdened Labor Rates					
Avolio, Christina	Engineer V	\$225.63	40	180	20	240	
Ewbank, Mark	Vice President	\$297.53	30	208	20	258	
Jackowich, Pamela	Administrative Coordinat	\$135.67	3	10	0	13	
Marshall, Eric	CAD Technician III	\$155.41	20	40	0	60	
Mirabile, Tina	Scientist IV	\$204.45	36	4	0	40	
Matsumoto-Hervol, Makie	GIS Analyst II	\$110.11	4	50	0	54	
Schmidt, Jennifer	GIS Analyst VI	\$217.13	2	160	20	182	
Van Orden, Emma	Engineer I	\$138.55	0	160	0	160	
Johansen, Sally	Project Accountant IV	\$140.47	0	12	0	12	
Total Hours per Task			135	824	60	1019	
Subtotal Labor			\$29,702	\$174,993	\$14,806	\$219,501	
Subtotal Herrera Labor			\$29,702	\$174,993	\$14,806	\$219,501	
5%	Escalation on Herrera Labor in 2023		\$1,485	\$8,750	\$740	\$10,975	
Escalated Subtotal Herrera Labor			\$31,187	\$183,743	\$15,546	\$230,476	
Subconsultants							
Subconsultant							
Northwest Hydraulic Consultants			\$18,824	\$312,144	\$44,164	\$375,132	
Subtotal Subconsultant Cost			\$18,824	\$312,144	\$44,164	\$375,132	
Travel and Per Diem (PD)							
Item	Unit	Unit Cost					
Auto Use	Mile	\$0.63	200	1200	0	1400	
Subtotal Travel and Per Diem			\$125	\$750	\$0	\$875	
Grand Subtotal			\$50,136	\$496,637	\$59,710	\$606,483	
Grand Total						\$606,483	

NHC Budget Table (Subcontractor)

Northwest Hydraulic Consultants											
8/5/2022											
	Staff										
RATES	\$ 255.68	\$ 230.46	\$ 191.89	\$ 167.88	\$ 138.01	\$ 112.81	\$ 135.70	\$ 141.31	\$ 155.91		
LABOR CATEGORIES	Principal T2	Principal T3	Senior Engineer/Scientist 1	Senior Engineer/Scientist 2	Engineer 1	Jr. Engineer/Ir. Scientist	GIS Analyst 1	Sr Document Editor	Contract Administrator	Total Hours	Total Cost
Task 10. Side Channel Enhancement Support											
Provide geomorphic and hydraulic modeling support	6			30		80				116	\$ 15,595
Documentation	8			4						12	\$ 2,717
QA/QC	2									2	\$ 511
Subtotal Cost											\$ 18,824
Task 11. Support for Flow Split Technical Analyses											
Basin Hydrology Updates for the Sumas and Lower Nooksack Rivers											
Develop HSPF model of the Sumas River	80		20	20	200	120	40	4	1	485	\$ 74,938
Update lower Nooksack River hydrology	80		16	16	280	80	24	4	1	501	\$ 77,856
Topobathy and RAS 2D Hydraulic Model Updates											
Compile 2022 bathymetric data	12		2				64			78	\$ 12,137
Update model with 2022 bathymetry	4				32					36	\$ 5,439
Calibrate model to 2020 and 2021 events	80			40	220		16		1	357	\$ 59,859
Documentation	16		4		48		8	4		80	\$ 13,134
Evaluate changes in flow threshold for start of overflow at Everson from 2006, 2015 and 2022	12				36					48	\$ 8,037
Develop modeling approach for incorporating flow and sediment changes associated with climate change	12		12		24					48	\$ 8,683
Alternatives Concept Development and Analyses											
Develop model simulations and evaluate alternatives	56				80					136	\$ 25,359
Documentation	12				24					36	\$ 6,380
QA/QC Modeling and Documentation	12							4		16	\$ 3,633
FLIP and NRITF Support											
FLIP Steering Committee meetings and facilitation	18				12					30	\$ 6,258
FLIP Team meetings (design charrettes and follow-up meetings)	18				12					30	\$ 6,258
Support NRITF planning process	12				8					20	\$ 4,172
Subtotal Cost											\$ 312,144
Task 12. Other FLIP Assistance											
Technical support to be determined/as needed to support FLIP work	20	8	20	20	120	20	4	4	2	218	\$ 34,390
Apply calibrated RAS 2D model for Reach 2 modeling tasks	8				56					64	\$ 9,774
Subtotal Cost											\$ 44,164
Total Hours	468	8	74	130	1152	300	156	20	5	2183	
Total Labor Fee	\$119,658	\$1,844	\$14,200	\$21,824	\$158,988	\$33,843	\$21,169	\$2,826	\$780		\$ 375,132
Direct Charges											\$ -
Total Fee											\$ 375,132

Herrera 2022 Hourly Labor Rates

Herrera Environmental Consultants 2022 Hourly Labor Rates

Personnel	Title	Total Hourly Billing Rate
Amtmann, Lindsey	Planner V	\$214.94
Avolio, Christina	Engineer V	\$225.63
Bartish, Nicholas	Scientist I	\$96.37
Blaud, Brianna	Scientist III	\$161.72
Chechanover, Julianne	Engineer II	\$137.90
Coleman, Marne	Administrative Coordinator III	\$97.94
Cortese, David	Engineer III	\$192.56
Coughlan, Phil	Vice President	\$285.85
Crickmore, Ian David	GIS Analyst IV	\$162.34
Cross, Taylor	Engineer I	\$107.85
Dhital, Satya	Engineer II	\$150.21
Edwards, Tara	Accounting Administrator IV	\$181.73
Elrod, Jamie	Engineering Intern	\$77.11
Ewbank, Mark	Vice President	\$297.53
Fidler, Matthew	Engineer II	\$130.91
Fontaine, Matthew	Engineer V	\$237.94
Forester, Kate	Landscape Architect IV	\$185.16
Fouk, Thea	Engineer I	\$138.55
Fox, Michelle	Administrative Coordinator II	\$100.14
Garcia, David	Scientist I	\$89.96
Gleason, Rayna	Landscape Designer II	\$123.61
Harris, Nick	Scientist II	\$110.73
Houck, Heidi	Engineer VI	\$230.29
Iftner, George	Scientist VI	\$218.68
Jackowich, Pamela	Administrative Coordinator IV	\$135.67
Jerauld, Katie	Planner I	\$102.81
Johansen, Sally	Project Accountant IV	\$140.47
Johnson, Rachel	Engineer II	\$142.15
Kayser, Gretchen	Engineer III	\$176.32
Klara, Matt	Engineer III	\$177.76
Lackey, Lacy	Engineer I	\$121.11
LeClerc, Joshua	Scientist III	\$139.58
MacLennan, Andrea	Scientist IV	\$207.26
Maloof, Charles	Project Accountant II	\$119.29
Marshall, Eric	CAD Technician III	\$155.41
Marston, Charles	CAD Technician II	\$104.28
Matsumoto-Hervol, Makie	GIS Analyst II	\$110.11
Merten, Christina	Scientist VI	\$240.54
Mirabile, Tina	Scientist IV	\$204.45
Mitchell, Colleen	Engineer V	\$223.23
Mostrenko, Ian	Engineer V	\$250.69
Mullen, Meghan	Engineer II	\$147.36

Herrera 2022 Hourly Labor Rates (Cont'd)

Nichols, Allison	Engineer II	\$150.17
Nyman, Sarah	Accounting Administrator II	\$112.44
Ode-Giles, Lauren	GIS Analyst II	\$108.02
Parsons, Jeff	Engineer VI	\$257.95
Plumb, Riley	Scientist III	\$132.93
Prescott, Todd	CAD Technician III	\$159.60
Presley, Greta	Scientist IV	\$189.75
Rapoza, Danielle	Scientist III	\$129.54
Ritchotte, George	Scientist V	\$229.78
Rudnick, Tracy	Project Accountant IV	\$154.73
Schaner, Neil	Engineer IV	\$184.68
Schmidt, Jennifer	GIS Analyst VI	\$217.13
Scott, Brian	Engineer IV	\$223.23
Siegel, Andrew	GIS Analyst III	\$130.47
Spear, Eliza	Scientist III	\$170.94
Spillane, Michael	President	\$319.60
Stebbing, Rebecca	Scientist I	\$92.39
Steger, Josh	Landscape Design Intern	\$77.11
Steiner, Camryn	Engineer I	\$120.90
Stewart, Rick	Project Accountant III	\$130.26
Swanson, Jennifer	Accounting Administrator V	\$233.89
Taylor, Randall	Landscape Architect III	\$150.48
Van Orden, Emma	Engineer I	\$138.55
Vayanos, Stacy	Landscape Architect III	\$146.06
Wadkins, Shannon	Administrative Coordinator III	\$123.00
Wang, Jennifer	Accounting Administrator II	\$115.15
Webber, Mike	Project Accountant III	\$129.75
Werner, David	Engineer III	\$169.12
West, Carson	Engineer II	\$147.26
Witzel, Conan	CAD Technician IV	\$161.93
Wood, Theresa	Vice President	\$279.71
Wright, Olivia	Engineer III	\$189.65
Zhang, Xiaoyu Shawree	Science Intern	\$77.11

NHC 2022 Hourly Labor Rates (Subcontractor)

Actuals Not To Exceed Table (ANTE)

WSDOT Agreement: Y-12370 Hydraulic Design - Various Fish Passage Projects Northwest Hydraulic Consultants Inc 12787 Gateway Dr S Tukwila, WA 98168				
Job Classifications	Direct Labor Hourly Billing Rate NTE	Overhead NTE*	Fixed Fee NTE	All Inclusive Hourly Billing Rate NTE
		181.81%	30.00%	
Office Administrator	\$28.11	\$51.11	\$8.43	\$87.65
Technical Editor	\$36.00	\$65.45	\$10.80	\$112.25
Engineer / Scientist 1	\$44.26	\$80.47	\$13.28	\$138.01
Senior Technical Editor	\$45.32	\$82.40	\$13.60	\$141.31
Principal 2	\$82.00	\$149.08	\$24.60	\$255.68
Jr Engineer / Scientist	\$36.18	\$65.78	\$10.85	\$112.81
Sr Engineer Technician	\$43.85	\$79.72	\$13.16	\$136.73
Contract Administrator	\$50.00	\$90.91	\$15.00	\$155.91
Engineer / Scientist 2	\$39.00	\$70.91	\$11.70	\$121.61
Sr Engineer / Scientist 2	\$53.84	\$97.89	\$16.15	\$167.88
Sr Engineer / Scientist 1	\$61.54	\$111.89	\$18.46	\$191.89
Jr Engineering Technician	\$26.00	\$47.27	\$7.80	\$81.07
GIS Analyst 2	\$33.20	\$60.36	\$9.96	\$103.52
GIS Analyst 1	\$43.52	\$79.12	\$13.06	\$135.70
Engineering Technician	\$32.00	\$58.18	\$9.60	\$99.78
Sr Project Engineer / Scientist	\$75.00	\$136.36	\$22.50	\$233.86
Sr Lab Technician	\$35.00	\$63.63	\$10.50	\$109.13