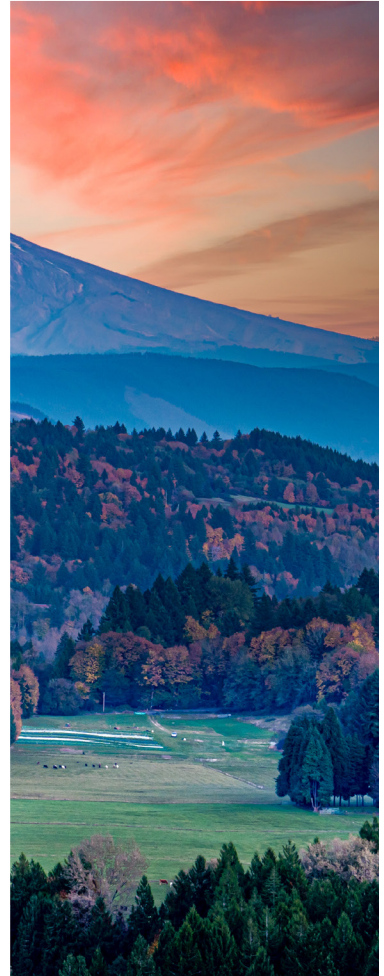




# CITY OF SANDY



RFP SDWRP 03-24

Engineering  
Services for the  
Alder Creek  
Water Treatment  
Plant Upgrades

May 2, 2024





4800 SW Griffith Dr, Suite 128  
Beaverton, OR 97005

(971) 405-6331

May 2, 2024

City of Sandy  
Jennifer Coker, PE  
Public Works Director  
39250 Pioneer Boulevard  
Sandy, OR 97055

Re: **RFP SDWRP 03-24 Engineering Services for the Alder Creek Water Treatment Plant Upgrades**

Dear Ms. Coker and Selection Committee,

The City of Sandy (City) has established the Sandy Drinking Water Reinvestment Program (SDWRP) to provide a reliable water supply at an affordable price to its residents. The upgrades to the Alder Creek Water Treatment Plant (WTP) are critical to allow the City to fully utilize their own source water. The Keller Associates (Keller) team is committed to helping the City realize your goals and delivering a project that adheres to your budget and planned implementation timeline of January 2027.

Advantages of the Keller team:

- **Local Capability:** With offices in Beaverton and Salem, Oregon, we offer a local presence and team members who can regularly commute to the City. We can draw on the strengths and resources of over 190 team members located in 10 offices in Oregon, Idaho, Washington, Nevada, and Utah to deliver this project on time and on budget.
- **Demonstrated Experience with Critical Water Facilities:** Keller is known for our water resources and utility engineering practice—it is where we started. Our experience includes numerous projects involving pump stations, pipelines, and treatment plants across the Northwest. We also know the regulatory community in Oregon, including the Oregon Health Authority (OHA), and will use our experience to help the City be proactive in the permitting process to prevent unforeseen delays.
- **Capacity to Meet Schedule:** With the completion of Sandercock Reservoir, we bring proven experience delivering quality designs, that are on schedule, to the City. We advanced from concept to final design and remained engaged and flexible throughout construction. Our team understands the design constraints and will coordinate with the membrane supplier and the City's Program Management staff (Program Team) to make this project a success.

**KELLER ASSOCIATES, INC.**

4800 SW Griffith Dr, Suite 128  
Beaverton, OR 97005  
Office: (971) 405-6331

**PRINCIPAL/AUTHORIZED REPRESENTATIVE**

Larry Rupp, PE  
President/CEO  
Office: (208) 288-1992

**SINGLE POINT OF CONTACT/  
PROJECT MANAGER**

Jason King, PE  
Office: (208) 288-1992  
Cell: (208) 407-1052  
[jking@kellerassociates.com](mailto:jking@kellerassociates.com)

- **Project Familiarity that Leads to Efficiencies and Value:** Keller brings the same team members who delivered your Sandercock Reservoir rehabilitation project, led by Project Manager, Jason King. We know your design preferences, processes, safety measures, public focus, and your staff. Keller will deliver seamless integration and unique insights as we work through the Alder Creek WTP upgrades.

This proposal is valid for a period of 90 days. Keller is licensed to perform engineering services in the State of Oregon and is not disbarred, suspended, or otherwise prohibited from professional practice by any federal, state, or local agency. Larry Rupp will be involved in any negotiations and is legally authorized to sign any contract (Title: President/CEO; Phone: (208) 288-1992).

Our team understands your project goals and is committed to helping the City realize your vision of delivering the best water, service, and value. We look forward to working with you on this project.

Sincerely,

**KELLER ASSOCIATES, INC.**



Larry Rupp, PE  
President/CEO



Jason King, PE  
Project Manager/Design Lead

# 1. FIRM PROFILE

Keller is a regional, full-service, and multi-disciplinary civil engineering firm with 10 offices across the Northwest, **including local offices in Beaverton and Salem, Oregon**. We provide all facets of utility, civil, and water resources engineering and construction management services to support cities like Sandy. Keller has been licensed to do business in Oregon since 2007, and we have been providing services in the Portland Metro area for almost two decades. More importantly, we have experience bringing quality services to the City.

We started over 30 years ago delivering water and wastewater system planning and design. Since then, we have provided quality municipal engineering services to public agencies. Our experience includes numerous projects involving pump stations, pipelines, and treatment plants throughout the Northwest. Collectively, Keller's team members have over 100 years of experience in water infrastructure design and construction; we have seen it all. Our water treatment, pump station, and technical experts have designed facilities with similar complexity and challenges. Section 3 highlights examples of our successful project performance.

Our staff members have completed **over \$200M in water and wastewater infrastructure upgrades over the last five years**. These same technical experts are committed to your project and have worked together over the last five+ years. This allows us to efficiently work with the City to deliver the project within schedule and on budget. Additional team member experience can be found in Section 2.



## AVAILABLE FIRM RESOURCES

**IN-HOUSE EXPERTS:** With over 190 problem solvers across the Northwest—including **25 staff in Salem and Beaverton**—Keller offers a one-stop engineering firm staffed with in-house civil, mechanical, hydraulic, treatment, planning, transportation, electrical, structural, HVAC, and SCADA engineers. We provide multi-disciplinary approaches and solutions for your most common or challenging projects.

**ADMINISTRATIVE AND TECHNICAL SUPPORT:** Keller has sufficient support staff—including designers, technical editors, project assistants, and graphic designers—to provide top-notch deliverables. Our project assistants are integral to our project management approach, helping project managers with meeting summaries, budget and schedule management, and successful project delivery.

**COMPATIBLE COMPUTER EQUIPMENT AND SOFTWARE:** Keller knows that our greatest resource is our staff. We ensure they receive the most current equipment and relevant training to keep them at the top of their fields. This allows us to provide high-quality services efficiently. We will provide deliverables to match your standards. Keller uses the following tools in our projects:

- Windows-based PCs with MS Office
- Hydraulics and hydrology design software
- AutoCAD Civil 3D 2022
- ESRI formats and ArcGIS version 10 or better
- Bluebeam
- 3D visualization software, REVIT

Our in-house team members routinely assist clients with:

- WTP design, upgrades, and optimization
- Pump station design
- Water transmission main design
- Site access and security improvements
- Control system design
- Backup power generation equipment for treatment plants

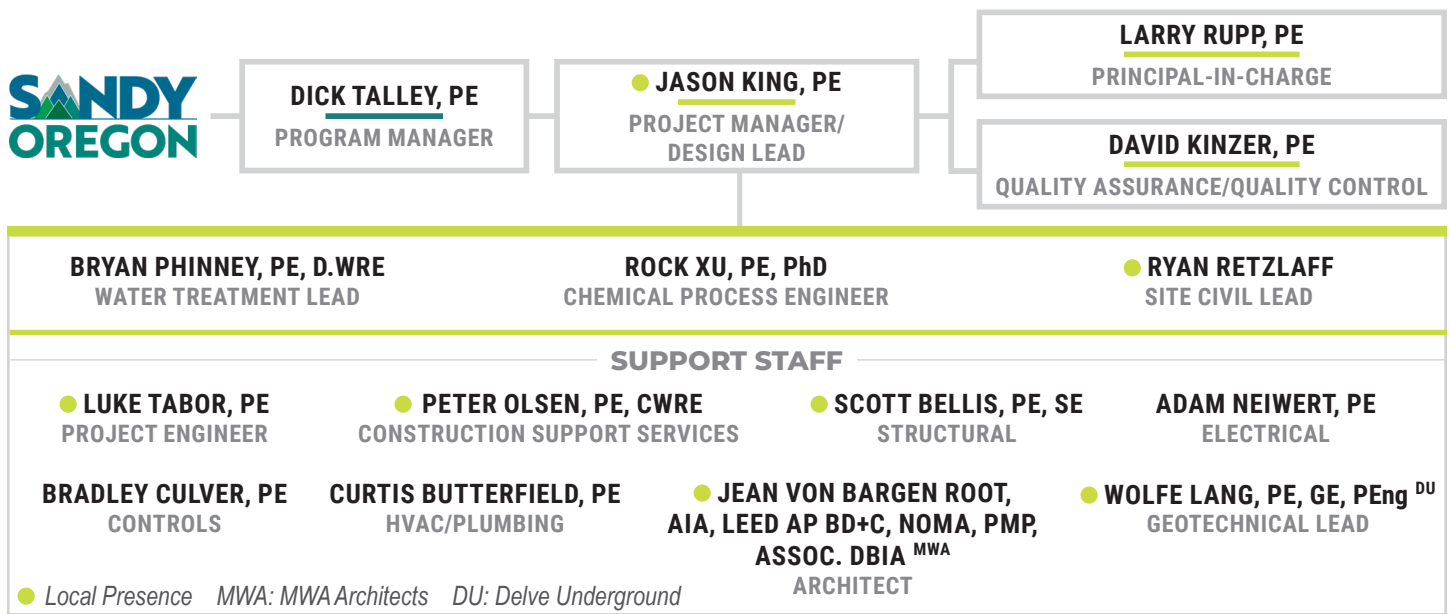


## 2. PROJECT TEAM

Keller brings a large firm’s deep bench of technical experts with the nimble approach and low overhead of a smaller local firm. With offices in Beaverton and Salem, our staff members can be in Sandy in approximately one hour. The proposed Keller team has a record of delivering multi-disciplinary water resource projects according to schedule.

For this project, we are teaming with MWA Architects (MWA), a sustainable architecture firm, and Delve Underground, who will provide geotechnical services. MWA worked on the Bull Run Filtration Facility (BRFF) and brings local knowledge and key design strengths, such as energy efficiency and site design. Delve Underground completed the geotechnical investigation for this project. We will combine our strengths and function effectively as an integrated design team to meet the City’s objectives.

Our organization chart is below, followed by brief team member biographies. Resumes are in the Appendix.



### JASON KING, PE | PROJECT MANAGER/DESIGN LEAD | OR 92481PE



Jason will be your Project Manager and Design Lead. Jason’s hands-on project management approach includes coordinating efforts with all team members. He will communicate project objectives, develop appropriate design criteria with City input, and track critical decisions to allow the project to progress efficiently. His approach focuses on quality and efficiency, resulting in high-quality projects and service at a great value.

In the last five years, Jason has managed the design and construction of over \$100M in water and wastewater treatment improvements. Project experience includes three recently completed water filtration projects for the City of Meridian, Idaho. These projects involved managing a fast-paced, multi-discipline team to design and construct 2,000 gallon per minute (gpm) pressure filtration systems in three of the City’s five pressure zones, significantly improving the City’s water quality. Jason oversaw the early procurement of the treatment equipment and coordinated with internal and external team members to finish the projects on time and under budget.

Jason brings a balance of management and technical experience and partners with his clients to deliver successful projects. He has worked with the City on previous projects, and will employ the same approach to deliver this project.



### **RYAN RETZLAFF** **SITE CIVIL LEAD**

Ryan will work closely with Jason and the project team as the Site Civil Lead to deliver design and construction

support services. Ryan has 26 years of experience leading complex projects throughout the Northwest. His diverse work experience ranges from permitting to construction of water distribution systems. Ryan is leading the construction management for the Tualatin Valley Water District (TVWD) Farmington Fluoridation and Booster Pump Facility, which is nearing completion and will become operational this year. He is also assisting the City of Vancouver with facility improvements on two pump stations: the Industrial Pump Station, which is nearing completion and anticipated to finish this year, and the SEH Lift Station awaiting bids following its completed design.



### **LARRY RUPP, PE** **PRINCIPAL-IN-CHARGE** OR 79040PE

As Principal-in-Charge and previous leader of Keller's water treatment

practice, Larry will work closely with Jason King, Bryan Phinney, Rock Xu, and others in the technical decision process. He will ensure the project has the necessary committed resources and provide input and direction on key issues. Larry has a record of delivering projects on time, under budget, and with minimal change orders. He excels as an advisor for complex design and construction projects. Larry combines a passion for treatment with a thorough understanding of water treatment fundamentals. He has experience with treatment projects ranging in budget from \$1M to \$40M and in size from 0.5 to 200 million gallons per day (MGD), including expansion of several facilities in Oregon and California. In addition to water treatment, Larry has designed and managed water storage and pumping projects with concrete and steel storage tanks and various pumping systems.



### **PETER OLSEN, PE, CWRE** **CONSTRUCTION SUPPORT SERVICES** | OR 83510PE

Peter brings extensive technical experience working with Oregon

communities on their water infrastructure projects and will provide construction support services for the City. Peter's technical understanding of capital improvement projects for municipal clients includes extensive water

treatment, pump station, and pipeline design involving hydraulics and computer modeling software. Peter's design experience is complemented by his planning and construction management experience, including construction engineering and inspection for capital projects on behalf of Oregon cities such as Wood Village, Ashland, Wilsonville, and Amity.



### **BRYAN PHINNEY, PE, D.WRE** **WATER TREATMENT LEAD** OR 73236PE

Bryan is a civil and environmental engineer with 26 years of engineering

experience, preceded by four years of treatment plant operations experience, giving him a unique perspective on municipal water infrastructure planning, design, and operation. He has worked on all aspects of municipal water systems, including water treatment (traditional processes; enhanced coagulation; membranes; disinfection with gas, liquid, solid chlorine, UV, and chlorine dioxide). Bryan has also worked on unique chemical feed systems to address water stabilization for lead and copper reduction; taste and odor (hydrogen sulfide, organics); and metals oxidation and sequestering (iron, manganese, arsenic). He has developed water supplies for several municipal and industrial clients, including springs, wells, and surface water intake structures.



### **ROCK XU, PE, PhD** **CHEMICAL PROCESS ENGINEER** OR 103990PE

Rock is a process and chemical engineer with experience planning,

designing, and testing municipal water treatment processes for clients. His expertise includes treatment feasibility evaluation, process modeling, and innovative system design and testing. He was a Quality Control Manager for bench and pilot process design and testing, including coagulation/flocculation (dissolved air), flotation (microsands), filtration (granular media filtration), reverse osmosis (biofiltration), ion exchange, disinfection systems (chemical oxidation), UV advanced oxidation process and ozone, and distribution system corrosion studies. He has insight into disinfection by-products (trihalomethanes, HAA-5 and HAA-9) formation chemistry, modeling, and prevention. Rock will provide water chemistry and treatment direction for your project.



**LUKE TABOR, PE**  
**PROJECT ENGINEER**  
 OR 100223PE

Luke's experience as a Project Engineer includes various municipal projects in water, wastewater, and stormwater utilities. He has completed facility evaluations and assisted with master planning, hydraulic modeling, and design projects. Luke is currently wrapping up a Water System Improvement project for the City of Willamina, which includes booster station improvements, a new surface water intake with new straining equipment, approximately 3,400 feet of raw water transmission line, and 3,500 feet of distribution main line. He recently completed a raw water line installation project for the City of Silverton, which included a complicated fish screen mechanical design and approximately 1,500 feet of pipeline replacement. Luke is currently working on a 1.2 million-gallon prestressed concrete tank, a four-pump booster station, approximately 2,000 feet of distribution main, and the new Well No. 6 for the City of Aurora.



**ADAM NEIWERT, PE**  
**ELECTRICAL | OR 87153PE**

Adam serves as a Lead Electrical Engineer at Keller. He has extensive experience working on new and existing electrical systems for municipal water systems. He is the Electrical Engineer of Record on several projects, including the TVWD Grabhorn Reservoir, Valve House, and Pipelines project. Adam is involved in all project stages, including scoping, budgeting, preliminary design, site evaluation, final design, and construction. His municipal engineering design expertise includes electrical service evaluation, standby power generation, pump station controls, motor control center design, variable frequency drives (VFD), harmonic filtering, developing controls strategies, future fiber infrastructure, cost estimation, and on-site troubleshooting. Adam has served as the Lead Electrical Engineer on recent water projects, including in-ground and above-grade water storage tanks and new and existing pump stations and well house components.



**BRADLEY CULVER, PE**  
**CONTROLS | OR 97265PE**

Bradley brings varied industry electrical and controls experience to the team, from conceptual design and detailed

engineering to construction, commissioning, start-up, and on-site troubleshooting. His experience has included power system distribution, medium and low voltage equipment specifications and configuration, overcurrent protective device coordination, arc-flash calculations, control system design, instrument specifications, and process control programmable logic controller programming. Bradley is responsible for the execution of work and the quality of deliverables from the electrical and controls team. He has extensive knowledge of industry best practices and various electrical design code requirements, including the National Fire Protection Association, UL Standards, Institute of Electrical and Electronics Engineers standards, and the International Energy Conservation Code.



**CURTIS BUTTERFIELD, PE**  
**HVAC/PLUMBING | OR 101193PE**

Curtis brings 7 years of engineering experience and 15 years of contracting experience to the project team.

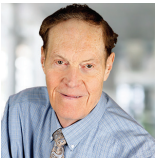
His contracting experience includes mechanical diagnostics, design, and installation of a variety of mechanical systems. He provided mechanical services to the U.S. Military as a defense contractor and owned and operated a mechanical plumbing business for many years. Curtis provides planning, design, and construction support for HVAC and plumbing systems. His experience in these areas is augmented by his work with heat load evaluations, hydraulic analysis, piping, and mechanical design. Relevant work includes HVAC and plumbing systems designs for pump stations, electrical rooms, process facilities, warehouses, workshops, office space, laboratory, aeration systems, and more.



**SCOTT BELLIS, PE, SE**  
**STRUCTURAL | OR 93333PE, SE**

Scott is a licensed Structural Engineer in the State of Oregon with 11 years of structural engineering experience, including more than four years of experience in water and wastewater treatment and drinking water infrastructure. His experience includes the design of several water and wastewater treatment facilities including new plant buildings and hydraulic structures, retrofits to existing plant buildings and hydraulic structures, and equipment replacement and rehabilitation projects across the western U.S., including both high and medium seismic regions.





## DAVID KINZER, PE | QUALITY ASSURANCE/QUALITY CONTROL | OR 83080PE

David has more than 40 years of experience on all types of water engineering projects, with extensive experience providing quality assurance/quality control (QA/QC) oversight. In 2018, he was recognized as the American Society of Civil Engineers Southern Idaho Engineer of the Year.

## SUBCONSULTANTS

### MWA ARCHITECTS

Founded in 1988, MWA is a West Coast-based firm dedicated to creating sustainable architecture. Their projects reflect site context and serve as a foundation for community growth. MWA has successfully written, performed, and reported on Community Renewable Energy Grant Program renewable and resilience planning and construction grants through the Oregon Department of Energy. MWA is also supporting the City's transit client with these funding opportunities as they consider campus expansion. MWA conducts internal energy studies to support their client's efforts to provide higher resilience in service to their ratepayers. The studies cover predicted energy consumption and operational carbon emissions, both of which are needed to achieve a resilient WTP for the City.

### REFERENCES

#### City of Pendleton

Bob Patterson, Public Works Director  
bob.patterson@ci.pendleton.or.us  
(541) 966-0241

#### Portland Water Bureau

David Peters, PE, Engineering Manager, Special Projects  
david.peters@portlandoregon.gov  
(503) 823-2003



## JEAN VON BARGEN ROOT, AIA, LEED AP BD+C, NOMA, PMP, ASSOC. DBIA ARCHITECT

Jean has been practicing architecture in the Northwest for over 20 years. As Principal and Director of Sustainability, she leads MWA's efforts in resilient design with a focus on materials, energy, water, and social justice. She has successfully designed and managed four LEED certified projects including wastewater facilities and mixed-use housing. Jean actively advocates for the owner while collaborating with stakeholders, the project team, and the contractor.

### DELVE UNDERGROUND

Delve Underground is a leader in heavy civil engineering and specializes in underground design. Their technical expertise includes tunnel design, shaft design, excavation support, deep foundations, dewatering, slope stabilization, foundation design, and geotechnical characterization. Delve Underground completed the Alder Creek WTP Improvement Preliminary Study. They also have extensive project experience within the City and surrounding area, including the BRFF, Bull Run Filtration Program Raw Water Pipeline, City of Sandy Wastewater Treatment Plant Improvements, and the BRFF-Sandy Transmission Main and Pump Station.

### REFERENCES

#### Stantec

Aaron Eder, PE, Principal  
aaron.eder@stantec.com  
(503) 220-5415

Adam Odell, PE, Lead Civil Engineer  
adam.odell@stantec.com  
(503) 220-5409



## WOLFE LANG, PE, GE, PENG | GEOTECHNICAL LEAD | OR 78866

Wolfe has 30 years of geotechnical engineering experience with a focus on water, wastewater, and conveyance projects. He has a strong background in analyzing and designing various foundations, deep excavations, and tunnels. Wolfe has expertise in seismic ground motion characterization analysis, liquefaction analyses, and seismic soil-structure and soil-pipe design.

Project experience includes new treatment facilities and reservoirs, seismic rehabilitation of existing facilities, deep pump stations, pipelines, and trenchless crossings. Wolfe has provided senior geotechnical review for field exploration, subsurface condition interpretation, seismic hazards evaluation, dewatering, and pipe/trench construction considerations.



## 3. RELATED EXPERIENCE AND REFERENCES

### EXPERIENCE WITH CRITICAL WATER FACILITIES

Our team has significant experience with pipelines, valve vaults/structures, well buildings, pump stations, and treatment plants across the Northwest.

The project examples on the following pages were completed by members of the proposed project team in the last 10 years and highlight our successful past performance. Many of our projects have included HVAC systems, mechanical piping, electrical and controls, backup power generation, and chemical feed/injection. Our staff understands how to design and construct these elements, how they work, and how they fit into an overall water system. We have the experience to tackle the challenges your project may face, such as pump station rebuild, system reconfiguration, pipe hydraulics, and facility system integration. This depth and breadth of experience equates to real value for the City.

Our team works with owners and operators to identify and solve challenges during design and construction. During construction, we work proactively with clients to identify innovative ways to isolate systems while tie-ins are performed. Our staff is highly skilled and experienced working in “live systems” and conscious of the risks and hazards of this type of work. We are committed to providing construction crews with the right skillset for a particular work item. We are known for developing detailed activity-specific work/sequencing plans before implementation.



**RESILIENT WATER TREATMENT DESIGN.** From siting and security to construction sequencing and phasing, identifying innovative solutions is where we excel. We demonstrated this with the City of Meridian’s Water Filtration Facility, where we integrated concepts essential to the design while optimizing the facility’s operation, maintenance, and energy efficiency to meet existing and future demands. Jason served as the Project Manager and Design Lead on this project. He led the prepurchase of the treatment equipment and successfully coordinated with our multi-disciplinary team to efficiently complete the design.



#### WTP IMPROVEMENTS | CITY OF AMITY, OR

**REFERENCE:** Nathan Frarck, City Administrator | (503) 835-3711  
nfrarck@ci.amity.or.us

**CHALLENGES:** The project challenges included a failing infiltration gallery system, treatment reliability, and performance deficiencies during high-turbidity events.

**SOLUTIONS:** Our team worked closely with operations staff to design facility improvements, including a new finish water reservoir and pump station, emergency filter improvements, new preliminary treatment, filter media replacement, a new generator, and upgrades to the backwash pond, as well as storage reservoir site circulation improvements.

**SCOPE:** The City sought to complete water intake, treatment plant, and storage reservoir improvements identified as Priority One improvements in the Water Master Plan. Elements include the addition of standby power at the treatment plant, a redundant backwash pond, new clearwell and associated pumps, and other miscellaneous treatment plant improvements. Keller provided permitting, environmental approval support, and design for the project. We are currently providing construction phase support services. The project is nearing the end of construction and startup.



**TEAM MEMBER INVOLVEMENT:** Peter Olsen (Project Manager), Jason King (Technical Advisor), Bryan Phinney (Water Treatment Lead), Adam Neiwert (Electrical Lead), Scott Bellis (Structural Support), David Kinzer (QA/QC), Bradley Culver (Controls Lead), Larry Rupp (Principal), Curtis Butterfield (HVAC/Plumbing Lead)

**INTERESTING FACT:** *The electrical and controls gear and generator for the new intake are located on an 8-foot-tall concrete platform to protect the equipment from potential flood waters on this project site that regularly experiences flooding.*



**FARMINGTON FLUORIDATION AND BOOSTER PUMP FACILITY | TVWD, BEAVERTON, OR**

**REFERENCE:** Nicholas Augustus, PE, Engineering Manager (971) 327-6292 | [nick.augustus@tvwd.org](mailto:nick.augustus@tvwd.org)

**CHALLENGES:** This project presented challenging operating scenarios, including complex site topography and footprint constraints. Access to both levels of the pump station and fluoridation facility was needed for mechanical equipment, which presented an additional design challenge.

**SOLUTIONS:** We worked within the existing footprint and designed a lower-level walk out on one side of the building with a ground level match for the second floor on the opposite side, resulting in ease of use and accessibility for City staff.

**SCOPE:** Keller designed a combined booster station and fluoridation facility with the associated risk of designing for challenging operating scenarios. Transmission main routing was finalized as part of the initial



planning efforts and included 10,500 feet of 18-inch ductile iron pipe. The designed pump station has a 7.5 MGD peak, 4 MGD firm, 17 MGD fluoridation treatment and hydraulic flow-through capacity. The design included fluoridation delivery and sizing, pump selection, site evaluation/grading, pipeline route evaluation and selection, mechanical and structural building information modeling, initial electrical evaluation, and coordination with permitting agencies. After 100% design completion, the project was downsized to a smaller building with a pressure reducing valve (PRV) within a fluoridation facility. This alternative delivery project is currently nearing completion. The final design incorporates fluoridation infrastructure with space on the site for a future pump station and additional stormwater infrastructure.

**TEAM MEMBER INVOLVEMENT:** Peter Olsen (Project Manager), Larry Rupp (Principal/Technical Advisor), Jason King (Mechanical QA/QC), Bryan Phinney (Water Treatment Lead), Adam Neiwert (Electrical), Bradley Culver (Controls), Ryan Retzlaff (Construction Support Services)

**INTERESTING FACT:** *The Keller team delivered 100% plans and obtained land use approval within 12 months. Value engineering provided in a short time frame kept the project moving forward.*

We know the regulatory community in Oregon, from the OHA, Oregon Department of Environmental Quality, and Oregon Water Resources Department to the Oregon Department of State Lands, National Marine Fisheries Service, and the U.S. Army Corps of Engineers. Our contacts and knowledge mean that we can help navigate the common pitfalls of regulatory red tape. The Farmington project recently received approval from OHA in April 2024.



## WATER FILTRATION TREATMENT UPGRADES CITY OF MERIDIAN, ID

**REFERENCE:** Kyle Radek, Assistant City Engineer | (208) 898-5500  
kradek@meridiancity.org

**CHALLENGES:** Testing indicated that water quality concerns at Well 27 originated from elevated levels of manganese, ammonia, and hydrogen sulfide, while Wells 18 and 10B also suffered from high concentrations of iron, manganese, and ammonia.

**SOLUTIONS:** After conducting a pilot study using three types of filter media, Keller recommended oxidation and pressure filtration with pyrolusite (green sand). Sodium hypochlorite at 12.5% concentration was used to oxidize the manganese and other undesirable compounds. In addition to the water treatment process, we designed a new concrete masonry unit well house and treatment building including pre-purchased filter equipment and a 2,400 gpm vertical turbine well pump.

**SCOPE:** To address aesthetic water quality concerns at Wells 27, 18, and 10B, the City commissioned Keller to oversee a pilot study of various treatment options and complete predesign of the selected solution. The project included coordination with treatment suppliers, preliminary sizing of a treatment system and associated components, standby power, review of existing assets and supporting utilities, and an evaluation of available land and setback requirements. The project also included equipment pre-selection and purchase, final design, bidding, and construction support.

**TEAM MEMBER INVOLVEMENT:** Jason King (Project Manager), Bryan Phinney (Water Treatment Lead), Adam Neiwert (Electrical Lead), Rock Xu (Chemical Process Engineer), Scott Bellis (Structural Lead), David Kinzer (QA/QC), Bradley Culver (Controls Lead), Curtis Butterfield (HVAC/Plumbing Lead), Larry Rupp (Principal)

**INTERESTING FACT:** *As part of the pilot study, we involved several community members in a “blind” taste test of the treated water to further support the selection of equipment and filter media.*

## TERRACE STREET RAW WATER PUMP STATION | CITY OF ASHLAND, OR

**REFERENCE:** Kevin Caldwell, Senior Engineer | (541) 552-2414 | kevin.caldwell@ashland.or.us

**CHALLENGES:** The project challenges included site constraints and land use permitting associated with building a new raw water pump station in the right-of-way of a residential neighborhood to convey raw water to the WTP.

**SOLUTIONS:** We proactively coordinated with agencies to understand local permitting constraints (noise, lighting, building aesthetics, etc.) and developed a concept layout that provided adequate access in a 16-by-16-foot footprint along with a rendering at 30% design.

**SCOPE:** The Keller team designed the Terrace Street Raw Water Pump Station to provide a major upgrade to the City’s backup raw water supply for the surface WTP. The three high-efficiency vertical turbine pump system can deliver 3.5 MGD, with the largest pump out of service. Project features include construction within a tight footprint, intake screening, VFDs, structural upgrades, conversion of dry pit to wet well with a separate settling chamber, and electrical/controls improvements to allow for continued gravity flow delivery to a portion of the City. The design also incorporated provisions for standby power and chemical feed (for pretreatment using sodium permanganate to oxidize iron and manganese and reduce overall chlorine demand).

**TEAM MEMBER INVOLVEMENT:** Jason King (Project Manager/Design Lead), Bryan Phinney (Water Treatment Lead), Adam Neiwert (Electrical), Peter Olsen (Field Support)

**INTERESTING FACT:** *Construction for this complex project was completed on schedule, with less than 1% change orders. The project won the Pacific Northwest Section of the American Water Works Association 2020 Excellence in Engineering Award for Best Small Engineering Works Project.*





**DISC DRIVE BOOSTER STATION**  
TRUCKEE MEADOWS WATER AUTHORITY (TMWA), RENO, NV

**REFERENCE:** Jason Barnes, PE, Senior Design Engineer  
(775) 834-8080 | jlbarnes@tmwa.com

**CHALLENGES:** The project challenges included corrosive soils, a busy utility corridor, site constraints, conditional use permitting, and maintaining system operation during construction.

**SOLUTIONS:** Tackling the challenges started with proactive coordination with our geotechnical partner, local utilities, and permitting agencies. We used soil testing to develop corrosion protection recommendations, integrated survey and mapping to identify the preferred alignment, submitted site and building renderings to help expedite agency approvals, and developed a phasing plan to ensure water supply was not interrupted throughout construction.

**SCOPE:** TMWA contracted with Keller to design a new booster station to address low-pressure issues in the northern portions of the Sparks Gravity System. The project includes a new booster station building with a capacity of over 16,000 gpm, 1,300 feet of 24-inch diameter piping, 750 feet of 30-inch diameter piping, 200 feet of 20-inch diameter piping, 620 feet of 14-inch diameter piping, and three-valve vaults. Keller provided civil, mechanical, electrical, controls, and structural design.

The piping portion of the project within Sparks and Vista Boulevards required traffic control considerations and coordination with multiple stakeholders, including NV Energy, Washoe County District Health, and the City of Sparks. The installation within this corridor was completed as marathon (24/7) work to minimize the impact on critical arterials. Keller coordinated with the City of Sparks throughout design to incorporate the proper work constraints in the bid documents. The project was completed on schedule with less than 1% change orders.

**TEAM MEMBER INVOLVEMENT:** Jason King (Design Manager), Larry Rupp (Principal), Curtis Butterfield (Plumbing/HVAC), Brandon Keller (Structural), Adam Neiwert (Electrical)

**INTERESTING FACT:** TMWA's water demands exceed 1 billion gallons a week in the summer. Since completing this project in 2020, TMWA has hired Keller to design four additional booster and well facilities.

TREATMENT, PUMP STATION, AND PIPELINE EXPERIENCE <i>(not all inclusive)</i>	Planning / Modeling	Treatment / Permitting	Distribution / Pump Stations	Storage Tanks	Intakes / Wells	Buildings	Tanks	Concrete Vaults	Retaining Walls / Beautification	Controls / Integration	Lighting / Assessments	Electrical for Facilities
	WATER ENGINEERING					STRUCTURAL ENG.				ELECTRICAL ENG.		
CLIENT	WATER ENGINEERING					STRUCTURAL ENG.				ELECTRICAL ENG.		
Amity, OR	●	●	●	●	●	●	●	●		●	●	●
Ashland, OR		●		●		●	●	●	●	●	●	●
Aumsville, OR	●		●	●	●		●			●		●
Gates, OR	●	●	●	●	●	●	●		●	●	●	●
Ontario, OR	●	●	●	●	●	●	●	●		●	●	●
Silverton, OR	●	●	●	●	●	●	●		●	●		●
Stayton, OR	●	●	●		●	●			●	●	●	●
TVWD, OR		●	●	●		●	●		●	●	●	●
Wilsonville, OR	●	●	●	●	●	●	●			●	●	●
Willamina, OR	●	●	●	●	●		●		●	●		●
Wood Village, OR	●	●	●	●	●	●	●			●	●	●
Meridian, ID	●	●	●		●	●		●		●	●	●

## 4. PROJECT APPROACH

### PROJECT UNDERSTANDING

As the City executes the SDWRP, the Alder Creek WTP improvements are a key priority. The Alder Creek WTP will provide the City with 1.8 MGD of potable water and be the primary water source for the City, with the BRFF providing supplemental supply when needed.

Improvements at the Alder Creek WTP include designing infrastructure to support the containerized membrane treatment systems which will be purchased by the City. Improvements also include rehabilitation of the raw water supply pump station, yard piping, finished water pump station, and associated infrastructure. The treatment facility will be covered with an open-air canopy with some provisions for security. Design considerations will include potential improvements to address periods of high turbidity in the raw water supply.

**Our team is committed to meeting the City's goal of having the new WTP online by January 2027.**

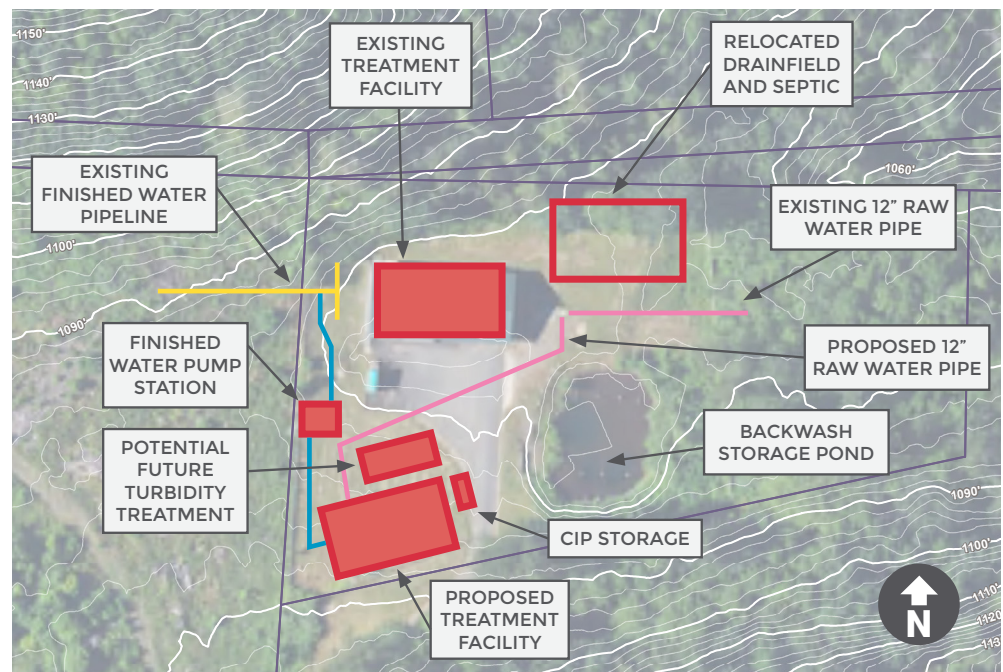
The existing raw water pipeline and finished water pipeline are considered to be in good condition. No improvements are needed. The existing treatment facility must be operational throughout construction.

### PROJECT APPROACH

The Keller project team will leverage the work already completed and compiled by the Program Team in the Conceptual Design Report to deliver the water treatment design in an efficient and timely manner. Coordination and collaboration with the City, Program Team, and membrane supplier are essential for project success. Challenges include coordinating with the membrane supplier, the security of the new equipment, optimizing the equipment layout within the existing lot, and providing design and rehabilitation of the existing raw water pump station while keeping the current WTP online. With Keller's in-house disciplines, we are positioned to efficiently coordinate between all team members from pre-purchase to project completion.

Providing some level of security when an enclosed facility is not desired creates some challenges. We will work with our teaming partner, MWA, to develop concepts that provide security without enclosure and are sensitive to cost.

Site layout may be challenging due to the existing grade of the site, limited square footage, and maintaining the existing structure for future use. The eastern half of the site is forested and may be challenging to permit new infrastructure. Improvements have been proposed in the western half of the site. The proposed layout is included in the Conceptual Design Report and summarized in the figure to the right. The location of turbidity treatment equipment has been included if the City determines this is needed in the future.



The existing raw water pump station requires rehabilitation to create a more reliable and accessible pump station. As outlined in the Conceptual Design Report, excessive moisture and a leaky structure must be fully repaired, which is likely to include a new lid to improve maintenance access. Other equipment requiring replacement or rehabilitation includes the two 25 horsepower pumps, VFDs, electrical equipment, a sump pump, increased venting, and vent fans. The pump station will need to stay in operation during rehabilitation or some bypass pumping will be required.

Our team will approach additional challenges that may arise—following a site visit, discussions with the operator, or once design has been initiated—by considering the proposed solutions’ effect on timelines, budgets, feasibility, and the City’s goals.

### DESIGNING YOUR PROJECT

Design will begin by holding a kickoff meeting with City staff, the Program Team, and Keller team members. At this meeting we will review team responsibilities, project constraints, and our approach to successfully meeting your goals. The design process will typically move through the following phases:

**RESEARCH AND DATA COLLECTION:** We will collect pertinent project data such as model data, as-built documents, survey and preliminary design reports, and other available data to guide the development of a preliminary engineering report.

**CONCEPT DESIGN:** Verifying and confirming the project’s design criteria based on the Conceptual Design Report are critical to project success. This will be the foundation of the design process and requires full consensus of the design team. We will focus on confirming and establishing any additional design criteria as needed, obtaining preliminary design information, evaluating alternatives, and confirming the approach is within the project budget.

**PRELIMINARY AND FINAL DESIGN:** Once concept design is complete, the Keller team will begin the final design phases, which include refining concepts, cost estimates, and plans. Additionally, during this phase we will proactively coordinate with the membrane supplier and Program Team to ensure final documents are clear and well defined.

### BID PLANS, ADVERTISEMENT, AND

**CONSTRUCTION:** We will assist the City in advertising, issuing addenda, bid evaluation, and providing services during construction.

## PROJECT MANAGEMENT

Jason King will serve as the Project Manager and lead the design team. Consistent communication, hands-on management, and responsiveness are key to your project’s success. Jason’s project management approach is centered around quality and efficiency and includes regular communication with our design team about schedule, project risks, and quality control, resulting in high-quality projects and service delivered at a great value.

Jason’s responsive and hands-on approach leads to results! His ability to continuously complete projects on time with less than 1% change orders illustrates his commitment to clients and maintaining quality throughout design and construction. Examples include:

Client	Construction Cost	Completion Dates	Change Orders
City of Lewiston	\$34M	05/2023	0.65%
City of Jerome	\$25M	09/2019	0.75%
Star Sewer & Water District	\$23M	03/2023	-0.54%

Jason will be supported by Site Civil Lead, Ryan Retzlaff. Recently, Jason and Ryan completed the critical Sandercock Reservoir rehabilitation project for the City—they have successfully worked with the City before and will continue to work collaboratively to achieve your goals and objectives.

### COORDINATION WITH THE CITY AND

**PROGRAM TEAM:** Our carefully selected project team will work with the City and Program Team to determine project needs and scope throughout development and make staffing changes with the teams’ input to fulfill project design needs. Each team member has been selected for their expertise and is fully committed to delivering this project.



We will meet frequently in person, holding bi-weekly coordination meetings and including supplemental staff as needed.

**Our transparent, collaborative approach brings task clarity; you will always know who will complete tasks and when they will be completed.**

We will use MS Teams to allow access to screen sharing, presentations, and video conferencing to efficiently

transfer information and keep the project on track. Agendas, meeting notes, risk registries, and decision logs will be provided for all meetings to document decisions and increase the effectiveness of meetings.

We will provide deliverables to the City and Program Team to review ahead of progress meetings so that participants can prepare for the discussion. We will also work with the City and Program Team to develop project construction scheduling and workflow. **Our team is committed to meeting the City’s goal of having the new WTP online by January 2027.** The schedule and workflow will be used to plan for pre-purchase of any needed materials and equipment based on the timing of bid packages and construction.

Collaboration with the project team, City staff, Program Team, and regulatory agencies will be fundamental to the project’s success and meeting operational goals. Our approach includes:

- Defining consultant/City/Program Team responsibilities
- Bi-weekly meetings with City/Program Team
- Identifying challenges and recommending solutions, while seeking City/Program Team input
- Collaborating with regulators
- Keeping web-based file sharing current
- Incorporating City design preferences
- Communicating with operations during design, construction, and startup

**SCHEDULE CONTROL:** Keller has a successful record of completing projects ahead of schedule and under budget. Jason and the project team will review progress and develop a critical path schedule. Periodic reviews will allow for schedule updates, procedural changes, staff adjustments, and quality control reviews, ensuring the integrity of the product and continued on-time delivery.

**COST CONTROL:** Cost control is an essential component of any project for both engineering and construction. In addition to supporting your overall implementation, Jason will closely monitor engineering and construction budgets. Every month an earned value graph will be developed that shows the difference between planned and actual costs, showing if the project is on, over, or under budget and behind or ahead of schedule. If corrections are needed, we will establish a plan to address the issue before it becomes overwhelming. If these corrections involve the City or Program Team, we will proactively communicate them.

**QUALITY CONTROL:** Our team has an established process to help control costs and deliver the project on time and within budget. We have developed a Total Quality Management approach that embeds quality into all our services and deliverables and those of our subconsultant partners. Our approach begins with staffing the project with the right mix of junior and

**Keller’s Chief Engineer, David Kinzer, has over 40 years of multi-disciplinary engineering experience and will manage QA/QC.**

senior technical specialists and subconsultants, including independent reviewers. Next, we confirm that the

team understands relevant design criteria, applicable standards, and background information and that, collectively, we are prepared to deliver the scope as described in the contract. With this approach, we will manage the budget to meet the agreed upon milestones and deliver a quality project to the City.



As a local firm, with staff you know, we are ready to deliver a successful project to the City.



**APPENDIX:**  
Resumes

# JASON KING, PE

Project Manager/Design Lead

YEARS OF  
EXPERIENCE | 14



## EDUCATION

B.S., Civil  
Engineering  
University of Idaho

## PROFESSIONAL REGISTRATIONS

Oregon: 92481PE  
Idaho: 16695  
Nevada: 026871  
Utah: 13614243-  
2202  
Washington: 57287

Jason King will serve as Project Manager for the City of Sandy's Alder Creek Water Treatment Plant (WTP) Upgrades project. He has extensive experience designing and managing water infrastructure projects. In the last five years, Jason has managed the design and construction of over \$100M in water and wastewater treatment improvements.

Jason has led the development of plans, specifications, and bidding documents for new and existing booster stations, well houses, water treatment facilities, and water distribution and control systems. He has extensive experience evaluating existing project constraints to meet his client's goals and priorities. Jason's experience and educational background has allowed him to efficiently analyze existing conditions, develop detailed recommendations, and communicate results with clients.

In addition to design, Jason has managed construction services on multiple projects ranging from \$200,000 to \$35M. Jason understands the importance of communication and responsiveness throughout the construction phase, allowing him to oversee multiple successful construction projects.

## RELEVANT PROJECTS

**WTP Improvements / Amity, OR:** Quality Control and Technical Advisor for WTP improvements including water intake, treatment plant, and finished water clearwell. Treatment improvements included flocculation and inclined plate settlers, filter upgrades, backwash system, and other miscellaneous improvements.

**Farmington Fluoridation and Booster Pump Facility / Tualatin Valley Water District (TVWD), Beaverton, OR:** Provided pump selection support and evaluation for the 7.5 million gallons per day (MGD) booster pump station. Developed graphs to optimize pump performance and system efficiency.

**Water System Improvements / Emmett, ID:** Project Engineer and Construction Manager for water system improvements that included a 1.5 million-gallon (MG) storage reservoir, a 3,000 gallons per minute (gpm) booster pump station, a 3,000 gpm pressurized filtration system for hydrogen sulfide and manganese removal, over one mile of pressure pipe, and miscellaneous improvements for backup power to the distribution system.

**Water Supply and Treatment / Adrian, OR:** Design Lead for the design of a well facility, force main, and treatment facility. The project included an evaluation and pilot study for a new well and treatment to remove arsenic.

**Water System Improvements / Meridian, ID:** Design Manager for major upgrades at Well 16B, 16C, 17, and 32. Project Manager for water treatment upgrades and concept design support for Well 10B, 18, and 27. Projects included pressure filtration to remove iron/manganese from well water.

**7th Street Booster Pump Station / Truckee Meadows Water Authority (TMWA), Reno, NV:** Design Manager for a new 6,000 gpm booster pump station intended to replace two existing booster pump stations. This project included three pressure regulating stations and approximately 2,000 feet of 16-inch and 12-inch pipelines.



# JASON KING, PE

Project Manager/Design Lead

YEARS OF  
EXPERIENCE | 14

**Southshore Booster Pump Station / Lewiston, ID:** 17.3 MGD Southshore Booster Pump Station design included an evaluation to eliminate ragging issues, pump upgrades, piping improvements, and electrical upgrades to the City's main booster pump station.

**Terrace Street Raw Water Pump Station / Ashland, OR:** Project Manager/Design Lead for a new raw water pump station. Developed the mechanical layout for the 3.5 MGD booster station that allowed sufficient access for operation and maintenance in a 16-foot square building footprint.

**Park Estates Booster Station / Ashland, OR:** Design Manager for replacing an existing buried potable water pump station with a new five-pump system capable of delivering fire flows to structures bordering the City's forested boundary. Completed an in-depth pump selection to optimize the system that saw demands from 5 to 2,000 gpm. Included standby power, variable frequency drive (VFD) controls, a concrete masonry unit structure, and electrical/controls improvements. The design was completed in eight months to allow construction to occur during times of low demand.

**Water System Improvements / Washoe County, NV:** Provided technical design support for reuse water system improvements, including 18-inch diameter, 200+ psi pressure transmission pipeline, corrosion protection provisions, and surge evaluation.

**Tapteal 1 Booster Pump Station and Kennedy Water Main Improvements / Richland, WA:** Led technical design to upgrade additional pumping capacity, increasing total pumping capacity to 12,200 gpm. This project included evaluating several pump types and configurations due to net positive suction head available concerns. Ultimately a new booster pump station was designed to accommodate total capacity, and the existing booster pump station was converted into onsite sodium hypochlorite generation storage and delivery.

**Bel Mar Booster Station / Veolia, Boise, ID:** Design lead for the new 5,000 gpm facility. Included a phased approach to meet current and future demands, a wide range of flows and pressures, stand-by power, and a small footprint to fit within the site and permitting constraints.

**Disc Drive Booster Station / Reno, NV:** Design Manager for a new 16,000 gpm booster pump station intended to supplement system pressure during summer months when demands are nearly 1 billion gallons a week. This project included the design of 3,000 feet of 24-inch and 30-inch distribution mains.

**Blackwell Booster Pump Station / Coeur d'Alene, ID:** Technical Advisor for a new 1,200 gpm booster pump station. Duties included system optimization to effectively deliver demands ranging from 30 to 1,200 gpm.

**Water System Improvements / Cabinet Mountains Water District, Bonners Ferry, ID:** Technical Design Lead and provided quality assurance/quality control for three new booster stations with varying demands (100 to over 2,000 gpm). Included three water storage facilities varying from buried and above grade to elevated, ranging from 200,000 to 300,000 gallons of storage.

**Pilot Booster Pump Station / Mountain Home, ID:** Project Engineer for Pilot Booster Pump Station rehabilitation, including pumps to two pressure zones, three pumps, and 2,500 gpm combined capacity.

**Water System Pressure Zone Improvements / Twin Falls, ID:** Project Manager on recent water system improvements, creating a new pressure zone, and expanding water service and fire protection to industrial development. The project includes approximately 20,000 feet of 10- to 18-inch diameter transmission main and four pressure-reducing stations.

# LARRY RUPP, PE

Principal-in-Charge

YEARS OF  
EXPERIENCE | 25



As Principal-in-Charge, Larry Rupp will provide senior technical expertise so that the City's project is completed on time and with well-vetted solutions. He will see that Keller's high standard of care is maintained and that the project has the necessary company resources to be successful.

Larry is a Professional Engineer with 25 years of experience designing and constructing municipal water treatment systems. Larry manages complex water tanks, pumping, and treatment facility projects. His attention to detail has resulted in minimal change orders.

## EDUCATION

M.S.,  
Civil/Environmental  
Engineering  
Brigham Young  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 79040PE  
California: 85072  
Idaho: 11629  
Montana: 60078  
Nevada: 19320  
Washington: 44983  
Wyoming: 16114

## RELEVANT PROJECTS

**Water Treatment Plant (WTP) Improvements / Amity, OR:** Principal and Technical Advisor for WTP improvements including water intake, treatment plant, and finished water clearwell. Treatment improvements included flocculation and inclined plate settlers, filter upgrades, backwash system, and other miscellaneous improvements.

**Point of the Mountain WTP / Salt Lake City/Sandy, UT:** Assisted in design of 70 million gallons per day (MGD) WTP for the Metropolitan Water District. Services included process selection involving conventional pretreatment, followed by ozonation, biologically active filters, and UV disinfection. Design support for chemical feed system, hydraulic analysis, and equipment selection.

**Central Treatment Facility and Booster Station / Victor Valley Water District, Victorville, CA:** Managed the centralized arsenic removal facility with vertical pressure vessel filters and 3,000 gallons per minute (gpm) booster station.

**Willamette River WTP / Wilsonville, OR:** Capacity analysis for unit operations, including river intake, ballasted clarification, ozone, granular media filters, chlorine disinfection, chemical facilities, raw water, and finished water pumps with recommendations to meet current and future demands.

**Water System Improvements / Emmett, ID:** Managed water system improvements that included a 1.5 million-gallon storage reservoir, 3,000 gpm booster pump station, a 3,000 gpm pressurized filtration system for hydrogen sulfide and manganese removal, over one mile of pressure pipe, and miscellaneous improvements for backup power to the distribution system.

**Farmington Fluoridation and Booster Pump Facility / Tualatin Valley Water District, Beaverton, OR:** Principal/Technical Advisor for a 7.5 MGD booster pump station, 4 MGD firm, 17 MGD fluoridation treatment, and a hydraulic flow-through capacity. The design included pump selection, site evaluation/grading, pipeline route evaluation and selection, mechanical and structural building information modeling, initial electrical evaluation, fluoridation evaluation, and coordination with permitting agencies.

**Water Supply and Treatment / Adrian, OR:** Principal/Technical Advisor for the design of a well facility, force main, and treatment facility. The project included an evaluation and pilot study for a new well and treatment to remove arsenic.

**WTP Evaluation / Silverton, OR:** Performance and condition evaluation of treatment facilities. Developed an implementation plan for completing needed upgrades. Plan included operational recommendations, as well as phasing of capital improvements.

# RYAN RETZLAFF

Site Civil Lead

YEARS OF  
EXPERIENCE | 26



## EDUCATION

M.S.,  
Civil/Environmental  
Engineering  
Portland State  
University

With 26 years of experience leading complex projects throughout the Northwest, Ryan Retzlaff's diverse work background ranges from permitting to construction support for water distribution systems. He is well-known in the Pacific Northwest for his planning and hydraulic modeling expertise and has managed or led in-depth studies for cities, counties, and flood control districts of all sizes. Ryan's experience includes construction management for treatment facilities, hydrologic and hydraulic studies for bridges and structures, stormwater quality facility design using low impact development, and stormwater management design for large transportation projects. He has extensive experience designing stormwater facilities across Oregon, meeting Clean Water Services' standards for storage, treatment, and conveyance.

## RELEVANT PROJECTS

**Storm Planning and Design / Washington County, OR:** Lead Designer for over 100 projects throughout Washington County. Past experience includes water quality treatment, flow control, and conveyance design for a wide range of land uses such as commercial, retail, residential, and transportation. Each project required detailed investigation to meet Clean Water Services' and the local jurisdictions' standards.

**Olsen Creek Storm and Sanitary Realignment / Newport, OR:** Project Manager and decommissioning design of a sanitary pump station, realigning storm and sanitary gravity lines, permitting wetland disturbance, and trenchless construction of a 250-foot, 30-inch conduit to house both storm and sanitary pipes.

**Dundee Bypass Storm Design / Newberg, OR:** Designed infrastructure to address all stormwater conveyance, detention, and treatment facilities associated with nearly 5 miles of new highway and 1.5 miles of existing roadway improvements. Coordination of project elements to ensure regulatory compliance, feasibility, and constructability.

**Mill Plain Stormwater Analysis and Design / Vancouver, WA:** Project Manager directing the evaluation and subsequent design. Developed a hydrologic/hydraulic model to evaluate and validate flooding along Mill Plain Boulevard. The validated model evaluated flood mitigation alternatives and developed a plan to reduce or eliminate flooding. Worked with City staff and private developers to identify locations where flood storage or mitigation facilities could be placed (the primary solution was an infiltration gallery). The City purchased all materials, and the private developer agreed to construct the facility.

**Sandy Drainage Improvement Company (SDIC) Drainage Master Plan / Troutdale, OR:** Oversaw the drainage study, incorporating the needs and objectives of SDIC and the City of Troutdale. The study provided an updated hydrologic and hydraulic model, problem area identification, and an assessment of the Blue Lake area and the Salmon Creek weir structure.

Evaluated the Blue Lake storage area, its influence on the water surface elevations at the SDIC pump station, and the implications on the existing gate tower and levee culvert to determine how the storage impacted overall water surface elevations during a large flood event.

The study provided an overall assessment of conveyance infrastructure and guidance for existing and future pump station capacity improvements. Completed a water quality assessment to advance water quality treatment throughout the City and address regulatory requirements.

# PETER OLSEN, PE, CWRE

Construction Support Services

YEARS OF  
EXPERIENCE | 19



## EDUCATION

M.S., Civil  
Engineering  
Brigham Young  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 83510PE  
Idaho: 13824  
Washington: 46680

Peter Olsen brings extensive technical experience working with Oregon communities on their water infrastructure projects and will provide construction support services for the City of Sandy. Peter's technical understanding of capital improvement projects for municipal clients includes extensive pump station and pipeline design involving hydraulics and computer modeling software. Peter has also provided design, environmental document preparation, public meeting support, construction management, and inspection on utility pipeline projects and complex treatment facilities. Peter's design experience is complemented by his planning and construction management experience, including construction engineering and inspection for all the capital projects he has been involved in and water master planning and modeling for communities throughout Oregon.

He has worked on numerous reservoirs, pump stations, and pipeline projects, including Wood Village, Ashland, Wilsonville, and Amity, Oregon—projects with similar permitting, design, and schedule challenges.

## RELEVANT PROJECTS

**Grabhorn Reservoir, Valve House, and Pipelines and Farmington Fluoridation and Pump Facility / Tualatin Valley Water District, Beaverton, OR:** Construction Phase Project Manager for Grabhorn Reservoir project, including civil/storm design and permitting support during design. Project Manager for Farmington Fluoridation and Pump Facility project for the 7 million gallons per day (MGD) pump station, 17 MGD fluoridation facility, and 10,000 feet of 18-inch discharge main.

**Water Treatment Plant (WTP) Improvements / Amity, OR:** Project Manager for new surface water intake, WTP upgrades, pipeline improvements, and reservoir upgrades. Coordinating construction phase services.

**Pump Stations and Pipelines / Ashland, OR:** Coordinated design and construction phase service activities for two major water pumping facilities and associated pipelines.

**Crestview Waterline / Salem, OR:** Project Manager for the Crestview Waterline project (ongoing), including 2,000 feet of 18-inch ductile water line and 500 feet of 8-inch ductile water line.

**Water System Improvements / Silverton, OR:** Managed design and construction phase services for multiple pipeline rehabilitation projects, a new pressure reducing valve (PRV) station, Lincoln Street roadway improvements, and pump station upgrades.

**Water System Improvements / Wood Village, OR:** Project Manager for Wood Village Boulevard water/sewer pipelines, a new PRV near Well 4, Wood Village Green pipeline replacement for fire flow improvements, and new pressure zone modifications.

**Water Master Planning / St. Helens, OR:** Project Manager for the water management and conservation plan and water master planning.

**Water System Improvements / Willamina, OR:** Project Manager for the water master plan, concept design and support, and City Engineer plan reviews. Supporting Project Engineer for the new water intake water system improvements project, raw water pipeline, booster pump station and distribution pipeline.



# BRYAN PHINNEY, PE, D.WRE

Water Treatment Lead

YEARS OF  
EXPERIENCE | 26



Bryan Phinney is a civil and environmental engineer with 26 years of engineering experience, preceded by four years of water treatment plant (WTP) operations experience. He has analyzed and designed many elements of municipal water systems, including advanced treatment, enhanced coagulation, membranes, disinfection (gas chlorine, sodium and calcium hypochlorite, UV, and chlorine dioxide), unique chemical feed systems to address water stabilization (lead and copper reduction), taste and odor (hydrogen sulfide, organics), and metals oxidation and sequestering (iron, manganese, arsenic). Bryan has also developed water supplies including springs, wells, and surface water intake structures.

## EDUCATION

M.S., Civil  
Engineering  
University of  
Wyoming

Bryan has led the master planning and design of water treatment system improvements with complex hydraulic challenges. This effort has included systems that meet challenging demand scenarios (50 to 4,500 gallons per minute (gpm)) and pressure challenges (up to 300 psi transmission).

## PROFESSIONAL REGISTRATIONS

Oregon: 73236PE  
Idaho: 10394  
Nevada: 028664  
Utah: 12234177-2202  
Washington: 56762  
Wyoming: 9515

Bryan recently served as the Intermountain Section Director for the American Water Works Association and can tap into resources at the national, regional, and local levels. His industry involvement spans two and a half decades, giving him access to industry experts and current water industry trends. This involvement provides Keller's clients with finished products that meet future growth needs and account for regulatory changes in the drinking water industry.

## RELEVANT PROJECTS

**Water System Improvements / Ashland, OR:** Senior Water Treatment Discipline Lead for a 600 gpm surface WTP expansion, including solids contact clarification, dual media filtration, disinfection, pumping, and controls integration with existing processes.

**Water System Improvements / Amador Water Agency, Amador County, CA:** Senior Project Manager overseeing the master planning for four treatment plants, a treatment plant capacity study for two treatment plants, tanner filter improvements, and a disinfection by-products study including evaluation of PG&E's Tiger Creek Power Plant Water Treatment Facility.

**Farmington Fluoridation and Booster Pump Facility / Tualatin Valley Water District, Beaverton, OR:** Senior Process Engineer for 17.0 million gallons per day (MGD) finished water fluoridation facility appurtenant to a new water booster station.

**WTP Improvements / Amity, OR:** Senior Water Treatment Discipline Lead for 600 gpm surface WTP expansion, including solids contact clarification, dual media filtration, disinfection, pumping, and controls integration with existing processes.

**Iron and Manganese Study / Carson City, NV:** Senior Water Treatment Discipline Lead evaluating six groundwater wells producing iron and manganese above the secondary maximum contaminant level and recommending local and regional treatment options and best management practices.

**WTP / Ontario, OR:** Design for the 4 MGD (expandable to 6 MGD) expansion of the City's water treatment facility, including 14 MGD onsite sodium hypochlorite generation facility.

**Silver Creek Raw Water Intake and Pipeline / Silverton, OR:** Senior Process Engineer for the design to replace the existing river intake structure and pump station—which is expandable to a triplex system—a new fish screen and backwash system, nearly 1,500 feet of pipeline, and trenchless rehabilitation of approximately 300 feet of pipeline.

# ROCK XU, PE, PhD

Chemical Process Engineer

YEARS OF  
EXPERIENCE | 12



Rock Xu is a process and chemical engineer with a wealth of experience strategically planning, designing, and testing water treatment processes. His proficiency extends to conducting feasibility evaluations, process modeling, and developing and testing innovative system designs.

Rock possesses considerable expertise in system design, on-site technical support, and the meticulous analysis of data. With a robust background in chemistry, he has served as a Quality Control Manager overseeing process design and testing across various domains, encompassing coagulation/flocculation (jar test, dissolved air flotation, microsand), filtration (greensand, granular media, reverse osmosis, biofiltration), ion exchange, and oxidation (involving chemical oxidation, UV advanced oxidation process, ozone).

Rock has spearheaded numerous pilot testing initiatives for wastewater treatment in South Carolina, Georgia, and North Carolina, successfully removing heavy metals and metalloids. His extensive involvement in these projects has equipped him with profound insights into technology screening and process optimization.

## EDUCATION

PhD, Chemical Engineering,  
University of Chinese Academy of Sciences

M.S., Chemical Engineering,  
Tianjin University

## PROFESSIONAL REGISTRATIONS

Oregon: 103990PE  
Idaho: 20844  
Texas: 130466

## RELEVANT PROJECTS

**Water Treatment Plant (WTP) Disinfection By-Products Removal / Amador Water Agency, Amador County, CA:** Water Treatment Technical Lead performing a comprehensive evaluation of the treatment processes. Conducted process optimization for the Lone, Tanner, Buckhorn, and Tiger Creek WTPs.

**WTP Analysis / Tampa Bay, FL:** Water Treatment Technical Lead and Quality Control Manager completing comprehensive treatment process testing, modeling, and process optimization.

**WTP Chemistry Evaluation / Salem, OR:** Water Treatment Technical Lead and Quality Control Manager evaluating algal toxin removal and disinfection by-products formation, including a thorough examination of coagulation/flocculation, ozone, biofiltration, and polyaluminium chloride.

**Advanced Process Design / Sacramento, CA:** Water Treatment Technical Lead and Quality Control Manager engaged in treatment method screening and process design for disinfection by-products control.

**Water Corrosion and Color Control / Tamarack Resort, Tamarack, ID:** Water Treatment Technical Lead developing a facility plan. Conducted data analysis to optimize corrosion control and enhance iron and manganese removal.

**Lucky Friday Silver Mining Water Treatment / Mullin, ID:** Water Quality Pilot Study Lead, assisting in developing a facility plan to optimize conventional and membrane treatment options for removing four targeted metals from mine water.

# LUKE TABOR, PE

Project Engineer

YEARS OF  
EXPERIENCE | 5



Luke Tabor has a diverse background in both the public and private sectors, providing him with a comprehensive understanding of design and planning. His expertise lies in municipal projects, particularly in stormwater, wastewater, and water utilities. Luke has been involved in various aspects of projects, including facility evaluations, master planning, hydraulic modeling, design, bidding administration, and construction observation and management.

Recently, Luke has focused on pipeline projects, notably leading the Willamina Water System Improvements project. As a Project Engineer, he oversaw the design, bid administration, and construction management of approximately 7,000 feet of water pipeline, booster station upgrades, raw water intake replacement, and more. Additionally, Luke was the Project Engineer for the Silver Creek Water Intake project, which involved 1,500 feet of replacement pipeline and a new 3.84 million gallons per day (MGD) raw water pump station with a sophisticated mechanical spray bar cleaning system for the water intake screen.

## EDUCATION

B.S.,  
Environmental  
Engineering  
San Diego State  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 100223PE

## RELEVANT PROJECTS

**Water System Improvements Project / Aurora, OR:** Project Manager for the Aurora Water System Improvements project. The improvements include a new 1.2 million-gallon prestressed concrete reservoir, a four pump booster station, a new well, 2,000 feet of offsite piping located within existing easements or right-of-way, onsite overflow pond, yard piping, level sensing, intrusion alarms, a water meter, a Tideflex mixing system, and SCADA improvements. This project is currently in design.

**Water System Improvements Project / Willamina, OR:** Project Engineer for the Willamina Water System Improvements project which consisted of completing a Water Management and Conservation Plan and replacement or improvements to the intake structure in Willamina Creek, the sediment removal system, 3,400 feet of raw water pipeline, the stormwater outfall, the 6th Street booster pump station, and 3,500 feet of distribution main line. Luke also provided final modeling and design of a subsurface gravel wetland.

**Silver Creek Water Intake Project / Silverton, OR:** Project Engineer for the design, bidding, and construction of a new raw water pump station with an active fish screen and 1,500 feet of replacement pipeline.

**Aquifer Storage and Recovery (ASR) Planning Study/ Silverton, OR:** Project Engineer for the Silverton ASR Study. Identified volumes and rates of water available for ASR storage and potential areas that may be favorable for an ASR system. Completed all water modeling during evaluation.

**Reservoir Siting Study / Aurora, OR:** Project Engineer for the Aurora Reservoir Siting Study. Performed life-cycle analysis on mixing, material, and roof alternatives. Developed 10% concept design showing site civil layout and tank orientation.

**City Engineering / Aurora, OR:** Support City Engineering tasks by reviewing development applications and construction documents, participating in pre-application meetings, and miscellaneous public utility engineering support.

# ADAM NEIWERT, PE

Electrical

YEARS OF  
EXPERIENCE | 18



Adam Neiwert serves as a Lead Electrical Engineer at Keller and will provide electrical support on this project. He has extensive experience working on new and existing electrical systems for municipal water systems. Adam is involved in all project stages, including scoping, budgeting, preliminary design, site evaluation, final design, and construction. His municipal engineering design expertise includes electrical service evaluation, standby power generation, pump station controls, motor control center design, variable frequency drives (VFD), harmonic filtering, developing controls strategies, cost estimation, and on-site troubleshooting. Recent water projects include in-ground and above-grade water storage tanks and new and existing booster stations and well house components.

## EDUCATION

B.S., Electrical  
Engineering  
Boise State  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 87153PE  
California: 20747  
Idaho: 15164  
Nevada: 024399  
Utah: 10519940-  
2202  
Washington: 50858  
Wyoming: 15332

## RELEVANT PROJECTS

**Water Treatment Plant (WTP) Improvements / Amity, OR:** Electrical service and distribution, lighting, motors and controls, emergency power evaluation, and generator sizing analysis for new raw water intake facility and WTP upgrades.

**Terrace Street and Park Estates Pump Stations / Ashland, OR:** Led new pump station electrical service, standby generator, motor control center, manual transfer switch, and active harmonic filter design.

**Farmington Fluoridation and Booster Pump Facility / Tualatin Valley Water District (TVWD), Beaverton, OR:** Electrical Engineer of Record for 7 million gallons per day (MGD) pump station, 17 MGD fluoridation facility, and 10,000 feet of 18-inch discharge main.

**Grabhorn Reservoir, Valve House, and Pipelines / TVWD, Beaverton, OR:** Led valve building, electrical, instrumentation, and controls design.

**Spring Creek Booster Pump Station / Washoe County, NV:** Led electrical design, including a new 50 HP booster pump with a soft start, exterior building lighting, piping modifications with valving modifications, pressure transmitters, new pump and instrumentation, electrical and control wiring, and adding a generator connection box in a readily accessible location. Led existing conditions assessment, circuit coordination study, arc flash study, and updated arc flash labels to reflect final conditions.

**Well 6 Booster Station / Chubbuck, ID:** Led electrical team's design, including new 800-amp electrical service and standby generator, new 100 HP well pump on VFD control, and three 125 HP booster pumps. Coordinated the design for the programmable logic controller control panels and instrumentation.

**Hiline Booster Pump Station / Chubbuck, ID:** Led the electrical design for the booster pump station, including VFD controls for four initial pumps, provisions for two additional 100 HP pumps, new 1200-amp electrical service, and standby power system with 500 kW generator.

**Bel Mar Booster Station / Veolia, Boise, ID:** Electrical and Controls Design Lead for PRVs, high- and low-pressure ranges connectivity to the existing transmission line, and valve vault.

**Water Project Electrical Systems / Star, ID:** Led electrical design to repurpose the existing standby power generator at the water well and booster station building. Electrical design components included pump VFDs; SCADA communication compatible with the client's existing SCADA system; site lighting; harmonic filtration; an extension of fiber optic to the well, booster station, and tank site; and a new tower and radio meter reading system.



# BRADLEY CULVER, PE

Controls

YEARS OF  
EXPERIENCE | 14



## EDUCATION

M.S., Electrical  
Engineering  
Kansas State  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 97265PE  
Delaware: 23275  
Florida: 91537  
Idaho: 19242  
Montana: 73235  
Texas: 138648  
Washington:  
20103376

Bradley Culver brings varied industry experience in electrical and controls to the team, from conceptual design and detailed engineering to construction, commissioning, start-up, and on-site troubleshooting. His experience has included power system distribution, medium and low voltage equipment specifications and configuration, overcurrent protective device coordination, arc-flash calculations, control system design, instrument specifications, and process control programmable logic controller programming.

Bradley is responsible for the execution of work and the quality of deliverables from the electrical and controls team. He has extensive knowledge of industry best practices and various electrical design code requirements, including the National Fire Protection Association, UL Standards, Institute of Electrical and Electronics Engineers standards, and the International Energy Conservation Code.

## RELEVANT PROJECTS

### **Tapteal 1 Booster Pump Station and Kennedy Water Main**

**Improvements / Richland, WA:** Completed new pump station electrical and controls design. Led the electrical and controls design for replacement booster station with added pumping capacity.

**Blackwell Booster Station / Coeur d'Alene, ID:** Completed new facility design for a booster station to meet forecasted community needs for added water capacity. Electrical power and controls design, including specification of a backup generator, utility coordination for extending medium voltage distribution and service entrance, and power distribution within a new building.

### **Water System Improvements / Cabinet Mountains Water District, Bonners Ferry, ID:**

Electrical and Controls Design Lead for two retrofits, one selective demolition, and four new facilities. Utility coordination and power system design for each facility. Controls specification and network interconnection for communication to new District SCADA system.

**Falls Irrigation District Pump Station / American Falls, ID:** Provided design of medium voltage power distribution and motor controls. Specification of substation switchyard transformer, medium-voltage switchgear, and variable frequency drives. Low voltage power distribution to ancillary equipment. Facility controls and sequence of operations via new SCADA connection.

**Silverton Dewatering / Silverton, OR:** Electrical and controls design for new building and dewatering screw press. Integration to existing facility via feed and communication to existing infrastructure. Responsible for construction coordination and submittal reviews.

# CURTIS BUTTERFIELD, PE

HVAC/Plumbing

YEARS OF  
EXPERIENCE | 7



Curtis Butterfield provides planning, design, and construction support for HVAC, plumbing, and process mechanical. His experience in these areas is augmented by his work with heat load evaluations, hydraulic analysis, piping, and mechanical design. Through the years, he has acquired extensive practical experience as a plumbing mechanical designer, installer, and contractor. He brings over seven years of engineering experience and 15 years of plumbing mechanical experience to our project team.

## EDUCATION

B.S., Civil  
Engineering  
Boise State  
University

## PROFESSIONAL REGISTRATIONS

Oregon: 101193PE  
Idaho: 21179  
Washington:  
22018424

Throughout his time with Keller, Curtis has worked on various types of projects, including booster stations, lift stations, water and wastewater treatment, warehouses, workshops, office space, laboratory, and more. Curtis has performed a range of tasks to support these projects, including interdisciplinary project coordination, technical calculations, site work, facility and equipment layouts, design, technical reports, assembling construction documents, bid services and evaluations, project cost estimating, and serving as owner's representative during construction. With his unique skill set, Curtis can provide a broad perspective and design approach that results in functional and cost-effective solutions.

## RELEVANT PROJECTS

**Water Treatment Plant (WTP) Improvements / Amity, OR:** Provided HVAC and plumbing systems design, which included a process room, electrical room, lab, and bathroom. Improved system components included air conditioning, ventilation, heating, exhaust, HVAC controls, emergency shower, fume hoods, water heating, area drains, etc.

**Well 18 and Treatment Facility / Meridian, ID:** The Well 18 facility included treatment for manganese and iron. Curtis provided the HVAC and plumbing designs and inspections during construction. The design was installed by the contractor without any HVAC/plumbing related change orders.

**North Booster Station / Nampa, ID:** HVAC and Plumbing Mechanical Lead, provided mechanical design services in support of booster station design.

**Disc Drive and 7th Street Booster Stations / Truckee Meadows Water Authority, Reno, NV:** HVAC and Plumbing Mechanical Lead, provided mechanical design services in support of booster station design.

**Wastewater Treatment Plant (WWTP) Lab / Caldwell, ID:** Provided the HVAC and plumbing designs and construction observation for Caldwell's WWTP lab building. The system included bathrooms, a bacteria handling room, office, and laboratory space. The HVAC system was designed as a dual zone system to prevent the recirculation of contaminated air. The plumbing system included domestic and chemical drains.

**Water Improvements / Pomeroy, WA:** Design Team Lead, coordinated with design team in planning and design of a 1,200 gallons per minute (gpm) booster station.

**Tapteal 1 Booster Pump Station and Kennedy Water Main Improvements / Richland, WA:** Led the Keller design team and coordinated with City staff to design a 12,200 gpm booster station and 100 pounds-per-day on-site sodium hypochlorite generation system. This project is currently under construction and Curtis is providing construction support services to the City.

# SCOTT BELLIS, PE, SE

Structural

YEARS OF  
EXPERIENCE | 11



Scott Bellis is a licensed Structural Engineer in the State of Oregon with 11 years of structural engineering experience, including more than four years of experience in the water treatment, wastewater treatment, and drinking water infrastructure sector. His experience includes the design of several water and wastewater treatment facilities including new plant buildings and hydraulic structures, retrofits to existing plant buildings and hydraulic structures, and equipment replacement and rehabilitation projects across the western United States, including both high and medium seismic regions.

## EDUCATION

M.S., Structural  
Engineering  
Northwestern  
University

## PROFESSIONAL REGISTRATIONS

Oregon:  
93333PE/SE  
California: 86949  
Colorado: 58598  
Idaho: 22489  
Nevada: 031615  
Washington:  
23026265

## RELEVANT PROJECTS

**Water Reservoir and Booster Pump Station / Rigby, ID:** Structural Lead for a new 1.5 million-gallon prestressed concrete tank with a booster pump station installed on the roof. The pump station building consists of concrete masonry unit walls and wood truss roof.

**LeChee Water Treatment Plant (WTP) / LeChee, AZ:** Structural Lead for a new WTP building servicing Navajo Nation. Project included a new treatment building housing filter vessels, chemical storage, administration space, and electrical room. Building used concrete masonry unit walls with an open web steel joist framed roof.

**Brighton WTP / Brighton, CO:** Structural Lead for a major expansion to the Brighton WTP. Project included a finished water pump station building constructed over a disinfection contact basin, a large combined building housing granular activated carbon and greensand filtration, denitrification, pellet softening, electrical and administration building and chemical storage, a raw water blend tank, a backwash storage tank constructed on drilled piers, and modifications to existing hydraulic structures. Buildings had precast concrete walls and precast concrete double tee roofs, with basins made from reinforced concrete.

**Durham Wastewater Treatment Plant (WWTP) / Tigard, OR:** Project Manager and Structural Lead for grit system rehabilitation project at the headworks facility. Project included replacing blowers and diffusers and rehabilitation work on grit piping and pipe supports and concrete elements.

**WWTP / Gresham, OR:** Structural Lead on fats, oils, and grease (FOG) improvements project at the WWTP which included replacing FOG pumps and adding a new strain press and other miscellaneous equipment.

**Willow Lake WWTP / Salem, OR:** Acted as Structural Lead for multiple projects at the Willow Lake WWTP, including expansion of the existing biosolids storage facility, new access stairs and platforms at trickling filters, and condition assessment of the North Secondary Clarifier as part of replacement of the central rotating mechanism. Project also included a condition assessment of the existing walkways at several other primary clarifiers on-site.

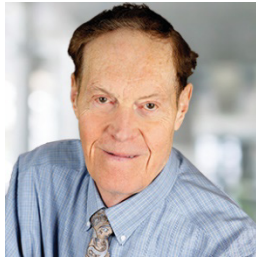
**Central Valley WWTP / Salt Lake City, UT:** Designed several hydraulic structures including multiple connector boxes and channels, large diameter aeration pipe supports, mixer access walkways at aeration basins, and concrete infill of an existing aeration basin as part of the tertiary treatment/nutrient removal plantwide upgrade project.

# DAVID KINZER, PE

Quality Assurance/Quality Control

YEARS OF  
EXPERIENCE

40+



## EDUCATION

B.S., Civil  
Engineering  
University of Idaho

## PROFESSIONAL REGISTRATIONS

Oregon: 83080PE  
Colorado: 11764  
Idaho: 2659  
Washington: 33989

David Kinzer has more than 40 years of experience on all types of water engineering projects. In 2018, he was recognized as the American Society of Civil Engineers Southern Idaho Engineer of the Year. He offers extensive experience designing and evaluating site civil work, piping, pumping facilities, valve stations, and structures. He completes mechanical and structural work for Keller including inspection, evaluation, and design of water facilities. David's pipeline experience includes design of hundreds of miles of pipelines using a variety of pipeline materials (steel, HDPE, ductile iron (DI), PVC), high pressure conveyance, rock excavation, and corrosion protection measures.

Throughout his career, he has acquired expertise in all phases of project development. His extensive and varied experience allows him to effectively complete quality control on all water project components. David understands construction practices and can seamlessly integrate multiple disciplines to deliver high-quality, comprehensive projects.

## RELEVANT PROJECTS

**Water System Improvements / Ashland, OR:** Completed analysis for Talent Irrigation District pipeline conditions evaluation, including several material tests to assess pipe characteristics and material strength, and pressure tests (200+ psi) to identify leaks and operating conditions. Also provided raw water and finish water pump station and pipeline design support.

**Effluent Pipeline / Ontario, OR:** Involved in the design of more than 15 miles of pipelines and multiple pump station and storage facility upgrades. One high-pressure pipeline project included over 4 miles of transmission pipelines conveying water to an irrigation storage lagoon at the Snake River Correctional Institution.

**Langley Gulch Water Supply / Idaho Power Company, New Plymouth, ID:** Design of 9-mile transmission pipeline, with sections experiencing 350 psi. Completed an energy recovery analysis, oversaw the surge analysis, and completed a life-cycle analysis evaluating alternative pipeline materials and pipe sizes.

**Water System Improvements / Nampa, ID:** Quality control for potable water and pressure irrigation designs including multiple pressure reducing valve station, waterway crossing (aerial, bored, and open cut) well, and booster station projects.

**Spaulding Booster Station / Pocatello, ID:** Technical Advisor and provided quality control reviews of Spaulding Booster Station and transmission pipeline mechanical components.

**Water System Improvements / Mountain Home, ID:** Technical Advisor for 12- to 28-inch high pressure water transmission pipelines that included HDPE, DI, and PVC pipe materials.

**Seamans Gulch Pump Station and Pipeline / Garden City, ID:** Construction of a high-pressure (125+ psi) water pump station to pump water from a reservoir in Seamans Gulch to a water storage reservoir located in United Water's Hidden Springs water system. Ultimately a new booster pump station was designed to accommodate total capacity, and the existing booster pump station was converted into on-site sodium hypochlorite generation storage and delivery.

**Water Intake Valve Vault Diversion / Weiser, ID:** Structural Engineer for reconstruction of the intake pump station valve vault facilities on Weiser River which included extensive shoring, helical piles as a foundation for the valve vault, and river channel evaluations to assess siltation potential.



# JEAN VON BARGEN ROOT, AIA, LEED AP BD+C, NOMA, PMP, ASSOCIATE DBIA

Architect

YEARS OF  
EXPERIENCE | 30



Jean von Barga Root has been practicing architecture in the Pacific Northwest for 30 years. As Principal and Director of Sustainability, she leads MWA's efforts in resilient design, focusing on materials, energy, water, and social justice. She has successfully designed and managed four LEED-certified projects, including wastewater facilities and mixed-use housing. Understanding sustainable design as an integrated process, Jean advocates for the owner while collaborating with stakeholders, the project team, and the contractor.

## EDUCATION

Master of  
Architecture  
University of  
Oregon

B.A., Architecture  
University of  
Washington

## LICENSES

Registered  
Architect: Oregon:  
4830

National Council of  
Architectural  
Registration  
Boards: 90374

LEED Accredited  
Professional  
Building Design +  
Construction:  
10056836

Project  
Management  
Professional:  
2039391

Associate DBIA

## AFFILIATIONS

American Water  
Works Association

American Council  
of Engineering  
Companies

## RELEVANT PROJECTS

**Bull Run Filtration Project (Net Zero) / Portland, OR:** New construction of 90-acre filtration campus, estimated construction cost of \$820M, estimated completion in 2027.

**Pendleton Bus Barn (Net Zero) / Pendleton, OR:** New construction of 7,750 square-foot (SF) administration facility, transportation bus facility, and bus shelter facility funded by Federal Transportation Administration Grant, estimated completion in 2024.

**King County Jameson/ArcWeld Buildings Replacement Project (Net Positive/Living Building) / Seattle, WA:** New construction of 62,000 SF campus, estimated construction cost of \$32M, estimated completion in 2024.

**Portland Water Bureau Interstate Operations and Maintenance (O&M) Campus (LEED Gold) / Portland, OR:** Renovation of 78,000 SF facility, construction cost of \$36M, completed 2016.

**Clean Water Services O&M Building Master Plan / Tigard, OR:** Renovation and addition to 35,000 SF facility, construction cost of \$10M, completed in 2019.

**Oak Harbor Clean Water Facility / Oak Harbor, WA:** New construction of 3-acre facility, construction cost of \$119M, completed in 2018.

**Chambers Creek Water Treatment Plant Headworks Replacement / University Place, WA:** Renovation of 89-acre campus, construction cost of \$350M, completed in 2017.

**City of Portland Emergency Coordination Center (LEED Gold) / Portland, OR:** New construction of 30,000 SF LEED Gold facility, construction cost of \$12.3M, completed in 2014.

**Spokane International Airport Administrative Building (LEED Gold) / Spokane, WA:** New construction of 25,000 SF of office space and 20,000 SF of parking garage, estimated construction cost of \$15.6M, estimated completion in 2025.



mwa architects

# Yuxin (Wolfe) Lang, PE, GE, PEng

Principal Engineer



## Education

- MS, Civil Engineering, University of Waterloo, Ontario, 2002
- BS, Geological Engineering, Hebei Institute of Civil Engineering, China, 1993

## Registrations/Certifications

- Professional Civil Engineer (Geotechnical): OR, #78866, 2007
- Professional Civil Engineer: WA, #44381, 2008; Ontario, Canada, #100049788, 2004; British Columbia, Canada, #32134, 2008
- Geotechnical Engineer: OR, #78866, 2009

## Expertise

- Foundations
- Ground improvement systems
- Soil retaining structures.
- Shoring design
- Groundwater control
- Slope stabilization
- Landslide remediation
- Soil improvement
- Construction consultation

Wolfe Lang has 30 years of geotechnical engineering experience, and his focus is on water, wastewater, and conveyance projects. He has a strong background in analyzing and designing various foundations, deep excavations and tunnels. He has expertise in seismic ground motion characterization analysis, liquefaction analyses, and seismic soil-structure and soil-pipe design. His water, wastewater, and conveyance projects include new treatment facilities and reservoirs, seismic rehab of existing facilities, deep pump stations, pipelines, and trenchless crossings. Wolfe has provided senior geotechnical review for field exploration, subsurface condition interpretation, seismic hazards evaluation, dewatering, and pipe/trench construction considerations.

## Relevant Experience

### Alder Creek WTP Improvement Preliminary Design, Clackamas County, OR (2023)

Wolfe was the geotechnical lead for the proposed improvements at Alder Creek Water Treatment Plant. Delve Underground conducted geotechnical exploration at the proposed improvement site and developed preliminary geotechnical recommendations.

### Bull Run Filtration Facility to Sandy Pipeline and Pump Station, Clackamas County, OR (2023-Present)

Wolfe is the geotechnical lead for the pipeline and pump station project between Bull Run Filtration Facility and the City of Sandy. Delve Underground conducted geotechnical explorations along the proposed pipeline alignment and developed preliminary geotechnical recommendations. Currently, Wolfe is working on the detailed design stage and will develop detailed geotechnical recommendations for the pipeline, creek crossing, pump station and treatment facilities.

### Bull Run Filtration Facility, City of Portland Water Bureau, Multnomah and Clackamas Counties, OR (2020-Present)

Wolfe is the geotechnical and seismic mitigation design lead for the new 135 MGD Bull Run Filtration Facility. The geotechnical challenges included shallow slope stability issues, seismic

ground deformation hazard, shallow groundwater, and deep excavations. The investigation and evaluation included field exploration of more than 20 borings and other instruments; cyclic shear testing on soil samples, seismic liquefaction and ground deformation modeling, site response and amplification analysis, foundation options evaluation (deep foundation vs shallow foundation), mat foundation design recommendations, pavement design, groundwater control and excavation slope recommendations, preparation of geotechnical reports; and review and preparation of plans and specifications.

### Bull Run Filtration Pipelines Project, City of Portland Water Bureau, Multnomah and Clackamas Counties, OR (2020-Present)

Wolfe is the geotechnical and seismic design lead for the Raw Water Pipeline of this project. The project includes designing two large diameter (72-inch conduit) pipelines with a deep tunnel section and shaft, connecting interties, and associated appurtenances and structures that will supply water to the Bull Run Filtration Facility. Geotechnical evaluations include seismic evaluation, excavation support system evaluation for the deep shaft, tunnel evaluation and design, groundwater control and rock excavation assessment, and preparation of plans and specifications.



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