INFORMATIONAL MEMORANDUM

TO: **Transportation and Infrastructure Services Committee**
FROM: **Pete Mayer, Public Works Director**
BY: **Joshua Hopkins, Surface Water Project Manager**
CC: **Mayor Thomas McLeod**
DATE: **November 22, 2024**
SUBJECT: **Gilliam Creek Fish Barrier Removal and Habitat Enhancement**
Project No. 99830105, Contract No. 24-093
Amendment No. 2 Additional Design and Engineering Services

ISSUE

Approve amendment No. 2 to Contract No. 24-093 with Otak, Inc. for additional design and engineering services in the amount of $769,952.00.

BACKGROUND

The Gilliam Creek Fish Barrier Removal and Habitat Enhancement project was established as a City CIP project in 2019, it is a priority project with Water Resource Inventory (WRIA) 9 and the Salmon Recovery Fund Board. The goals of the project are to restore fish passage between Gilliam Creek and the Green River, enhance habitat, and maintain or improve flood protection and maintenance and operation of the flap gate system.

ANALYSIS

This contract amendment includes additional tasks to complete Preliminary Design Alternatives Analysis and 30% Design for the preferred alternative by the end of Q2 2025. In October of 2024, Tukwila applied for DOT Culvert AOP grant to fund 30% Design through Construction. If Tukwila were to be successful with this grant, reimbursement would start at 30% Design, so the project needs to progress to the 30% Design milestone in order to receive reimbursements from the DOT Grant. If the grant application were to be unsuccessful, Tukwila will re-apply in Q3/'25 and will submit a more competitive grant application with a preferred alternative developed to 30% Design and cost estimate.

FISCAL IMPACT

Otak has provided a cost estimate not to exceed $769,952.00 to perform additional design and engineering services. Total grant funding for this project is $1,350,000.00; a cost increase for $278,000.00 has been submitted to WRIA 9 to cover the delta.

	Consultant	Budget
Otak Contract 22-068, 23-191, 24-093	$719,593.42*	
24-093 Amendment No. 1	$138,270.00	
24-093 Amendment No. 2	$769,952.00	
Grants (Secured)		$1,350,000.00
Grants (Cost Increase Submitted)		$278,000.00
Totals:	$1,627,815.42	$1,628,000.00

* = The original contract amount for the three contracts was $733,556.42, the actual payment was $719,593.42, a difference of $13,963.

RECOMMENDATION

Council is being asked to approve Amendment No. 2 to Contract 24-093 with Otak for additional design and engineering services in the amount of $769,952.00 and to consider this item on the Consent Agenda at the December 2, 2024, Regular Council Meeting.

Attachments: CIP '23-'28 Pg 81, Otak Scope and LOE

EXHIBIT A-2

SCOPE OF WORK
DESIGN/ENGINEERING SERVICES
City of Tukwila
Gilliam Creek Fish Barrier Removal and Habitat Enhancement Project
OTAK Project No. 20610.003
November 2024
Amendment No. 2

Introduction and Background

The scope of work for the previous amendment provided services to refine alternatives and develop the preferred alternative to concept design level and cost estimate. The scope of work for this Amendment No. 2 advances the preferred alternative into preliminary design including background hydraulic assessment.

The Scope of Services for Amendment No. 2 is described in detail in the following sections.

SCOPE AND BUDGET MODIFICATIONS

1.0 Project Management and Coordination

1.1 Coordination with City

This task is expanded in level of effort to provide project management for the additional services included under Amendment No. 2. Otak will coordinate with the City of Tukwila on a regular basis by phone and email to keep the City's project manager informed about project progress, project issues and schedule. Otak will assist in scheduling project related meetings, reviews, and other coordination activities needed to keep the project moving forward. Regular communication with the City will occur on a weekly basis, and status reports will be provided to the City summarizing the status of action items and deliverables. This task will also include coordination with the City about next phases of work including development of work descriptions and scopes of services. Next phases of work to be discussed and defined with the City are anticipated to include:

1. Implementation Planning
2. Engagement with Stakeholders and Public Outreach
3. Final Design
4. Permitting for Construction
5. Construction Support

1.4 Project Monitoring and Reporting

Project monitoring and reporting will include the coordination of design team members, project schedule updates, and the preparation of a monthly progress report and a monthly billing statement.

TASK 1 DELIVERABLES

- Status reports submitted to the City by email (electronic PDF file format)
- Schedule updates submitted to the City by email (electronic PDF file format)
- Monthly progress report and monthly invoice (electronic PDF file format)

TASK 1 ASSUMPTIONS

- The duration for this phase of the project is assumed not to extend beyond July 30, 2025.

NEW SCOPE TASKS

4.0 Topographic Survey and Basemap

4.2 Supplemental Topographic Surveying and Mapping of Green River

Otak provided topographic survey of the project improvement area under previous tasks. After the initial survey, the extents of potential improvements have expanded and the complexity of related hydraulic modeling has increased. Under this task, Otak will provide supplemental topographic survey and will update the electronic basemap to reflect the current conditions along the Green River and public trail and roadway area to the south of the existing culvert. The extents of supplemental survey include: are shown in Attachment A-Survey Extents Map.

The topographic survey requirements include the following:

- Vertical Datum: NAVD 88
- Horizontal Datum: State Plane Coordinates (Washington North Zone, NAD 83/91 adjustment)
- Contours at a maximum interval of 1′
- TIN surface
- Surface features:
  - Top/Toe of slopes
  - Channel thalweg
  - Top of bank
  - Toe of bank
  - Culvert invert elevations
  - Vegetation including trees, shrubs, fallen trees in stream over 8-inches in diameter
  - Boulders or rocks in the stream greater than 12” across
  - Rock scour protection limits in place around culvert inlet

Mapping shall be consistent with City of Tukwila Infrastructure Design and Construction standards.

TASK 4.2 DELIVERABLES

- Updated Topographic Base Map (Scale 1″ = 20 feet) with one-foot contour intervals (AutoCAD DWG file format)

TASK 4.2 ASSUMPTIONS

- If required, the City will obtain right-of-entry for the parcels for the area of survey.

- If a ROW Permit is required, Otak will coordinate with the City and will submit the ROW application. Traffic Control is assumed to be limited and not requiring flagging.

5.0 Hydrology and Hydraulics

5.6 Gilliam Creek Flap Gate Replacement Flood Study – Proposed Conditions

Otak previously developed a preliminary existing conditions model under Task 5.5. Under Task 5.6, the preliminary existing conditions model will be finalized and will be the basis for the creation of proposed conditions models. The proposed conditions modeling will assess the effects of replacing the existing Gilliam Creek flapgate with two different flood gate technologies including:

1. Self-regulating tide gate with muted tidal regulator
2. Motorized sluice gate

The study is intended to evaluate the hydraulic effects of these replacement gate options on the upstream conveyance network and operation of the Strander pump station and P17 pump station flood protection facilities. The study will consider options for flood gate open and close settings and will evaluate changes between the existing conditions and proposed conditions models such as:

1. Water surface elevations in Gilliam Creek at the project site including duration analysis for key habitat zones
2. Water surface elevations in the primary stormwater trunkline conveyance pipes that typically drain into Gilliam Creek
3. Pump station run times during select storm event periods and releases from the Howard Hanson Dam based on historical data

TASK 5.6 DELIVERABLES

- HSPF-SWMM Electronic Model

TASK 5.6 ASSUMPTIONS

- The model developed under this task is intended to evaluate changes in the water surface within Gilliam Creek and the related changes to the City conveyance trunklines and pump station usage between existing and proposed conditions.

5.7 Gilliam Creek Flap Gate Replacement Flood Study Report

Otak will prepare a report summarizing the hydrologic and hydraulic modeling methods used and the key factors and criteria identified through the study that must be met to provide fish passage to the extent feasible while still maintaining the flood protection. It is anticipated that the report will contain up to six GIS maps such as:

- Study Area Map
- Model Schematic layout
- Low-flow scenario drainage map
- High-flow scenario drainage map
- High-flow and low-flow inundation figures

Otak will conduct an intake meeting with Tukwila prior to City review of the draft report.

TASK 5.7 DELIVERABLES

- Draft Flood Study Report
- Comment Responses
- Final Flood Study Report

TASK 5.7 ASSUMPTIONS

- Reports will be delivered in electronic .pdf format.
- City will provide one list of consolidated comments on the draft report. Comments will be addressed and incorporated into the final report.

5.8 Open Channel Hydraulic Analysis for Proposed Improvement Area

5.8.1 Preliminary Hydraulic Analysis

5.8.1.A Preliminary Hydraulic Modeling

Otak will complete hydraulic analyses of the existing and proposed conditions to evaluate the hydraulic conditions as a result of the project.

The existing conditions and proposed conditions will be modeled using either the Federal Highway Administration (FHWA) and U.S. Bureau of Reclamation's SRH-2D software (2020), or the U.S. Army Corps of Engineers HEC-RAS 2-D (2019) software to evaluate hydraulic conditions for the preliminary design.

It is assumed that the model domain will include the following:

- 700-foot segment of Gilliam Creek extending upstream from the confluence with the Green River
- 1,200-foot segment of the Green River extending upstream from the south side of the I-405 bridge.

The model 2D mesh will be constructed from the topographic survey basemap prepared by Otak including supplemental survey obtained along the Green River under Task 4.2.

Steady-state inflow boundary conditions will be used based on HSPF modeled peak flows or flow duration curves, and the models will be run over a long enough simulation time to establish steady-state hydraulic grade lines.

The evaluation of the hydraulic conditions from existing to proposed conditions will include the change in water surface elevations, depths, velocities, and shear stresses. The proposed water surface elevations will be used to establish the minimum height for the culvert replacement based on freeboard and debris clearance under flood gate open conditions. The velocity results will be used to inform the design about potential fish-passage conditions, stream channel stability, and wood structure placement for the stream improvements.

Preliminary scour calculations will also be performed at the crossing structure and along the modified river embankment and scour counter measures will be included in the design, if warranted. The results of the analyses will be used to inform the proposed stream restoration design.

5.8.1.B Hydraulic Analysis QA/QC

Otak will coordinate with a subconsultant to provide an independent senior technical hydraulic quality assurance and quality control review, in addition to Otak's internal quality control reviews in Task 11.1.3. The subconsultant will review the hydrologic data and preliminary hydraulic analysis summary results prepared in the Phase 1

Alternatives Analysis Report. They will consult with the design team at the start of 30% design and will perform progress reviews of the hydraulic model developed under Task 5.8.1.A. The subconsultant has expertise in flood gates and will provide guidance on model setup and review of results for the selected flood gate and operational settings.

5.8.1.C Preliminary Hydraulic Documentation

Otak will prepare a preliminary hydraulic documentation report that summarizes the findings and conclusions from the hydraulic analysis completed in Task 5.8.1.A. The Report will summarize the following topics:

- Hydrologic flow rates used in the hydraulic analyses
- Hydraulic conditions including water surface elevations, depths, and flow velocities under existing and proposed conditions
- Channel stability calculations
- Potential areas of channel erosion, sediment deposition
- Calculated preliminary scour depths at the crossing structure (100-year, and 500-year event)

A draft and final preliminary hydraulic memorandum will be submitted to the City. The final hydraulic analysis for basis of final design will be performed under a future scope of work during final design.

TASK 5.8.1 DELIVERABLES

- Draft Preliminary Hydraulic Analysis Report (pdf)
- Final Preliminary Hydraulic Analysis Report (pdf)

TASK 5.8.1 ASSUMPTIONS

- SRH-2D or HEC-RAS 2D software will be used for development of the hydraulic model.
- Velocities and stream power will be used to perform a qualitative assessment of potential erosion and deposition under proposed conditions, and no quantitative sediment transport calculations will be performed.
- Wood stability calculations will not be performed during the preliminary hydraulic analysis to support 30% design.
- City will provide one list of consolidated comments on the draft report. Comments will be addressed and incorporated into the final report.
- The final hydraulic analysis for basis of final design will be developed under future scopes of work during final design.

6.0 Alternatives Analysis

6.9 Alternatives Analysis Report - Phase 2

Otak previously prepared a Draft Alternatives Analysis Report under a separate task. Under this Task 6.9, Otak will update the report to summarize findings of alternatives refinement work performed under Task 6.3 thru Task 6.8. The report will include a recommendation for a preferred alternative.

TASK 6.9 DELIVERABLES

- Alternatives Analysis Report Phase 2 (Draft and Final, electronic pdf)

TASK 6.9 ASSUMPTIONS

- City will provide one list of consolidated comments on the draft Phase 2 Alternatives Analysis Report. Comments will be addressed and incorporated into the final report.

7.0 Geotechnical Services (Subconsultant)

7.2 Geotechnical 30% Preliminary Design

The Phase 1 Geotechnical Investigation performed under a previous contact identified the presence of underlying liquifiable soils and the need for ground improvements beneath proposed structural elements. Under Task 7.2, a geotechnical subconsultant will prepare 30% design plans and a construction cost estimate for the bid items related to the ground improvements work to be incorporated into the master estimate prepared under Task 11.1.2.

TASK 7.2 DELIVERABLES

- 30% Design plan sheets for ground improvements to be incorporated into plan set developed under Task 11.1 (half-size pdf)
- Construction Cost Estimate for ground improvements bid items

TASK 7.2 ASSUMPTIONS

- A detailed scope will be developed with the geotechnical subconsultant at a later date and submitted to the City. An amendment will be prepared to update this scope task prior to commencement of this task work. The task level of effort for the geotechnical 30% design has been estimated for this Amendment No. 2. If required, the task fee will be re-negotiated with the City and modified through a future amendment.

8.0 Utility Coordination

8.1 Franchise Utility Coordination

Under a previous contract, Otak identified utilities known to be present at the site and received some utility as-built drawings from utility providers, and a preliminary utility map was developed. Under this Task 8.1, Otak will update the map to reflect the preferred alternative improvements selected by the City to be advanced into 30% design. Otak will prepare a spreadsheet/matrix summarizing utility conflict locations and actions to be taken. Permit requirements for each location will be included in the matrix. This document will be updated whenever new information becomes available to assure that all utility coordination activities are tracked.

Otak will begin communications with franchise utility companies (power, gas, telecommunications, water and sewer, etc.) following the selection of a preferred alternative by the City, to verify locations of existing facilities and to discuss any potential relocation requirements, cost, schedule and recommendations on location of new facilities. It is anticipated that up to three (3) utility coordination meetings will occur with franchise or City utilities that are determined to have conflicts or require relocation. Otak will make recommendations for utilities to be potholed to confirm location after the 30% design.

TASK 8.1 DELIVERABLES

- Utility Coordination Plan
- Utility Coordination Tracking Matrix

TASK 8.1 ASSUMPTIONS

- Design of relocated utilities will be at franchise utility's expense and is not included in this scope.

- No major utility conflicts, that cannot be relocated by the Utility franchise is known or assumed to exist.
- Potholing of utilities to verify the underground location is not included in this scope but is recommended to be performed after 30% design.

9.0 Stakeholder Engagement

9.2 Agency and Stakeholder Coordination

At the City's request, Otak will support the City in coordination with agencies, tribal representatives, and stakeholders to address project designs and respond to comments. Otak will review and provide available information from previous data collected at the site, as requested.

As the level of effort for comment responses and coordination cannot be quantified at this time, a total level of effort of 70 hours of staff time is assumed for this scope task.

TASK 9.2 DELIVERABLES

- Meeting notes (PDF)
- Email responses to agency and stakeholder comments

9.4 Engagement Materials

At the City's request, Otak will support the City with graphics to communicate project information to the public or other interested parties or agencies such as improvement area maps, impact area maps, schedule, visualizations, presentation slides, content for web postings, and GIS data.

As the level of effort for engagement materials and coordination cannot be quantified at this time, a total level of effort of 150 hours of staff time is assumed for this scope task.

TASK 9.4 DELIVERABLES

- Deliverables are anticipated to include graphics in electronic PDF format, as requested by the City.

TASK 9.4 ASSUMPTIONS

- Available task budget and the scope of requested deliverables will be discussed with the City project manager prior to commencing work on the requested deliverable.

11.0 Preliminary Design of Preferred Alternative

11.1 Preliminary Design – 30%

11.1.1 30% Preliminary Plans

Otak will advance the preferred alternative, selected by the City, to a preliminary (30%) design level. The primary objective of the Preliminary Design is to allow the City to confirm the technical feasibility, cost feasibility, compliance with permitting and grant requirements, maintenance feasibility and practicality, and buy-in from interested parties.

Otak will prepare and submit Preliminary (30%) plans, listed in Table 3, that will include plan views of the crossing

structure, crossing structure head walls, site retaining walls, trail, parking lot and habitat grading areas. The plans will also include sufficient preliminary details to illustrate how the facilities will operate and maintenance access will be provided.

Table 1 – Anticipated List of Drawings

Description	Included in Preliminary Design	Scale
Cover sheet, Vicinity Map, drawings, TOC	1	N/A
Legend and Abbreviations	1	N/A
General Notes, Phasing	1	N/A
Overall Site and Key Plan	1	1":50'
Survey Control Plan and Easements	1	1":50'
Traffic Control Plans and/or Detour Plans and Details	1	1":50'
Utility Relocation Coordination Plan and Details	2	1":20'
Crossing Structure Plan and Section	1	1":10'
Outlet Headwall Elevation View	1	1":10'
Inlet Headwall Elevation View	1	1":10'
66th Ave. S Rd Restoration Plan and Profile	1	1":20'
Green River Trail Plan and Profile	2	1":20'
Parking Lot Pavement Plan	1	1":20'
Site Structural Details	2	N/A
Upstream Habitat Grading and Large Woody Material Plan	1	1":20'
Upstream Habitat Grading Section Details	2	N/A
Confluence Habitat Grading and Large Woody Material Plan	2	1":20'
Confluence Habitat Grading Section Details	2	N/A
Large Woody Material Details	1	N/A
Upstream Habitat Planting Plan	1	1":20'
Confluence Habitat Planting Plan	1	1":20'
Flood Gate Electrical Site Plan	1	1":20'
Flood Gate Details	1	N/A
TOTAL SHEETS	29	

11.1.2 30% Construction Cost Estimate

Otak will estimate quantities and develop an itemized construction cost estimate for one bid package using unit costs based on experience and recent similar project bid tabs. Quantities will be organized into standard bid items (supplemented by additional non-standard items, if necessary) conforming to the project bid schedule. The construction cost estimate will include appropriate contingencies to reflect the level of design complete.

11.1.3 Perform Quality Assurance and Quality Control

Otak will implement Quality Assurance and Quality Control to provide ongoing review on all hydrologic and hydraulic modeling and site civil, structural, and landscape design throughout the design of the improvements. Otak will provide quality assurance on all deliverable products to support this task, including work performed by sub-consultants, and submit quality control check-list for all documents produced in this Task 11.1. This task includes:

1. Quality Review Checklist signed off by PM, Task Leads and an independent reviewer (as part of Task 5.8.1B)
2. Reviewer Comments review meeting with the City
3. Written Responses to review comments

TASK 11.1 DELIVERABLES

1. Project Preliminary Plans, as listed in Table 1, will be prepared in AutoCAD, and submitted as PDF half-sized.
2. Construction Cost Estimate submittal includes electronic PDF.

TASK 11.1 ASSUMPTIONS

1. Work will be performed in accordance with WSDOT Standard Specifications for Road, Bridge, and Municipal Construction (2025 edition).
2. No specifications will be included in the 30% Preliminary Design submittal.
3. Adjustments or relocation of franchise utility will be designed and constructed by the franchising public/private utility company(ies), unless directed otherwise in future scopes of work for final design.
4. The Preliminary design will be based on the design concepts and layout of the Selected Alternative, selected in Phase I of the project.
5. Tukwila will consolidate duplicate comments and approve or remove comments from all City reviewers prior to delivery to Consultant.
6. Major design conceptual changes from the Selected Alternative, from Phase I, is not included in this scope and fee estimate. If major changes are required to the concepts or layout of the Preliminary Design, then Otak will assess the impact of the City required or desired changes, develop and submit contract supplement, with the scope and fee estimate needed to revise the design submittal, and a request to Tukwila for approval to use the Management Reserve Continency to revise the Preliminary Design.

11.2 Value Engineering Review

Otak will conduct a value engineering review of the concept design for the preferred alternative developed under Task 6.9. This review will be performed by a team of senior professional staff with a representative from each of the following disciplines:

- Water Resources Engineering
- Transportation Engineering
- Structural Engineering
- Landscape Architecture

Each review participant will review the Phase 1 Alternatives Analysis Report, alternatives refinement summaries, and preferred concept plans and cost estimate developed under tasks 6.3-6.8. The value engineering review staff will identify opportunities to reduce cost, and ease maintenance of the new facilities, while still meeting the goals of the project, which are described in detail in the Alternatives Analysis. The Value Engineering team will have a kickoff meeting with the project engineer and key designers at the start of the task. During the review, the value engineering team will participate in a progress meeting with the City to and task leads from the design team to discuss review questions and preliminary comments. Final comments from each reviewer will be entered into a table with subcategories for the different disciplines. This table will be submitted to the City for review so any direction for design changes can be given to the design team before completion of the 30% Design.

TASK 11.2 DELIVERABLES

- Matrix of value engineering review comments on the concept plans and cost estimate for the preferred alternative (pdf)

TASK 11.2 ASSUMPTIONS

- This study will precede the 30% Design and Constructability Review tasks, and will provide concerns to be addressed in Task 11.1 and Task 11.3.

11.3 Constructability Review

Otak will coordinate and review all work provided by its constructability review subconsultant. Coordination will include scheduling of work, scheduling of meetings, oversight and review of subconsultant deliverables.

The Constructability Review will provide comments on construction access, shoring and dewatering methods, traffic control, schedule, and cost from a Contractor's perspective. This will include a field visit and review of the preliminary plans once they are developed to a Draft 30% Level. The constructability review subconsultant will perform the following items:

1. Site Visit
2. Review Preliminary Design and provide comments on the following:
    a. Means and methods for excavation and shoring especially along liquifiable soils.
    b. Construction sequencing and staging
    c. Traffic Control
    d. Options for accelerating work such as full and partial road closure and night work
    e. Recommendations for Special Provisions

TASK 11.3 DELIVERABLES

- Memo summarizing constructability review comments (pdf)
- Plan markups (pdf)

TASK 11.3 ASSUMPTIONS

- This task will be implemented after the Value Engineering Review in Task 11.2 and during the 30% Design.

Management Reserve

If directed by the City, consultant will provide services needed to assist the City for unforeseen tasks related to this project that were not specifically addressed in this scope of work. When requested by the City, the consultant will provide a scope and budget for the task identified by the City. The consultant will not proceed with the task until written authorization has been provided by the City. The allotted amount for this task is $20,000.00.

Direct Expenses

Direct expenses to be submitted for reimbursement include:

- Mileage/Travel for site investigations and meetings
- Other Misc. Expenses

Attachment A – Survey Extents Map

Attachment A - Supplemental Survey Extents Map

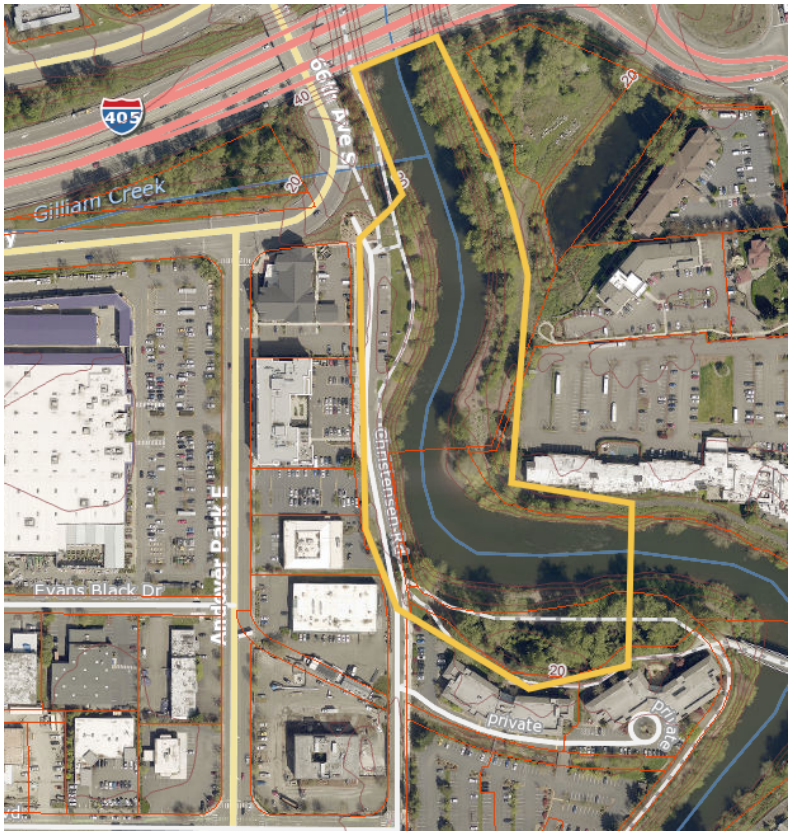

Exhibit B-2
City of Tukwila - Gilliam Creek Fish Barrier Removal and Habitat Enhancement
Fee Estimate - AMENDMENT NO. 2
Otak Project #020610.003
November 2024

		WATER & NATURAL RESOURCES ENGINEERING						STRUCTURAL			TRANSP & INFRASTRUCTURE					PLANNING & LANDSCAPE						SURVEY					ADMIN					
Task	***Description***	*Sr. PIC/Sr. PM Civil*	*PIC/Sr. PM Civil*	*Civil Engineer X*	*Civil Engineer VIII*	*Engineering Designer V*	*Scientist VI (Hydrologist)*	*PIC/Sr. PM Civil*	*Civil Engineer X*	*Civil Engineer VII*	*PIC/Sr. PM Civil*	*Civil Engineer X*	*Civil Engineer VII*	*Engineering Designer V*	*Engineering Tech IV*	*Sr. PIC/Sr. PM LA/Mst Pln*	*Landscape Architect VII*	*Landscape Architect V*	*Landscape Architect IV*	*Planner IV*	*Graphics Specialist*	*Professional Land Surveyor V*	*Survey Crew Chief II*	*Survey Crew Chief I*	*Survey Field Tech III*	*Survey Office Tech IV*	*Project Coordinator I*	***Otak Total Hours***	***Otak Budget by Sub-Task***	***Sub - Hydraulic QA/QC & Gate Design***	***Sub - Geotechnical***	***Sub - Constructability Review***	***Total Budget By Sub-Task***	***Total Budget By Task***
1.0	Project Management and Coordination																																$62,458.00
1.1	Coordination with City	12	70		30																						20	132	$34,396.00				$34,396.00	
1.4	Project Monitoring and Reporting	4	70																								40	114	$28,062.00				$28,062.00	
4.0	Topographic Survey and Basemap																																$15,228.00
4.2	Supplemental Topographic Surveying and Mapping of Green River																					12	24	24	24	32		116	$15,228.00				$15,228.00	
5.0	HYDRAULIC ANALYSIS																																$113,632.00
5.6	Gilliam Creek Flap Gate Replacement Flood Study-Proposed Conditions	44	12		90	20	180																					346	$79,562.00				$79,562.00	
5.7	Gilliam Creek Flap Gate Replacement Flood Study Report	18	8		60	34	32																				6	158	$34,070.00				$34,070.00	
5.8	Open Channel Hydraulic Analysis for Proposed Improvement Area																																$83,860.00
5.8.1.A	Preliminary Hydraulic Analysis	20	8		160	50	40																					278	$58,860.00				$58,860.00	
5.8.1.B	Hydraulic Analysis QA/QC (SUB)																											0	$0.00	$25,000.00			$25,000.00	
6.0	Alternatives Analysis																																$16,114.00
6.9	Alternatives Analysis Report - Phase 2	2	14		50																						6	72	$16,114.00				$16,114.00	
7.0	Geotechnical Services																																$30,000.00
7.2	Geotechnical 30% Preliminary Design (SUB)																											0	$0.00		$30,000.00		$30,000.00	
8.0	Utility Coordination																																$13,452.00
8.1	Franchise Utility Coordination		8		16	50																						74	$13,452.00				$13,452.00	
9.0	Stakeholder Engagement																																$53,794.00
9.2	Agency and Stakeholder Coordination		12		24													24		32								92	$18,108.00				$18,108.00	
9.4	Engagement Materials		6		24											6	34	20	36	32	44							202	$35,686.00				$35,686.00	
11.0	Preliminary Design of Preferred Alternative																																$360,464.00
11.1	Preliminary Design - 30%																																
11.1.1	30% Preliminary Plans	28	66		110	180			88	180		36	70	120	100		20	40	86									1124	$212,058.00	$32,000.00			$244,058.00	
11.1.2	30% Construction Cost Estimate		12		20	40			12	20		8	16	30			4	8	14									184	$34,492.00				$34,492.00	
11.1.3	Perform Quality Assurance and Quality Control			20				12			20						12											64	$17,016.00				$17,016.00	
11.2	Value Engineering Review		2	32	8			32			32					32												138	$39,898.00				$39,898.00	
11.3	Constructability Review (SUB)																											0	$0.00			$25,000.00	$25,000.00	
	Total Hours	128	288	52	592	374	252	44	100	200	52	44	86	150	100	38	70	92	136	64	44	12	24	24	24	32	72	3,094						
	Billing Rate	$348.00	$305.00	$241.00	$207.00	$154.00	216.00	$305.00	$241.00	$191.00	$305.00	$241.00	$191.00	$154.00	$121.00	$325.00	$203.00	$163.00	$150.00	$174.00	132.00	251.00	125.00	97.00	95.00	144.00	133.00							
	Total Labor Cost	*$44,544.00*	*$87,840.00*	*$12,532.00*	*$122,544.00*	*$57,596.00*	*$54,432.00*	*$13,420.00*	*$24,100.00*	*$38,200.00*	*$15,860.00*	*$10,604.00*	*$16,426.00*	*$23,100.00*	*$12,100.00*	*$12,350.00*	*$14,210.00*	*$14,996.00*	*$20,400.00*	*$11,136.00*	*$5,808.00*	*$3,012.00*	*$3,000.00*	*$2,328.00*	*$2,280.00*	*$4,608.00*	*$9,576.00*		***$637,002.00***	***$57,000.00***	***$30,000.00***	***$25,000.00***	***$749,002.00***	***$749,002.00***
100	*Management Reserve*																															***$20,000.00***	***$20,000.00***
050	*Direct Expenses*																															***$950.00***	***$950.00***
	Project Total																															**$769,952.00**	**$769,952.00**

Notes:
(1) Billing rates may vary based on the actual staff performing the work.

CITY OF TUKWILA CAPITAL PROJECT SUMMARY

2023 to 2028

PROJECT: **Gilliam Creek Fish Barrier Removal** Project No. 99830105

DESCRIPTION: Construct fish passage improvements at existing flap gate and restore salmonid habitat; replace flap gate which may include a self-regulating tide gate or flood wall.

JUSTIFICATION: Enable fish access to lower Gilliam Creek under wider range of flow conditions; fish barrier per WDFW and City; WRIA 9 salmon habitat project.

STATUS: Analysis of lower Gilliam Creek is being conducted in 2018 to determine the best solution for fish passage and to address potential flooding.

MAINT. IMPACT: Likely a shift in maintenance commitments with potential elimination of flapgate maintenance.

COMMENT: In 2020, SRFB listed as Project of Concern, WRIA pulling funding from this cycle; BA Fish Barrier Board - scored 63 of 94; outcomes yet to be determined; $100K allocated in CWM via WRIA 9.

FINANCIAL (in $000's)	Through 2021	Estimated 2022	2023	2024	2025	2026	2027	2028	BEYOND	TOTAL
EXPENSES										
Design	60	150	600	650						1,460
Land (R/W)										0
Monitoring										0
Const. Mgmt.					1,000					1000
Construction					7,500					7,500
TOTAL EXPENSES	**60**	**150**	**600**	**650**	**8,500**	**-**	**-**	**0**	**0**	**9,960**
FUND SOURCES										
Awarded Grant		150	325	375						850
Proposed Grant			275	275	6,800	-				7,350
Mitigation Actual										0
Mitigation Expected										0
Utility Revenue	60	0	0	0	1700	-	-	0	0	1,760
TOTAL SOURCES	**60**	**150**	**600**	**650**	**8,500**	**-**	**0**	**0**	**0**	**9,960**