

An aerial photograph of a river. In the upper left, a rocky bank with some vegetation is visible. The river flows towards the right. In the center-right of the river, there is a large, rectangular biohabitat structure made of dark, vertical posts. The water around the structure is a deep blue, while the rest of the river is a lighter, greenish-blue. The sky is bright and overcast.

Washington State Department of Corrections
Capital Planning & Development
P.O. BOX 41112
Olympia, WA 98504-1112

Project No. 2024-343: MIS WWTP Evaluation and LOSS Design

Biohabitats | August 26, 2024



conservation planning + ecological restoration + regenerative design



1620 SE Claybourne
Unit 210A
Portland, OR 97202
971.244.8322
biohabitats.com

August 26, 2024

Jessica Whitenack, Project Manager
Washington State Department of Corrections
Capital Planning & Development
P.O. BOX 41112
Olympia, WA 98504-1112
360-819-6956
jessica.whitenack@doc1.wa.gov

RE: **2024-343 MIS-WWTP Evaluation and LOSS Design and On-Call Campus Engineer**
Biohabitats Proposal No. P24317.03

Dear Ms. Whitenack:

On behalf of Biohabitats we are thrilled to submit our qualifications and recommended approach for the MIS-WWTP Evaluation and LOSS Design and On-Call Campus Engineer Request for Qualifications (RFQ). Our staff is excited about the potential to collaborate with the Washington State Department of Corrections. We are willing and capable of executing and meeting all the requirements as described in the RFQ.

In fact, we believe Biohabitats is uniquely qualified to achieve a high level of success for this particular project. As a global leader in both onsite wastewater management and aquatic restoration, Biohabitats will not only excel at the defined work, we also deeply understand the motivation behind removing the current wastewater outfall and can assist moving toward the restoration of the Southern Puget Sound's shellfish ecosystem.

Since 1982, Biohabitats has focused on conservation planning, ecological restoration, and creating regenerative water infrastructure. Our mission to "Restore the Earth and Inspire Ecological Stewardship" is bold and combines sound science with an integrated design practice that protects and restores natural habitats and enhances and strengthens our built communities. Biohabitats is ready to work with you, as an insured valid business (EIN: 52-1594014) with an active State of Washington UBI: 603-168-076.

Sincerely,

BIOHABITATS, INC.

Pete Muñoz, PE, LEED AP, EcoDistricts AP
Senior Engineer / Practice Lead
Washington PE #49112

802.598.2372 (cel)
pmunoz@biohabitats.com





STATE OF WASHINGTON
DEPARTMENT OF ENTERPRISE SERVICES

1500 Jefferson St. SE, Olympia, WA 98501
PO Box 41476, Olympia, WA 98504-1476

Consultant Selection Contact Form

Designated Point of Contact for Statement of Qualifications
For Design Bid Build, Design Build, Progressive Design Build, GC/CM & Job Order Contracting
(JOC) Selections

Firm Name: Biohabitats, Inc.		
Point of Contact Name & Title: Pete Muñoz, PE - Senior Engineer / Practice Lead		
Email: pmunoz@biohabitats.com	Telephone: 802.598.2372 (cel)	
Address: 1620 SE Claybourne, Unit 210 A		
City: Portland	State: OR	Zip: 97202

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Executive Summary



*Duke Farms On-site Wastewater Management System
wildflower disposal field*

Biohabitats is uniquely qualified to achieve a high level of success for the Washington State Department of Corrections (DOC) with the MIS-WWTP and LOSS Design project. As a global leader in both onsite wastewater management and aquatic restoration, Biohabitats will not only excel at exploring alternative methods to treat and dispersal wastewater on McNeil Island, we also deeply understand the motivation behind removing the current wastewater outfall. As such, our team can best position the DOC with meeting their long-term commitment to environmental stewardship and achieving the goal of restoring portions of the Southern Puget Sound's shellfish ecosystem.

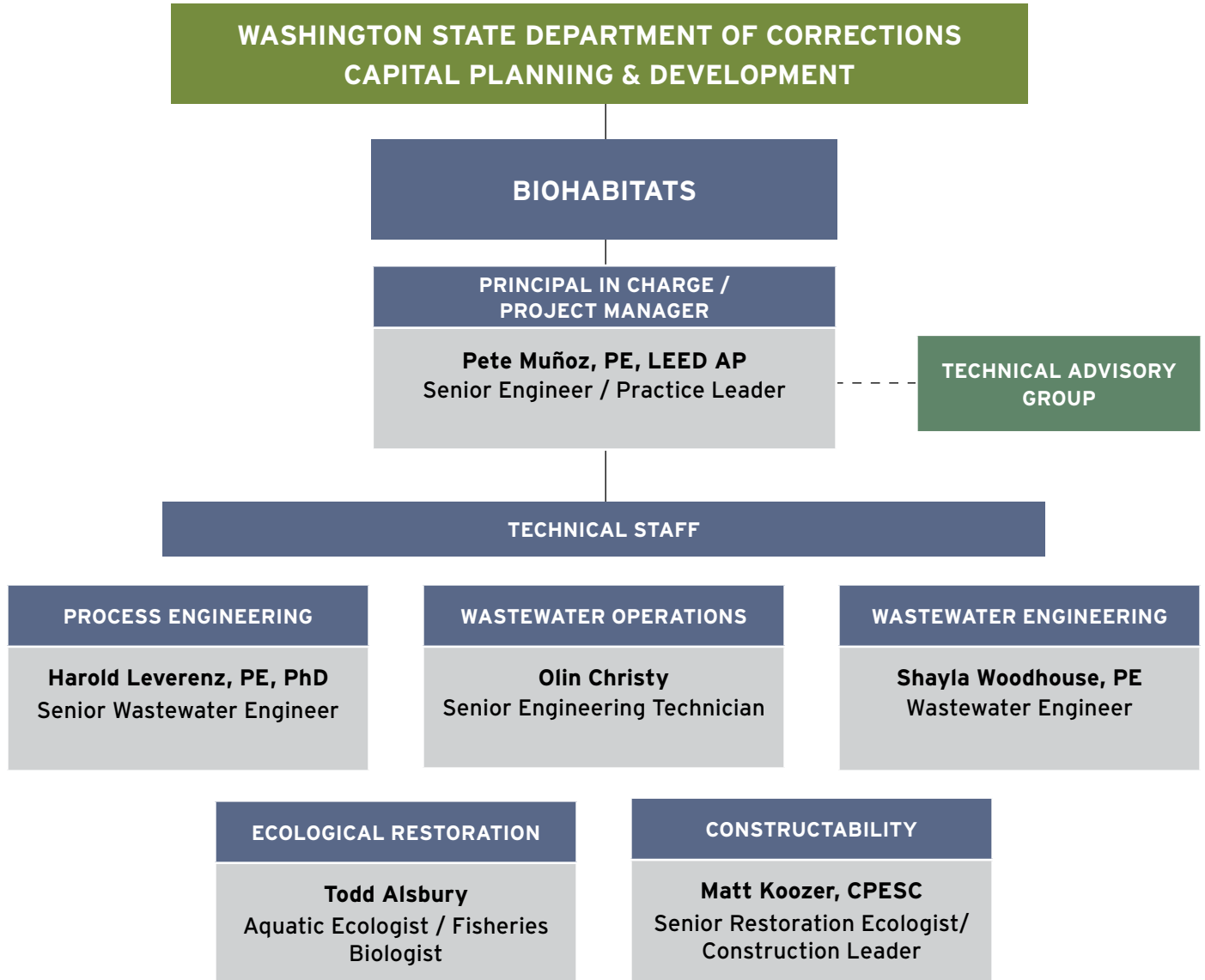
Biohabitats is a respected leader in the planning and design of onsite wastewater treatment, dispersal, and reuse. We have decades of experience evaluating and selecting onsite wastewater infrastructure for a wide range of clients with diverse needs and stakeholders. Our interdisciplinary team of engineers, technicians, GIS specialists, landscape architects, and licensed wastewater operators are experienced at assessing, planning, engineering, designing, permitting, bidding, constructing, commissioning, and operating many different types of wastewater infrastructure.

Our interdisciplinary team will provide the Washington State DOC with a clear and comprehensive assessment of the current built and ecological assets on McNeil Island. Our team will then summarize risks, threats, and opportunities towards pursuing elimination of the current wastewater outfall. Through a series of discussions and workshops Biohabitats will help define potential innovative solutions in which to further evaluate.

Our team will then prepare an extensive alternatives analysis on selected options that best address the current issues, such as aging infrastructure, limited staff capacity, and increased inflow and infiltration. We will prepare a solutions matrix and life cycle analysis to help guide the DOC with understanding the potential strategies and decision implications. Part of the solution matrix will include a clear regulatory pathway, so that the entire scope of a potential alternative is understood.

Finally, our team will outline the process of decommissioning the current wastewater outfall and recommend next steps toward enhancing existing infrastructure and achieving a restored shellfish ecosystem.

Qualifications of Key Personnel



Staffing: Role and Commitments



**Pete Muñoz, PE, LEED AP – Senior Engineer / Practice Leader
Project Lead / Principal in Charge
Commitment: 25%**

Pete will be the project lead and single point of contact for the Washington State DOC. He will lead the technical efforts including alternatives analysis and LOSS design. Pete will also manage the Biohabitats team to ensure all deliverables are met on budget and in a timely manner.

**Olin Christy – Senior Engineering Technician
Wastewater Operations
Commitment: 25%**

Olin will lead wastewater infrastructure assessment, as well as assist in alternative evaluation for operations and maintenance concerns. Olin will participate in life cycle analysis and final recommendations.



**Shayla Woodhouse, PE – Wastewater Engineer
Wastewater Engineering
Commitment: 20%**

Shayla will lead the development of the solutions matrix and life cycle analysis, as well as assist with wastewater treatment alternatives analysis and LOSS design.

**Harold Leverenz, PE, PhD – Senior Wastewater Engineer
Process Engineering
Commitment: 5%**

Harold will spearhead all process engineering for wastewater alternative analysis and provide Quality Assurance and Quality Controls (QA/QC) for all deliverables.

**Matt Koozer, CPESC – Senior Restoration Ecologist/Construction Leader
Constructability
Commitment: 5%**

Matt will assist with alternative analysis for constructability and value engineering review. He will also assist with understanding implications and opportunities for the decommissioning of the existing wastewater outfall.



**Todd Alsbury – Aquatic Ecologist / Fisheries Biologist
Ecological Restoration
Commitment: 5%**

Todd will advise on shellfish and aquatic habitat restoration with the decommissioning of the existing wastewater outfall.



Pete Muñoz, PE, LEED AP

Senior Engineer / Practice Leader

Pete has 27 years of experience working globally to help improve and create sound wastewater solutions that promote healthy communities, resilient infrastructure, and ecological complexity. He has worked at a variety of scales with a diversity of stakeholders to enhance and create innovative onsite wastewater solutions. He has been involved in hundreds of wastewater collection, treatment, dispersal and reuse projects. Pete's specialty is with projects near sensitive aquatic environments as he helps balance the water/energy/ecology nexus.

RELEVANT EXPERIENCE

Mt. Baker Ski Area - Wastewater Infrastructure, Whatcom County, WA

Pete led the assessment of a failed wastewater treatment and dispersal system servicing a multi-tenant service agreement on rural US Forest Service land. The assessment informed needed improvements to the collection, treatment, and dispersal systems. Pete led all negotiations and permitting efforts for the new LOSS with the Washington Department of Health (DOH). He oversaw improvement installation, system startup, and training. He continues to oversee operations and guide system operation, preventative maintenance, and capital infrastructure upgrades. He assists with monthly wastewater system monitoring and reporting and leads all current annual reporting to the DOH for the Mt. Baker Ski Area.

Village of Packwood Wastewater Treatment Plant, Chehalis, WA

As part of an integrative engineering team, Pete leads wastewater dispersal (LOSS) planning and engineering for an 80,000 gal/day community system for Lewis County, Washington. Completed activities include the development of a site analysis, soil investigation, LOSS system design and report.

Fernhill South Wetlands, Forest Grove, OR

As project manager and project engineer, Pete developed wastewater management strategies. The site – owned by Clean Water Services and managed by the City of Forest Grove and the Fernhill Wetlands Council – is a major birding and public destination. The project further developed plans for the Forest Grove Wastewater Treatment Plant Natural Treatment System expansion. The project redeveloped 90 acres of old wastewater lagoons into constructed surface flow treatment wetlands, a lake (for water storage and habitat), inlet and outlet structures, multiple flow pathways for flexibility of operation, and a vegetated aeration channel.

Mount St. Helens Institute Water Assessment & Concept Design, St. Helens, WA

The Mount St. Helens Institute wished to transform their Visitor Center into a world-class, energy-efficient facility, which required an assessment of their onsite wastewater infrastructure. Pete led assessment and planning to create a phased 20,000 gal/day wastewater treatment that utilized and enhanced existing wastewater treatment assets and permitted LOSS.

National Bio and Agro-Defense Facility Federal Laboratory, Manhattan, KS

Pete, as project manager, led the design for a wastewater lift station and on-site wastewater treatment system serving multiple buildings. He coordinated several design teams to follow a complicated and demanding phasing schedule. The system was designed for a highly variable and complex effluent stream, treating to irrigation reuse levels. It includes a hybrid of natural systems and mechanical equipment.

EDUCATION

M.S., Civil & Environmental Engineering,
University of Vermont

B.S., Biosystems Engineering,
Michigan State University

PROFESSIONAL REGISTRATION

Professional Engineer: Washington #49112,
AL, CT, ID, IL, IA, KS, KY, LA, MA, MI, MT,
NY, OR, TN, TX, UT, VT, WY

CERTIFICATION & TRAINING

LEED Accredited Professional (USGBC)

ASSOCIATIONS

United States Green Building Council
International Living Future Institute (ILFI)

ADDITIONAL EXPERIENCE

- » Wing Point Living Building Challenge
Residence, Bainbridge Island, WA
- » Aegis Lake-Union Senior Housing
Development - Water Infrastructure
Planning and Design, Seattle, WA
- » Yale Divinity School - District Scale
Water Infrastructure Planning,
New Haven, CT
- » Nike World Headquarters,
Beaverton, OR
- » Eastern Washington University - Water
Infrastructure Planning, Cheney, WA
- » Corporation HQ - District Scale Water
Infrastructure Planning, Mountain View, CA
- » Antioch College - District Scale Water
Infrastructure Planning,
Yellow Springs, OH
- » Baylands Development Ecology, Water,
and Sustainability Planning, Brisbane, CA
- » Serenbe Community Wastewater
Collection, Treatment & Reuse System,
Atlanta, GA



Olin Christy

Senior Engineering Technician

Olin has 20+ years of design and construction experience, with an acute ability to understand most mechanical, electrical, and biological systems. He is a true jack-of-all trades and invaluable team asset for water and wastewater infrastructure planning and design. Olin leads Biohabitats' construction oversight practice for all water and wastewater projects. A licensed water and wastewater treatment operator, he brings a wealth of experience with commissioning, starting up, operating, maintaining and troubleshooting systems.

EXPERIENCE

Mt. Baker Ski Area - Wastewater Infrastructure, Whatcom County, WA

Olin supported the assessment of a failed wastewater treatment and dispersal system servicing a multi-tenant service agreement on US Forest Service Land. He identified and designed needed system improvements to the collection, treatment, and LOSS dispersal systems. He led the installation, system startup and training and continues to oversee operations and guide system operation, preventative maintenance, and capital infrastructure upgrades. He assists with monthly wastewater system monitoring and reporting and leads all current annual reporting to the DOH for the Mt. Baker Ski Area.

Rose Villa Senior - Wastewater Infrastructure, Portland, OR

Olin provided specification integration, equipment selection, and controls design for a greywater treatment and reuse system for a senior housing development. Olin continues to assist with system operations and optimization.

Coyote Creek State Park Regulatory Clearances, Guadalupita, NM

Olin contributed to water system improvements for new buildings and circulation for the environmental clearance process with the US Fish and Wildlife Service. The project included consultation with associated agencies – NPS, USFWS, USACE – on behalf of New Mexico – Energy, Minerals and Natural Resources Department.

El Rancho de las Golondrinas Master Plan, La Cienega, NM

This living history museum hosts events year-round drawing up to 5,000 visitors. The design team, led by Surroundings Studio, developed a master plan with Biohabitats planning and engineering an onsite wastewater collection, treatment, potential reuse options, and disposal facilities. Olin provided project design support, specification integration, equipment selection, and controls design.

National Bio and Agro-Defense Facility Federal Laboratory, Manhattan, KS

Olin provided design support, specification integration, equipment selection, and controls design for a highly variable and complex wastewater treatment system required to treat industrial strength wastewater to a level suitable for municipal sewer discharge and irrigation reuse. Olin continues to provide value operations and maintenance support to the USDA staff operating the WWTP (now in 3rd year of support).

EDUCATION

B.A., Philosophy, Berea College

REGISTRATION

New Mexico Utility Operator, WW1, WST2,
WSI License Number 07883

ADDITIONAL EXPERIENCE

- » National Bio and Agro-Defense Facility Federal Laboratory, Manhattan, KS
- » Lloyd Eco-district, Portland, OR Onsite Wastewater Treatment and Reuse
- » Augusta Bay Resort, George Town, Great Exuma, Bahamas
- » Serenbe Community Wastewater Collection, Treatment & Reuse System, Chattahoochee Hills, GA
- » Constitution Gardens, Washington, DC
- » Hard Bargain Farms, Accokeek, MD Onsite Wastewater Treatment
- » Cedar Springs Apartments, La Verne, CA Onsite Greywater Treatment and Reuse
- » The Summit Bechtel Family National Scout Reserve, Mount Hope, WV Onsite Wastewater Treatment
- » The Rodale Institute, Kutztown, PA Onsite Wastewater Treatment
- » The Willow School, Gladstone, NJ Onsite Wastewater Treatment and Rainwater Treatment for Reuse
- » The Omega Center for Sustainable Living, Rhinebeck, NY Onsite Wastewater Treatment
- » Sidwell Friends Middle School, Washington, D.C. Onsite Wastewater Treatment and Reuse
- » Palmyra Atoll Wastewater Systems Operations Update, Palmyra



Shayla Woodhouse, PE

Wastewater Engineer

Shayla is an experienced water and wastewater engineer. She has a keen understanding of a variety of wastewater treatment technologies and supports Biohabitats water and wastewater teams with analysis, calculations, design, and engineering.

RELEVANT EXPERIENCE

Mt. Baker Ski Area - Wastewater Infrastructure, Whatcom County, WA

Mt. Baker Ski Area operates a wastewater treatment plant receiving wastewater from multiple areas with Heather Meadow base area. Shayla assisted with task orders that rehabilitated the existing wastewater treatment and LOSS drainfield. She assisted with equipment selection for the system including the monitoring equipment, surface aerator, and more. She also helped write the Operations and Maintenance Manual.

El Rancho de las Golondrinas Master Plan, La Cienega, NM

This living history museum hosts up to 5,000 visitors annually. Biohabitats planned and engineered an onsite wastewater collection, treatment, potential reuse options, and disposal facilities for the museum. Shayla led the permitting through the NM Environmental Department – Liquid Waste Division and coordinated and gathered all required documentation for the permit submittal.

Coyote Creek State Park Regulatory Clearances, Guadalupita, NM

Biohabitats assessed capacity challenges for the potable water system supplying 6 sites and completed designs for renovations. Shayla assisted with design and compiled the permit submittal to the NM Environment Department – Drinking Water Bureau. She drafted the Engineering Design Summary, Disinfection and Sampling Plan, completed the Inventory of Contamination Sources.

Crosscut Mountain Sports Center, Bozeman, MT

Biohabitats completed schematic design for a proposed wastewater system. Shayla served as project coordinator and supported the technical design. She performed wastewater design flow calculations, assisted in designing the dispersal system and led the report production. Shayla also served a vital role in leading regulatory discussions with the Montana Department of Environmental Quality regarding the proposed wastewater dispersal design.

Zion East Gateway Lodge and Visitor Center: Ecological Assessment and Integrated Water Strategies, Mt. Carmel Junction, UT

This public-private partnership sustainably develops new facilities and trails. Focusing on regenerative agriculture, conservation and green building, the project will treat and manage over 100,000 gal/day of wastewater. Shayla helped develop the zero-discharge, complete reuse approach and design for agricultural irrigation and habitat creation and flows that would be tied into the treatment plant.

EDUCATION

M.S., Environmental Engineering,
Montana State University

B.S., Environmental Engineering,
Northern Arizona University

PROFESSIONAL REGISTRATION

Professional Engineer New Mexico

ADDITIONAL EXPERIENCE

- » Modern Elder Academy On-Site Wastewater Treatment, Lamy, NM
- » Lower Rio Fernando de Taos Hydrologic Study, Taos, NM
- » El Rancho de las Golondrinas Wastewater Treatment System Design, La Cienega, NM
- » East Zion Gateway Visitor Station & Lodge, Mt. Carmel Junction, UT
- » Valley of Fire Visitor Center, Overton, NV
- » Valle de Oro National Wildlife Refuge Onsite Wastewater Treatment, Albuquerque, NM
- » Harveston Treatment Facility, Baton Rouge, LA
- » Kilauea Community Agricultural Center, Kilauea, HI
- » Eco-Machine, Flam, Norway
- » New U.S. Consulate Compound, Windhoek, Namibia



Harold Leverenz, PE, PhD

Senior Wastewater Engineer

Harold has more than 20 years of experience in environmental and biosystems engineering. His areas of research have included all aspects of wastewater treatment systems, including nutrient removal, disinfection, anaerobic treatment, energy recovery, and water reuse. Harold is particularly interested in the development and use of natural treatment systems that have low operation and maintenance requirements, operate by gravity, and minimize chemical/energy addition. Other areas of interest include nutrient recovery from urine and concentrated side streams, rainwater harvesting, and solid waste management systems.

EDUCATION

Ph.D., Civil & Environmental Engineering,
University of California, Davis

M.S., Civil & Environmental Engineering,
University of California, Davis

B.S., Biosystems Engineering,
Michigan State University

PROFESSIONAL REGISTRATION

Professional Engineer: CA

ADDITIONAL EXPERIENCE

- » GSA Landscape Performance Analysis
- » Ojo Santa Fe Spa Resort Wastewater Planning Support, Santa Fe, NM
- » Campground Wastewater Treatment Strategy, Monterey, CA
- » Bear Creek Winery Wastewater Treatment Strategy, Lodi, CA
- » LinkedIn Campus Water Study and Recycled Water Project, Sunnyvale, CA
- » Onsite Water Reuse Pilot and Full-Scale Design, Sacramento, CA
- » Constitution Gardens, Washington, DC
- » City Wastewater Strategy, Vientiane, Laos
- » Kentucky Trails Exhibit - Integrated Water Management, Louisville, KY
- » Descanso Garden Lake Design, La Cañada Flintridge, CA

RELEVANT EXPERIENCE

Community Treatment Wetland and Climate Resiliency Project - Treatment Wetlands, Central Solano County, CA

Harold conceptualized the overall treatment plan to address greenhouse gas emissions and sea level rise for the Fairfield-Suisun Sewer District. The District is a wastewater special district about 40 miles northeast of San Francisco serving 150,000 customers. The District's wastewater treatment facilities occupy approximately 530 acres and the wastewater treatment plant is rated for an average dry weather flow of 23.7 million gal/day. The project creates a nature-based solution that integrates a freshwater treatment wetland for nitrogen removal, public access, and flood protection within an approximately 100-acre area, located on the District's treatment plant property in an area currently farmed as alfalfa.

Zion Mountain Reclamation Facility, Mt. Carmel, UT

Harold helped develop design strategies for a large reed bed wetland natural wastewater treatment system which involved researching geologic and groundwater information, completing soils assessments, and estimating sizing requirements based on Utah regulations. With a focus on regenerative agriculture, conservation and green building, the project requires treatment and management of over 100,000 gal/day of wastewater at full build-out.

Palamanui Natural Treatment Wetlands, Palamanui, HI

The site, near West Hawaii Palamanui Community College Campus on the Island of Hawaii, required an onsite wastewater management strategy for treatment, disposal and reuse. A constructed wetland-based treatment system was feasible and desirable for its passive nature. The longer term flows may approach values as high as 500,000 gal/day; Phase I flows are anticipated to be in the 10,000 gal/day range. The concept phase focused on a reed bed/constructed wetland.

Jalama Beach Water Recycling Project, Lompoc, CA

Harold provided alternative decentralized wastewater treatment and water reuse technologies analysis for a site in a sensitive coastal area. Biohabitats reviewed design data and provided a technical memo on alternative technology comparison. The team discussed permitting, assisted with development of permitting pathway, and advised on operational strategies. Biohabitats discussed report preparation and provided input, review, and comment on draft and final reports.



Matthew Koozer, CPESC

Senior Restoration Ecologist / Construction Leader

Matt has over 20 years of experience leading design-build teams in water resources management and habitat restorations. He has managed all phases of river, estuary, wetland and riparian restoration projects, with a focus on habitat restoration design and construction. Matt has been involved in over 100 habitat restoration projects including dam removal, channel realignment, estuary levee breaching, engineered log jams and riffles, and fish passage projects. Matt's on-the-ground experience has made him a valued team member. He has the ability to see the various perspectives of project stakeholders and is equally comfortable in the office and the field. He is dedicated to the restoration of ecosystems via smart, efficient design solutions and innovative construction means and methods.

EDUCATION

Post Graduate coursework in Portland State University's Environmental Professional Program in Wetland and Environmental Sciences

River Restoration Professional Certificate, Portland State University

B.A., Liberal Studies/Environmental Studies, University of Montana

PROFESSIONAL REGISTRATION

Certified Professional in Erosion and Sediment Control (CPESC).
License #4528

CERTIFICATION & TRAINING

Wildland Hydrology, Inc: Applied Fluvial Geomorphology and Natural Channel Design

OSHA-10 Safety Training and CPR, AED, and First Aid Certified

PROFESSIONAL ASSOCIATIONS

Portland State University; Adjunct Instructor, River Restoration Professional Program

Johnson Creek Watershed Council; Board Member (2007 - 2009), Volunteer (2007 - present)

River Restoration Northwest, Member

RELEVANT EXPERIENCE

City of Creswell WWTP Assessment, Creswell, OR

Matt helps our team of wastewater engineers evaluate the constructability of several different treatment options and helped develop opinions of cost for wastewater treatment alternatives.

Willow Grove Advanced Mitigation Project, Longview, WA

As Practice Lead, Matt coordinated crew and developed means and methods and schedules for work. Oversaw crew ensuring materials arrived on time and equipment was prepared. Provides communication between crew and owner, and owner's representative regarding schedule, field discoveries, and replanting consulting based on site characteristics.

Gibbons Creek Alluvial Fan Restoration Project, Steigerwald Lake National Wildlife Refuge, WA

Matt was Restoration Construction Practice Lead for installing engineered log complexes. Biohabitats led all tasks related to access, staging, erosion control, seeding of disturbed areas, and preparation of the site for native plant installation.

Wallooskee-Youngs Restoration Design-Build, Astoria, OR

Matt served as a design-build consultant as part of a multiple-firm interdisciplinary team on this 160-acre project in the Youngs Bay portion of the lower Columbia River estuary. Matt's services included backwater channel design, levee breaching location selection, construction methods and sequencing design, and fish rescue/site dewatering design plan development. Matt played a critical role in negotiations with National Marine Fisheries Service regarding fish salvaging.

Fee-Simon Tidal Wetland Restoration, Clatsop County, OR

Matt led Biohabitats' construction efforts on this important estuary restoration project. His duties included construction scheduling and sequencing, equipment selection, and erosion and sediment control efforts aimed at preventing and reducing turbidity. Matt's unique levee breaching construction techniques focused on reducing exposure to tidal influences by removing the interior portions of each breach location prior to the final breaching and tidal reintroduction. This allowed most of the work to occur independently of the tidal influence.



Todd Alsbury

Aquatic Ecologist / Fisheries Biologist

Todd brings more than 25 years of experience to his focus on watershed/aquatic habitat assessment, habitat restoration strategic planning and prioritization, water quality monitoring, regulatory permitting and compliance monitoring, and biological assessments. He has over two decades of service as a fish biologist. For 15 of those years he served as a District Fish Biologist for the Oregon Department of Fish and Wildlife in both the Cascade Unit of North Willamette Watershed District (NWWD) and the Coast Unit. He formulated and implemented recommendations and management actions for maintaining or improving fish populations and their respective habitats and managed public access sites for angling throughout the NWWD. In addition to his skill in fish habitat restoration planning and implementation, fish habitat monitoring, and Endangered Species Act (ESA) fish salvage/scientific take permit specialist, Todd's experience with regulatory permitting and compliance monitoring will benefit the project.

EDUCATION

B.S., Wildlife Biology (Aquatic emphasis),
University of Montana, Missoula

REGISTRATION & TRAINING

Oregon Construction Contractor

24-hour HAZMAT

First Aid/CPR

Portland State Univ.-Executive Seminar
Program (Columbia River Channel Dredge/
Maintenance)

PUBLICATIONS

Alsbury, L. T. 2019. Abernethy Creek
Watershed - 2019 Rapid Bioassessment
Stream Habitat Inventory & Fish
Distribution Analysis: Findings and
Restoration Opportunities. Prepared for
the Greater Oregon City Watershed Council

Alsbury, L.T. 2021. Strategic Restoration
Action Plan for Native Fish in the
Abernethy Creek Watershed – [http://
www.gocwc.org/wp-content/
uploads/2021/07/Abernethy_
StrategicRestorationActionPlan_Final.pdf](http://www.gocwc.org/wp-content/uploads/2021/07/Abernethy_StrategicRestorationActionPlan_Final.pdf)

RELEVANT EXPERIENCE

Sandy Basin Hatchery Fish Management Program, OR

Managed operation, maintenance, and program reporting on operation of three adult fish collection sites in the Sandy Basin. River-wide picket weirs and adult traps were used to sort hatchery and wild fish, allowing wild fish to migrate upstream to spawn with wild counterparts.

Hagg Lake Dam Raise Scoping Process, Washington County, OR

Met with Clean Water Services and state and federal regulatory agencies to review the proposal and provided mitigation options to offset impacts from modifying the dam. Assessed Balm Grove Dam and other passage barriers in the Tualatin Watershed to determine mitigation options to address ODFW's exemption to providing fish passage at the modified Hagg Lake Dam (which requires mitigation to offset impacts). Assessed habitat in tributaries upstream of Hagg Lake and Balm Grove Dam on Gales Creek as well as Scoggins Creek to determine if habitat restoration actions could offset impacts from the proposed dam raise.

Marmot Dam Removal, OR

With the work group, planned fish protection and fish passage during dam removal operations. Work included large scale fish salvage at the base of the dam once water was diverted around the dam and work reach. Thousands of Pacific lamprey and hundreds of juvenile salmonids were salvaged during dam demolition project. Assisted Portland General Electric with trapping and sorting adult salmonids that were provided upstream passage during all phases of the dam removal effort.

Little Sandy Dam Removal, OR

Participated in the Marmot Dam Decommissioning Workgroup that planned salvage and fish protection measures during removal of Little Sandy Dam and Roslyn Lake (Little Sandy Dam forebay). Work included salvage of trout and juvenile salmonids that were trapped in Roslyn Lake which was removed as part of Little Sandy Dam decommissioning.

Relevant Experience



Biohabitats is uniquely qualified to achieve a high level of success for the Department of Corrections with the MIS-WWTP and LOSS Design. As a global leader in both onsite wastewater management and aquatic restoration, Biohabitats excels at the defined work, and we also deeply understand the motivation behind removing the current wastewater outfall and can help move toward restoring Southern Puget Sound's shellfish ecosystem. Following this short outline of critical strengths of Biohabitats, we have shared several project profiles that illustrate the typical scope, size and complexity of our work and what *attributes* were used to meet goals similar to the MIS-WWTP and LOSS Design. Each profile identifies *delivery methods, original budget and actual costs. References* are also provided.



Resilient Infrastructure

Biohabitats focuses on bringing a “One Water” approach to management of wastewater, stormwater and other water resources. Biohabitats has planned, designed and permitted onsite wastewater treatment systems in over 20 states and more than a dozen countries around the world. We are often called upon to evaluate and upgrade sites with failing and/or dated wastewater infrastructure, especially near sensitive aquatic ecosystems. Biohabitats’ 40 years of experience includes a wide range of collection, treatment and dispersal technologies and systems. Our staff includes engineers, operators and field technicians with decades of decentralized wastewater commissioning, startup, operations and maintenance experience.



Local Understanding

Biohabitats deeply understands both Washington’s On-site Sewage Systems (OSS) and Large On-site Sewage Systems (LOSS) regulatory frameworks. Additionally, as an integrated team working in and around the Cascadia region’s rivers, wetlands and coastlines we have experienced first-hand the current climate challenges facing McNeil Island. We also know that one of the WWTP’s biggest challenges are the seasonal infiltration and inflow fluctuations from aging and abandoned infrastructure. We have successfully permitted wastewater systems in Washington and have a great relationship with both County and State regulators. As an example, Island County Public Health Department just selected Biohabitats to lead a regional planning effort to define Innovative Wastewater Solutions for their northern Puget Sound communities.



Thought Leadership

Biohabitats’ staff regularly contributes to and participates in regional and national advocacy and educational efforts, such as those led by the National Blue Ribbon Commission for Onsite Non-potable Water Systems, WaterReuse, the U.S. Water Alliance’s One Water initiatives, EcoDistricts, the International Living Future Institute, US Green Building Council, the Society for Ecological Restoration, and the American Ecological Engineering Society. We are regularly invited to present at regional and national conferences related to water treatment, water reuse, sustainability, ecological design, aquatic restoration, and biodiversity.

Innovation

Biohabitats excels at pinpointing a client’s core need and developing innovative solutions. One example is a long-standing client Serenbe, a mixed-use development with a community wastewater system. It had been successfully operated for years, but operators had difficulty keeping track of maintenance activities and needed tasks. Biohabitats developed a GIS-based asset tool that provides maintenance staff with the ability to track and maintain wastewater infrastructure data, equipment condition, needed actions, and more. Biohabitats worked with the maintenance staff to host their own GIS portal and trained staff to utilize and expand their interactive map capabilities.



Mt. Baker Ski Area

Mt. Baker Ski Area

Bellingham, Washington



Mt. Baker Ski Area

A ski area enhances environmental protection with new and upgraded onsite wastewater infrastructure.

SERVICES

Water Systems Design
Permitting
Post-construction Monitoring and Support

DELIVERY METHOD

Design-Bid-Build

PROJECT BUDGET

Original: \$288,548.50
Completed Costs: \$288,548.50
(\$310,000 with ongoing support)

REFERENCE

Gwyn Howat, CEO, Executive VP
Mt. Baker Ski Area
gwyn@mtbaker.us

Located in the Mt. Baker-Snoqualmie National Forest, the Mt. Baker Ski Area (MBSA) is one of few remaining independently operated ski areas in the U.S. When the MBSA Heather Meadow onsite wastewater system was declining, and potentially threatening the surrounding environment, they turned to Biohabitats.

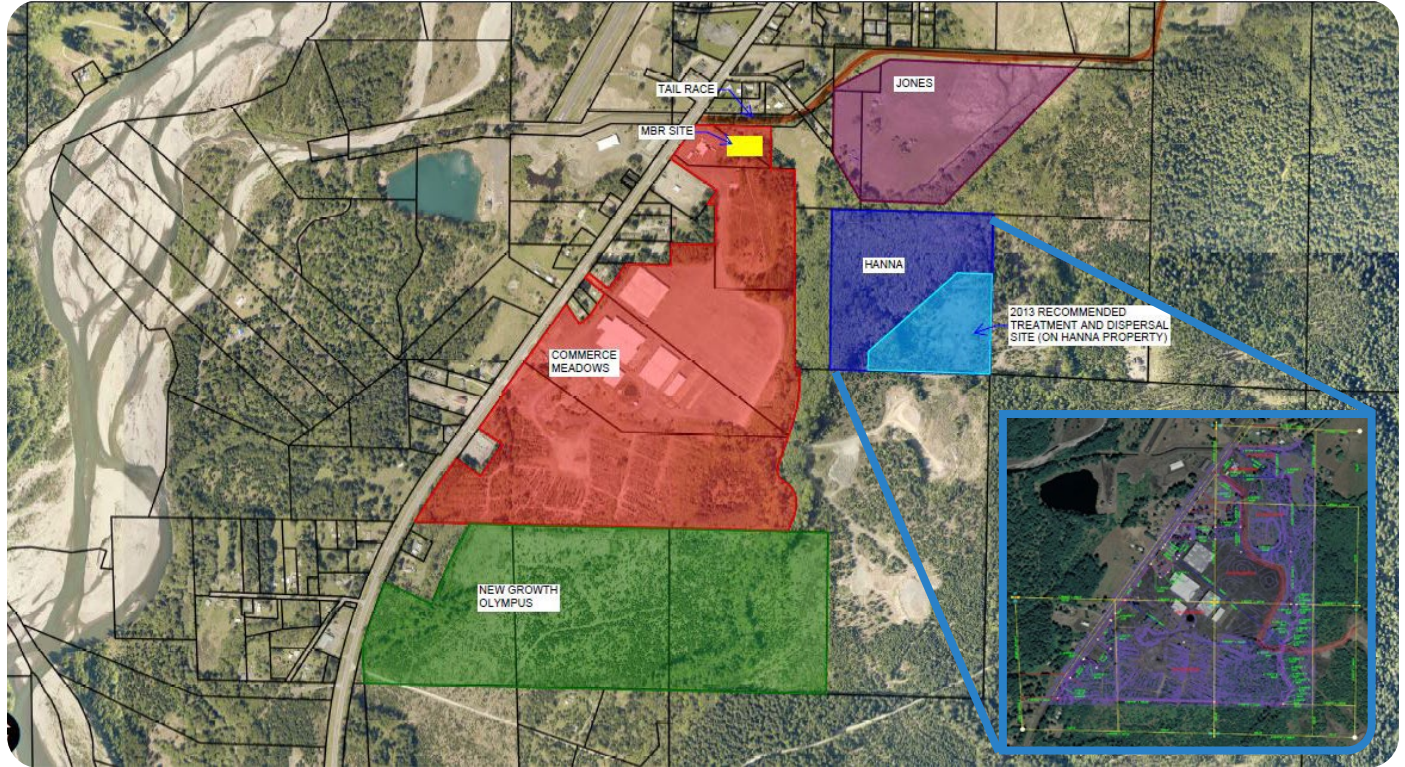
Originally built in the 1970s and permitted by Whatcom County, the system included gravity collection, a wastewater treatment plant, and a dispersal drainfield. In 2019, the drainfield experienced failure, and it was determined that oversight by the Washington Department of Health's Large On-Site Sewage System (LOSS) program would be prudent. Biohabitats helped MBSA upgrade its system to meet LOSS permit requirements and better protect the surrounding environment.

Biohabitats began by conducting a water audit to examine all contributions to the wastewater system and evaluating treatment and dispersal equipment. Biohabitats helped repair the failing drainfield, thereby preserving an existing asset, and added 12 new drip dispersal areas. The design called for replacing outdated treatment components and adding new controls and monitoring equipment. With guidance and supervision from Biohabitats, MBSA has been operating the system and managing their LOSS permit successfully ever since. Ongoing monitoring of the system shows improvements in both performance and environmental protection. Biohabitats and MBSA continue to work together to operate and monitor infrastructure and look for additional opportunities to upgrade the system.

Lewis County Public Works

Village of Packwood Wastewater Treatment System

Packwood, Washington



A new community wastewater system protects groundwater and surface waters in Lewis County.

SERVICES

Water Systems Design
Permitting

DELIVERY METHOD

Design-Bid-Build

PROJECT BUDGET

Original: \$256,000
Completed Costs: \$81,650, and ongoing

REFERENCE

Michael Starling, PE
Project Manager/Senior Project Engineer
HDR (Prime)
michael.starling@hdrinc.com

Building on a previous alternatives evaluation for a Large On-Site Sewage System (LOSS), the Lewis County Public Works Department sought expertise in sanitary sewer collection and treatment design for the engineering and permitting for a new LOSS, which could include elements such as roadway improvements, utility coordination, right-of-way, environmental impacts and mitigation, public engagement, agency coordination, and permitting.

An integrated team consisting of HDR (collection lead), Kennedy Jenks (treatment lead), and Biohabitats (dispersal lead) are working on crafting and community wastewater solution able to treat up to 80,000 gal/day. Biohabitats developed a suitability matrix for 5 parcels and prepared a Dispersal Site Selection Technical Memorandum that evaluated the sites' constraints and feasibility. Biohabitats led a soils investigation on 3 parcels in order to produce a final dispersal site recommendation. Biohabitats completed a full soil investigation and submitted a LOSS Pre-Design Report for the selected site. As of summer 2024, the LOSS design is ongoing.

Clean Water Services

Fernhill South Wetlands Natural Treatment System

Forest Grove, Oregon



Former sewage lagoons are converted into a valuable resource that provides wildlife habitat and recreational opportunities as it cools and cleans water that is discharged into the Tualatin River.

SERVICES

Inventory & Assessments
Design
Permitting
Construction Management
Public Outreach
Start-up Assistance

DELIVERY METHOD

Design-Bid-Build

PROJECT BUDGET

Original: \$1.32M (design)
Construction Costs: \$4M

REFERENCE

Diane Taniguchi-Dennis
Chief Executive Officer
Clean Water Services
dennisd@cleanwaterservices.org
503.681.3602

Clean Water Services (CWS), an Oregon utility, wanted to repurpose three former sewage lagoons to enhance treatment at the Forest Grove Wastewater Treatment facility. They turned to Biohabitats to lead the design team. Though the ponds were visited for wildlife viewing, they held untapped ecological and recreational potential.

Biohabitats' design transformed the lagoons into a rich, 90-acre mosaic of surface-flow wetlands that provide natural wastewater treatment while enhancing ecological, recreational, and educational opportunities along the Tualatin River floodplain. The lagoon conversion first involved draining and drying more than 200,000 cubic yards of soil. The design balanced cut and fill and created micro topography to develop a robust, diverse ecosystem. Construction included 750,000 native wetland plants, 3.5 billion seeds, and 180 logs and snags.

The wetland treatment system reduces temperature of wastewater flowing into the Tualatin River. The facility treats 5-18 million gallons per day throughout the year. The project includes a lake to help accommodate diurnal and seasonal variation and give flexibility to provide important ecosystem and infrastructure functions. With wetland hydraulic control structures, CWS can manipulate water levels in the wetland cells to more closely mimic typical seasonal variations and change operational discharges.

Habitat created by open water, mudflat, emergent marsh, scrub-shrub, and upland areas that support a wide diversity of wildlife. The enhanced habitat for waterfowl and shorebirds has made the wetlands an important stopover site on the Pacific Flyway. Birds and wildlife have taken to the site, and human visitors are flocking to enjoy trail improvements, outdoor classrooms, and views of the wetlands. By creating a wetland treatment system that provides benefits in water quality, wildlife habitat, recreation, and education, CWS and Biohabitats are making a long-term investment in the health and resilience of the Tualatin River.

Private Owner

Serenbe Community Wastewater Collection, Treatment and Reuse System

Fulton County, Georgia



Community wastewater collection, treatment, and reuse system coincides with the environmental goals of a model for the future of balanced development.

SERVICES

Integrated Water Strategies
Conservation Planning
Regenerative Design

DELIVERY METHOD

Design-Bid-Build

PROJECT BUDGET

Original: \$280,320
Completed Costs: \$270,000, ongoing

REFERENCE

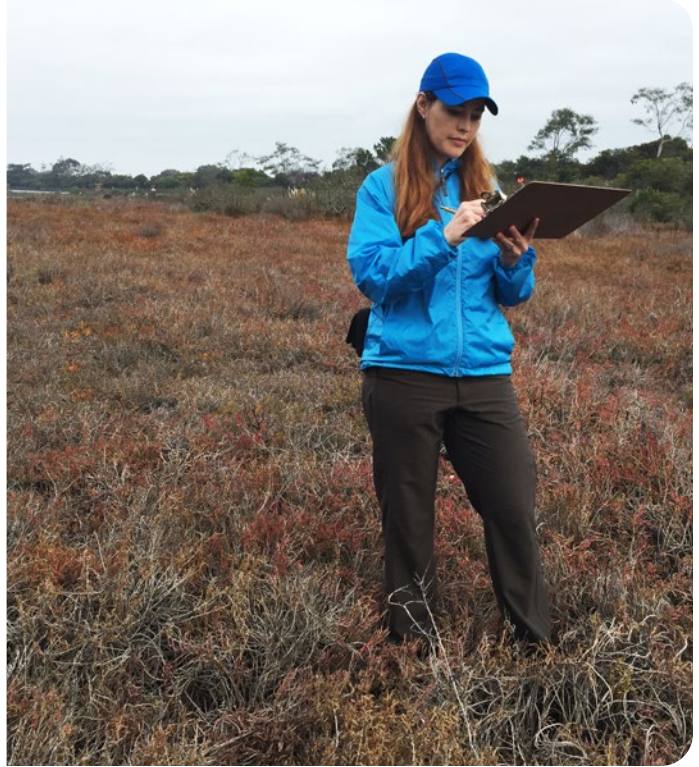
Steve Nygren, Founder & CEO
770.463.9997
steve@serenbe.com

Serenbe is an award winning agrihood community located 30 miles southwest of Atlanta. The 1,000-acre community includes 3 hamlets that contain private homes for over 800 people, galleries, shops, restaurants, stables, a 25-acre certified organic and biodynamic farm, and a 28-room inn with conference facilities. Serenbe's land plan lays out a creative, mixed-use walkable community, while preserving at least 70% of its acreage – typical developments disturb nearly 80%.

Biohabitats designed and permitted a phased community wastewater collection, treatment, and reuse/dispersal systems that supports the development's environmental stewardship goals. A small diameter collection system minimizes construction impact and damage to the environment by following the site's topography and staying within the roadways. The systems consist of primary treatment (septic tanks at each home or cluster of homes), subsurface flow constructed wetlands, recirculating trickle filters (Phase I - sand filters and Phase II - Bioclere™ media filters), and land application dispersal (Phase I - drip irrigation and Phase II - gravel-less chambers). The current permitted system processes 80,000 gal/day.

Biohabitats maintains contracts with Serenbe to advise on water infrastructure operations and future expansion. Biohabitats' technical staff hosts biweekly calls with owners and subcontractors to optimize water infrastructure performance and trouble shoot operational issues. We periodically perform onsite systems assessments and help Serenbe plan for annual capital expenditures and operations and maintenance activities.

Past Performance



The basic needs for the MIS-WWTP and LOSS Design are very similar to many of Biohabitats' projects – assess assets, understand constraints, discover potential, compare alternatives, develop an approach, test implementation, and craft a path forward. Biohabitats is often called upon when conventional engineering approaches are not appropriate or creative solutions are needed to unlock multiple positive outcomes.

Assessing Assets

Assessing and repurposing aging infrastructure has become a passion of our wastewater team. Biohabitats led an assessment, rehabilitation, and enhancement project for the Mt. Baker Ski Area's (MBSA) Heather Meadows WWTP. The WWTP built by the US Forest Service had fallen into disrepair. Careful onsite inspection of the collection sewer, treatment equipment, and dispersal fields, as well as review of past performance, flow data, and staff operational capacity helped craft system improvements and earn a new LOSS permit for the MBSA.

Understanding Constraints

A comprehensive understanding of constraints includes understanding property/site history, soils, hydrology, vegetation, climate variability, electrical reliability, staff capacity, regulatory framework and more. An example of a deep dive into understanding constraints was when Biohabitats led investigation efforts for the Village of Packwood, Washington's new LOSS dispersal system on an old lumber

mill on the edge of town. Careful effort was made to overlay all the different information and communicate that back to the client (Lewis County, Washington) in order to make informed decisions about what is feasible and what is best to meet the needs of the community.

Discovering Potential

We examine multiple benefits and criteria to help clients select appropriate alternatives that best align with their values. Below is a sample of values alternative matrix we used to outline the potential of select wastewater system alternatives for the new Yellowstone Youth Campus, in Yellowstone National Park. This value weighted matrix helped our team and client narrow down which alternatives were worth comparing, saving time and money for the client (National Park Service). See Figure 1.

		Alternative A	Alternative B	Alternative C	Alternative D	
	FACTOR WEIGHT	Sand Filter	Trickling Filter and Constructed Wetland	Textile Filter	Membrane BioReactor (MBR)	
Environment	Habitat Value	2	8	0	0	Ranking
		6	24	0	0	Value
	Minimize Embodied Carbon/Energy	5	6	4	2	Ranking
Environment	Minimize Environmental Impacts	8	5	6	4	Ranking
		40	48	32	16	Value
	Potential for Public Benefit	10	4	8	2	Ranking
Culture	Innovation	5	4	8	6	Ranking
		20	40	30	20	Value
	Aesthetic Value	10	4	7	1	Ranking
Health	Regulatory Challenges and Acceptance	4	8	4	8	Ranking
		32	16	32	8	Value
	System Resiliency	8	7	9	7	Ranking
Flexibility	Minimize Single Purpose Footprint	8	5	7	1	Ranking
		40	56	8	16	Value
	Operations & Maintenance	10	7	5	6	Ranking
Flexibility	Modular Construction/ Scalability	6	8	7	9	Ranking
		48	42	54	36	Value
	TOTAL		427	540	330	220

Figure 1 - Wastewater system alternatives values matrix for the new Yellowstone Youth Campus



Figure 2 - Alternative analysis graphic used to illustrate elements of comparison for various wastewater projects shown here.

Comparing Alternatives

Once appropriate alternatives are selected, Biohabitats will produce a comprehensive analysis for typical parameters like cost, footprint, and performance, as well as important functional considerations like energy use, O&M intensity, and sludge production. See Figure 2.

While there are a variety of treatment alternatives that can be explored, it is not unusual that the fate and transport of wastewater for dispersal is even more important. Often, how treated wastewater is returned back into the environment has the most complexity, constraints, and concerns. Dispersal options, soil and groundwater dynamics, and surface water resources will be examined for the best McNeil Island solution.

Developing an Approach

Often an alternatives study illuminates clear direction. However, sometimes the eventual solution may be a hybrid solution, or a selected alternative has an unforeseen fatal flaw. One technique we use occasionally is the development of a project Technical Advisory Group (TAG) to share our findings in order to provide insight and calibration through project design. A project TAG can comprise a combination of industry experts, academics, and/or regulatory members.

A TAG was used for the Fernhill Wastewater Treatment Wetland project in Forest Grove, OR for Clean Water Services. The TAG reviewed preliminary planning and several design stage deliverables of a 90-acre treatment wetland and flow equalization/temperature control lake complex that treated 5-18 million gal/day between dry and wet season conditions.



Crafting a Path Forward

Early, frequent and effective communication between our team and regulatory authorities is key to ensure the selected alternative is not only feasible but resilient to the many variables at play on McNeil Island. Biohabitats often work in a very iterative process, allowing for ideas, rumination, and discussion. We take care to provide clients with a schedule that moves things forward while allowing time to craft a path forward. Once a solution is identified, Biohabitats is a full-service provider and can assist with design, permitting, bidding, construction, commissioning, system start-up, training, and operations. Additionally, as previously mentioned Biohabitats has a deep understanding of the Puget Sound ecosystem and its regulatory framework. We can work to understand what is needed to decommission the existing wastewater outfall and eventual restoration options.



Life Cycle Cost Analysis Experience

A key aspect of final alternative selection is understanding a solution's life cycle implications. Biohabitats will complete a life cycle analysis for the final alternative approach(es). A full analysis includes both existing infrastructure enhancements and new components needed to complete a new approach to wastewater management. Critical components include deep understanding of operational and maintenance considerations, including energy use, third-party operational assistance, sludge production, specialty maintenance tasks and system replacement. Biohabitats has a vast understanding of long-term wastewater operation and management; we are often in the trenches with clients troubleshooting issues, unpacking uncertain results, and optimizing performance. Biohabitats is not just a design firm, we have ongoing wastewater operations, assistance, and advisory contracts with a multitude of clients ranging from:

- » Mt. Baker Ski Area – Bellingham, Washington
Biohabitats reviews monthly data, work with facility staff to optimize treatment performance, and writes an annual report to the Washington Department of Health (DOH) (4th year of operational assistance contract).
- » National Bio Defense Facility (NBAF) - Manhattan, Kansas
Biohabitats hosts weekly check-in calls with onsite wastewater operators to review performance, advises on operational parameters, and suggest system improvements (3rd year of operational assistance contract).

- » Aegis Senior Housing - Seattle, Washington
Biohabitats provides continued training to new wastewater operators and has an on-call contract to support facility staff (1st year of operational assistance contract).
- » Willow School - Somerset County, New Jersey
Biohabitats performs bi-annual maintenance task and operator training (4th year of operational assistance contract).
- » Sidwell Friends School - Somerset County, New Jersey
Biohabitats performs monthly maintenance visits to perform routine maintenance, water quality sampling, and facility training (10th year of operational assistance contract).

It is this operational depth and breadth of knowledge and understanding that ensures our life cycle cost analysis is complete and robust for all clients. Biohabitats provides different levels of Life Cycle Cost Analysis for many of our projects giving confidence that the very best solutions are selected. Our plan is to work together to understand all long-term concerns so that any decision has the full support and confidence of the Washington State Department of Corrections and its stakeholders.

Diverse Business Inclusion Strategies



While Biohabitats is not a M/W/DBE Certified Business, the firm makes every effort to hire and work with diverse staff and consultants/contractors.

Biohabitats is an equal opportunity employer and actively supports diversity in the workplace, long before the proven benefits of varied perspectives, higher innovation, increased engagement, and employee stability. To further support diversity, we add weight to women and minority employment applications, especially for interns who we hope will diversify the ecology and STEM field in general. Our leadership council includes women and LGBTQ community. This reflects who we are rather than a policy. Biohabitats' formal policies to support workforce diversity focus on equitable benefits and diverse inclusion. The firm conducts periodic analysis of salaries to determine fair equity, diversity and inclusion without biases of race or gender. We believe that restoring and conserving the larger ecosystem begins with enhancing our personal and professional environments.

Ecological restoration and water resources engineering needs more BIPOC and women professionals; therefore, Biohabitats focuses on growing a diverse candidate pool through inspired, positive mentorship and collaboration. Our steps toward ensuring a diverse workforce include:

- » Participation in college diversity career fairs.
- » Our female and ethnic minority staff regularly guest lecture at centers of higher learning, encouraging by example success and leadership in the environmental field.
- » Engaging historically black colleges and universities' job boards and career centers to seek diverse candidates.

- » Volunteering with STEM programs at schools to encourage future practitioners.
- » Initiating a summer intern program with Morgan State University in Baltimore to provide minority students with working experience to access STEM jobs with historically low percentages of women and minority professionals. We have two paid interns this summer.
- » Advertising open positions on local veteran and minority group web sites and meeting places.
- » In 2022, Biohabitats became a member organization with Oregon Association of Minority Entrepreneurs (OAME) "to promote... economic development for ethnic minorities in the State of Oregon & SW Washington and to eliminate systemic discrimination and racism."

In addition to standard Equal Employment Opportunity and Affirmative Action practices, goals and commitments, Biohabitats has authorized an People & Culture Leader, Katherine Bartter, to report and to represent the company in all matters regarding our Affirmative Action Plan. She has researched and implemented equity pay and human resource practices and is well informed and qualified to implement these policies. The result is Biohabitats has more than doubled diversity hires in the past three years.

We regularly follow a good faith hiring protocol and maintain an active registry for partnering and subcontracting opportunities. We recognize commitments to diverse professional collaborations and will work with the State of Washington and Department of Corrections to address those benchmarks.

Biohabitats has partnered with the following DBE, MBE, WBE, SDV and ESB firms in the Pacific Northwest:

- » Aquatic Contracting LLC
- » All About Flagging
- » D&H Flagging, Inc.
- » Elkhorn Construction
- » Lower Columbia Engineering
- » O'Malley Brothers Corporation
- » PLACE Studio
- » SCAPE Landscape Architects
- » Scholls Valley Native Nursery LLC
- » Statewide Land Surveying
- » Stillwater Sciences
- » Wolf Water Resources, Inc.



Taking a Stance

Biohabitats' mission to *restore the earth and inspire ecological stewardship* permeates the work we do and the way we operate our business. We support initiatives and advocate for causes that work toward a more biodiverse, sustainable, and equitable world.



Certified B Corporations use their business to build a more inclusive and sustainable economy. [View Biohabitats' standards of social and environmental performance, transparency, and accountability.](#)



JUST is a voluntary disclosure tool for organizations to elevate internal discussions, policies, and procedures and create a common language and measurement framework for social justice issues. [See our page in the Just database.](#)



1% for the Planet is a global network contributing to a healthy planet. Biohabitats donates 1% of our sales to environmental nonprofits. [See our donations at work to save the planet.](#)





Restore the Earth & Inspire Ecological Stewardship

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