L. Todd Alsbury
7636 SW Taylors Ferry Road
Portland, OR 97223
(503) 349-8633

Professional Experience

Altap Restoration LLC (May 2019-present)

Principal/Owner

- Watershed/aquatic habitat assessment
- Habitat restoration strategic planning and prioritization
- Water quality monitoring
- Regulatory permitting and compliance monitoring; Biological assessments; Stream Functional Assessment Methodology
- Fish exclusion and salvage for instream construction and restoration projects

Cascade Environmental Group (Feb. 2019-present)

Senior fish Biologist

- Fish habitat restoration planning and implementation, fish habitat monitoring, and ESA fish salvage/scientific take permit specialist
- Watershed & wetland assessment
- Regulatory permitting and compliance monitoring

Oregon Department of Fish and Wildlife (2002 – Jan. 2019)

District Fish Biologist (2004-Jan. 2019)

- Coordinate and implement fish resource management activities in the Cascade Unit of North Willamette Watershed District (NWWD) from 2004-2019 and the Coast Unit from 2004-2012.
- Responsible for the collection of biological information on fish populations and physical information on the quantity and quality of fish habitat in the district.
- Formulate and implement recommendations and management actions for maintaining or improving fish populations and their respective habitats.
- Provide technical information on fisheries related matters the public, landowners, and other agencies.
- Manage public access sites for angling throughout the NWWD.

Assistant District Fish Biologist (2003 -2004)

Stream Restoration Biologist (2002-2003)

Education

1992-1997 *University of Montana, Missoula, Montana*
Bachelor of Science in Wildlife Biology (Aquatic emphasis)

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

Certifications/Special Skills

- Assessing culverts and other instream structures for fish passage (including preliminary survey and cost estimation), anadromous fish habitat surveys and assessments, adult and juvenile salmonid identification.
- Effective implementation of measures to reduce impacts to fish and other aquatic species (e.g., salvage and exclusion of ESA listed fish species) during implementation of stream habitat restoration or other stream altering activities.
- Project management-Coordination and implementation of habitat restoration projects involving large scale construction actions.
- 24-hour HAZMAT
- First Aid/CPR
- Portland State Univ.-Executive Seminar Program (Columbia River Channel Dredge/Maintenance)
- Oregon Construction Contractor (CCB#226162)
- Business owned (Altap Restoration LLC) is identified by the Certification Office for Business Inclusion and Diversity as an Emerging Small Business (Certification #13152)

References

John Esler-Portland General Electric (retired)
Hydro License Coordinator
503-705-1786

Brian Vaughn-Metro
Senior Scientist
503-797-1919

Devin Patterson-Clackamas County Department of Transportation & Development
Fish Passage Coordinator
503-720-1663

Relevant Fish Management Experience

- Lower Columbia Conservation & Recovery Plan for ESA Listed Salmon & Steelhead Species (2007-2012)
    - Participated in technical workgroups and committees established to identify limiting factors and threats to ESA listed fish species in the Lower Columbia Evolutionary Significant Unit. Provided direct input on species and habitat status for the Clackamas (including Johnson Creek), Sandy, and Molalla river populations of fish listed under the ESA.

- Stream Temperature Monitoring in the Abernethy Creek Watershed (2018-2019)
    - Conducted temperature monitoring over two seasons in the Abernethy Creek watershed. Investigated sources of heating in the stream that is leading to temperatures that exceed criteria established for salmon and steelhead bearing streams. We determined a reservoir in the watershed is the primary source of heating with an increase of over 12°F (65°F to 77°F) between the upstream reaches to below the reservoir. An increase that can lead to mortality of salmon and steelhead if they are not able to find refuge from the high-water temperature.

- Rapid Bioassessment Stream Habitat Inventory & Fish Distribution Analysis in the Abernethy Creek Watershed: Findings and Restoration Opportunities (2019).
    - Completed a rapid bioassessment of stream habitat in the Abernethy Creek watershed to have up to date information on the status and trends of fish habitat and fish distribution. The rapid bioassessment provided the information needed to complete the Strategic Restoration Action Plan for the watershed.

- Strategic Restoration Action Plan for Native Fish in the Abernethy Creek Watershed (2021).
    - Identified stream habitat restoration actions intended to offset impacts to habitat from various development actions in the watershed. Restoration actions were prioritized based on a set of factors that if implemented, would support recovery and persistence of native fish in the watershed.

- Fish Passage and Stream Temperature Monitoring in the North Clackamas Watershed Council area streams. (2020-present)
    - We are in the 2nd year of a multi-year study to investigate sources of stream heating and locations of cold-water refuge for salmon and steelhead in NCWC area streams. The goal of the effort is to identify specific streams, stormwater sources, or other impacts in the watershed that are contributing to stream heating. Another goal is to identify potential cold-water refuges that could be improved, or access provided to support fish.

- Sandy Basin Hatchery Fish Management Program (2006-2019)
    - 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.
    - Authored Hatchery Genetic Management Plans for Summer Steelhead, Winter Steelhead, Spring Chinook, and Coho Salmon. The plans detailed hatchery operations and management actions to reduce potential negative interactions between hatchery and wild fish in the Sandy River Basin.

EDUCATION/QUALIFICATIONS

MS, Engineering/Geotechnical Engineering, Colorado State University

BS, Civil Engineering, Colorado State University

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer: Oregon (No. 58496PE)

Todd Cotten, PE

Geotechnical Engineer

Todd has 21 years of professional experience which includes a variety of design, construction, and environmental projects, including reservoir tanks, wastewater and water treatment facilities, earth dams, large diameter pipelines, dredging and sediment capping, highway expansion, hard rock tunnels, auger boring, horizontal directional drilling, tunnel grouting, landslide investigation and stabilization, and petroleum refinery facilities. His construction management roles include work on numerous challenging geotechnical sites, roadways, bridges, pipelines, water/wastewater treatment plants, braced excavations, ground improvement, and trenchless pipeline installations.

As a geotechnical engineer Todd has worked extensively on the design of shallow and deep foundation systems and has extensive design and construction management experience with large earthwork projects that involve excavation, transport, and reuse or disposal of soil and rock, and engineering control of fill placement. He has experience developing contract documents for construction projects, including geotechnical baseline reports that establish the contractual understanding of geotechnical and groundwater condition anticipated to be encountered during construction.

Areas of Expertise

- Design and project management experience on a variety of projects including a 1,500-acre state park in Oregon
- Construction management experience on projects with multiple construction firms and subcontracts as resident engineer and project geotechnical engineer

Relevant Project Experience

Geotechnical Engineer; Will Crandall Reservoir; City of Hillsboro; Portland, Oregon. This $26M project includes a 10-MG AWWA D110 wire wound concrete reservoir and 20 MGD pump station. The soils at the project site were determined to be highly susceptible to seismic induced liquefaction to depths of up to 100 feet. Alternative methods evaluated for mitigation of the liquefiable soils beneath the reservoir and pump station included deep driven piles, cement deep soil mixing (CDSM), and jet grouting. CDSM was selected as the least cost and least disruptive alternative and an extension ground improvement program was incorporated into the contract. Assisted with the assessment of liquefaction potential, assessment of mitigation alternatives, development of earthwork and ground improvement specifications, and coordinated with construction management staff to perform geotechnical observations during construction.

Geotechnical Design Lead; 85 MGD Water Treatment Expansion Project; Joint Water Commission, Hillsboro, OR. Project included expansion of facility water treatment capacity to 85MGD (from 75MGD) through design and construction of new filters and sedimentation basins available. Also included was a new 0.25MG surge basin, and two new engineered solids drying beds. Led the geotechnical field exploration and analyses, including seismic evaluations and design of deep foundations for new facilities. Unique to this project was the inclusion of all new facilities on auger cast piles (134 ttl) ranging in size from 24" to 36", drilled to a dense bearing layer 80' bgs for seismic stability. The project also incorporated earthquake resistant pipe (ERDIP), up to 48" in size. Involvement

included leading the geotechnical observations of the site grading, dewatering, excavation, pile installation, and construction approximately 2,000 lf of earthen embankment for the new solids drying beds. This project was constructed using the CM/GC delivery platform with the contractor and was completed in mid-2020.

Geotechnical Design Lead, Vancouver Water Station 5, City of Vancouver, Vancouver, WA. Lead geotechnical engineer for the design of two 4.0-million-gallon prestressed, post-tensioned concrete reservoir and a pump station. Led the planning and implementation of geotechnical field explorations and developing geotechnical concepts and recommendations for reservoir and site facility foundations. Ongoing project.

Geotechnical Technical Reviewer, Vancouver Water Station 1, City of Vancouver, Vancouver, WA. Led planning and completion of geotechnical explorations and served as technical reviewer of geotechnical evaluations, specifications, and drawing development for design of two 4.0-million-gallon prestressed, post-tensioned concrete reservoir and a 1.0-million-gallon steel standpipe reservoir. Unique to the project was construction of a sand-bentonite low-permeability layer below the two large reservoirs to serve as a leak detection barrier.

Geotechnical Engineer, East Park Reservoir, Philadelphia, PA. Involved as geotechnical engineer during the design phase of the project, which included the design and construction of three 400-foot diameter, 32-MG precast/pre-stressed water storage tanks. The work involved evaluation of options for rehabilitating or replacing an existing 147 MG earthen basin reservoir, constructed over 130 years ago. The three tanks total capacity of 96 MG makes the facility the largest of their type on the Eastern seaboard. Geotechnical design included developing sequencing for removing a portion of the earthen berms of the reservoir, while protecting other segments of the berms to allow sequenced construction of the new tanks while maintaining partial storage capacity of the existing reservoir. Upon retirement of the geotechnical design lead, my role expanded to be the geotechnical design lead responsible for review of contractor submittals, RFIs, and design changes during construction. Early completion of the design for the third reservoir, part of a separate work order, resulted in almost $4 million in savings in earthwork costs to the City of Philadelphia.

Geotechnical Engineer, Tuefel Reservoir and Pump Station, Tualatin Valley Water District, Beaverton OR. Geotechnical engineer responsible for field exploration, and geotechnical evaluations for design and construction a 2-MG prestressed concrete reservoir, a 1,500-gallon-per-minute (gpm) pump station, and associated utility connections.

Geotechnical Engineer, Saltstone Disposal Unit 7, Savannah River Site, SC. Responsible for design of secondary containment layer consisting of multiple geomembrane layers beneath 32 million-gallon D110 Type I pre-stressed concrete tanks for containment of low-level radioactive saltstone grout for Savannah River Remediation. The tanks were designed to accommodate seismic interactions with partial height, solid grout fill in addition to thermal gradients across the tank wall system resulting from hydration of the grout. The Saltstone Disposal Unit 7 tank was completed in 2020.

Geotechnical Engineer, Fairview Water Reservoir Slope Stability Analysis, Fairview, OR. Provided static and dynamic slope stability analysis of a 2-million-gallon steel water reservoir. Performed slope stability analysis using PCSTABL5 computer program and prepared a technical memorandum providing results of the analysis.

Geotechnical Engineer, Field Exploration for Hunters Heights Reservoir, Clackamas River Water District, Clackamas, OR. Coordinated and completed a field exploration consisting of drilling, rock coring, and test pit explorations, and assisted in selecting a laboratory test program for a proposed 1-million-gallon water storage reservoir. Also assisted in preparing a geotechnical data report for the project.

Geotechnical Engineer, Wilsonville Wastewater Treatment Plant Expansion, Wilsonville, OR. Completed a field exploration and assisted in performing geotechnical analysis of settlement, bearing capacity, lateral earth pressures, and underdrain design. Assisted in providing recommendations for earthwork specifications, control of water, and foundation and underdrain designs. Assisted in preparation of geotechnical reports, technical reports, construction specifications, and construction drawings.

Geotechnical Engineer, Groundwater Treatment Facility Geotechnical Exploration, Springfield, OR. Performed a geotechnical exploration and prepared a technical memorandum for a proposed groundwater treatment facility. The memorandum described the field exploration and laboratory test program and summarized recommendations for support of foundations, site preparation, seismic considerations, and general earthwork.

Geotechnical Engineer, Preliminary Engineering Design and Construction for Water Storage Reservoirs, Medford, OR. Provided geotechnical services for preliminary engineering design information for design and construction of three concrete water storage reservoirs. Performed the geotechnical field exploration, assisted in selecting a laboratory test program, performing engineering analyses, and preparing a geotechnical report for each of the three reservoirs. Engineering analyses included seismic assessment, bearing capacity and settlement, and lateral earth pressures. Also assisted in preparing recommendations for site preparation and structural fill.

Geotechnical Task Lead, Klamath Falls Bioenergy Facility, Northwest Energy Systems Company, LLC, Klamath Falls, OR. Geotechnical task lead responsible for development of subsurface investigations, analyses, development of design recommendations and recommendations reports, and addressing regulator questions for the EFSC permitting of a 42-megawatt wood fired biomass incinerator project in southern Oregon. The geotechnical design for the project was complicated by deep (>200 feet) deposits of diatomaceous silt. Preloads were designed as an economical alternative to deep piles to reduce potential settlements of planned facilities to acceptable magnitudes.

Geotechnical Task Lead, Aurora Reservoir Water Treatment Facility Lagoons, City of Aurora, Aurora, CO. Led a multi-office design team responsible for designs for five water holding lagoons, three of which were classified as Jurisdictional Dams and subject to Colorado Dam Safety reviews and regulations. Provided oversight of a subconsultant executing a large field exploration program. Responsible for geometric layout, seepage, slope stability, and settlement analyses, and for developing design concepts for construction of earth embankments. As lead embankment designer, was responsible for developing drawings and specifications for the lagoons and submitting construction documents for Colorado Dam Safety review and permitting. Participated in services during construction with review of RFIs, submittals, and site observations of earthwork. Utilized Project Contract Manager (PCM) for tracking, reviewing, and responding to RFIs and submittals.

Geotechnical Task Lead and Project Manager, Silver Creek Reservoir Potential Failure Modes Analyses, City of Silverton, OR. Geotechnical lead for review and assessment of a Potential Failure Modes Analyses (PFMA) conducted by the USACE to evaluate significant and credible failure modes and develop a Capital Improvements and Maintenance Plan for addressing potential failure modes. Coordinated review activities with Oregon Department of Water Resources Dam Safety Engineer and USACE staff.

Senior Geotechnical Consultant, Kinyon Pond, Twin Falls Canal Company, Castleford, ID. Senior geotechnical engineer for design of reregulating reservoir for Twin Falls Canal Company in southern Idaho. TFCC provides irrigation water for agricultural users; the new reregulating reservoir will allow TFCC to better serve users needs by providing additional storage in the area and also avoid spilling (wasting) water during wet events. The reservoir will be 200 acre-feet in capacity with a dam providing approximately 8 feet of statutory height (distance from maximum pool elevation to downstream toe of dam). Project is underway and geotechnical evaluations will include settlement, seepage, and slope stability analyses. Design will also include the following appurtenant structures: inlet structure and channel, outlet structure and pipeline, and broadcrested weir structure.

Geotechnical Engineer, Lane City Reservoir, Lower Colorado River Authority, TX. Design of new 40,000 AF off-channel reservoir and associated conveyance facilities. Specific reservoir design elements included a 5.2 mile-long, 40-foot-high compacted earthen embankment; 5.2-mile-long soil-bentonite seepage barrier; internal embankment filter/drain system. Evaluated soil cement liner alternatives versus geomembrane alternatives for water side embankment slope protection. Performed onsite observation of deep foundation installation for associated bridges and intake facilities.

Sarah Hartung, PWS

Senior Ecologist

EDUCATION

M.S., Avian Ecology, University of Illinois

Bachelor of Arts, Biology, Hamline University

25 YEARS' EXPERIENCE

CERTIFICATIONS/ REGISTRATION

Professional Wetland Scientist (PWS): #2933

Oregon Department of Transportation Consultant Qualification for Providing Endangered Species Act Documentation

Sarah is a senior ecologist with 25 years of experience in natural resource planning, permitting, mitigation strategies, and habitat restoration. Sarah has successfully supported numerous infrastructure improvement projects with complex regulatory issues in riparian, wetland and upland environments. Sarah's expertise is in avian (bird) ecology, but she has a broad understanding of wildlife biology and the habitat requirements of other animal groups including mammals, amphibians, and fish. Through her attention to detail and technical accuracy, Sarah has gained the trust of local and regional regulatory agencies including DSL, DEQ, ODFW, USFWS, USACE. She recently provided expert testimony for a glamping project in Klickitat County, Washington where she demonstrated how the project balanced conservation of Western Gray Squirrel habitat with the proposed seasonal camping facility on former timberland.

Relevant Experience

Under Canvas Columbia River Conditional Use Permit, Klickitat County, WA. *Senior Scientist.* Sarah and the ESA team provided a suite of services to facilitate county approval of this glamping project including wetland delineation, local land use permits, and testimony during an appealed land use decision to describe avoidance/minimization measures related to Western Gray Squirrel Habitat. The project was approved in 2020.

Site Conservation Plans (SCPs) and Ecological Enhancement Plans (EEPs), Hillsboro, OR. *Senior Scientist.* From 2017 to 2023, Sarah served as lead author assisting Metro and Clean Water Services with updating their respective habitat conservation plans for several sites including: Brown Natural Area, King's Bend, Baker Creek, and Dairy McKay.

Metro Target Area Ecological Assessment - Cooper Mountain, Portland, OR. *Senior Ecologist.* Sarah led the field assessment of wildlife passage barriers and opportunities for restoration, reviewing previous plans and studies for the area, and preparing the target assessment report for review on an expedited schedule.

Bear Creek Revisioning Plan, Ashland, OR. *Project Manager.* ESA compiled a suite of existing data on natural resources and cultural/historical resources to assist with planning and future expansion of the 20-mile Regional Greenway. Sarah oversaw preparation of a technical memo which will help inform the next steps of trail management planning.

Bull Run Water Filtration Project, Troutdale, OR. *Senior Ecologist.* Sarah conducted streaked horned lark surveys according to USFWS-approved protocol for this project in 2021 and prepared a tech memo describing methods and finding – no federally threatened larks were observed.

Waite Ranch Tidal Wetland Restoration - Permitting and Design Services, Florence, OR. *Senior Ecologist.* Sarah oversaw preparation of several local, state and federal permit applications and studies including: JPA (Corps and DSL), biological assessment (USFWS), Type II Floodplain Permit and Natural Estuary Review and Riparian Enhancement. She facilitated expedited review of permits to allow construction to begin in 2023.

RICK MINOR, PhD, RPA
Principal Investigator/Senior Archaeologist

HERITAGE RESEARCH ASSOCIATES, INC.
1992 Fairmount Blvd.
Eugene OR 97403
(541) 485-0454
rickminorhra@aol.com

EXPERIENCE:

Rick Minor has over 50 years of experience as a professional archaeologist specializing in both prehistoric and historical archaeology in the Pacific Northwest. He has authored or co-authored more than 50 peer-reviewed professional publications and well over 450 technical reports ranging from archaeological site testing and data recovery reports, cultural resource overviews for federal agencies, specialized studies involving obsidian hydration analysis, analysis of archaeobotanical remains, and historical archaeology. Minor has worked throughout Oregon and has special expertise in the archaeology of the Columbia River region, interior valleys, and the Pacific Coast, having carried out many projects for the USACE Portland District, USDI Bureau of Land Management, USDA Forest Service, Oregon State Parks, and other clients.

From 2005 to 2013 Minor directed archaeological investigations carried out by HERITAGE while serving as the principal archaeological consultant for the Columbia River Crossing Project, the proposed replacement of the Interstate 5 bridges over the Columbia River. This complex project involved discovery and evaluation of both prehistoric and historical archaeological resources, the latter around Fort Vancouver and in Old Vancouver on the Washington shore. Because the time depth in the project area extends back some 12,000 years, the CRC project had a strong geoarchaeological component. Collaborating closely with geomorphologist Curt D. Peterson (Professor, Geology Department, Portland State University), four spin-off articles from research connected to the CRC Project have been published in peer-reviewed professional geology/geomorphology journals.

From 2009 to 2018 Minor served as an Instructor in the Historic Preservation Program at the University of Oregon, where he taught the course "Historical Archaeology in Historic Preservation." This graduate seminar is designed to familiarize students with the practice of historical archaeology, especially in terms of ways in which this broad field of study (post AD 1500 in the New World) overlaps with preservation of the historic built environment. In teaching this course, Minor draws on experience directing archaeological investigations at a broad range of historic sites in Oregon and Washington, ranging from Contact-era Indian sites, to U.S. Army posts (e.g., Fort Orford, Fort Lugenbeel), to urban archaeology (e.g., in Portland, Vancouver, and Eugene), to industrial archaeology (e.g., Willamette Falls Locks, Oswego Iron Furnace).

As a co-author of numerous cultural resource overviews, Minor has synthesized archaeological information for the Willamette National Forest (1977, 1987), the BLM Eugene (1980), Coos Bay (1980), and Salem Districts (1981), Siuslaw National Forest (1982), Umpqua National Forest (1992), and Columbia Gorge National Scenic Area (1988). Minor contributed to preparation of the Cultural Resource Overview and Assessment (CROA) for the Western Oregon Bureau of Land Management, which included organizing records on 2500 cultural resource sites and 700 isolated finds into the BLM's GIS database to arrive at an updated assessment of information about the prehistoric and historic period peoples of western Oregon. Brief profiles summarized what is known about the ethnography, archaeology, and history of 39 subbasins in the Coast Range and Willamette Valley of northwestern Oregon (2019).

As Senior Archaeologist for HERITAGE, duties for all projects include development, direction, and execution of fieldwork for both prehistoric and historical archaeological projects, as well as data analysis and interpretation, report preparation, specialized analyses, and miscellaneous contract administration and liaison duties.

EDUCATION:

Ph.D.	Anthropology, 1983, University of Oregon
M.A.	Anthropology, 1975, University of Oregon
B.A.	Anthropology, 1972, California State University, Fullerton

PROFESSIONAL EMPLOYMENT:

Principal Investigator/Senior Archaeologist, Heritage Research Associates, Inc. (Eugene). 1980-present
Contract Archaeologist, Department of Anthropology, University of Oregon. 1977-1980
Research Associate, Oregon State Museum of Anthropology, University of Oregon, 1988-1996
Adjunct Instructor, Historic Preservation Program, University of Oregon. 2009-2013
Instructor (NTTF), Historic Preservation Program, University of Oregon, 2014-2018
Instructor (NTTF), Clark Honors College, University of Oregon, 2018

PROFESSIONAL AFFILIATIONS:

Society for American Archaeology,, Register of Professional Archaeologists, Association of Oregon Archaeologists, Society for Industrial Archaeology, Society for Historical Archaeology, Archaeological Conservancy (Life Member)

GRANTS AND AWARDS:

Vogel Prize, with co-author Susanna Kuo, from *IA: The Journal of the Society for Industrial Archaeology*, 2021
DeMuro Award for Excellence in Preservation, Reuse, and Community Revitalization from Restore Oregon, 2013
National Preservation Honor Award from the National Trust for Historic Preservation, 2012
Oregon Sea Grant, 1989-1991
National Endowment for the Humanities Travel Grant, 1988-1989
Oregon State Historic Preservation Office grants, 1978-1980, 1982-1985, 1990-1993
National Science Foundation Doctoral Dissertation Grant, 1977-1978

OTHER PROFESSIONAL ACTIVITIES:

1984-2014 Peer reviewer for *Journal of Northwest Anthropology*, *American Anthropologist*, *Tebiwa, The Journal of the Idaho Museum of Natural History, American Antiquity, American Indian Quarterly, Ethnohistory, Journal of Field Archaeology, Journal of California and Great Basin Anthropology, Oregon Historical Quarterly, IA: The Journal of the Society for Industrial Archaeology*

1978-1994 Preparer of successful *National Register of Historic Places* nominations for seven archaeological sites in western Oregon

1991-1993 Principal Investigator for U.S. Forest Service's *Passport in Time Program* excavations at Cape Perpetua and Hauser shell middens on the central Oregon Coast

1988-1990 Preparer of archaeology and ethnology notes for Volumes 6 and 7 of *The Journals of the Lewis and Clark Expedition*, edited by Gary E. Moulton, University of Nebraska Press

RECENT PUBLICATIONS:

2023 Geoarchaeological Record of the AD 1700 Earthquake and Tsunami at the Salmon River Wet Site, Central Oregon Coast. *Northwest Science* (with Alan R. Nelson) (In Press)

2023 The Archaeological Potential of Artificial Ground: A Case Study at the "Lowell of the Pacific," Oregon City, Oregon. *Historical Archaeology* (with Linda P. Hart and Kathryn A. Toepel) (In Press)

2020 Preserving the Historic Military Landscape at Camp Adair: A U.S. Army World War II Combat Training Camp in the Willamette Valley, Northwestern Oregon. In *Preserving U.S. Military Heritage: World War II to the Cold War*, pp. 41-48. Friend of NCPTT [National Center for Preservation Technology and Training], Natchitoches, LA. (with Kathryn A. Toepel)

2019 Building the Oregon Coast Highway: An Oral History of the 1931-1932 Work Camp at the Cape Creek Bridge, Lane County, Oregon. *Oregon Historical Quarterly* 120(1):100-121 (with Clyde E. Manning)

2018 Enduring Legacy: Geoarchaeological Evidence of Prehistoric Native American Activity in the Post-Industrial Landscape at Willamette Falls, Oregon. *Journal of Northwest Anthropology* 52(1):63-82) (with Curt D. Peterson)

2017 Native American Fisheries of the Southern Oregon Coast: Fine Fraction Needed to Find Forage Fish. *Journal of California and Great Basin Anthropology* 37(2):169-182 (with Madonna L. Moss and Kyla Page-Botelho)

2016 Multiple Reoccupations After Four Paleotsunami Inundations (0.3-1.3 ka) at a Prehistoric Site in the Netarts Littoral Cell, Northern Oregon Coast, USA. *Geoarchaeology* 32(2):248-266 (with Curt D. Peterson)

2016 The Oswego Iron Works: Industrial Archaeology at the First Iron Furnace on the Pacific Coast. *IA, The Journal of the Society for Industrial Archaeology* 42(1):36-54 (with Susanna Kuo)

2014 Takelma Prehistory: Perspectives from Archaeology in the Elk Creek Dam Project in Southwest Oregon. *Journal of California and Great Basin Anthropology* 34(2):247-272.

2014 Late Holocene Chronology and Geomorphic Development of Fluvial-Tidal Floodplains in the Upper Reaches of the Lower Columbia River Valley, Washington and Oregon, USA. *Geomorphology* 204:123-135 (with Curt D. Peterson, Mike C. Roberts, Sandy Vanderburgh, and David Percy)

2013 Accommodation Space Controls on the Latest Pleistocene and Holocene (16–0 ka) Sediment Size and Bypassing in the Lower Columbia River Valley: A Large Fluvial—Tidal System in Oregon and Washington, USA. *Journal of Coastal Research* 29(5):1191-1211 (with Curt D. Peterson, Edward B. Gates, and Diana L. Baker)

2013 Great Basin Obsidian at The Dalles: Implications for the Emergence of Elites in the Southwestern Plateau. *Journal of Northwest Anthropology* 47(1):25-46.

2012 Correlation of Tephra Marker Beds in Latest Pleistocene and Holocene Fill of the Submerged Lower Columbia River Valley, Washington and Oregon, U.S.A.. *Journal of Coastal Research* 28(6):1362-1380 (with Curt D. Peterson, Edward Gates, Sandy Vanderburgh, and Kendra Carlisle)

ROBERT R. MUSIL, PhD, RPA
Principal Investigator/Senior Archaeologist

HERITAGE RESEARCH ASSOCIATES, INC.
1992 Fairmont Blvd
Eugene, Oregon 97403
(541) 729-3046
BobMusil@aol.com

EXPERIENCE:

Robert R. Musil has undertaken and reported on archaeological field research throughout Oregon and southwest Washington for the last 40 years. His archaeological experience began with a summer field school in 1979 at an Initial Coalescent earthlodge village on the Missouri River in South Dakota. Since coming to Oregon, he has obtained a wide range of archaeological experience, including fieldwork, data analysis and reporting on sites throughout much of the Pacific Northwest, as well as a field season in Micronesia. Robert was the Assistant Field School Director for the Department of Anthropology, University of Oregon, at the Dietz Clovis Site in 1985, and the co-director of the Archaeology Field School at the Malheur Field Station in 1988.

Over the last 40 years Robert has supervised projects involving all phases of archaeological research including the development of research designs, implementation and direction of all phases of field investigations, and report preparation. His experience has focused on Oregon and southwest Washington and has ranged from the Paleo-Indian period to the early twentieth century. Musil has authored or coauthored over 420 technical reports on archaeological investigations in Oregon, with 405 of those reports on file at the Oregon State Historic Preservation Office in Salem. Of the 405 reports on file at SHPO 49 have reported on fieldwork undertaken within the Portland Basin in Multnomah and Clackamas counties, with much of the fieldwork focused on projects on the Columbia South Shore for the City of Portland. Additional projects within the last 10 years have also been conducted along Johnson Creek, in Gresham, along the Sandy River, and most recently for the Bull Run Filtration Project.

His research interests have focused on North American prehistory, archaeology/ethnology of the far western U.S., Paleoindian research, hunter-gatherers, archaeological method and theory, and lithic technology, and he and has presented numerous papers at professional meetings. In particular, Robert has developed an expertise in the analysis of flaked stone tools and debitage and regularly conducts the lithic analysis for Heritage. He has reported on lithic analyses at over 100 sites, which has resulted in the description and interpretation of flaked stone artifact assemblages that encompass a wide range of technological and regional diversity. He has also compiled and presented x-ray fluorescence data for the source and distribution of obsidian in the Umpqua and Harney basins in Oregon.

EDUCATION:

Ph.D.	Anthropology, 1992, University of Oregon
M.S.	Anthropology, 1985, University of Oregon
B.A.	Anthropology, 1981, University of Nebraska

PROFESSIONAL EMPLOYMENT:

Principal Investigator/Project Archaeologist, Heritage Research Associates, Inc. (Eugene, 1987-present)
Staff Archaeologist, State Museum of Anthropology, University of Oregon (OSMA), 1987-1992
Assistant Director, Archaeological Field School, University of Oregon, 1985
Co-director of the Archaeology Field School at the Malheur Field Station in 1988
The Barnett Graduate Teaching Fellowship, University of Oregon 1991

PROFESSIONAL AFFILIATIONS:

Register of Professional Archaeologists, Society for American Archaeology, Association of Oregon Archaeologists

PRINCIPAL INVESTIGATOR/FIELD SUPERVISORY EXPERIENCE:

As Project Director for Heritage, duties for all projects include development, direction, and execution of fieldwork, as well as data analysis and interpretation, report preparation, specialized analyses, and miscellaneous contract administration and liaison duties. Clients and projects have included:

Bureau of Land Management, Forest Service, Federal Highway Administration: Test and mitigation excavations at over 35 sites in western Oregon in upland, interior valley and coastal settings.
U.S. Fish and Wildlife Service: Large-scale excavations at the McCoy Creek (35HA1263), Dunn (35HA1261), and Headquarters (35HA403) sites at the Malheur National Wildlife Refuge.
Willamette Valley, Interior Umpqua Valleys, and adjacent Coast and Cascade Ranges: Survey and test excavations for various projects throughout western Oregon from the Columbia River to the California border.
City of Portland Bureau of Environmental Services and Port of Portland, Oregon: Survey and test excavations for numerous projects in the larger Portland metropolitan area for the City, Port, private clients.
Clark County and Vancouver, Washington: Survey and test excavations for numerous development projects in the city and county, for a variety of private clients and WSDOT.

SELECTED PUBLICATIONS/REPORTS:

2022 *Cultural Resources Literature Review and Records Search for the Cadman-Ellis Farms Aggregate Mine Project Columbia County, Oregon.* Heritage Research Associates Report No. 475, Eugene. (with Rick Minor and Kathryn Toepel)

2021 *Archaeological Investigations at 35MU106, Columbia South Shore, Multnomah County, Oregon: Final Report.* Heritage Research Associates Report No. 466, Eugene.

2021 *Archaeological Survey of the Proposed Portland Water Bureau Bull Run Water Treatment Plant Project, Gresham Vicinity, Clackamas and Multnomah Counties, Oregon*. Report to Brown and Caldwell and the Portland Water Bureau, City of Portland. Heritage Research Associates Report 470, Eugene. (with Albert C. Oetting)

2021 *Cultural Resource Assessment of the Springwater Wetlands and Floodplain Restoration Project, Bureau of Environmental Services, City of Portland, Multnomah County, Oregon*. Heritage Research Associates Report 21-15, Eugene.

2020 *Archaeological Survey and Probing at the Short Mountain Landfill and Quamash Prairie Assessment Areas, Lane County, Oregon.* Heritage Research Associates Report No. 458, Eugene.

2019 *Archaeological Testing at the Hill Creek Power Site (35DO117), Douglas County, Oregon.* Heritage Research Associates Report No. 444, Eugene.

2017 *Archaeological Survey of the Tryon Creek Wastewater Treatment Plant, City of Lake Oswego, Clackamas County, Oregon.* Heritage Research Associates Report 17-43, Eugene. (with Susanna Kuo)

2017 *Archaeological Survey of the Oxbow-PWB Restoration Project, Oxbow Regional Park, Multnomah County, Oregon*. Report by Heritage Research Associates, Inc., Eugene, OR, to Portland Water Bureau, Portland, OR. Heritage Research Associates Report 17-3, Eugene. (with Albert C. Oetting)

2016 *The Archaeology of Susan Creek Campground (35DO383), Douglas County, Oregon: The 2013/2014 Passport In Time Project.* Heritage Research Associates Report No. 386, Eugene.

2016 *Archaeological Investigations in the West Eugene Wetlands Planning Area Lane County, Oregon.* Heritage Research Associates Report No. 382, Eugene.

2012 *Archaeological Survey of The Nature Conservancy's Willamette Confluence Preserve, Lane County, Oregon.* Heritage Research Associates Report No. 369, Eugene.

2011 *The Oak Knoll Site (35CO21): A Late Prehistoric Chinookan Settlement Near Scappoose, Columbia County, Oregon.* Heritage Research Associates Report No. 348, Eugene.

2010 *Archaeological Discovery Probing at the Oak Bottoms Wildlife Refuge Enhancement Project, City of Portland, Multnomah County, Oregon.* Heritage Research Associates Report 21-15, Eugene.

2008 *Data Recovery Excavations at the Cedarbrook Site (45CL454) City of Vancouver, Washington.* Heritage Research Associates Report No. 253, Eugene. (with Jana Boersema)

2007 *Cultural Resources Technical Report for US 97: Lava Butte-South Century Drive, Deschutes County, Oregon.* Heritage Research Associates Report No. 310, Eugene.

2002 *Archaeological Testing and Stratigraphic Assessment in the Southeast Area of the Headquarters Site (35HA403), Malheur National Wildlife Refuge, Harney County, Oregon.* Heritage Research Associates Report No. 250, Eugene.

1995 *Adaptive Transitions and Environmental Change in the Northern Great Basin: A View from Diamond Swamp*. University of Oregon Anthropological Papers No. 51, Eugene.

1988 Functional Efficiency and Technological Change: A Hafting Tradition Model for Prehistoric North America. *Nevada State Museum Papers*, No. 21, Carson City.

ALBERT CARL (CHIP) OETTING, PhD, RPA

Principal Investigator/Project Archaeologist

HERITAGE RESEARCH ASSOCIATES, INC.
1992 Fairmount Blvd.
Eugene OR 97403
(541) 485-0454
Chipoetting@aol.com

EXPERIENCE:

Albert Oetting acquired a wide range of archaeological field, analysis, and reporting expertise, working in Oregon, Nevada, California, and Washington. His 45 years of experience has covered most aspects of archaeological research and included employment in Federal agencies and academic settings before joining Heritage Research Associates, Inc. (Heritage) in 1986. Duties at Heritage have included research design and predictive model development, implementation and direction of large and small surveys, exploratory/ testing excavations, large-scale data recovery excavations, data analysis, report preparation, and proposal development. He is well-versed in federal and state cultural resources regulations, particularly the evaluation of properties for the National Register of Historic Places (NRHP) and other aspects of the Section 106 process. He has been a Registered Professional Archaeologist (RPA) since the Register was established in 1998. He has taught at the University of Oregon, presented papers at professional meetings, and authored or co-authored nearly 150 technical reports, as well as articles in professional journals and monographs. Oetting currently has over 370 reports on file at the Oregon State Historic Preservation Office (SHPO).

As a Principal Investigator/Project Archaeologist for Heritage, duties for all projects include development, direction, and execution of fieldwork (survey and/or excavation), coordination for laboratory processing/specialized analyses, data analysis and interpretation, report preparation, NRHP/Sec. 106 recommendations, and miscellaneous contract administration/liaison duties. For FERC-licensing projects, specific duties include assessment of NRHP-eligibility of archaeological resources, guidance and assistance to client in complying with the Section 106 process, preparation of required Exhibit E and/or environmental assessment documents, and preparation of Historic Property Management Plans (HPMP, or CRMP).

EDUCATION:

Ph.D.	Anthropology, 1989, University of Oregon
M.A.	Anthropology, 1979, San Diego State University
A.B.	Anthropology, 1975, University of California, Berkeley

PROFESSIONAL EMPLOYMENT:

Principal Investigator/Project Archaeologist, Heritage Research Associates, Inc. (Eugene). 1986-present
Staff Archaeologist, State Museum of Anthropology, University of Oregon (OSMA). 1983-1989
Instructor, Department of Anthropology, University of Oregon. 1984-1985, 1987
Instructor, Archaeological Field School, Lewis and Clark College. 1984
Graduate Teaching Fellow, Department of Anthropology, University of Oregon. 1983-1984
Graduate Teaching Fellow, Oregon State Museum of Anthropology, University of Oregon. 1982-1983
Field Supervisor/Archaeologist, Basin Research Associates, Inc. (California). 1980-1981
Archaeologist GS-7, Western Archeological Center, National Park Service (Arizona). 1979-1980
Archaeologist GS-5, U.S. Forest Service, Sierra National Forest (Pineridge District, CA). 1979
Archaeologist/Research Assistant, San Diego State University (California). 1978-1979

PROFESSIONAL AFFILIATIONS:

Society for American Archaeology (since 1974), Register of Professional Archaeologists (1998), Association of Oregon Archaeologists (1981), Great Basin Anthropological Conference (1980)

PRINCIPAL INVESTIGATOR/FIELD SUPERVISORY EXPERIENCE (2000-present):

Portland Water Bureau: HPMP for the Bull Run Water Supply System and Portland Hydroelectric Project; survey for the Lusted Hill Corrosion Improvement Project; survey for the Bull Run Filtration Plant Project
Portland General Electric: FERC Relicensing of Willamette Falls Hydroelectric Project, Bull Run Hydroelectric Project, and Clackamas Hydroelectric Project. Data recovery excavations at 35CL262, 35CL279 35CL293. Evaluation excavations at 35CL35 and 35Cl284. Focused test excavations at 35CL14

near Willamette Falls. Monitoring of NR-eligible sites in Bull Run and Clackamas projects. Developed monitoring program for Clackamas River Hydroelectric Project.
Eugene Water and Electric Board: FERC relicensing of Carmen Smith Hydroelectric Project. Preparation of HPMP for Carmen-Smith Project. Evaluation excavations at 35LA1145, 35LA1242-1245, 35LIN763
Lane County: Survey/discovery probes/evaluation excavations for the East King Road Realignment Project; survey/archaeological monitoring for the S 28th Street, Springfield Improvement Project
Oregon Department of Transportation: Survey of ADA Curb Ramp Projects in 31 cities; discovery probes/evaluation excavations for Powers ADA Curb Ramp Project; monitoring of ADA curb ramp construction in Elkton, Bandon; survey of improvements along I-5, Canyonville-Roseburg & OR569, Eugene
Oregon Military Department: Survey of Areas A and D/evaluation excavations at 16 sites at the Biak Training Center, Christmas Lake Valley. Review/Analysis of NRHP data/re-survey/evaluation excavations at 31 sites at the former CONUS OTH-B Buffalo Flat Radar Transmitter Site, Christmas Lake Valley
Obsidian Renewables LLC Solar Projects: Survey/discovery probes/evaluation excavations at 3 sites for the Lakeview Airport Solar Project; Survey/discovery probes/evaluation excavations at 7 sites for the Garrett Solar Project; survey of the Obsidian Solar Center Project, Areas A-D, Fort Rock Basin
U.S. Army Corps of Engineers: Survey at Foster and Green Peter Reservoirs; survey at Detroit and Big Cliff Reservoirs; archaeological site monitoring at Cougar Reservoir
Bonneville Power Administration: Survey/discovery probes/evaluation excavations at 4 sites on the Salem-Albany No. 1 and No. 2 t-lines; survey/discovery probes/evaluation excavations at 3 sites on the Hills Creek-Lookout Point t-line

SELECTED PUBLICATIONS (Portland Basin):

1999 *Archaeological Investigations for the Portland General Electric Bull Run Hydroelectric Project.* Heritage Report No. 227.

2001 *Archaeological Investigations for the Portland General Electric Willamette Falls Hydroelectric Project, Clackamas County, Oregon*. Heritage Report No. 243.

2003 *Evaluation of Three Archaeological Sites in the Portland General Electric Bull Run Hydroelectric Project (FERC No. 477)*. HRA Report No. 254.

2004 *Archaeological Investigations for the Portland General Electric Clackamas River Hydroelectric Project, Clackamas County*. Four volumes. HRA Report No. 263.

2006 *Archaeological Investigations for a Proposed Gravel Mine Near River Mill Dam, Portland General Electric Clackamas River Hydroelectric Project, Clackamas County, Oregon (FERC No. 2195)*. HRA Report No. 298

2006 *Archaeological Data Recovery Excavations at 35CL293, Portland General Electric Clackamas River Hydroelectric Project, Clackamas County, Oregon (FERC No. 2195)*. HRA Report No. 302.

2006 *Data Recovery Excavations on the West Edge of 35CL262, Portland General Electric Clackamas River Hydroelectric Project, Clackamas County, Oregon (FERC No. 2195)*. HRA Report No. 305.

2007 *Focused Test Excavations at the South End of 35CL14, Portland General Electric Willamette Falls Hydroelectric Project, Clackamas County, Oregon (FERC No. 2233)*. HRA Report No. 302.

2007 *Historic Properties Management Plan for the Eugene Water & Electric Board Carmen-Smith Hydroelectric Project, Lane and Linn Counties, Oregon.* (with George Kramer)

2007 *Cultural Resources Management Plan for the Bull Run Water Supply Habitat Conservation Plan, City of Portland, Bureau of Water Works, Clackamas and Multnomah Counties, Oregon.* (with George Kramer)

2020 *Archaeological Review and Survey of the Sandy US26 Curb Ramp Improvements, Clackamas County, Oregon*. Heritage Letter Report 20-8.

2021 *Archaeological Survey of the Proposed Portland Water Bureau Bull Run Water Treatment Plant Project, Gresham Vicinity, Clackamas and Multnomah Counties, Oregon.* Heritage Report No. 470 (with Robert Musil)

2023 *Historic Properties Management Plan for the Portland Water Bureau Portland Hydroelectric Project and Municipal Lands in the Bull Run Watershed, Clackamas and Multnomah Counties, Oregon.* Draft. (with George Kramer)

Farid Sariosseiri, PhD, PE

Lead Associate Engineer

Education

- PhD Civil Engineering (Geotechnical), Washington State University, 2008
- MS Mineral Engineering (Geotechnical), New Mexico Institute of Mining and Technology, 2005
- BS Civil Engineering, University of Sistan and Balouchestan, Zahedan, Iran, 1998

Registrations/Certifications

- Professional Engineer: OR #86968PE, WA #48861
- 40-hour HAZWOPER Training, 2011
- Confined Space Entry Training, 2010
- Drilled Shaft Inspection, 2012

Expertise

- Deep Excavations
- Pipeline Design
- Retaining Structures
- Landslide analysis, mitigation, and rehabilitation
- Deep foundations
- Levees and embankments
- Geotechnical analysis
- Ground improvement
- Liquefaction/seismic analyses

Farid Sariosseiri has 25 years of geotechnical engineering experience. He has provided soil and site investigations; seepage and slope stability analysis for levees, embankments, and natural slopes; landslide rehabilitation; design and construction monitoring of axially and laterally loaded driven-piles and drilled shafts; earthquake and liquefaction analysis; design and construction monitoring of retaining walls and ground anchors; deep excavations; design and construction of pipeline; installation of geotechnical instruments (i.e., inclinometer and piezometer); developing and managing geotechnical exploration program; geotechnical report preparation; and submittal review.

Relevant Experience

Beaverton North Transmission Line Intertie Project, Beaverton, OR (2023-Present)

Farid serves as the project manager and geotechnical engineer and is responsible for day-to-day coordination of staff and project deliverables for geotechnical and seismic design of the project. Delve Underground's services involved geotechnical evaluation, seismic hazard evaluation and trenchless design for a 4-mile-long, 24-to-30-inch diameter Ductile Iron pipeline project.

Filtration Pipeline Project, City of Portland Water Bureau, Portland, OR (2020-Present)

Farid served as geotechnical task manager and pipeline designer on this project. The project includes design of approximately ½ mile of large-diameter (72-inch, conduit) steel raw water pipelines, connecting interties, and associated appurtenances and structures that will support a water filtration facility project. In addition to traditional open cut installation, the project includes two trenchless crossings, dual 1,200-foot-long tunnels, and an approximately 230-foot-deep, 30-foot-diameter shaft. Delve Underground is the subconsultant leading the geotechnical investigation and design for the project.

Willamette Water Supply Program – Pipeline Sections PLM_4.0, PLM_4.0, and PLM_5.1, Tualatin Valley Water District, Washington County, OR (2017–Present)

The Willamette Water Supply Program (WWSP) is a drinking water infrastructure program being implemented by the Tualatin Valley Water District (TVWD) and the Cities of Hillsboro and Beaverton to provide a seismically resilient water supply for their customers. The WWSP includes more than 30 miles of transmission pipelines, ranging from 24 to 66 inches in diameter and extending from the Willamette River Water Treatment Plant in Wilsonville, Oregon to the TVWD and Hillsboro service areas in Washington County, including the cities of Hillsboro and Beaverton. The pipelines are designed and constructed in different phases.

Farid is the geotechnical engineer for PLM_1.0, PLM_4.0, and PLM_5.1. The alignments consist of 66-inch dimeter steel pipes. The combined PLM_1.0, PLM_4.0, and PLM_5.1 is approximately 11 miles long. The pipelines cross several liquefaction prone areas, creeks, roads, and railroads. These alignments include 11 trenchless crossings, and a soldier-pile tieback retaining wall for seismic slope mitigation. The PLM_4.0 includes a 2,000-foot-long trenchless under the Tualatin River constructed approximately 20 feet below the bottom of the river, 80 feet below the road surface. The access shafts depths ranged between 50 and 100 feet.

Delve Underground was responsible for geotechnical explorations and geotechnical design of the pipelines and trenchless crossing, and seismic evaluations of the pipelines and associated appurtenances. Farid was involved in preparation of plans and specifications. Construction of the PLM_5.1 is completed. The PLM_1.0 and PLM_4.0 is currently under construction.

Willamette Water Supply Program – Pipeline Sections MPE_1.0 and PLW_2.0 Tualatin Valley Water District, Washington County, OR (2019–Present)

Farid is the geotechnical engineer and project manager for the MPE_1.0 and PLW_2.0 alignments. The alignments consist of 48-inch dimeter steel pipes. The combined MPE_1.0 and PLW_2.0 is approximately 10 miles long. The pipelines cross several liquefaction prone areas, creeks, railroads, roads and highways. These alignments include 10 trenchless crossings. Delve Underground was responsible for geotechnical explorations and geotechnical design of the pipelines and trenchless crossing, and seismic evaluations of the pipelines and associated appurtenances. Farid was involved in the geotechnical design, preparation of plans and specifications. MPE_1.0 is currently under construction and construction PLW_2.0 is expected to begin in the upcoming months.

Westside Highway MP4.06-MP4.11 Landslide Repair, Cowlitz County, WA (2023-current)

Farid serves as the project manager and geotechnical engineer. The project includes an approximately 110-foot-wide, 20-foot-high landslide along the Westside Highway in Cowlitz County, WA. Several mitigations options were evaluated. Modular retaining wall was selected as the preferred option. The project is expected to be constructed in the summer of 2023.

NW Thurman Street Landslide, City of Portland Bureau of Transportation, Portland, OR (2021-2022)

Farid is the project manager and project geotechnical engineer for landslide repair of a 250-foot-long section of NW Thurman Street in Portland, OR. The project is in an area with slope failure history dating back to the beginning of the last century, with the most recent occurring in 2017. The project was funded by the Federal Highway Administration (FHWA) and administered through the Portland Bureau of Transportation. Delve Underground was the prime consultant provided geotechnical services, and prepared plans, specs, and cost estimate for construction of a deep-patch and a subsurface drainage system. The project is approved by the FHWA and is expected to be constructed in the upcoming months.

Eklutna Adit Tunnel Design-Build Rehabilitation, Chugach Electric Association, Inc., Wasilla, AK (2017)

Farid served as the field engineer and provided construction observation during installation of the tunnel support system. The Eklutna Adit Tunnel is a 300-foot-long, 10.5-foot-diameter structure that provides maintenance and inspection access to the main 4.5-mile-long power tunnel for the Eklutna Power Plant. Portions of the original tunnel lining, consisting of steel ribs and timber lagging had degraded significantly during its 60-year lifespan and some of it had collapsed. The tunnel was inaccessible due to safety concerns. Delve Underground's responsibilities included condition assessment, design of the new tunnel lining, a portal structure and retaining wall; design coordination with the owner and design-build partners, and development of plans and specifications. The project was completed in 2017 on time and on budget.

Brightwater Conveyance Project, King County, WA (2008–2012)

Farid worked as a geotechnical engineer responsible for construction observation of tunnels and ancillary structures, including portal shafts and pump stations. Farid was involved in groundwater and geotechnical instrumentation monitoring placed along the alignment, interpretation of groundwater and instrumentation data, and geologic tracking of tunnel excavation. Brightwater Conveyance consisted of a 13-mile-long deep tunnel extending from Seattle's third wastewater treatment plant in Woodinville to Puget Sound. The project also included five access shafts for tunnel boring machines launch and reception. Three of the shafts were between 70 feet and 220 feet deep. The deepest shaft utilized ground-freezing in conjunction with ring beams and lagging as excavation support system. Two of the shafts utilized slurry walls as temporary support system and two of the shafts utilized sheet piles and soldier piles with internal bracing.

Publications

LaVielle, T. H., Bee, G. T., Sariosseiri, F., Lang, Y., and Havekost, M. D. 2021. Seismic Ground Displacement and Pipeline Design Evaluation – A Case Study. ASCE UESI Pipeline Conference. July 2021 (Virtual).

Bee, G. T., Havekost, M. D., Sariosseiri, F., and Britch, M. 2020. Pipeline Design for Predetermined Levels of seismically Induced Differential Settlement. ASCE UESI Pipeline Conference, 2020 (Virtual).

Gwildis, U., Lach M., Sariosseiri, F. 2012. Deep Portal Shafts for the Brightwater Tunnels: Geotechnical Design Considerations and Construction Experience, GeoCongress 2012: State of the Art and Practice in Geotechnical Engineering, March 25-29, Oakland, CA.

Carlson, K., Sariosseiri, F., Muhunthan B. 2011. Engineering Properties of Cement Kiln Dust (CKD) Modified Soils in Western Washington State International Journal of Geotechnical and Geological Engineering, 29(5): 837-844.

Sariosseiri, F., Razavi, M., Ghazvinian, B. 2011. Stabilization of Soils with Portland Cement and CKD, and Application of CKD on Slope Erosion Control Geo-Frontiers, Dallas, TX.

Lach, M., Sariosseiri, F. 2010. Tunnel Induced Settlement on the Brightwater Conveyance East Contract North American Tunneling Conference, Portland, OR.

Sariosseiri, F., Muhunthan, B. 2009. Effect of Cement Treatment on Geotechnical Properties of Some Washington Soils Engineering Geology, 104(1-2): 119-125.

Sariosseiri, F., Muhunthan, B. 2008. Geotechnical Properties of Palouse Loess Modified with Cement Kiln Dust and Portland Cement Geocongress 2008: Geochallenge of Sustainability in the Geoenvironment, New Orleans, LA.

KATHRYN ANNE TOEPEL, PhD, RPA

Principal Investigator/Project Manager

HERITAGE RESEARCH ASSOCIATES, INC.
1992 Fairmount Blvd.
Eugene OR 97403
(541) 485-0454
heritagere@aol.com

Kathryn Anne Toepel is the owner and President of Heritage, and serves as Project Manager for all Heritage projects. Since 1980, she has been responsible for preparation of contract and grant proposals, development of research designs, and all project coordination and operations. She has directed archaeological field investigations in Oregon, Washington, and Alaska, and has authored or co-authored more than a dozen publications in professional journals as well as more nearly 200 reports concerned with the archaeology, ethnography and history of the Pacific Northwest. She has more than 160 reports on file with the Oregon State Historic Preservation Office.

Kathryn has been project manager for numerous projects for federal agencies and other clients, including on-call cultural resources services contracts with a variety of clients since 1980: U.S. Army Corps of Engineers (Portland District), Oregon Department of Transportation (ODOT), Oregon State Office of the Bureau of Land Management (BLM), Oregon Military Department, U.S. Fish & Wildlife Service, Bureau of Reclamation (Northwest Region), Eugene Water and Electric Board, Bonneville Power Administration, Portland General Electric Company, PacifiCorp, City of Portland, and other municipalities and local agencies.

EDUCATION:

Ph.D.	Anthropology, University of Oregon
M.S.	Historic Preservation, University of Oregon
M.A.	Linguistics, University of Oregon
M.A.	Anthropology, University of Oregon
B.A.	Anthropology/Sociology (with Honors), Pacific Lutheran University

EXPERIENCE:

1980 to present: Heritage Research Associates, Inc., Eugene, Oregon
President, Owner, and Project Manager

Principal Investigator/Director for archaeological and historical investigations in Oregon, Washington, and Alaska. Responsibilities include Section 106 compliance under NHPA, developing and implementing work scopes, contract management, and consultations with agencies and tribes. Co-author of cultural resource overviews synthesizing ethnographic information for the Willamette National Forest (1987), the BLM Eugene District (1980), Siuslaw National Forest (1982), and Columbia Gorge National Scenic Area (1988). Co-author of *Native American Religious Practices and Uses, Siuslaw National Forest* (published as University of Oregon Anthropological Paper)

PROFESSIONAL AFFILIATIONS:

Register of Professional Archaeologists, Society for American Archaeology, American Cultural Resources Association, Association of Oregon Archaeologists

SELECTED WESTERN OREGON PROJECTS:

Cultural Resource Overview and Assessment (CROA) for the Western Oregon Bureau of Land Management (2019), Principal Investigator for project involving compilation and organization of records on 2500 cultural resource sites and 700 isolated finds into the BLM's GIS database to arrive at an updated assessment of information about the prehistoric and historic period peoples of western Oregon, with profiles summarizing what is known about the ethnography, archaeology, and history of 39 subbasins in the Coast Range and Willamette Valley of northwestern Oregon (2019).

Eugene Water & Electric Board, Carmen-Smith Hydroelectric Project, Upper Willamette Valley (2004-2018) This project included the preparation of cultural resources documentation for the FERC relicensing of the Carmen-Smith Hydroelectric Project, including historical resource and archaeological records reviews, background summaries, field inventories, determination of eligibility of project facilities under National Register criteria, and preparation of a Historic Properties Management Plan for treatment of historical and archaeological resources. Project Role: Project Manager

Lane Transit District Bus Rapid Transit Corridor, Eugene and Springfield (2001-2022)
Section 106 compliance tasks included identification of potentially significant historical and archaeological resources within three phases of the project corridor to date, assessment of significance and findings of effects for historic resources, and preparation of project reports for SHPO and FTA review and concurrence. Project Role: Project Manager

Miscellaneous Studies for Oregon Department of Transportation (1992-present
Cultural Resource Project Manager for numerous bridge and highway corridor studies for ODOT throughout the State of Oregon, either directly under contract or as a subconsultant. Work to date has included literature search, records review, field survey, site recordation, site assessment under National Register criteria of significance, preparation of determinations of significance and determinations of effect, development of mitigation plans, and implementation of archaeological data recovery. Examples of this work include (1) Newberg-Dundee Bypass; (2) Morrison Bridge Rehabilitation, Multnomah County; (3) Burnside Bridge Rehabilitation, Portland, Oregon; and (4) miscellaneous bridge and highway studies for ODOT, including numerous bridge projects in eastern and western Oregon.

Miscellaneous Archaeological Services for City of Portland, Bureau of Environmental Services (2000 to 2022)
Project Manager for three successive cultural resource services contracts for Portland Bureau of Environmental Services, as well as separate contracts for the Balch Consolidated Slough Outfall (CSO) project, the East Side CSO Tunnel, the West Side CSO Tunnel, the Northwest CSO Tunnel, the Inverness Force Main, CBWWTP Outfall project, Columbia Slough Consolidation Conduit, South Rivergate Access Study Area cultural resource assessment, Airport Way Wetland Mitigation Area, and the large-scale baseline inventory and assessment of cultural resources on the Columbia South Shore. Projects have included previous studies of portions of the Johnson Creek project area and its WPA modifications (one project between SE 41st to 44th Avenues and another at the confluence of Johnson Creek with Errol Creek). Smaller studies have included the Veterans Creek Phase 2 Restoration Project, Tryon Creek Streambank Stabilization Project, Wilkes Headwaters Restoration-Culvert Replacement Project, Luther Road Habitat Restoration Project, and Oak Bottoms Wildlife Refuge Enhancement Project,

45SA11 Artifact Collection Curation Project, USACE Portland District (1986 to 1989). PI for organizing, classifying, and inventorying large artifact collection recovered during multi-year excavations at late prehistoric/historic Chinookan village in the Columbia River Gorge; resulting in installation of the collection in the new North Pacific Division Curation Facility at Bonneville Dam.

ADDITIONAL SELECTED PROJECTS:

- Archaeology of French Canadian/Metis Homesite in Woodburn (Specht Development)
- Historic Context for Eugene's Historic Street Railways (City of Eugene)
- Archaeology Treatment Plan for Portland's Union Station Tracks and Improvements (Prosper Portland)
- Columbia River Crossing (CRC), Portland-Vancouver (ODOT/WSDOT)
- Camp Adair, U.S. Army World War II Cantonment (Oregon State Fish and Wildlife)
- Quartzville Road Improvements Project (Linn County Road Department)
- Beaver Creek Corridor, Lower Columbia River Highway
- Port of Hood River Frontage Road Project (W&H Pacific, Portland)
- An Inventory Strategy for BLM Lands in the Oregon Coast Range (BLM)
- Inventory and Assessment of Archaeological Resources, Columbia South Shore (City of Portland)t
- Mill Creek Prehistoric Site Complex, Interstate 5 and Santiam Highway, Marion Co. (ODOT)
- Archaeological Survey of Fern Ridge Reservoir Drawdown, Lane County (Army Corps of Engineers)
- Historical and Archaeological Studies for FERC Relicensing and Project Maintenance, Portland General Electric Clackamas Hydroelectric Project (PGE)
- Ducks Unlimited/US Army Corps of Engineers habitat enhancement, Fern Ridge Reservoir
- Oregon Wetlands LLC habitat enhancement
- Rabbit Mountain 2013 Fire Recovery Archaeological Survey (BLM)
- City of Coburg's Wastewater Collection System, Lane County, Oregon
- Jasper Trunk Sewer Project, Jasper Road, City of Springfield, Lane County, Oregon
- Proposed Junction City Water Treatment Plant, Lane County, Oregon
- City of Veneta Wastewater Land Application Area, Lane County, Oregon
- Middle Fork Willamette River Loop Path (Dorris Ranch to Clearwater Park), Lane County
- Archaeological Assessment of the Eugene Millrace Diversion Dam and Intake for the I-5 Willamette River Bridge Project, Lane County