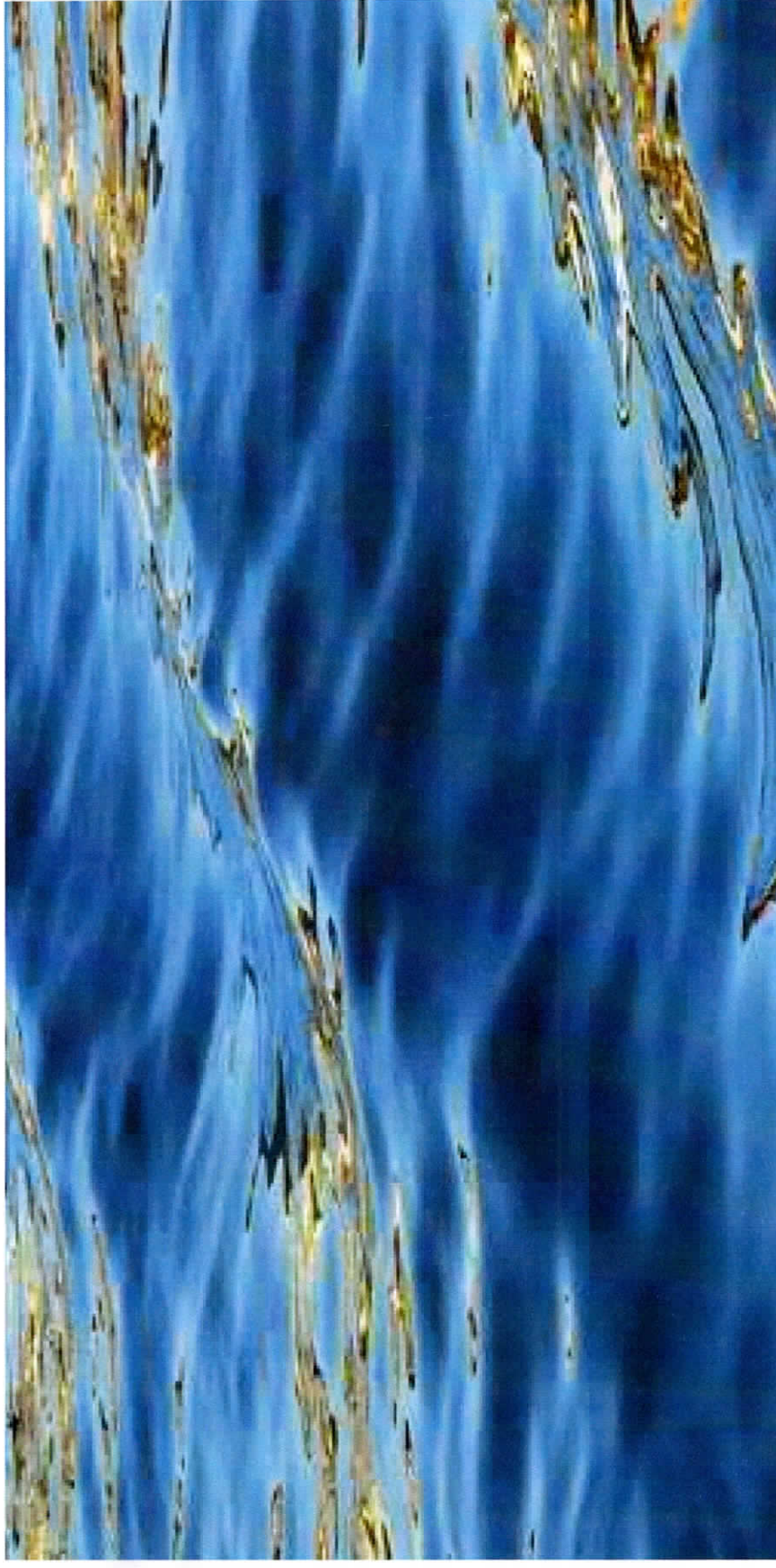


Request for Qualifications

Preliminary Engineering Report for Effluent Reuse

City of Douglas



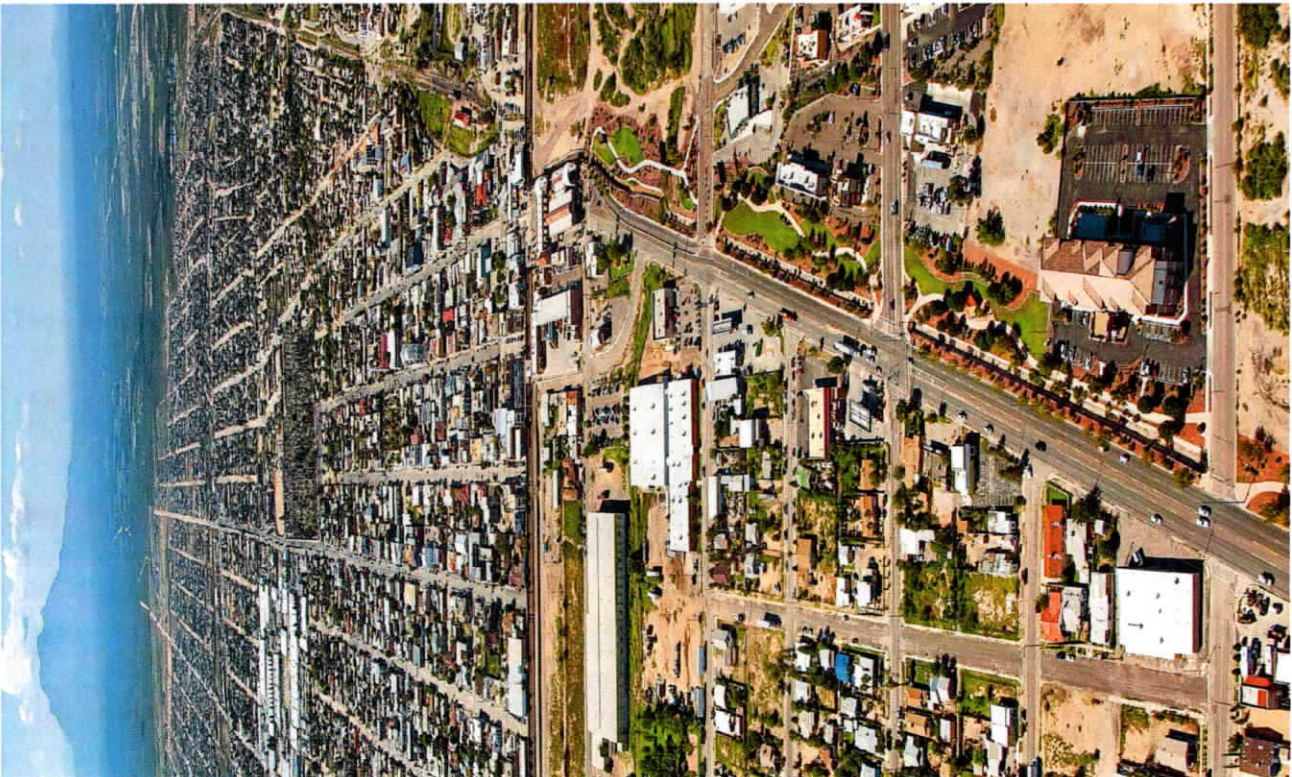


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Stantec Consulting Inc.
One South Church Avenue,
Suite 2100,
Tucson, Arizona 85701

September 19, 2024

Attention:
City of Douglas
Alma Andrade, City Clerk
425 10th Street
Douglas, Arizona 85607

Reference: RFQ 2025-PW-004

Dear Alma Andrade,

We are excited to offer you our Statement of Qualifications for the City of Douglas Preliminary Engineering Report for Effluent Reuse.

The City of Douglas is a thriving community with great schools, numerous parks, and a rural feel. Our team can help you improve your water efficiency and protect your community's water resources, even as you fulfill your vision for growth. We recognize that in today's world, municipalities are being asked to do more with less, so we are flexible, and follow our client's lead in determining how much involvement you want from us. We can serve as an extension of your staff or help lead efforts according to your needs—we have the capabilities.

Communities across the globe are seeking innovative approaches for providing clean water. When it comes to social and economic vitality, non-potable and potable water reuse are critical solutions. We lead the industry when it comes to helping clients incorporate water reuse into broader planning initiatives, all while preserving natural waterbodies and improving resiliency.

One benefit from selecting Stantec is that when you select us, you receive access to world-class cutting-edge technology and water specialists who are thought leaders in their fields. In 2023, ENR ranked Stantec **#1 for International Design Firms by Market – Sewer/Waste and #2 for Water.**

Here are a few of our SOQ highlights:

- Our local team is led by Client Services Manager **Jack Bryck**, with 45 years of experience in planning, design and construction of municipal wastewater, reuse, and drinking water systems. Project Technical Lead **Kiersten Wangsvick** has 22 years of water and wastewater engineering experience with a wide variety of projects and is located in the Stantec Tucson office.
- We have deep bench strength—one that is undistracted and not over-committed to other projects. Your projects are our team's top priority. As a result, we can confidently offer you the certainty of delivering timely, regulatory-compliant, and preliminary engineering report (PER) project. The majority of our Stantec team is based in our Phoenix and Tucson offices.

We want to be your long-term partner. As you grow from your small-town roots, Stantec will be here to support you in establishing your infrastructure. We will leverage our advanced expertise/technology and qualified partners to deliver your projects to the safest, most dependable, and highest standards.

We acknowledge receipt of Addendum #1 and Addendum #2, dated August 29, 2024. This offer in response to this RFQ # 2025-PW-004 will remain valid and irrevocable for 90 days after the opening time and date.

Regards,

Stantec Consulting Ltd.

Kiersten Wangsvick

Kiersten Wangsvick, PE, PMP
Principal-in-Charge
520-545-7411
kiersten.wangsvick@stantec.com

Digitally signed by Bryck, Jack
DN: cn=Bryck, Jack*,
ou=Internal OU=users,
o=Stantec, DC=corp,
c=US
Date: 2024.09.19
13:44:58-0700

Bryck, Jack

Jack Bryck, PE, BCEE
Senior Technical Advisor
480-244-6886
jack.bryck@stantec.com

Introduction

The City of Douglas (City) has over 100 years of history and is ranked as one of the nation's best "metropolitan" areas, with great schools, numerous parks, and a thriving community. It's located in Cochise County in southeast Arizona, on the United States – Mexico international border.

Serving over 15,500 residents, the City Wastewater Treatment Plant (WWTP) has a capacity of 2.6 MGD (maximum of 3.1 MGD) with effluent being discharged into the City of Agua Prieta, Sonora, Mexico.

The City WWTP consists of headworks, grit chamber, sedimentation tank, oxidation ditch, clarifier, Return Activated Sludge/Waste Activated Sludge (RAS/WAS) pump station, aerobic digesters, and electrical and instrumentation.

The new Active Management Area (AMA) prompts the City to adopt conservation measures to help alleviate the depletion of their aquifer. With the help of WIFA, the City can conduct a preliminary engineering study to present options on the reuse of the effluent generated from the WWTP. The objective of the study is to incorporate recommendations for processes that would transform the City's Class B+ water to Class A (or better) to allow its reuse per environmental standards and requirements.

City of Douglas Engineering Support History

Stantec has been a trusted consultant to the City of Douglas for 5 years. During this period, Stantec has supported the City with drinking water source improvements to meet existing and future water demand through development of the City's water distribution system hydraulic model and a strategy to increase the City's groundwater supply pumping capacity including rehabilitation and addition of water treatment to Well 14. We have also worked closely with City on development of approaches in support of the City water, wastewater, and broadband obligations to the US Government Services Administration for the proposed Douglas Port of Entry (POE) with recognition of City growth in the West Douglas Service Area. **In the Douglas POE approaches, we recognized the sustainability challenges of the Douglas Groundwater Basin with groundwater withdrawal by recommending a program to lower the City's long-term groundwater withdrawal but maintain the level of service expected by the City's customers.**

The partnership has been mutually beneficial, with Stantec delivering tailored solutions that align with the City's needs and objectives. Through close collaboration and a deep understanding of the City's needs, Stantec has been able to recognize and address with the City the challenges of growth in population, water demand, wastewater flow and broadband availability associated with Douglas POE.

Jack Bryck, a Senior Technical Advisor with Stantec, and Project Manager on various City of Douglas projects, has been the main point of contact between Stantec and the City of Douglas Deputy City Manager Luis Pedroza.

Stantec began work with the City in early 2019. The work was to develop water and wastewater requirements and options to not only support the proposed City POE but also include lands stretching along SR 80 to Cochise College and along US 191 to the Bisbee Douglas International Airport. The work was captured in the *Proposed Douglas Port of Entry Water and Feasibility Report* dated December 11, 2020. The effort included funding opportunity research looking at funding strategies and funding state and federal grant programs. In recognition of the impact of growth on the groundwater supply, the report included a recommendation on water supply sustainable practices and initiatives to protect the Douglas groundwater supply. The report also completed an extensive review of the local groundwater resources investigation that reviewed the regional geologic and hydrogeologic setting of the Douglas Basin natural recharge, existing production wells in the area, groundwater movement, and historic groundwater water levels. The report includes a financial and growth analysis including a detailed funding opportunity research.

The work is followed by the 30% Detailed Design and Basis of Design Report entitled *Douglas POE & Services Areas Water and Wastewater Infrastructure* dated October 21, 2022.

Both documents involved close collaboration with City staff on the impact of associated land development identified by the City in support of the POE on the long-term growth estimate in water demand and wastewater flow.

Stantec worked with the City staff on the development of the *City Hydraulic Water Distribution Model and Evaluation of the Existing Water System* culminating in an October 30, 2020, report. The effort resulted in a good understanding of the drinking water usage profile between winter (indoor) demand that flows to the WWTP and summer (indoor plus outdoor irrigation such as the golf course, parks, etc.) demand throughout the City system.

Stantec has extensive groundwater aquifer experience with the City including a review of groundwater wells, 6, 11, and 15 and the concerns with the lowering water table and the rehabilitation and upgrade of Well 14 as a sustainable source of water for the City.

Stantec assisted with a review of the City golf course historic water usage, water use profile, and impact on the City groundwater supply particularly during the City's peak water system demand.

Stantec is currently supporting the City in the 100% detailed design of the water, wastewater, and broadband infrastructure to support the Douglas POE and the service area along SR 80 and the Douglas Connector Road between SR 80 and the Douglas POE. The work includes an Environmental Information Document for SR 80 in support of the EPA National Environmental Policy Act (NEPA), a NEPA for Arizona Department of Transportation (ADOT) for the POE Connector Road, and a detailed analysis of future City water and wastewater associated with potential growth between the west City boundary and Cochise College, including the Douglas POE.

We have a good working relationship through our various projects with the City staff including Luis Pedroza, Elise Moore, Miguel Arvizu, Elberta Acosta, Luis Valenzuela, Eddie Gonzalez, Rene Rios, Damian Dorame along with the County Planners, Dan Coxworth and Christine McLachlan, and County Engineer Jackie Watkins.

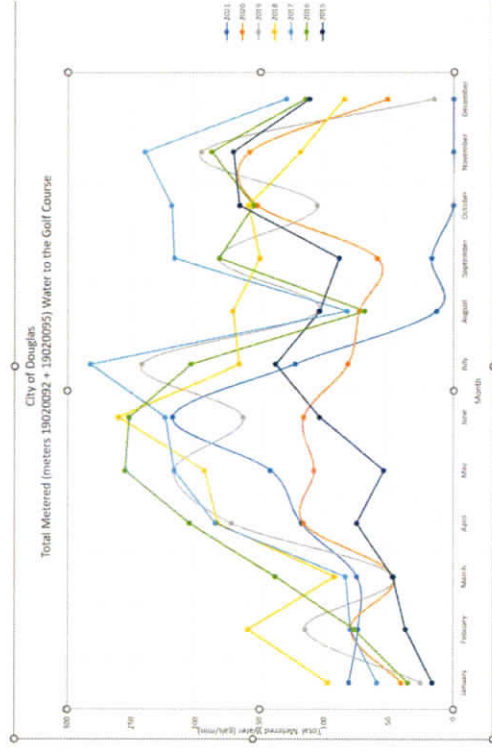


Figure 1. Preliminary review of City of Douglas' golf course historic water usage



Figure 2. Potential sites for effluent use

Our Qualifications

Since 1954, our local strength, knowledge, and relationships, coupled with our world-class expertise, have allowed us to go anywhere to meet our clients' needs in more creative and personalized ways. With a long-term commitment to the people and places we serve, Stantec has the unique ability to connect to projects on a personal level and advance the quality of life in communities and across the globe.

Stantec's work—engineering, water/wastewater/stormwater, environmental sciences, architecture, landscape architecture, surveying, project management, and project economics, from initial project concept and planning through design, construction, and management—begins at the intersection of community, creativity, and client relationships. Relationships are the foundation of successful projects and are often among the most important assets for our clients. In our work, Stantec invests in deepening and strengthening relationships between our team, our clients, and the communities they serve.

Today, Stantec is a community of approximately **30,000 people** working in over **450 locations** across **6 continents**. With more than **1,700 water resources specialists** in the US, we provide a full range of water services to address our client's issues. Our clients are at the center of everything we do, and we create long-term value through our four value creators: excellence, innovation, people, and growth.

Our Wastewater Treatment and Reuse Capabilities

Stantec is an Arizona leader in water and wastewater infrastructure projects including planning, design, and construction services. Our local staff brings expertise in the areas of water and wastewater treatment, water transmission and pump stations, wastewater collections, and lift stations, water supply planning and modeling, water reuse planning, and implementation.

Our team has a long and successful water and wastewater treatment history across Arizona and the West. Our treatment experience and knowledge of both established and emerging technologies encompasses arsenic, PFAS, and 1,4-Dioxane treatment, advanced treatment facilities, complex biological nutrient removal/resource recovery processes, membrane bioreactors, sequencing batch reactors, biosolids management and handling, residuals management, low-pressure membrane filtration, ion exchange, advanced oxidation odor control and air pollution, and water reuse.

180+

PFAS and UV-AOP projects completed nationwide

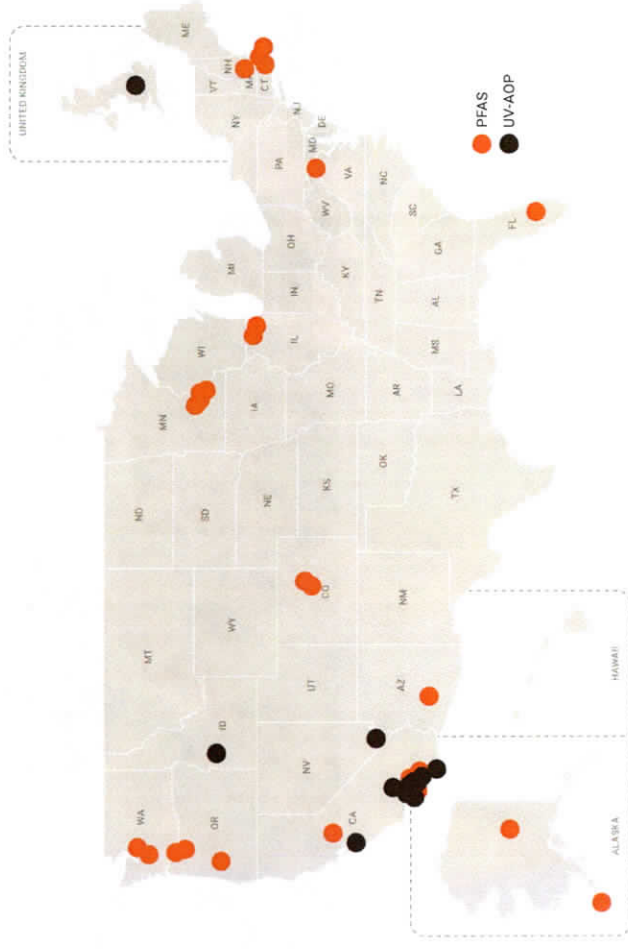


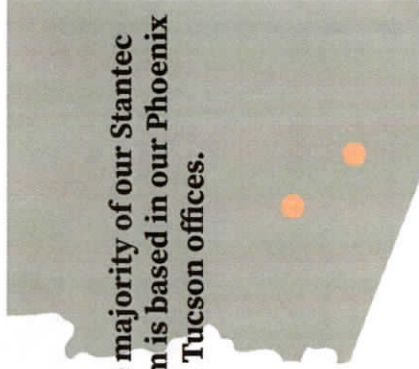
Figure 3. Map illustrating cities where Stantec has completed PFAS and UV-AOP Projects Nationwide

Stantec offers an unmatched advanced water treatment portfolio that combines worldwide expertise with local knowledge and understanding to address specific client needs. We're at the forefront of developing creative solutions to improve and expand this critical infrastructure and developing Direct Potable Reuse (DPR) implementation in Arizona.

Stantec supported the development of the Framework for DPR in Arizona, published in 2018, and has also participated actively in the Technical Advisory Group for the DPR Rulemaking effort in Arizona.

Stantec has been involved with the three largest AWT, also known as DPR, programs in the US.

The majority of our Stantec team is based in our Phoenix and Tucson offices.



We've provided planning and design services for some of the most iconic projects in the US and abroad, including:

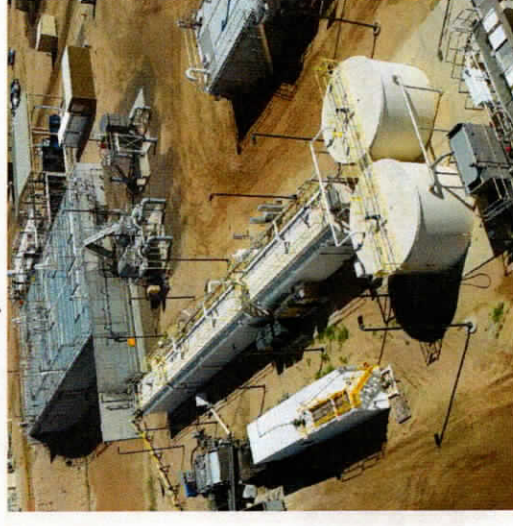
- California's first Surface Water Augmentation project and the first Membrane Bioreactor (MBR)-based potable reuse train in the US.
- The City of Tempe to determine the characterization of their wastewater quantity and composition for both residential and commercial municipal customers to support the proportional assessment of the City of Tempe cost of service sewer rates.
- Design of the 14.74 MGD Nogales International Wastewater Treatment Plant in Nogales, Arizona.
- Expansion of the Luke 303 Water Reclamation Facility to a 1.75 MGD, in Phoenix, Arizona, which won the 2024 Arizona Water Wastewater Project of the Year Award for Phase 1.
- Stantec was awarded the first and largest MBR-based DPR process train for the Metropolitan Water District of Southern California.



2024

AZ Water Award

Wastewater Project of the Year



Luke 303 Water Reclamation Facility

#1

Top 10 International Design Firms by Market - Sewer and Waste
(ENR August 2023)

#11

Top 50 Design Firms in Environment - Sewer and Waste
(ENR July 2024)

#2

Top 10 International Design Firms by Region - United States
(ENR August 2023)



INNOVATIVE, FIT-FOR-PURPOSE WASTEWATER SOLUTIONS

Our experts collaborate with clients to build a comprehensive view of their water and wastewater assets through process stream characterization, hydraulic modeling and analysis, condition assessment, and facility audits. We then formulate forward-looking strategies to enhance efficiency, operability, and resiliency. This includes exploring and implementing opportunities for resource recovery—a pragmatic and sustainable approach that transforms influent and effluent wastewater streams into valuable renewable assets.

Stantec stands at the forefront of water treatment as well as wastewater treatment and recovery. We have helped clients across the globe develop and implement resource recovery solutions that reduce consumption and environmental impacts through innovative means. Our designs have satisfied discharge limits that push the boundaries of existing solutions, and we're continually pioneering advances in process intensification, digitally supported operations, and treatment of emerging contaminants. Together, we are paving the way for the Water and Wastewater Utility of the Future.

HOW WE CAN HELP

- » Master planning
- » Hydraulic modeling and analysis
- » Process modeling
- » Operational efficiency audits (water, energy, and chemical use)
- » Pilot and treatability studies
- » Treatment process design and optimization
- » SCADA and control system design including advanced analytics, automation, and machine learning

- » Sustainable and carbon-neutral building and site design
- » Greenhouse gas emissions management
- » Energy management including alternative energy use and net-zero initiatives
- » Regulatory and permitting support
- » Funding and financial services
- » Public Outreach and education

OUR RESOURCE RECOVERY EXPERTISE:

WATER

- » Arsenic, PFAS, and 1,4-Dioxane water treatment
- » Water reclamation for non-potable reuse (irrigation, cooling, etc.)
- » AWT (direct or indirect potable reuse)
- » Brine management
- » Groundwater recharge

ENERGY

- » Anaerobic digestion
- » Waste-to-energy systems
- » Heat recovery, cogeneration, and combined heat and power
- » Sustainable energy management
- » Production, use, and sale of biofuels including biomethane, hydrogen, and renewable natural gas

RESIDUALS

- » Beneficial reuse master planning
- » Biosolids thickening, dewatering, and stabilization
- » Carbon capture
- » Advanced nutrient recovery
- » Production and marketing of compost, soil additives, and other agricultural products

Funding Services

We recognize that securing funding is a critical component of executing projects that advance the quality of life in communities. For 30+ years, Stantec has partnered with our clients to successfully apply for grants and loans and have helped our clients secure over \$4 billion in funding.

We understand the challenges of executing critical projects and have provided thousands of local governments and utilities with objective and independent guidance to manage and fund life-sustaining infrastructure. For water and wastewater utilities, many funding sources are part of long-established federal, state, or local programs with evolving priorities. As one of the largest North American water engineering firms with over 4,000 water experts worldwide, we have worked for, and with most of these agencies. We know them. We know their priorities. And, we know what they are likely to fund. Our teams can rapidly identify suitable funding sources and craft competitive and compelling grant applications to advance the projects that meet the objectives of both the grantee and grantor.

We have designed wastewater treatment facilities ranging in capacity from

0.25 MGD to 800 MGD

Key Project Staff Experience

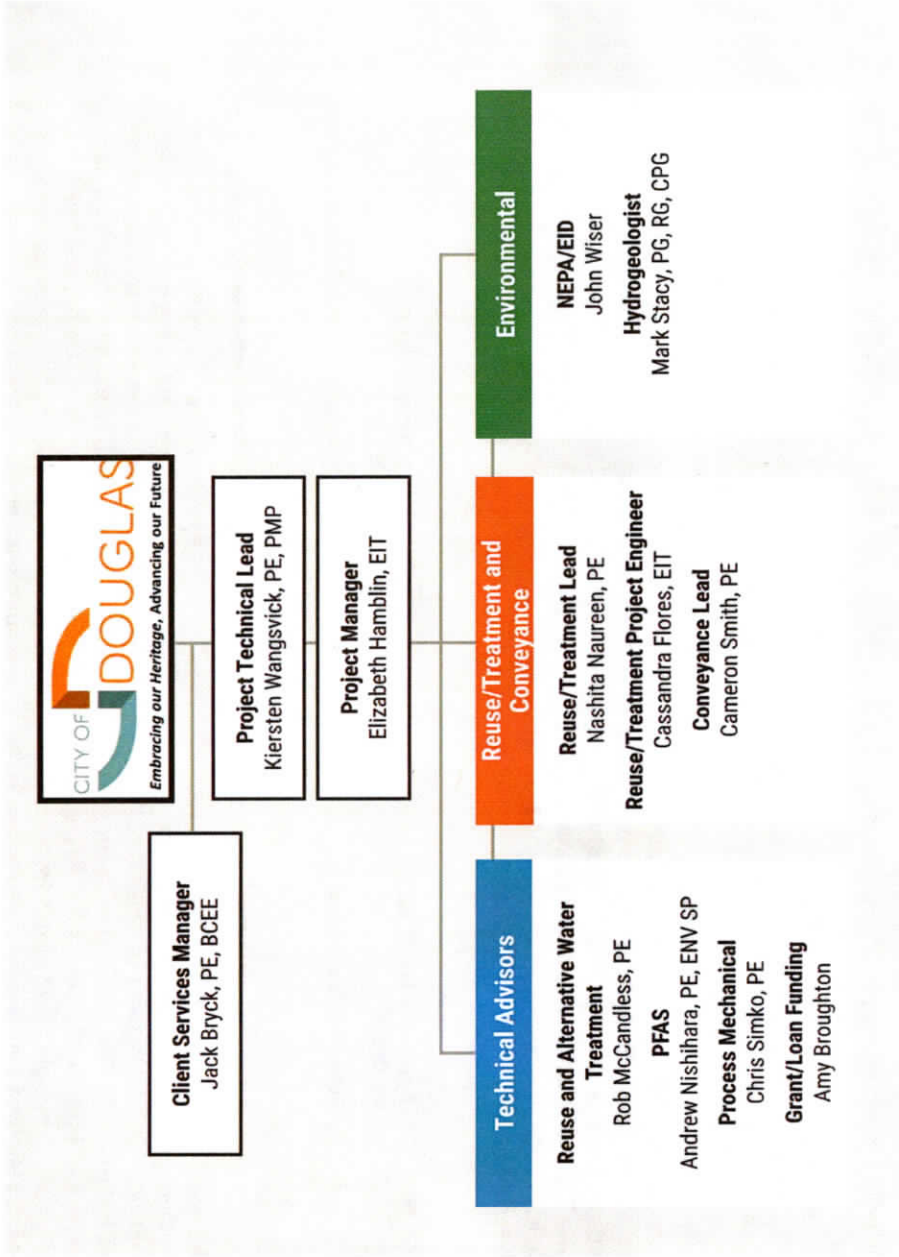
Our proposed team was carefully selected based on their relevant experience, availability to perform the work, and record of success. In addition to having key technical expertise and decades of experience on similar projects, our team members have established working relationships, enabling efficient use of resources and integration activities and timely execution of deliverables. Our key personnel illustrate our team's ability to comprehensively serve the City of Douglas.

Our organizational chart demonstrates how our team members are strategically organized and managed to verify tasks are delivered smoothly and efficiently. Our Project Technical Lead, Kiersten Wangsvick, will serve as your direct contact and will manage the day-to-day tasks and activities. Kiersten is supported by Client Services Manager, Jack Bryck, and Project Manager, Elizabeth Hamblin, who have worked with you before, along with experienced professionals in all required scope of work areas, each of whom is committed to you throughout contract duration.

Full Resumes can be found in Appendix A.

Our team members have been working together for years on Arizona projects—creating a culture of trust and respect. Your project will benefit from our successful working relationship and confirm your goals are achieved.

Team Organizational Chart



Our Team



Jack Bryck
PE, P. Eng

Client Services Manager

Jack is a civil and an environmental engineer with a broad background in the planning of systems focused on 'One Water'. For the last five years, Jack has worked with the City of Douglas's infrastructure in support of the Douglas POE. Jack has been working in Arizona for over 24 years and has extensive work experience in the metro Phoenix area. He recently worked on the recharge basins, groundwater injection and recovery wells at Apache Junction. Jack has worked at wastewater reclamation plants including the San Jose Santa Clara Water Reclamation Plant, where he worked on the design of membrane filtration plants, activated carbon contractors, and planning of reuse facilities.



Rob McCandless
PE,

Reuse & AWT Technical Advisor

Rob has 30+ years of experience in wastewater treatment plant process evaluation, planning, and design. His most recent work involves developing innovative advanced water purification processes for potable reuse. Rob will bring his insights about advanced water treatment (AWT) and direct potable reuse (DPR). Rob is playing a significant role with ADEQ in Arizona's DPR and AWT statewide guidance.



Kiersten Wangsvick
PE, PMP

Project Technical Lead

Kiersten Wangsvick, PE, PMP, will lead our project team as our Project Technical Lead and be your primary contact. She is a registered Project Management Professional (PMP), has a Master of Science in agricultural & bioresource engineering, and holds a NASSCO certification for sewer inspections as well as an Arizona Grade 2 Wastewater Operator's License. Kiersten is also experienced in developing preliminary engineering reports and feasibility studies for water and wastewater infrastructure projects. She developed wastewater feasibility studies for the Town of Wellton, Arizona, for Ryan Airfield in Tucson, Arizona, and for Orange Grove Rancho Mesa Verde near Yuma.



Andrew Nishihara
PE, ENV SP

PFAS Technical Advisor

Andrew will be our PFAS Treatment lead. He recently helped the City of Tempe design retrofitable GAC/IX vessels for their Well 4 PFAS treatment project working with our Phoenix and Tucson staff. He has delivered PFAS projects in eight other states from coast to coast. He advocates retrofitable design to allow for media flexibility without needing more equipment in the swirling regulatory climate and to be adaptable as PFAS removal technology advances.



Elizabeth Hamblin
EIT

Project Manager

Elizabeth brings almost a decade of project management experience to the table. She consistently supports project managers in handling scope, contracts, invoices, forms, budgets, change orders, and ensuring smooth project execution. Since 2021, she has been collaborating with the City of Douglas project teams, managing schedules, scope, and budgets. Elizabeth is ready to apply her expertise to this project.



Chris Simko
PE

Process Mechanical Technical Advisor

Chris understands what it takes to move water around Arizona. Over the course of his career, entirely based out of the Phoenix office, he has worked on lift station design across Arizona, including Douglas, Casa Grande, and the Phoenix metro area, and will provide technical leadership and consistency in design guidelines for each well, pump station, and lift station assignment. Chris will oversee and provide hands-on design of on-site well equipping, pump stations, and lift stations.



Cameron Smith
PE

Conveyance Lead

Cameron Smith is a water and wastewater conveyance engineer with over 10 years of experience, in water, wastewater, and storm water design and construction projects. He is also the engineer of record for several clients in other ongoing and completed water, wastewater, and storm water projects. Cameron designs with constructability in mind and strives to find efficient and cost-effective solutions for his projects.



Nashita Naureen
PE

Reuse/Treatment Lead

Nashita is an Arizona water community leader. She will bring her expertise in mechanical design of wastewater and AWT processes, as well as her deep background in managing diverse projects and programs across the Arizona water market.



Cassandra Flores
EIT

Reuse/Treatment Project Engineering

Cassandra Flores, EIT has a background in Chemical and Environmental Engineering. Specializing in conveyance and water treatment, she has developed a foundation on authoring technical reports, packaging technical specifications, and using organizational skills to ensure projects are executed efficiently and effectively. Having been involved in several City of Douglas (City) projects, she is familiar with the City's needs and expectations.



Amy Broughton

Grant/Loan Funding

Amy is a financial and management consultant focused on supporting complex infrastructure projects and transformative business practices. She brings 24 years of industry expertise to the team. Recently, Amy helped nine applicants successfully apply for more than \$2 billion in US Environmental Protection Agency (EPA) Water Infrastructure Finance and Innovation Authority (WIFIA) funding. She led the Stantec effort with Financial and Growth Analysis-Cost Benefit Analysis of POE project options and Funding Opportunity Research as part of the December 11, 2020, Stantec report.



John Wiser
PE, ENV SP

NEPA/EID

John is an environmental planner and seasoned NEPA practitioner with more than 30 years of experience in environmental consulting. He specializes in project planning and regulatory compliance for federal land agency projects. John's strength is leading public outreach and agency meeting facilitation, with experience in environmental conflict resolution. He led Stantec's environmental team that developed the SR 80 Environment Information Document as part of the NADB/EPA NEPA process. John has been responsible for environmental projects in Arizona.



Mark Stacy
PG, RG, CPG

Hydrogeologist

Mark has over 29 years of experience in groundwater development, water wells, water supply projects, and hydrogeology. He is experienced in all facets of groundwater development and water well construction. Mark has led the work on the City's Well 14 rehabilitation and the report on siting the new POE/West Douglas Service Area groundwater and assisted in the City's Well 18. He has an intimate knowledge of hydrogeology in the Douglas area as part of any recharge considerations.

Relative Project Experience

Tucson Water Reservoir and Tank Rehabilitation Program

Location: Tucson, Arizona
Client Name: Yuma County

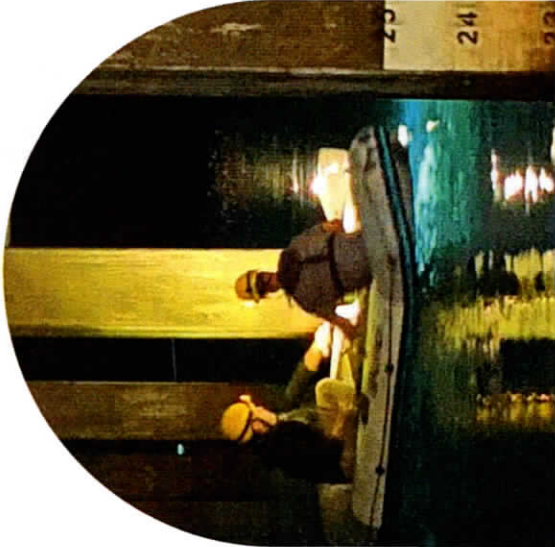
Water storage facilities are costly elements of a water distribution system requiring regular inspection to help ensure their reliability and functionality. Tucson Water’s potable and reclaimed systems consist of over 70 concrete and steel storage facilities that store more than 335 million gallons of water. These critical components of the water delivery system were built mostly in the 1980s and 1990s, so upkeep is vital

In partnership with another consulting firm, our turnkey asset management program includes conducting inspections of tanks and reservoirs on a rotating annual basis and we produce condition assessment reports for each one. Commercial scuba divers (subcontracted) perform interior tank inspections that include cleaning, inspection, video documentation, and condition reporting of the infrastructure, while Stantec’s structural engineering team uses rafts to conduct inspections of larger tank interiors.

These inspections inform necessary capital improvement projects, and the program team is working closely with Tucson Water to provide innovative, cost-saving solutions that include rehabilitation design plans and overseeing construction services.

From 2021 through 2024, Stantec has:

- Conducted 13 structural raft inspections on concrete reservoirs and steel tanks
- Developed 19 condition assessment reports
- Developed 2 find and fix reports which include 15% design plans and cost estimates for job order contractors to do immediate rehabilitations
- Developed 3 basis of design reports which include 15% design plans and cost estimates for rehabilitation of 2 tanks and 1 concrete reservoir
- Prepared plans and specifications for the full rehabilitation of two concrete reservoirs
- Conducted a process engineering mixing and ventilation study for seven water storage facilities
- Conducted a hydrogeologic investigation and alternatives analysis for a perched water table under a concrete reservoir



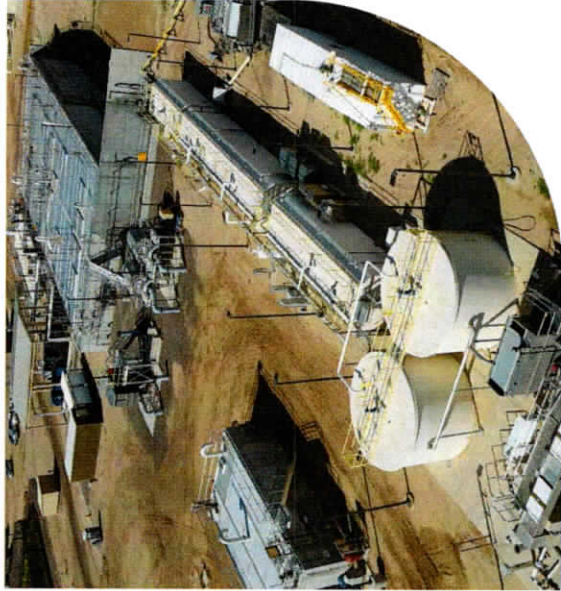
Apache Junction Water Reclamation Facility Expansion Phasing Plan

Location: Apache Junction, Arizona
Client Name: Apache Junction Sewer District (AJSD)

The AJSD retained Stantec to prepare a Water Reclamation Facility (WRF) Master Plan in 2019. Completed in 2022, the master plan recommended that a detailed phasing plan be prepared for the existing 90-acre WRF site to expand the facility from the current 3 MGD to the projected buildout of 26 MGD. The phasing plan is required to align the water quality goals identified in the reuse strategy, including the role of the existing and planned recharge basins.

Stantec prepared the phasing plan based on the results from the AJSD WRF Master Plan and Collection System Master Plan (completed in 2021). The phasing plan was progressively constructed through a series of concept and technology workshops with the AJSD to review and deliver alternatives analysis. The project was delivered in eight months from notice to proceed as a final report and Board presentation with site plans, construction estimate, and phasing plan, along with interim suggested capital improvements prior to the first expansion.

Stantec’s work also included capacity analysis and improvement alternatives for initial expansion through buildout for primary treatment, secondary treatment and filtration, disinfection, biosolids, odor control and ancillary systems (chemical/electrical/SCADA), reclaimed water management (recharge, discharge, and water reuse); biosolids management strategies; Class V construction cost estimates; facility layout; and capital improvement planning.



EPCOR Luke 303 Water Reclamation Facility

Location: Phoenix, Arizona

Client Name: EPCOR

In 2019, the PCL/Stan­tec design build team was selected to provide a master plan for the WRF expansion to accommodate the near-term expansion from 0.19 to 0.50 MGD within one year and to ascertain the additional phases to 10 MGD full buildout. The initial phasing plan was completed in 2 months and included installing a package plant within the 1-year period, which, pre-COVID, was barely achievable.

Working under a design-build delivery method, PCL/Stan­tec designed the Phase 1 expansion with multiple milestone expansions: from 0.19 to 0.50, to 0.94, to 1.56, to 2.19 MGD. Each of these milestones were achieved on or ahead of schedule with the final completion of the liquid treatment by July 2022 and solids treatment by March 2023. Our flexible design and technology migration strategy enabled accelerated process intensification and process change within an 8-to-10-month window.

Phase 2 design is progressing to expand the 2.19 MGD SBR treatment facility to 5.31 MGD with flow-through SBR treatment at a significantly reduced cost, including influent pump station and headworks, equalization, secondary treatment, filtration, disinfection, biosolids, odor control, recharge basins, power, and SCADA. The aeration system, decanter, and tankage are all designed so there will be no throwaway costs in the full buildout expansion.

Because the facility will be 100% recharge, it requires an ADEQ Aquifer Protection Permit. Therefore, Stan­tec is helping the Maricopa County Planning & Development Department and Environmental Services Department navigate the tight permitting timeframes associated with the fast-tracked deadline. The project is the first of its type for Maricopa County.

Won the 2024 Arizona Water Award for Wastewater Project of the Year

South Bay International Wastewater Treatment Plant Upgrades

Location: San Diego, California

Client Name: US International Boundary and Water Commission (IBWC)

A recent contract award from the U.S. Section of the IBWC, the South Bay International Wastewater Treatment Plant in San Diego, California, will undergo a major rehabilitation and expansion.

Stan­tec has been selected by contractor partner PCL Construction to lead the design for this progressive design-build project, which will double the plant's current treatment capacity and help provide cleaner, safer water to local communities.

Tijuana's crumbling wastewater system has suffered several pipeline breaks and other challenges in recent years—a situation compounded by heavy winter storms. The South Bay plant has provided a backstop for Mexico by routinely taking more wastewater than it was designed to handle.

The project involves rehabilitating several parts of the South Bay International Wastewater Treatment Plant that repeatedly break down and expanding its treatment capacity from 25 MGD of wastewater to 50 MGD.

Tacna Water Supply Project

Location: Yuma County, Arizona

Client Name: Yuma County

Stantec prepared a study for Yuma County's Tacna water system. Stantec completed a PER and ER for the system per USDA Rural Development standards, to allow Yuma County to apply for CDBG funding for the project. The existing water system included 175 service connections. The water system included a groundwater well, storage, pumps, and distribution piping. The system was in violation of ADEQ requirements for arsenic and the water quality had very high total dissolved solids, so it was very poor quality. The purpose of the study was to determine the best long-term solution for the community that provides a safe and reliable water system. Both surface water and groundwater were evaluated, as well as various treatment techniques. The report included life cycle cost analyses for the potential alternatives, including both capital and O&M considerations. This study was completed in January 2020.

Experience analyzing water quality, water supply alternatives, pipeline routing, meeting local and federal water requirements, providing life cycle analysis for multiple alternatives, and helping to acquire federal funding for municipalities illustrates Stantec's expertise and commitment to community water systems.

Tacna Water Infrastructure Improvements

Location: Yuma County, Arizona

Client Name: Yuma County

Stantec evaluated and are designing a new water supply treatment distribution system for Tacna customers through a conventional Design/Bid/Build project delivery method. Tacna's existing potable water system has been in place since 1980 and the system was comprised of a groundwater well, piping, pumps and storage. Few system upgrades have been completed since 1980 including installation of a raw water intake on the Wellton-Mohawk Irrigation and Drainage District (MWIDD) canal, which was utilized to provide surface water to a package water treatment system installed in 2007.

The surface water treatment system has been taken off-line and removed from the community distribution system. In addition, the remaining groundwater is in poor condition and unable to provide potable water to community customers leaving customers to use bottled water for cooking and drinking.

Our team has assessed the groundwater and surface water supply and treatment options, fire flows, pumping requirements, storage quantity, and tank options. The resulting system will replace the existing, non-compliant water supply system with potable water and fire protection. Elements include a new packaged water treatment plant (0.085 MGD) with pre-treatment and ultrafiltration; a new turn-out in the WMIDD canal; a raw water supply line to the new water treatment campus, a raw water pump station, a finished water pump station, a ground well; an above ground finished water concrete storage tank (150,000-gallon) and a new distribution system with water meters and fire hydrants.

In addition to the previously listed components, the use of a prestressed concrete tank played a key role in enhancing the structural resilience and durability for the treatment campus.

The new 150,000-gallon storage tank consists of reinforced concrete design, a mechanical mixing system for THM mitigation as well as a divider wall and dual mechanical piping to provide redundancy and optimal maintenance access condition. The new above-ground storage tank also provides the required contact time to meet 2-log virus inactivation. The storage was designed to meet the peak flows of 0.080 MGD.

The above-ground storage tank will be used for both disinfection and water storage. The finished water storage tank contains a single baffle down the middle to divide the tank into two compartments which will provide flexibility to take a side of the tank down for maintenance. The tank which will be located at the treatment site will include access hatches, vents, inlet piping, outlet piping, drain piping and an overflow. As a result of the elevated levels of TOC in the raw water and higher water age in the finished water storage tank, a mechanical mixing system is proposed specifically to remove trihalomethanes.

The tank is designed as an above-grade tank resting on a 14-inch reinforced concrete mat. The mat is thickened to 18-inch under the 12-inch exterior walls and the 16-inch central interior wall. Roof slab is to be 12 inches thick. The tank is subjected to thermal loads from the sunlight as well as hydraulic loads from the stored water. The tank is also subjected to roof loads during operations and maintenance.

Once constructed, the storage tank will collect the filter effluent and provide water for end-user distribution system. The tank will be filled from the raw water pumps when the tank level reaches a certain low setpoint, and the filling will stop when the tank level reaches a high setpoint.



Jal Wastewater Treatment Plant -PER and WWTP Design and Disposal Area Design

Location: Jal, New Mexico

Client Name: City of Jal

Description of the services provided:

- **PER:** Provided recommendations for a new WWTP to bring the City into permit compliance.
- **Preliminary design and final design for new Jal WWTP:** After completing the preliminary design in the fall of 2022, we are preparing the final design of the City of Jal WWTP recommended alternative within the PER, a new 0.17 MGD Four-Stage Bardenpho WWTP.
- **Design of disposal:** The NMED required the design and construction of a new wastewater disposal facility.

The City's vision for its WWTP is to be a 100% reuse facility with discharge to the golf course, City-owned facilities, and the oil and gas industry. Allowing the oil and gas industry to use treated wastewater for hydraulic fracturing will limit the industry's depletion of freshwater resources. Unfortunately, ongoing challenges meeting the groundwater discharge permit limitations due to significant increases in influent loads and aging infrastructure have kept the City from achieving this vision. The City intends to replace its existing WWTP with a new New Mexico Environment Department (NMED) approved WWTP with the ability to serve the rapid oil and gas industry-driven population growth. Highlighted next are three project phases in which we provided wastewater treatment and related services for the City.

Preliminary Engineering Report (PER)

Our PER provided recommendations for a new WWTP to bring the City into permit compliance. We analyzed several alternatives within the PER, including a new Four-Stage Bardenpho (conventional treatment), a new MBR facility, and rehabilitating the existing WWTP. The City chose the conventional treatment method alternative due to its ability to efficiently meet the discharge permit limitations and lower capital costs. As a result, the NMED approved the PER. In our pursuit of US Department of Agriculture (USDA) Rural Utilities Service funding, we also

prepared a sewer revenue sufficiency analysis to help the City understand how to pay for the operations and maintenance costs of the new facility with the sewer rate revenue. We designed the new facility so that the operations and maintenance costs would be less than those of the existing facility.

The team assisted the City with becoming designated as a Colonia, providing them with increased opportunities for funding. Through this process, we prepared an application receiving approximately \$10M in funding for the construction of the WWTP. We were successful in obtaining the remaining \$15M in USDA funding that was needed to move forward.

Johnson Hill West Tank Rehabilitation

Location: City of Portales, New Mexico

Client Name: City of Portales

Stantec completed a PER for the City of Portales Water Storage Facilities, including the Johnson Hill (JH) West & East Tanks, Lime Street Tank, and Rotary Tank. The JH West Tank was determined to be the highest priority tank for refurbishment, followed by the JH East Tank as the second priority. The JH West Tank has three million gallons of storage capacity. The PER was utilized to obtain \$2,231,785 for improvements to the JH West. Improvements include a new interior/exterior coating system, inlet/outlet and overflow piping, roof vent, OSHA-compliant exterior ladder; rehabbing the depth gauge; tank level sensor; SCADA; and cathodic protection. Coupons of the tank floor were obtained and determined that the floor did not require replacement. However, during the inspection of the tank roof framing, it was determined that the roof framing necessitated replacement. The new roof framing included columns, beams, rafters, and sheeting. Chlorination system improvements included a new metal building with an overhead crane for one-ton gas chlorine tanks; a new one-ton tank scale; fiberglass building for four 150-pound gas chlorine cylinders, scales, chloride solution injection pump, and residual chlorine analyzer; and backup generator. Other improvements included the removal of a non-operating 24-inch check valve, capping redundant outlets on the West Tank, and a new 18-inch flow meter on the tank supply line.

Orange Grove/Rancho Mesa Verde Preliminary Engineering Report

Location: Somerton, Arizona

Client Name: Yuma County

Stantec wrote a PER and environmental report (ER) for the Orange Grove/Rancho Mesa Verde sanitary sewer collection system. This sewer connection project will provide sewer service to the 332 parcels of the proposed Orange Grove/Rancho Mesa Verde (OGRMV) Improvement District, located in Yuma County, east of the City of Somerton, in Arizona. The properties within the OGRMV low-income subdivision have septic tanks and/or cesspools for wastewater disposal. The PER analyzed alternatives for collecting wastewater within the two subdivisions for routing a sewer connection from the OGRMV subdivisions to the City of Somerton, and for connecting to the existing City of Somerton sanitary sewer systems. Our team performed a capacity analysis of the City of Somerton collection system at potential connection points and analyzed impacts of the additional flow to existing downstream wastewater lift stations. The recommended project will include a new sewer lift station and force main for sewer conveyance on the south side of US 95, as well as upgrades to an existing City of Somerton lift station.

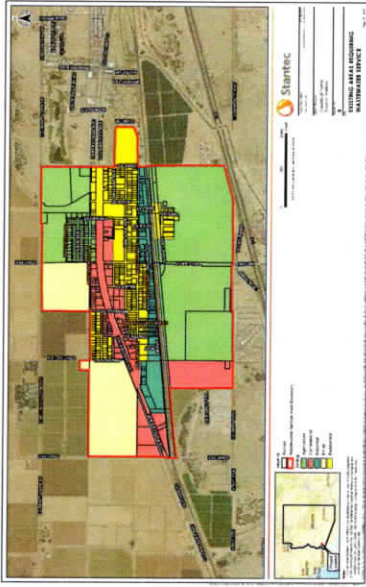
Stantec's ability to analyze wastewater flows, collection system, and pipeline routing provides communities with the data needed to plan for future improvements to their sanitary sewer systems.

Orange Grove/Rancho Mesa Verde Improvement District (Update)

Location: Somerton, Arizona

Client Name: Yuma County

Orange Grove and Rancho Mesa Verde are existing residential communities on the outskirts of Somerton, Arizona. This largely rural community disposes of water via septic tanks that have exceeded their design capacity and may cause health risks to the residents. Stantec prepared a PERs to determine viable alternatives for these residents and seek federal funding for the proposed project. Preliminary engineering including the collection of geospatial, geotechnical, and ground survey data is underway. The detailed design will include collection piping for approximately 150 dwelling units and a lift station to convey the flow closer to the City of Somerton, where it will then connect to the existing collection system and treatment plant.



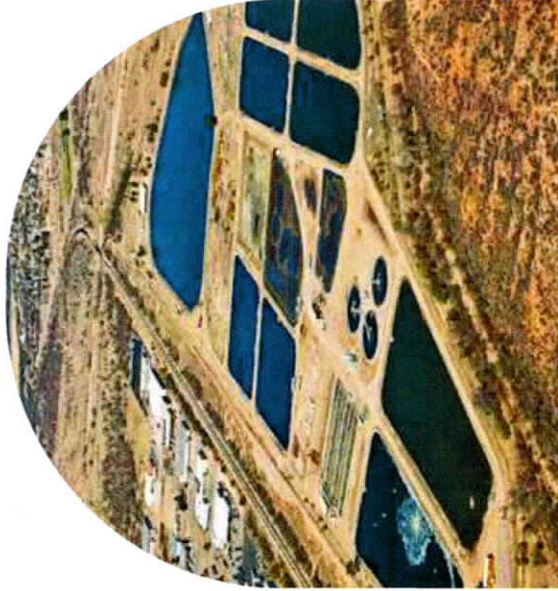
Town of Wellton Wastewater Collection and Treatment Feasibility

Location: Wellton, Arizona

Client Name: Town of Wellton

Stantec developed the wastewater collection and treatment feasibility study for the Town of Wellton for a Grove Rancho Mesa Verde Sanitary Sewer Collection System. The purpose of the future sewer project is to provide sewer service to the 604 parcels of the proposed Town of Wellton wastewater improvement service area, a 775-acre low-income zone located in Yuma County. This project analyzed alternatives for a regional Town of Wellton wastewater collection and treatment system.

Stantec developed the wastewater collection and treatment feasibility study for the Town of Wellton for a Grove Rancho Mesa Verde Sanitary Sewer Collection System. The purpose of the future sewer project is to provide sewer service to the 604 parcels of the proposed Town of Wellton wastewater improvement service area, a 775-acre low-income zone located in Yuma County. This project analyzed alternatives for a regional Town of Wellton wastewater collection and treatment system.



Nogales International Wastewater Treatment Plant

Location: Nogales, Arizona

Client Name: City of Nogales

The original lagoon-based plant did not meet federal effluent limits and was negatively impacting aquatic life in the Santa Cruz River. The project completed by PCL/Stantec delivered this much needed facility both ahead of schedule and on budget.

The project's impact upon the community has been immediate. Follow-up sampling in the river indicates a number of fish species have now returned to the area in the vicinity of the effluent discharge. In addition, many of the citizen and environmental groups who monitor the river have complimented the plant operators on the effluent quality and significant improvement in the river's health.

The project, designed in a compressed 6-month schedule, included decommissioning of the existing detritors and replacement with vortex grit tanks, 6 mm screens downstream of the existing 25 mm coarse screens, biofilters for plant wide odor control, and three secondary process trains for nitrification and denitrification. Our design accommodated a two-stage construction sequence allowing PCL to build the clarifiers and aeration basins under ideal groundwater conditions reducing dewatering requirements with significant cost savings.



Well 4 PFAS Treatment CMAR

Location: Tempe, Arizona

Client Name: City of Tempe

The City of Tempe (Tempe) delivers over 15 billion gallons (BG) of water annually to its customers, of which 2BG is from groundwater. PFOS and PFOA were detected during the USEPA's third round of UCMR sampling in three of Tempe's wells. After follow-up sampling and pilot testing, Tempe began a program to provide treatment at impacted sites. Stantec was brought on in spring of 2022 to complete design for the 1,900 gpm Well 4 site.

Preliminary siting by others indicated that IX may be the only option due to space concerns, but the design team was able to reconfigure the stormwater detention area and optimize the backwash equalization storage tank to make GAC fit. GAC was Tempe's first preference due to lifecycle media and disposal costs. However, the design incorporated retrofittable vessels to IX or other media for long-term flexibility.

The project design is completed, and the CMAR Contractor is currently procuring the treatment systems under an early-out package. Other project features included well pump replacement, a new VFD, and SCADA upgrades. An L-shape for the treatment vessels was used to maximize space on the site that was bordered by a Thai restaurant, McDonald's, and an apartment complex.

Project Approach

Preparation of Preliminary Engineering Reports for USDA/WIFA

Our creative and collaborative approach to planning heads off most problems from the start. It provides early warnings for course correction on the rest of the project. Stantec frequently prepares PERs for communities as most funding agencies either require one or the PER gives clients a better chance of obtaining funding. Locally, we have assisted with PER preparation for communities in both Arizona and New Mexico. For example, we have prepared PERs for the Town of Wellton, AZ; Yuma County, AZ (multiple projects); the City of Portales, NM, and the City of Jal, NM. See our featured projects section for more details.

We typically identify various alternatives during this stage, perform analyses using the appropriate computer modeling software if advantageous, and work with the client to select one alternative based on monetary and non-monetary factors. We identify the project's geotechnical, surveying (boundary, topographic, horizontal utilities, sub-surface utilities), and permitting needs, and plan for constructability, hydrology and hydraulics, utility conflict resolution, operations and maintenance, schedule, and cost. Planning workshops are often held to establish project requirements, build upon previous discussions, gather stakeholder input and City user preferences, discuss identified issues, fill data gaps, review concept models, and cost analyses.

Reuse Alternatives Analysis

In Arizona, reclaimed water is wastewater effluent that has undergone sufficient wastewater treatment to be classified to a certain level (A, B, or C), allowing for reuse applications that are preapproved by state statute, don't require a special permit, and that correspond to the treatment level designation. The classification of the reclaimed water automatically permits the corresponding reuse applications. The City's existing wastewater treatment plant currently produces B+ wastewater, meaning that it has undergone secondary wastewater treatment, nitrogen removal treatment, and disinfection. This B+ designation ensures the following parameters meet specific limits of:

- Fecal coliform (cfu/100ml) < 200 (4 of 7 samples), and < 800 max for a single sample
- Total Nitrogen < 10mg/l

Allowable uses of B+ reclaimed water include golf course irrigation, restricted access irrigation, orchard/vineyard irrigation, concrete mixing, dust control, pasture irrigation for dairy animals, and livestock watering. For example, cities such as Phoenix and Tucson apply reuse water to irrigate golf courses and park turf or landscapes, irrigate non-food crop agriculture, as well as to supply water to wetlands, and even cool a nuclear power plant.

The PER could potentially identify options immediately able to use the Class B+ effluent in the near-term and also identify additional options to use upgraded Class A+ effluent at future long-term horizon.

Stantec will workshop with City staff to identify potential reuse applications that might make sense as desirable to the City of Douglas community. Incentives may include lowering reliance on potable groundwater or directly increasing groundwater supplies for future use.

The 2022 adopted AMA incentivizes reducing reliance on the aquifer. Reuse choices will be influenced by existing sites that are already available. Figure 4 depicts some initially identified possible reuse sites. Thus, reuse water might be considered for landscape or turf irrigation at existing schools, parks, golf courses, or agricultural crops. Alternatively, recharge basins and injection/recovery wells might directly store reclaimed water underground for future use when recovered.

Additional Wastewater Treatment Analysis

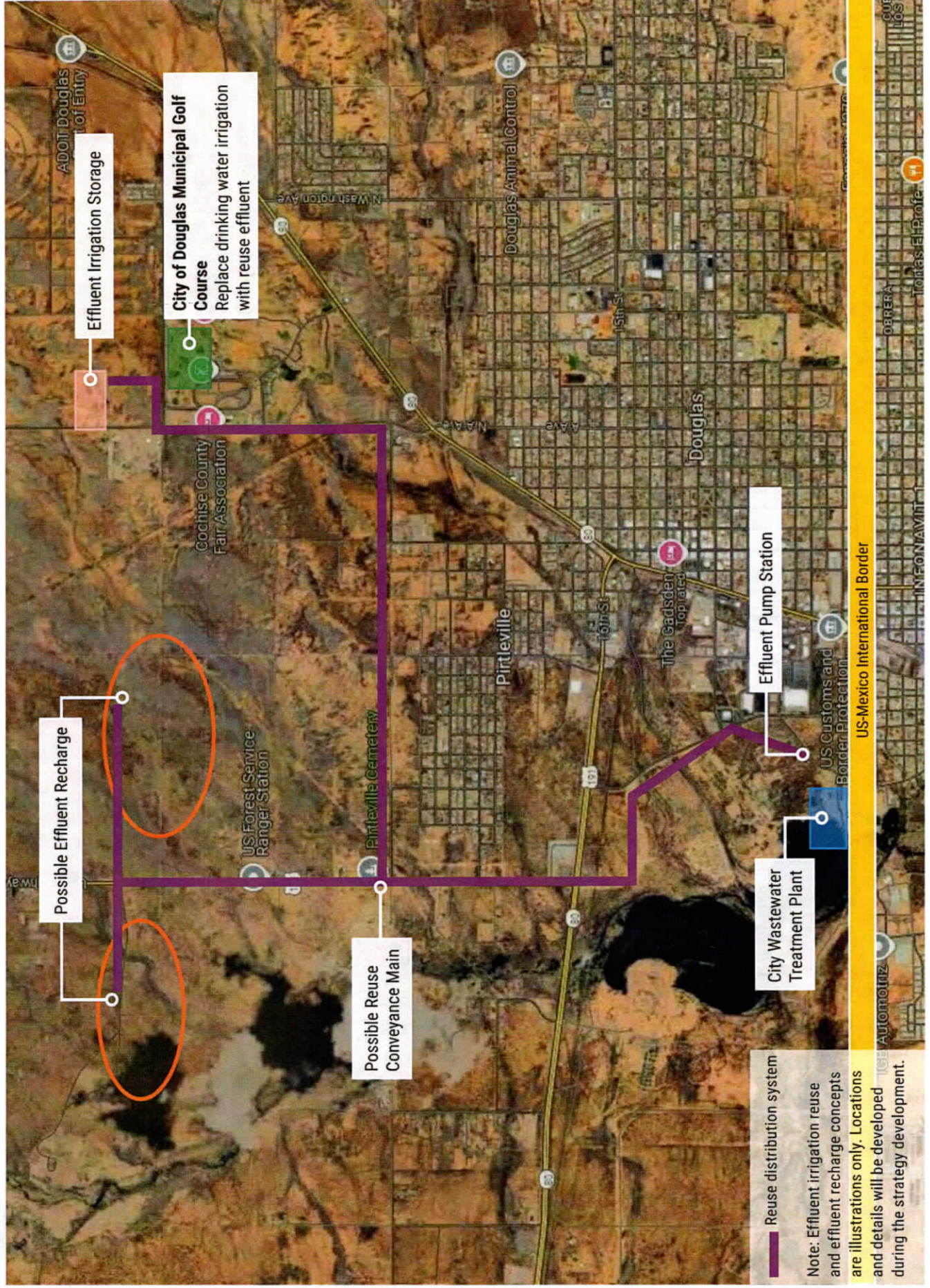
Additional wastewater treatment to achieve a higher classification of effluent would allow additional potential end uses for the reuse water. Upgrading the wastewater treatment plant to A+ effluent classification would allow uses such as manmade open access waterbodies such as ponds or lakes, food crop irrigation, as well as residential and school turf or landscape irrigation.

Stantec will also workshop with City staff to identify potential reuse applications upgrading to A+ that might be desirable for the community. The PER will weigh the monetary (cost) and non-monetary factors of upgrading the treatment plant against the benefits of being able to apply reuse water to these additional desired end uses.

DPR would be the ultimate potential option of fully upgrading the wastewater treatment plant to produce A+ effluent and adding advanced water treatment processes thereafter. This option could be considered but may prove cost-prohibitive for a near-term horizon.

The PER will fully develop the top three effluent reuse alternatives as well as a No Action Alternative, including project cost estimates, and will make a reuse alternative recommendation.

Figure 4. Initially Identified Possible Reuse Sites



Analysis of PFAS Treatment of Reuse Water

The City would like the levels of PFAS in existing effluent analyzed to account for those levels in potential reuse water and determine whether PFAS treatment would be advisable. PFAS is not a regulated compound for most typical non-potable reuse applications in Arizona. However, it is now recognized that reuse distribution systems in larger municipalities can transport PFAS from the wastewater treatment plant to reuse application locations, such as parks and golf courses where it may accumulate in the soils of irrigated plants and conceivably eventually leach into underlying groundwater aquifers. Stantec will account for PFAS levels in the City's existing effluent and then weigh the advantages and costs of possible PFAS treatment for a reuse system, to mitigate the potential of spreading PFAS to new locations via a new reuse water distribution system.

The Stantec project team will work with City staff to develop a sampling plan to test for PFAS levels currently being discharged in the existing wastewater treatment plant effluent. PFAS compounds to be tested include PFOA, PFOS, PFNA, PFBS, PFHxS, and HFPO-DA (GenX) as requested by the City. The plan will include the location(s) of sampling points, number of samples, and frequency and times of day to sample. Legend Technical Services has been the environmental laboratory used on past Stantec projects for the City and is approved by ADHS for PFAS testing. The sampling plan will confirm the environmental laboratory and the protocol for transporting and submitting samples for testing.

Reuse Distribution & Storage Systems Analysis

For the top three fully developed reuse alternatives, Stantec will perform a high-level analysis and layout of the required reuse distribution and storage system infrastructure including required pump stations, distribution

pipes, and storage tanks, and reuse water application appurtenances. Project cost estimates for the three alternatives will include this infrastructure.

International Considerations

The City of Douglas' wastewater treatment plant currently discharges effluent into a canal near the US-Mexico international border where it flows into the City of Agua Prieta Sonora, Mexico. The reuse of effluent within the City of Douglas will reduce the flow into Mexico. Stantec has cross-border projects and staff who can assist with navigating international implications that may arise from stemming effluent flow from the City of Douglas into Agua Prieta.

Environmental Report

Along with the PER meeting USDA 1780-2 Guideline, in accordance with 7 CFR 1970.54 Stantec will prepare an ER to evaluate the appropriate level of NEPA documentation for USDA RUS funding assistance to design and construct the reclaimed water system for the recommended reuse option(s). The report will document the environmental resources present for the planning area and will summarize significant impacts on the environment that will result from the implementation of the reuse system alternatives. It will also summarize mitigation measures and best management practices to address the significant impacts. Stantec has prepared both PERs and associated ERs for multiple projects in Arizona, including the Orange Grove/Rancho Mesa Verde Preliminary Engineering Report (see featured projects section). We recently completed the Environmental Information Document as part of the SR 80 NEPA process and a NEPA for ADOT for the POE Connector Road.

Project Management Method

Stantec utilizes a common Project Management Framework to provide our team with the paths, checkpoints, and documentation needed to successfully manage and deliver projects.

When Stantec is contacted by the City to initiate a new project, our process begins immediately. Too often, consultants jump right into the project without proper understanding, planning, input, or agreement on goals and objectives.

We believe a collaborative, interactive process carefully managed without compromising timely progress which optimizes the design team's ability to deliver a project that will meet your vision, design, cost, and schedule goals.

The Stantec Project Management Framework (Figure 5) consistently outlines the key tasks that all Stantec project teams follow to manage risks and quality on a typical project. These tasks also represent the project requirements of our ISO 9001 certified Quality Management System.

Quality Control

Quality is of the utmost importance to Stantec. It is embedded within our culture: Our established internal quality management approach ensures continuous improvement of customer relationships, management processes, and the overall quality and value of our engineering, construction, safety, budgetary, and schedule performance. Stantec's use of industry-leading quality procedures maintains the integrity and consistency in the work we perform on every project we are a part of.

As an ISO 9001-certified firm, Stantec utilizes a variety of QA/QC techniques and tools to monitor and measure, audit, and continuously improve quality in the delivery of our services and work products. Building upon our ISO 9001-Certified Corporate Quality Management Practices, Stantec will develop and implement comprehensive project QA/QC plans based on the elements shown in Figure 6.

Our strong commitment to technical quality is best demonstrated by our client's willingness to select us for additional assignments.

Figure 5. Stantec's Project Management Framework

Project Management Framework

This framework identifies the critical tasks that the Project Team must follow to manage risks and quality on a typical project. The ten points of the PM Framework are organized based on the four stages of project management: Initiate, Plan, Control, and Close-Out.

- 0 | Prepare a proposal, including a preliminary Project Plan with scope, project budget, resources, deliverables, and schedule. Conduct and document an independent review of the final proposal.
- 1 | Obtain written instructions to proceed and execute an approved written contract. Obtain written subconsultant agreements.
- 2 | Prepare a Project Management Plan to an appropriate level of detail. Conduct/document independent reviews.
- 3 | Establish hard copy and/or electronic project record directories. File project records.
- 4 | Complete a Health, Safety, Security & Environment (HSSE) risk management assessment, document all projects involving field work.
- 5 | Monitor the project management dashboard regularly. Follow best practices for managing project financials, including time, work in progress, accounts receivable, and estimates to complete.
- 6 | Obtain the client's written approval on scope of service changes in a timely manner.
- 7 | Conduct and document a quality review of all final deliverables prior to issue.
- 8 | Conduct and document an independent review of all final deliverables prior to issue.
- 9 | Close off the project financials and close out the project files.

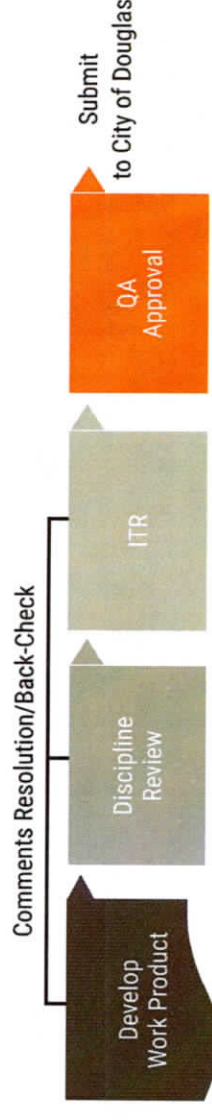
Stantec is one of the first companies in our market to achieve these ISO certifications across our global operations.

- ISO 9001:2015 Quality Management Standard
- ISO 45001:2018 Occupational Health & Safety Management Standard
- ISO 14001:2015 Environmental Management Standard
- ISO/IEC20000-1:2018-certified IT Service Management System

Figure 6. Stantec's QA/QC Plan Elements

QA/QC Plan Elements

Stantec ISO 9001-Certified Corporate Quality Management Practices	Dedication to excellence in Project Delivery and Quality
Quality Consistency for All Firms	All subconsultants will be required to follow Stantec's project Quality Management Plan
Identification of Design Guidance, Criteria, and Requirements	Document that the design meets client and regulatory requirements.
Discipline Quality Reviews	Detailed quality reviews at each design milestone will check deliverables, supporting documents, calculations, drawings, technical data, etc.
Independent Technical Reviews (ITR)	Reviews of deliverables by qualified professionals independent of the project design team provide a fresh set of eyes to identify opportunities for improvement and refinement.
Internal QA/QC Audits	Document that effective implementation and adherence to the QA/QC Plan.
Database Tool for Tracking, Managing, and Resolving Comments	Clear documentation to make sure nothing falls between the cracks.



Risk Identification and Management

Stantec's Risk Management System provides a disciplined, accountable framework for managing risks, quality outcomes, and regulatory compliance. Our system strives for operational excellence, focusing on critical business practices in leadership commitment, project and operational stewardship, performance assurance, change management, and process improvement to best serve our clients. Our risk identification and management strategy has proven effective on projects as small as a routine sewer replacement to a need example of a bigger project.

The project team will implement a risk register and/or traceability matrix that documents potential risks and items that are currently unresolved and require ongoing awareness.

This is developed at the onset of the project and reviewed/updated at an agreed-upon frequency. We will also facilitate risk review workshops, which have proven extremely successful in mitigating risk on previous projects. We can also utilize the Rolling Actions and Issues Log as a risk management tool throughout the project.

Schedule Management

We believe that schedule management and control is an ongoing process that involves the entire project team. We work with our clients to confirm critical information is flowing correctly to maintain the project schedule. On-time delivery is a key metric to assess project performance, and our project managers utilize the project schedule to identify and pro-actively plan upcoming activities and monitor progress.

Budget and Cost Control

Staying within budget is a critical performance measure for all our clients. The controls and project management tools employed by our teams are the first step to delivering a project on time

Construction Costs

Stantec utilizes a team of in-house seasoned construction cost estimators who understand the nuances of material market trends and local labor availability to develop cost estimates that you can confidently use in budgeting your project. Their team maintains and updates a database of costs to reflect current market conditions and construction costs.

Value Engineering

Value Engineering is not an additional service for project assignments. We also understand the life cycle costs of the infrastructure we design. This is why we always design with the future maintenance costs of community improvements in mind from the start.

Firm Capacity for Future Projects

At Stantec, we constantly assess our staff's workload and use internal tools to allocate the necessary resources to address peak workload. Our team is fully capable of providing all the services anticipated for this contract. We are immediately available to begin work with a team primarily based in Southern Arizona.

Stantec Resources

Offices

- 2 (Tucson and Phoenix) in Arizona
- 400 + company wide

Water Resources Team Members

- 70+ in Arizona
- 1,750+ in the US
- 5,300+ company wide

and within budget. Our approach to managing costs begins with clearly and accurately scoping each project to reflect the tasks, deliverables, assumptions, roles/ responsibilities, and an achievable schedule. From there, our teams utilize cost tracking tools to stay on top of time billed on a weekly basis and overall budget tracking.

Stantec employs multiple steps with project assignments to ensure project costs stay within budget such as:

Scoping

Detailed scoping, starting at the notice to proceed, is the most critical step in controlling design costs. Stantec will work with the City to understand the community's needs and craft a scope required for the job, confirming the project needs, and the design tasks. This extra effort, at the project onset, generally avoids future contract modifications.

Change Management

Stantec understands that some changes in scope cannot be avoided, such as changing requirements by outside agencies or unforeseen conditions uncovered during project progression. Stantec will notify the City as soon as changes are discovered and will work to minimize the impact on the project.

Project Management

Budgets on all projects down to the task level are tabulated, reviewed, and monitored by the project manager on a weekly basis. Our project managers prepare estimates of percent to complete for major tasks, calculating earned value based upon project processes, and allowing us the ability to better manage and control project costs on a near real-time basis.

Appendix A.

Resumes





34 years of
Experience

Jack Bryck

PE, P. Eng, BCEE

Client Services Manager

Location: Chandler, Arizona

MS, Environmental Engineering, University of British Columbia
BS, Civil Engineering, University of British Columbia

PE #67878 AZ

Jack has a diversified background in water system engineering from over 45 years in the planning, design and construction of municipal wastewater, reuse and drinking water systems. He has been responsible for water shed studies, research projects, planning, design, and supervision of water treatability studies, planning, design and construction management of water, wastewater and reuse treatment plants and the associated capital cost projections. His previous work includes piloting, design lead for membrane filtration, GAC, water reclamation and treatment plants up to 9. M3/s (200 mgd), water treatment plant optimization, pilot filtration, plant residuals and process profiles and media evaluation. He has worked in Canada, USA, Australia, Puerto Rico and Brazil. He was Membrane Community of Practice Leader for another international consulting firm.

City of Douglas Projects

- Proposed Douglas Port of Entry Water and Feasibility Report
- Douglas Port of Entry and Service Areas Water and Wastewater Infrastructure | 30% Design and Basis of Design Report
- Hydraulic Water System Model Development and Evaluation of the Existing Water System
- Preliminary Engineering in Support of 60% Detailed Design of Water, Wastewater, Broadband Port of Entry and Service Area (NADB and N NADB)
- Well 14 Rehabilitation and Detailed Design
- Improvement Strategy for Wells 6, 11 and 15
- SR 80 Environmental Information Document in Support of EPA
- Support to City with ADOT Connector Road Design Concept Report
- Support to City with GSA Port of Entry Bridging Documents

MWRD Emergency Notification* | Metro

Wastewater Reclamation District | Denver, CO |

Principal-in-Charge and Project Manager

Jack served as Principal in Charge/Project Manager for the preliminary design, final design, bidding, and construction phase services in the 8.76 m3/s (200 mgd plant). The plant-wide communication system is used for emergency notification and operational purposes (chemical leak, fire, attack, equipment failure, O&M tasks). The team worked closely with the Metro District in developing a critical understanding of the inner workings of the plant's PAENS system, the plant's process operations, plant safety equipment, and required outcomes and ensuring alignment with the detailed design process through critical workshops.

Navajo Gallup San Juan River Water Quality

Characterization and Pilot Water Membrane GAC

Treatability Study* | Bureau of Reclamation |

Farmington, NM | Principal-in-Charge

Jack served as PIC for the raw water characterization of the San Juan River in the area of Farmington NM and the pilot scale treatment plant study of the treatability of the San Juan River. Included was the development of unit

treatment processes (pretreatment, high rate plate sedimentation, media, membrane filtration and GAC filter adsorption) to align with the raw water challenges in meeting EPA Drinking Water Standards. Included was collection and analysis of the raw water quality data, laboratory investigation of ozone and GAC, and development of the treatment approach for a 1.7 m3/s (40 million gallons per day) water treatment plant.

Feasibility of the Addition of GAC, Ozone, and GAC* | City of Phoenix, AZ | Phoenix, AZ | Project Manager

As part of the City's Water Quality Master Plan review, Jack evaluated and developed conceptual plans to integrate GAC, ozone, and UV disinfection treatment processes within the City's Union Hills, Val Vista, Deer Valley, and Squaw Peak water treatment plants to address microbial risk, DBP and taste and odor issues. The effort included sizing of the treatment processes, measures needed to integrate the processes in the existing plants, and preparation of detailed cost estimates.

Lake Pleasant Water Treatment Plant* | City of Phoenix | Phoenix, AZ

Jack served as part of the project team reviewing the three design/build/operate submittals, for the City of Phoenix's proposed Lake Pleasant Water Treatment Plant. The team assessed conformance with the bid documents for the selection of consortium to undertake the project.

Union Hills Water Treatment Plant Granular Activated Carbons Implementation* | City of Phoenix | Phoenix, AZ | Project Manager

Jack served as project manager for the investigation of the failure of the Hypalon baffle curtain wall system in the 40 Mgal chlorine contact tank. To keep the critical tank in service, the investigation employed the services of diving company divers with remote cameras to assist in documenting the failure. A report was prepared with repair options and costs while the tank was in service.

*denotes project completed with other firms



22 years of
Experience

Kiersten Wangsvick

PE, PMP

Project Technical Lead

Location: Tucson, Arizona

MS, Agricultural & Bioresource Engineering, Colorado State University
BS, Agricultural Engineering, Colorado State University

PE #39530 AZ, PMP® #1764298, Wastewater Operator Class 2
#OP011469, PACP #U-716-07004845

Kiersten has 22 years of water and wastewater engineering design experience of gravity sewers, sewer pump stations, force mains, transmission mains, water distribution lines, tanks, and well sites. Kiersten was project manager (PM) for the University of Arizona Sewer Feasibility and Alignment Study for Pima County Regional Wastewater Reclamation Department (PCRWRD). She developed wastewater feasibility studies for Ryan Airfield in Tucson, AZ, and for two towns near Yuma, AZ. Kiersten is the Stantec Program Manager for the Tucson Water Reservoir and Tank Rehabilitation Program, directing the program work, delivering milestones on schedule and within budget, while delivering program controls processes and progress reporting modeled after some of Stantec's largest programs. She provides proactive program management and leadership, knowing planning and monitoring are key to successful project delivery.

Mabel Sewer Improvement Project | PCRWRD | Tucson, AZ | Project Manager

Kiersten served as the Project Manager for the Mabel Sewer Improvement Project. Stantec provided engineering services to the Pima County Regional Wastewater Reclamation Department through an on-call assignment to upgrade approximately 3,200-linear feet of gravity sewer from eight to twelve-inches to account for a projected capacity shortfall with future upstream growth. The project used jack and bore, as well as multiple discharge authorization phases with Arizona Department of Environmental Quality (ADEQ) to reduce and/or eliminate diversion flow systems throughout the construction of the project to save on costs. This project was a designed and constructed using CMAR project delivery contractor requests for information during construction.

University of Arizona Sewer Feasibility and Alignment Study Report Parts I & II | PCRWRD | Tucson, AZ | Project Manager

Project evaluated sewer capacities around the University of Arizona (UofA). Future development buildout flows have potential to exceed existing sewer capacities. Sizing upgrades and alignment recommendations were provided. Project included utility composite maps, preliminary plan sheets, and EOPC for the recommended sewer improvements. An Innovyze Infoworks ICM hydraulic model identified three downstream reaches where the current sewer collection system would be under-capacity for the estimated future build-out flow conditions. Additional sewer capacity upgrades were recommended for the downstream sewershed segments to meet future development build-out flow conditions.

Tres Rios WRF Sludge Holding Tank System Modifications and Site Civil Improvements | PCRWRD | Pima County, AZ | Project Manager

Project included the feasibility study for redesign the bladder system to include a completely new storage structure and truck filling pump station to move 8% biosolids (thickened sludge) from the centrifuge building to the truck loading stand. Preliminary options considered a new biosolids storage tank and truck filling pump station to improve operations. PCRWRD later

requested study of an option to replace the bladder and the truck filling pump station. Preliminary concept plans and associated Engineer's Opinion of Probable Cost were developed for these alternatives. Additionally, Stantec completed design plans for site civil improvements at Facility 22 (the bladder tank site) that included drainage improvements, a new gravity drain line with manholes, extension of a service water line, replacement of a foul airline, and elevation of the transformer.

Owens Avenue Interceptor Project | City of Las Vegas | Las Vegas, AZ | Project Technical Advisor

Project scoped to provide 30% design services for 8-miles of 66-in and 72-in GRP gravity sewer interceptor in central Las Vegas. Led the pipeline routing, pipeline design, and utility coordination for submittal as a 30% design drawing and a Basis of Design Report. Duties included calculations for pipe sizing and velocity, coordinating design with the roadway improvements and concurrent 30% design for several miles of a parallel box culvert storm drain facility, utility coordination, and meetings with City.

Tempe Wastewater Strength and Loading Study | City of Tempe | Tempe, AZ | Project Manager

Few studies exist for detailed analysis for the characterization of wastewater quantity and composition for residential and commercial municipal customers. This study provided data for wastewater strength and wastewater return flows to support the proportional assessment of the City of Tempe cost of service sewer rates. For this study, wastewater strength is based on COD and TSS and data was collected for specific commercial categories and residential locations. Return flow rates were used to compare water usage to wastewater discharge from both residential and commercial sewersheds. The study was divided into three parts: an industry literature study, a wastewater flow monitoring and strength sampling program, and data driven recommendations. Data supported Tempe's follow-on wastewater rate studies.

Ryan Airfield Sanitary Sewer Study | Tucson Airport Authority | Tucson, AZ | Project Engineer/Assistant Project Manager

Kiersten conducted an investigation and evaluation of approaches to manage the existing and future wastewater at Ryan Airfield for this sanitary sewer study. The Tucson Airport Authority (TAA) operates and maintains Ryan Airfield, an important general aviation reliever airport to Tucson International Airport. Ryan Airfield currently utilizes numerous older septic systems to provide wastewater treatment and disposal. This sewer feasibility report recommended alternatives for wastewater collection and treatment at Ryan Airfield to accommodate anticipated growth. Project tasks included collecting information about existing septic systems, evaluation of options for managing wastewater for sustained growth, developed cost estimates, projected engineering/construction schedules for key alternatives, and provided a recommendation for managing wastewater for future growth at the airfield.

Town of Wellton Wastewater Collection and Treatment Feasibility Study | Town of Wellton | Project Engineer/Assistant Project Manager

Kiersten developed the wastewater collection and treatment feasibility study for the Town of Wellton for a Grove Rancho Mesa Verde Sanitary Sewer Collection System. The purpose of the future sewer project is to provide sewer service to the 604 parcels of the proposed Town of Wellton Wastewater Improvement Service Area, a 775-acre low-income zone located in Yuma County. This project analyzed alternatives for a regional Town of Wellton wastewater collection and treatment system.

Orange Grove/Rancho Mesa Verde Preliminary Engineering Report | Yuma County Development Services | Yuma County, AZ | Project Engineer

Kiersten developed the Preliminary Engineering Report (PER) for the Orange Grove Rancho Mesa Verde Sanitary Sewer Collection System. This sewer connection project will provide sewer service to the 332 parcels of the proposed Orange Grove/Rancho Mesa Verde (OGRMV) Improvement District, located in Yuma County, east of the City of Somerton in Arizona. The properties within the OGRMV low-income subdivision have septic tanks and/or cesspools for wastewater disposal. The PER analyzed alternatives for collecting wastewater within the two subdivisions, for routing a sewer connection from the OGRMV subdivisions to the City of Somerton, and for connecting to the existing City of Somerton sanitary sewer systems. Our team performed a capacity analysis of the City of Somerton collection system at Potential connection points and analyzed impacts of the additional flow to existing downstream wastewater lift stations. The recommended project will include a new sewer lift station and force main for the sewer conveyance on the south side of US 95, as well as upgrades to an existing City of Somerton lift station.

Avenue at Garden Lakes Parkway | City of Avondale | Avondale, AZ | Project Manager

Project provided improved wastewater conveyance for a sewer segment near Garden Lakes Parkway, located within the City of Avondale, in Maricopa County, Arizona. The existing 12-inch sewer segment that crosses the major intersection commonly experienced flow backups and required frequent flushing. The existing sewer line had multiple sags, low spots and adverse grades, particularly near the manhole in the center of the intersection. Stantec coordinated CCTV inspection, flow monitoring for bypass pumping, potholing, geotechnical borings, and utility clearances. Final design included new 12-inch PVC sewer, with some installed via jack and bore under the intersection, SRP canal and RID canals, and four new manholes.

Tangerine-Downtown Sewer Improvement Project | Town of Marana | Marana, AZ | Assistant Project Manager/Project Engineer

Project included modifications to the existing 803 gpm pump station, as well as design of 5,181 LF eight-inch DR11 HDPE force main, 9,370 LF 15-inch SDR 35 PVC gravity sewer, 11,145 LF 18-inch SDR35 PVC gravity sewer, and 51 manholes. Project required disconnecting Saguaro Bloom Lift Station (originally designed by Stantec in 2005) from Pima County sewer collection system and connecting it to the Marana wastewater collection system at a point northeast of the Santa Cruz River. To complete the project, crossing the Santa Cruz River via horizontal directional drilling, working within a narrow utility corridor, and coordinating with diverse jurisdictions was required. Obtained and reviewed as-built and existing data; coordinated geotechnical borings, video inspections and cleaning of existing sewer, utility potholing, and Pima County Regional Flood Control District permitting. Reviewed plans and developed responses to stakeholder and utility comments. Coordinated design team field assessment of impacts to agricultural and irrigation ditch company (CMID) interests.



9 years of
Experience

Elizabeth Hamblin

EIT

Project Manager

Location: Tucson, Arizona

BS, Environmental Engineering

EIT #x AZ

Elizabeth brings almost a decade of project management experience to the table. She consistently supports project managers in handling scope, contracts, invoices, forms, budgets, change orders, and ensuring smooth project execution.

Since 2021, she has been collaborating with the City of Douglas project teams, managing schedules, scope, and budgets. Elizabeth is ready to apply her expertise to this project.

Well 14 Assessment | City of Douglas | Douglas, AZ | Program Management

We recently completed a work plan for Well 14 Rehabilitation which included procedures for the Contractor to perform a well evaluation including video surveys, well cleaning via brushing and bailing, pump testing, and water quality sampling. The objectives of the evaluation were to inspect the current conditions of the well which sat idle for 10+ years and identify the current flow rate capacity and water quality. Stantec coordinated with the Contractor and advised the City of Douglas throughout the well evaluation and data collection process. Elizabeth supported the Project Manager with contracting, invoicing, safety forms, managing budgets, and preparing change orders.

Well 14 Rehabilitation | City of Douglas | Douglas, AZ | Program Management

With the opening of a new commercial port of entry just west of the City of Douglas scheduled to open in the next five years, the City is anticipating development in the area to increase. In response the City has started to upgrade their water and sewer systems, including rehabbing, and equipping older wells, to be proactive in meeting the utility needs for commercial and residential development. Well 14 is located in the 950 square mile Douglas groundwater basin and is adjacent to White Water Draw, the principal surface water conveyance corridor from the Douglas groundwater basin. Elizabeth supported the Project Manager with contracting, invoicing, safety forms, managing budgets, and preparing change orders.

Well Design 14 | City of Douglas | Douglas, AZ | Program Management

Stantec was contracted by the City to develop the well site that will be constructed by a general contractor through a traditional Bid Build process. Stantec prepared technical bidding specifications for the arsenic treatment facility and the City purchased two arsenic adsorber vessels (lead/lag in series) with internals for media retention through Layne. Elizabeth supported the Project Manager with contracting, invoicing, safety forms, managing budgets, and preparing change orders.

Phoenix Digester 16 | City of Phoenix | Phoenix, AZ | Program Management

Elizabeth is supporting this project with the project management which includes schedules, scope, budget, and invoicing.

EPCOR Luke 303 Water Reclamation Facility | EPCOR | Phoenix, AZ | Program Management

EPCOR is constructing the new Luke 303 Water Reclamation Facility (WRF) and is currently sized to treat 150 gallons per day. However, EPCOR anticipates that the facility will need to be expanded as soon as it comes online. Elizabeth has supported with the project management which includes schedules, scope, budget, and invoicing.



33 years of Experience

Rob McCandless

PE

Reuse and Alternative Water Treatment Technical Advisor

Location: Phoenix, Arizona

MS, Environmental Engineering, Arizona State University
BS, Civil Engineering, Arizona State University

PE #27301 AZ

Rob is a nationally recognized expert in advanced water treatment and potable reuse. He has over 30 years of experience in the water business as a project manager and process engineer. Rob's experience includes municipal and industrial sectors with wastewater, drinking water and water reuse treatment process design—with expertise in membrane technologies including membrane bioreactors (MBR), membrane filtration, nanofiltration, and reverse osmosis. He was lead process engineer for the Hyperion Advanced Water Purification Facility for the Los Angeles International Airport—that will produce 1.5 million gallons per day (MGD) of recycled water.

Expansion Design | Apache Junction, AZ | Apache Junction Sewer District | Senior Process Engineer

Rob is responsible for the overall process design for this 4.4mgd expansion. The existing plant is a 2.1 MGD Biolac® process with sludge drying beds and spreading basins for aquifer recharge with the effluent. The phasing plan will transition the plant from the current technology to membrane bioreactor (MBR) technology, which will produce high quality effluent for aquifer recharge using injection wells and advanced treatment for direct potable reuse in the future. The project includes a new headworks, new membrane bioreactor system, UV disinfection, and screw presses for solids dewatering.

157th Avenue Water Reclamation Facility

Expansion Master Plan | City of Goodyear | Goodyear, AZ | Principal-in-Charge

Rob served as Principal-in-Charge for a master plan addressing aging infrastructure, service area population and industry growth, future regulatory requirements, and changing drivers related to potable reuse. Stantec's scope of work included wastewater sampling and analysis; flow and load projections; process modeling; treatment alternatives analysis including cost estimating; conceptual design; and capital improvement schedule development. Rob provided oversight of all project aspects, ensured that the right resources were engaged on the project, and provided technical expertise and oversight.

Treasure Island Wastewater Treatment Plant Design & Construction Services | San Francisco, CA | San Francisco Public Utilities Commission (SFPUC) | Lead Process Engineer

As the Lead Process Engineer for this Design-Build project, Rob is responsible for process design and technical direction. The existing wastewater treatment plant is nearing the end of its useful life and SFPUC has made the decision to replace the plant with a new 1.5 MGD facility that will serve the island's redevelopment and provide a superior effluent that meets Title 22 requirements. The membrane bioreactor process was selected for its compact footprint and ability to meet the wastewater and recycled water needs of planned development on Treasure Island.

Greenfield Water Reclamation Plant Phase III Expansion* | Gilbert, AZ | Town of Gilbert | Project Engineer

Rob was responsible for design and construction services for a major expansion to solids handling facilities. The original plant had a liquid stream capacity of 16 MGD and accepted solids from a nearby eight MGD treatment plant. The expansion will result in 30 MGD of liquid stream capacity and an equivalent 38 MGD of solids treatment capacity. Rob's scope of work included the design of a new primary clarifier, new primary sludge pump station, a new sludge screening facility, two new egg-shaped digesters with an associated equipment gallery, an additional dewatering centrifuge with associated sludge pumping and conveyance, a new digester gas flare, a new boiler, odor control, and chemical feed system upgrades. The project was delivered under a CMAR model.

Hyperion Water Reclamation Plant Advanced Water Purification Facility Design-Build* | Los Angeles, CA | City of Los Angeles Bureau of Sanitation | Lead Process Engineer

Rob led the process engineering team developing a 1.5 MGD advanced water purification process that will treat primary effluent from the Hyperion Water Reclamation Plant. The main treatment processes include membrane bioreactor (MBR), reverse osmosis (RO), advanced oxidation with ultraviolet disinfection, granular activated carbon, product water stabilization, and final disinfection. The product water will be used for a variety of purposes at the LAX airport, including toilet flushing and cooling tower makeup, but the process will also provide valuable research data and demonstration of the process for potable reuse applications. This design-build project is part of the City's Hyperion 2035 Program, which seeks to locally source 70% of Los Angeles' water and recycle 100% of Hyperion wastewater by 2035. This project was delivered using the Progressive Design-Build model.

*denotes project completed with other firms

Santaquin Wastewater Treatment Plant, Phase 1* | Santaquin, UT | City of Santaquin | Project Manager

Rob led procurement of a GE Zenon Membrane Bioreactor (MBR) System for this 0.65 MGD facility. This included supporting the development of front-end documents for the procurement solicitation, developing technical specification, evaluating MBR system proposals, and providing process design and detailed design consultation.

Rainbow Valley Water Reclamation Facility* | Newland Communities | Goodyear, AZ | Project Manager

Managed the design team on a design-build project to provide a 0.75 mgd water reclamation facility. The facility produces high quality reclaimed water for irrigation and has an option for surface water discharge. The components include an influent pump station, fine screens, extended aeration with biological nitrogen removal, secondary clarification, filtration, chlorine disinfection, dechlorination, effluent pump station, aerated biosolids storage and a centrifuge for dewatering. Provided all major permits, including the Aquifer Protection Permit and the AZPDES permit. The project was designed, permitted, constructed, and ready for operation within 18 months of notice to proceed.

Rio de Flag Water Reclamation Plant Condition Assessment* | City of Flagstaff, AZ | Flagstaff, AZ | Technical Advisor and Reviewer

Rob was responsible for providing historical context (design intent), technical advice and quality review of the finished work product. This plant is a 4 MGD water reclamation facility that includes preliminary screening and influent pumping that are sited ¼ mile from the treatment plant; primary clarification; secondary treatment with Modified Ludzak-Ettinger process; filtration; UV disinfection; and high lift pump station. The project included field investigation for visual condition assessment of facility assets and development of a prioritized rehabilitation/replacement plan for all process mechanical components and specific structural components.

Palo Verde Utilities Campus 1 Water Reclamation Plant Expansion Phase 3,* | Global Water | Maricopa, AZ | Project Manager

Rob led a team evaluating the expansion of an existing 3 MGD sequencing batch reactor to a 4.25 MGD batch membrane bioreactor. Upgrades included new coarse and fine screens in the existing headworks, modifications to the existing SBR basins, a new membrane filtration system, and odor control upgrades. A monitoring protocol was developed to allow UV disinfection system to be re-rated for the increased flow based on treating higher quality water as a result of microfiltration. Rob additionally directed the development of membrane system procurement documents and detailed plans and specifications.

Ocotillo Water Reclamation Facility Improvements and Reclaimed Waterline Design* | City of Chandler AZ | Chandler, AZ | Project Manager

Managed the engineering study, design and construction administration/management services for improvements to the 10 mgd Water Reclamation Facility. Improvements include development of a site plan, facility equipment replacement/upgrades and treatment process modifications needed to meet the Class A+ water quality effluent standards, design of a de-chlorination facility for a portion of the effluent stream, design of an effluent pump station, replacement of two wet scrubbers for odor control and upgrades to the odor control ventilation systems.

Wastewater Treatment Plant Expansion* | Town of Filer Idaho | Filer, ID | Project Manager and Process Engineer

As a subconsultant, provided process design, membrane procurement and mechanical design for a 0.3 mgd GE Zenon membrane bioreactor treatment plant. Process included biological nutrient removal in order to meet strict NPDES permit TMDL limits for phosphorus and land application limits for total nitrogen.

Arrowhead Ranch Water Reclamation Facility Capacity Expansion Construction Administration and Miscellaneous Improvements* | City of Glendale AZ | Glendale, AZ | Project Engineer

Provided preliminary and detailed design of modifications to three bioreactors, non-potable water system, and blower cooling water system for the Arrowhead Ranch WRP. Bioreactor modifications include installation of new mechanical mixers in each of the four anoxic zones of each bioreactor and installation of a variable frequency drive for one mixed liquor return pump for each bioreactor. Improvements to the non-potable water system include a new vertical turbine pump, new pressure sustaining valve, NPW yard piping loop modifications, and modifications to pump controls.

Wastewater Treatment and Reclaimed Water Master Plan* | City of Avondale AZ | Avondale, AZ | Principal Engineer

Rob provided a master plan for a wastewater treatment plant and route analysis for a new reclaimed water pipeline. The existing treatment plant has a capacity of 6.4 MGD and consists of influent pumping, bar screens, grit removal, three bioreactors with nitrogen removal capability, secondary clarifiers, chlorine disinfection, aerobic digestion, dissolved flotation thickening, and centrifuges for biosolids dewatering. The master plan considers three time periods to accommodate growth over the next 25 years. The wastewater treatment plant's ultimate capacity is expected to reach 15 MGD during the planning period. A detailed capacity evaluation study was performed to identify the treatment capacity and any bottlenecks in the existing facility. The recommended process includes addition of influent equalization, primary clarification, filtration, and anaerobic digestion. The potential for cogeneration utilizing the digester gas was also evaluated.



17 years of
Experience

Andrew Nishihara

PE, ENV SP

PFAS Technical Advisor

BS, Bioengineering, Oregon State University
PE #83991 OR, PE #77907 AZ, PE #18601 HI, PE #28794 NM,
PE #56016 WA, PE #21299 ID, PE #031478 NV, ENV SP #166547

Andrew has worked on water projects for over 40 communities throughout the Pacific Northwest. He has a broad understanding of treatment plant design having served as a project manager and technical lead for new water treatment facilities, expansions, and rehabilitations. His recent focus has been on PFAS planning, research, and design, spurred by working on Alaska's first PFAS treatment system eight years ago. Andrew has supported a variety of PFAS projects throughout the country including in Oregon, California, Alaska, Arizona, Colorado, Illinois, and Florida. Andrew is one of Stantec's PFAS thought leaders, staying up to date on new technologies through literature review, involvement with pilot and bench studies, and by working with multiple equipment vendors. He has presented about PFAS at local operator short schools, AWWA ACE, and was interviewed by WaterWorld this summer about his technical presentation comparing modeled versus actual long-term PFAS operational costs experienced by utilities.

Evaluation of Sources and Solutions for Presence of Per and polyfluoroalkyl Substances (PFAS), North Park Public Water District, IL | Project Engineer

The North Park Public Water District discovered low levels of various PFAS at three of their production well sites and engaged Andrew and team to help determine its source and to provide mitigation alternatives. Source screening included firefighting training areas and historical industrial and commercial activities. Mitigation alternatives presented included new well development, blending, utilizing interties with neighboring districts, and treatment layouts for impacted wells. Budgetary capital and O&M costs were provided for treatment alternatives in a final report. Stantec was retained for piloting and design for the selected treatment alternative, and Andrew is currently providing technical review during this project phase.

Well 4 PFAS Treatment | Tempe, AZ | Design Manager

Andrew served as the treatment lead and design manager on the PFAS treatment design for the City of Tempe's Well 4 project. The project consists of two pairs of pressure vessels arranged lead/lad that can accommodate either granular activated carbon or ion exchange media. The system is design to treat flows up to 1,900 gpm and will only be operated during the summer peak season. He assisted with regulatory coordination and prepared an early works package to procure the treatment vessels before starting construction to avoid schedule delays.

Eielson Air Force Base Drinking Water Supply | United States Air Force | Fairbanks, AK | Project Engineer

Andrew helped lead the indicative process design (30%) for this fast-paced project to proactively treat PFAS compounds PFOA and PFOS from the base's groundwater. After a thorough treatment technology review, it was determined that granular activated carbon (GAC) in pressure vessels was the best available method. Different GAC media was evaluated for bed-life with source water using rapid small scale column testing by

an independent third party lab to limit potential for manufacturer bias. Six, 10-foot diameter pressure vessels were carried forward in a lead-lag configuration to treat up to three million gallons per day. During the Design-Build portion of the project, Andrew was able to provide technical review of contractor submittals, and onsite observation during commissioning. The new facility came on-line on schedule and budget and has been successfully removing PFAS since.

PFAS Treatment Preliminary Design Southern Pacific/Maia Wellfield | Springfield Utility Board, OR | Technical Lead

Lead Engineer for a PFAS treatment preliminary design including GAC versus IX alternatives, 3- Dimensional design model development, waste disposal solutions, operations review, regulatory review, cost estimating, scheduling, and funding analysis. The Southern Pacific / Maia wellfield site operates seasonally and delivers up to 1,800 gpm.

PFAS Consulting Services, Illinois Section - AWWA | Project Engineer

Andrew helped provide review of estimated costs to treat per- and polyfluoroalkyl substances (PFAS) in potable water for the Illinois Section of AWWA (ISAWWA). The team summarized existing health advisories (HAs), notification levels (NLs) and Maximum Contaminant Levels (MCLs) established in the United States at federal and state levels and assessed the commonalities and differences in the toxicological studies used in support of the recommended values for perfluorooctanoic acid (PFOA). Key differences were highlighted in assumptions made for common modeling approaches. Information was compiled into a white paper and was presented at an ISAWWA facilitated webinar.

PFAS Treatment Preliminary Design Sportsway Wellfield Springfield Utility Board, OR Technical Lead Lead Engineer for PFAS treatment preliminary design including GAC versus IX alternatives, 3-Dimensional design model development, waste disposal solutions, operations review, regulatory review, cost estimating, scheduling, and funding analysis. This capacity of treatment evaluated at this site was 5,150 gpm and the system would operate year round.	Water Treatment and System Assessment Eareckson Air Station USAF Shemya Island, AK Technical Lead Andrew provided water treatment technical review for this project that assessed overall treatment performance, distribution system water quality, and simulated distribution system testing for disinfection byproduct formation (DBPs) modeling. Due to fluctuating base populations and water demands, recent treated water testing showed DBPs above regulatory limits. However, a PFAS and organics treatment system was installed prior to the assessment getting under way and its impacts were largely unknown. Using the DBP modeling results, Andrew was able to recommend that total organic carbon monitoring be used to as a surrogate for PFAS performance and to also help keep the system in compliance. Another recommendation was to add distribution system reservoir mixing as a next step, if ever required.	Conceptual Evaluation of Organics Treatment Alternatives Canby Utility Board Canby, Oregon Project Engineer Co-authored report evaluating and costing alternatives for the Canby Utility Board WTP to address taste and odor concerns. MIB and geosmin were detected in the raw water, and the current WTP processes were not set up remove or oxidize the compounds. Alternatives evaluated included: activated carbon (powdered and granular), ozonation, advanced oxidation (UV+peroxide and UV+chlorine), and blending with groundwater. Andrew helped present findings at Board meeting, where decision was made to investigate options for funding of preferred alternative.
Griswold WTP Improvements Aurora Water Aurora, CO Technical Advisor Andrew led assessment of PFAS levels in Aurora Water's Cherry Creek wellfield as part of the overall Griswold WTP improvements project. The WTP can receive a blend of water from two surface water reservoirs and the wellfield, so Aurora Water wanted to evaluate costs of treatment, blending scenarios, and possible sources. Andrew presented options for centralized treatment versus individual wellhead treatment and suggested additional water quality sampling. The additional testing showed strong correlation of treated wastewater effluent markers that could be influencing overall contamination levels. Due to the high-costs to treat the 9 MGD wellfield in relation to the rest of the project, Aurora Water decided to put tasks on hold to secure additional funding and revisit their overall CIP schedule.	Corrosion Control Improvements Project Portland Water Bureau (PWB) Gresham, Oregon Design Manager Andrew was the technical lead engineer for this project. The new facility replaced the existing caustic soda feed system with a soda ash and carbon dioxide feed system sized to treat 160 MGD. His main project contributions included developing level of service goals, design criteria, demonstrating impacts of onsite storage in relation to construction costs, and providing construction and startup support services.	Green River Filtration Facility Project Tacoma Public Utilities Ravensdale, WA Process Engineer Andrew helped with data analysis and technical review during the piloting phase of this project, which added 150 MGD of conventional treatment and support infrastructure. During construction, he also assisted with various RFIs and submittals and provided input on training modules to be used for startup and commissioning.
Treatment Feasibility Study at Well Sites 43 and 47 for PFAS Removal Sacramento County Water Authority Elk Grove, CA Quality Review Andrew provided quality review and PFAS technical input for this study. Planning level cost estimates, hydraulics review, and GAC/IX siting was evaluated.		



29 years of
Experience

Chris Simko

PE

Process Mechanical Lead

MS, Civil Engineering, Arizona State University
BS, Civil Engineering, Arizona State University

PE #31713 AZ

Don has 47 years of experience in civil and environmental engineering, and is a senior vice president, principal engineer, and senior project manager for Stantec. His background includes pilot testing, planning, design, construction oversight, and operations. His planning experience includes more than 10 facilities plans where coordination with environmental clearance document preparation was required. Don served as the engineering planning lead for Metropolitan Water District of Southern California and County Sanitation Districts of Los Angeles County's Advanced Water Treatment Facilities (environmental planning phase) for their Pure Water Southern California. His experience also includes serving as the consultant Project Manager for developing the Joint Outfall System Master Facilities Plan for the Sanitation Districts. Don has extensive experience in the planning and design of recycled water facilities.

Glendale Luke AFB Lift Station Preliminary Engineering and Final Design | City of Glendale | Glendale, AZ | Pump Station Engineer

As their wastewater treatment facility is nearing the end of its life, it was identified that a good alternative would be to connect the Luke AFB collection system to the City of Glendale treatment system. We helped clarify and plan out that connection, which includes the Luke AFB lift station for this project, as well as gravity and force main pipeline options. We have continued the work we did on the lift station's preliminary design into final design and permitting.

Tucson Water C-117B Equipping and Collection Main Design and Permitting | Tucson Water | Tucson, AZ | Project Engineer

This project included design of a new building, fencing, block wall, and a conveyance line tied into existing waterlines, along with design of electrical and communications facilities. The project met Tucson Water standards/specifications and coordinated with PSDS and ADEQ for permitting and obtained Approval to Construct. Well C-117B is a new production well on the Oasis Reservoir site, in addition to new well C-128A.

Tucson Water C-128A Equipping and Collection Main Design and Permitting | Tucson Water | Tucson, AZ | Project Engineer

Along with new production well equipping, this project included design of a new building, fencing, block wall, and a conveyance line tied into existing waterlines, along with design of electrical and communications facilities. Project also included performing structural assessment of 18 configurations of Screen Walls and 54 configurations of retaining walls, for Tucson Water to use as standard details for future projects. The project met Tucson Water standards/specifications and coordinated with PSDS and ADEQ for permitting and obtained Approval to Construct. Well C-128A is a new production well on the Oasis Reservoir site, in addition to new well C-117B.

Buckeye Broadway Wells 1, 2, & 3 | City of Buckeye | Buckeye, AZ | Project Engineer

We designed three wells providing additional water supply to the City. These wells were constructed using stainless steel casing and glass beads-in lieu of gravel pack-per the City's new well standard. The water quality in Buckeye requires special consideration for casing and equipping, including well design to optimize production from the highest water quality zones. We provided drilling oversight of the pilot boreholes and specified and directed zonal testing in order to characterize water quality and estimated contaminant loading from intervals.

City of Apache Junction Water Transmission Main and Booster Pump Station | City of Apache Junction | Apache Junction, AZ | Project Engineer

Design for approximately 3.5 miles of 16-inch diameter ductile iron water transmission main and appurtenances along Baseline Road from the City of Mesa to Apache Junction. Special features included modeling of the Mesa and Apache Junction water systems, design of a pump station, CAP crossing, utility coordination, extensive surface features, and existing system connections.

Hillcrest Recovery Well Equipping | City of Chandler | Chandler, AZ | Project Manager/Engineer

A well that was originally drilled for water production purposes in 2005, was never equipped for potable water due to high arsenic levels. Stantec was able to re-purpose it as a recovery well to supplement the reclaimed water system during peak demand periods. Chris oversaw the development of the existing well into a reclaimed water system facility capable of producing 2,000 gallons per minute. Water quality testing showed that the well water had an arsenic concentration above the EPA maximum contaminant level. It was then decided that this well could be used as a supplemental source for the City's reclaimed water system.

RP-5 Recycled Water Pump Station Expansion Inland Empire Utilities Agency CA Project Engineer Designed the expansion of the RP-5 recycled water pump station that included the addition of five new 150 HP vertical turbine pumps. The expanded facility provides a greater capacity to deliver recycled water from RP-5 to IEUA's distribution system.	Desert Foothills Parkway Zone 5SB-1 Booster Pump Station UDC Homes Phoenix, AZ Project Engineer Design of a water booster pump station for a new housing development in Ahwatukee, AZ. The station included domestic water, fire pumps, a backup generator set, and a hydropneumatic tank. The booster pump station was designed per City of Phoenix standards, and was turned over to the City at the completion of the project.	West Chandler Lift Station Modifications Evaluation Chandler, AZ Project Manager/Engineer Stantec completed a study to the sewage collection system serving the western portion of the City of Chandler and modify its current discharge point, which is the Lone Butte WWTP, to the Ocotillo WRF. The original scope of work proposed a new lift station, but Stantec showed that a new force main alignment from the Old Pecos Lift Station would eliminate the need for a new lift station. Preliminary estimates indicate a construction cost savings of approximately \$1.0M (\$2.7M to \$1.7M), and a substantial decrease in annual O&M costs by eliminating the new lift station.
RP-1 930 Recycled Water Pump Station Expansion Inland Empire Utilities Agency CA Project Engineer Designed the addition of a second 500 HP vertical turbine pump at the RP-1 930 Zone Recycled Water Pump Station. The new 500 HP pump provides critical redundancy for the IEUA recycled water system.	Desert Foothills Parkway Zone 4SC-2 Booster Pump Station UDC Homes Phoenix, AZ Project Engineer Design of a water booster pump station for a new housing development in Ahwatukee, AZ. The station included domestic water, fire pumps, a backup generator set, and a hydropneumatic tank. The booster pump station was designed per City of Phoenix standards, and was turned over to the City at the completion of the project.	Old Pecos Lift Station and Force Main City of Chandler Chandler, AZ Project Manager/Engineer This project aimed to deliver wastewater from the Old Pecos Lift Station service area in west Chandler to the City's Ocotillo and Airport Water Reclamation Facilities. Due to land constraints and easement limitations, a unique solution was decided the only solution the Kyrene Lift Station and the Old Pecos Lift Station will pump into the same force main, delivering sewage to the Kyrene Water Reclamation Facility. A significant component of our scope of work was upgrading electrical components to the lift station.
Zone 6 Water Booster Station at the Foothills Parcel 8C Del Webb Phoenix, AZ Project Engineer Design of a water booster pump station for a new housing development in Ahwatukee, AZ. The station included domestic water, fire pumps, a backup generator set, and a hydropneumatic tank. The booster pump station was designed per City of Phoenix standards, and was turned over to the City at the completion of the project.	Total Trihalomethane Formation Potential Testing Chandler, AZ Project Manager/Engineer Stantec has recently initiated this project with Chandler. Stantec will complete the design to develop the existing well site as a reclaimed water system facility capable of producing 2,000 gallons per minute (GPM). The total depth of the well is approximately 1,600 ft below ground surface with a static groundwater level of approximately 175 ft bgs.	
Zone 4 Water Booster Station at the Foothills Parcel 1C, 37 Del Webb Phoenix, AZ Project Engineer Design of a water booster pump station for a new housing development in Ahwatukee, AZ. The station included domestic water, fire pumps, a backup generator set, and a hydropneumatic tank. The booster pump station was designed per City of Phoenix standards, and was turned over to the City at the completion of the project.	Central Mesa LRT Extension Valley Metro Regional Public Transit Authority Mesa, AZ Design Engineer and QA/QC Stantec completed the design for utility relocation on Main Street from the end of the starter line to Ashland, as well as design for improvements to the City of Mesa water and sewer lines in the vicinity of the rail. In total, almost 2 miles of new 12-inch and 8-inch waterline was installed and 0.5 miles of 8-inch and 12-inch sewer lines. In addition to the new mains, rehabilitation for a mile of 12-inch sanitary sewer and manholes was completed. All work was completed to City of Mesa 2012 Design Standards.	



24 years of
Experience

Amy Broughton

PE

Grant/Loan Funding

MBA, Entrepreneurship and Finance, University of Colorado
BA, History, Colorado College

Amy is a senior principal financial and management consultant focused on supporting complex infrastructure projects and transformative business practices. She has developed and delivered projects across sectors, applying organizational, financial, and operational analysis to increase efficiency, manage risk, and identify the best solutions for unique client challenges. With her strong understanding of industry trends, funding and financing options, and infrastructure project delivery, Amy assists clients to identify and secure funding for projects. Frequently, Amy also advises clients on delivery approaches and procurement, including alternative delivery as she has solutions for the challenges of aligning optimal delivery approaches to funding processes and requirements. Bringing the right knowledge to the right projects, Amy coordinates Stantec's dedicated team of more than 100 funding specialists and has personally assisted communities secure over \$2B in grant and loan funding. Amy has presented at industry conferences on resilient infrastructure, infrastructure funding, institutional knowledge management, monetizing intellectual property, and organizational network analysis.

One Water Modernization Project | City of Englewood | Englewood, CO | Funding and Financial Advisor

Amy and the team have been supporting the City of Englewood and South Platte Renew's funding strategies since 2020. Recently, the City executed two WIFIA loans, totaling \$80 million in credit assistance, in support of the City's capital improvement program. The team has coordinated SRF applications for stormwater and is currently assisting the City complete an \$40 million SRF loan with \$5 million in principal forgiveness for its lead service line replacement program. Additionally, Amy and the Stantec team helped the City submit successful applications for \$500,000 to the Colorado Department of Public Health and the Environment for two PFAS projects; a pilot study and an extended PFAS sampling study. The Stantec team also supports the City's water and sewer financial planning and rate studies and assisted with an affordability analysis.

Pure Water Antelope Valley | Palmdale Water District | Palmdale, CA | Funding Lead

Amy and her team have developed a funding strategy and submitted several funding applications on behalf of Palmdale Water District, including WaterSMART, for this 5-MGD AWT program that will treat tertiary effluent from Los Angeles County Sanitation District's Palmdale Water Reclamation Plant to produce potable water for groundwater recharge via subsurface injection. To date, the funding team has successfully secured \$25M+ in grant funding for the project. Stantec's team has developed the Program Priorities and Implementation Plan that will delineate Program drivers, challenges, costs, program packaging, delivery methods (alternative delivery models are being evaluated for projects within this program), funding strategies, public outreach strategies and regulatory/permitting strategies.

Pacheco Reservoir Expansion Project & Safe, Clean Water Program | Santa Clara Valley Water District (SCVWD) | San Jose, CA | Funding Specialist

The Pacheco Reservoir Expansion Project and Safe, Clean Water Program support environmental objectives and secures critical water supply for millions of Californians. Recently, Amy has assisted SCVWD submit two flood mitigation FEMA Hazard Mitigation Grant Program applications and a US Bureau of Reclamation, Water SMART application. Amy supported SCVWD's 2020, 2021, and 2022 WIFIA Letters of Interest and funding applications requesting over \$2.5B in credit assistance. To date, for both the Safe Clean Water Program and the Pacheco Reservoir Expansion project, Amy has assisted SCVWD in securing over \$145M in funding. The team is also assisting with ongoing water tracking, ecological restoration, stormwater funding opportunities, and other applications on an as-needed basis.

Alternative Water Supply Program | City of Joliet | Joliet, IL | Financial Team Lead

Since 2018, Amy has provided funding support to the City of Joliet for the \$900 million Alternative Water Source Program through an alternative water source study as part of Phase I and Phase II. In her role, Amy has supported the submission of three successful WIFIA Letters of Interest and two WIFIA applications. In 2022, Joliet executed a WIFIA master credit agreement for \$343 million, the first in a series of anticipated WIFIA loans. \$235 million of WIFIA funding is directed to the City's water main replacement program, including lead service line replacement. In addition, Amy has developed a regional financing model, submitted successful funding requests on behalf of the recently established regional Grand Prairie Water Commission, facilitated discussion with regional partners, engaged multiple funding partners, and generated content for the alternative analyses. Amy has also contributed to the City's affordability analysis and cost of service audit.



11 years of
Experience

Nashita Naureen

PE

Reuse/Treatment Lead

MS, Environmental Engineering, Virginia Polytechnic and State University
BTech, Chemical Engineering, Anna University

PE #66684 AZ

Nashita is an Arizona water community leader. She has held numerous leadership positions in AZ Water Association, including a current board member, past young professional chair, communications committee chair, and national chair of the Water Environment Federations students and young professionals committee. Nashita understands the value of having everyone heard, building consensus, and mapping out long-term strategic directions for clients. She has also managed budgets, schedules, and teams for large and small water infrastructure projects. Nashita has led interdisciplinary teams in detailed design of complex facilities, and worked closely with contractors, subconsultants, and multiple municipalities across the state.

Cave Creek WRP Rehabilitation* | Phoenix, AZ, | City of Phoenix | Civil Process Design Engineer
This project included major rehabilitation of all mechanical process and the addition coarse screening, influent pumping, grit removal, primary filters, primary effluent equalization and pumping, BNR, MBR, RO, UV, future UV/AOP, decarbonation, effluent storage reservoir, and reuse water pumping. Nashita was responsible for the design of the replacement of the existing influent pump station and new grit facility. She also led the permitting effort working with various regulatory agencies at City, County, and State levels.

Central Mesa Reuse Projects* | Mesa, AZ | City of Mesa | Project Lead

Nashita led the design for a new 15,000-gallon surge tank system and other pump station improvements at the Northwest Water Reclamation Plant (NWWRP) effluent pump station and piping and valve modifications at an interconnection between the new Central Mesa Reuse reclaimed water transmission system and the Southeast Water Reclamation Plant (SEWRP) to EMF connection. The project includes significant coordination with SRP, MCESD, FCDMC, City of Mesa, and City of Gilbert.

Northwest Water Reclamation Plant (NWWRP) Filter Rehabilitation* | Mesa, AZ | City of Mesa | Process Engineer

Originally master planned for 30 mgd annual average daily flow (AADF), the NWWRP has a current design capacity of 18 mgd. Currently, the facility treats approximately nine mgd AADF. During the initial eight mgd facility expansion (1990), four low head traveling bridge automatic backwash (ABW) filters were provided for tertiary filtration. The original filters were specified for a loading rate of three gpm/sf at average loading conditions. In the 1998 facility expansion to 18 mgd, six additional 16-ft by 48-ft low-head traveling bridge ABW filters were installed, specified for a loading rate of two gpm/sf at AADF conditions.

Advanced Water Treatment Facility Membrane System Replacement* | Fountain Hills, AZ | Town of Fountain Hills | Project Engineer

The Fountain Hills Sanitary District's WWTP collects and treats wastewater, rated for 2.9 mgd, average annual daily flow. Existing membrane system installation was 2001. With system components wear, it was near the end of its serviceable life. The new system has improved treatment ability and a higher recovery rate. Treatment capacity was increased for the AWTF from 2.9 mgd, Average Daily Flow, to 3.3 mgd, and provided redundancy of having one membrane skid out of service.

Ocotillo Water Reclamation Facility (OWRF) Expansion* | Chandler, AZ | City of Chandler | Civil Infrastructure Engineer

Nashita supervised and participated in developing the mechanical process, civil, and yard piping design. The project involved programming/planning, predesign, final design, permitting, and CMAR coordination services for the expansion of OWRF. Her responsibilities included leading the effort of building an interactive electronic O&M manual for the entire facility; designing the yard and process piping in the expanded treatment plant; assisting with regulatory and administrative permits involved with a large-scale WWRF; organizing an odor control pilot for the expansion; and assisting with the design of various pump stations in the facility.

Water Reclamation Facility Master Plan* | Avondale, AZ | City of Avondale | Project Engineer

The project included provided master planning services for the City of Avondale WRF and regionalization study, including facility and process assessments, regulatory requirements and operating permits, waste load review and growth projections, filtration and capacity determinations, and redundancy and reliability performance reviews. Nashita analyzed different criteria to determine the most optimal master plan, using spatial, qualitative, and quantitative analyses, for the water resources for the City of Avondale.

*denotes project completed with other firms



4 years of Experience

Cassandra Flores

PE

Reuse/Treatment Project Engineer

BS, Environmental Engineering, University of Arizona
BS, Chemical Engineering, University of Arizona

EIT, AZ

Cassandra is a process engineer with four years of experience in wastewater treatment, water treatment, and conveyance projects. Her diverse range of skills include hydraulic modeling, technical analysis, permitting, technical writing, and project coordination.

City of Douglas - Water, Wastewater, and Broadband Conduit Design for the West Douglas Expansion | City of Douglas | Douglas, AZ | Entry-Level Engineer

The proposed Port of Entry (POE), spanning 80 acres, is situated approximately five miles to the west of the City of Douglas boundaries. Stantec's involvement encompasses the provision of wastewater, water, and broadband conduit infrastructure for both the proposed port of entry and the connection to the City of Douglas. Working under the guidance of Senior Technical Advisor and Project Manager, Jack Bryck, Cassandra utilizes her writing skills to assist in drafting documents such as the Scope of Work, Basis of Design Report, various project memorandums, and meeting notes. Additionally, Cassandra plays a pivotal role in project coordination, overseeing action items, deliverables, and communication with subconsultants.

Well 14 Rehabilitation | City of Douglas | Douglas, AZ | Entry-Level Engineer

Cassandra was an integral part of various aspects of the project. Working under the guidance of Senior Technical Advisor and Project Manager, Jack Bryck, Cassandra utilizes her writing skills to assist in drafting documents such as the Scope of Work, Basis of Design Report, various project memorandums, and meeting notes. Additionally, Cassandra plays a pivotal role in project coordination, overseeing action items, deliverables, and communication with subconsultants.

EPCOR Luke 303 Water Reclamation Facility | EPCOR | Phoenix, AZ | Entry-Level Engineer

EPCOR is constructing the new Luke 303 Water Reclamation Facility (WRF) and is currently sized to treat 150 gallons per day. However, EPCOR anticipates that the facility will need to be expanded as soon as it comes online. Cassandra has supported with technical specifications, meeting notes, RFI and ESI organization, and permitting. A majority of her efforts lie with and permitting where she helps prepare, coordinate, and submit permits needed to various agencies such as ADEQ, Maricopa Environmental Services Department, Maricopa County Planning and Development, ADWR, and more.

Tucson Water Reservoir and Tank Rehabilitation Program | Tucson Water | Tucson, AZ | Authorized Entrant for Raft Visual and Attendant Entry-Level Engineer

This project entails hands-on work in the field where Stantec structural engineers perform inspections on Tucson Water potable water tanks. Cassandra has had the opportunity in being an authorized entrant for visual of the structural engineers where she enters water tanks while adhering to all safety standards to ensure the safety of Stantec structural engineers.

Ak-Chin Farms Link Pipeline | Maricopa, AZ | Entry-Level Engineer

The Ak-Chin Link pipeline is an 8.5-mile-long, 78" and 84" diameter prestressed concrete cylinder pipe (PCCP) near Maricopa, Arizona, providing the entirety of irrigation supply for 16,000 acres of Ak-Chin Farms. Stantec recommended Ak-Chin farms to complete an electromagnetic (EM) survey and visual and sounding inspection on the 40-year-old pipe for condition assessment status. Cassandra's primary responsibility involves data and information analysis to compose an annual report, which is subsequently forwarded to the USDA. In addition to writing, Cassandra makes on-site visits for construction inspections.

Magna Water Reclamation Facility Reuse Project Design | Magna, Utah | Entry-Level Engineer

Magna Water District (MWD) owns and operates a groundwater treatment facility, wastewater treatment facility, and secondary irrigation system. Stantec had responsibility for the design of the tertiary filters, chemical systems, and overall, E&C. Cassandra had the opportunity to assist in developing design and technical specifications for the pre-selection of a disc filter manufacturer. The process design team looked at different manufacturers and developed pre-selection technical specifications based on their products.



11 years of
Experience

Cameron Smith

PE

Conveyance Lead

BS, Civil Engineering, Auburn University
PE #70263 AZ, PE #026336 NV, PE #0402058698, VA

Cameron has over 11 years of experience in water, wastewater, and storm water design and construction projects. He is the technical lead for an on-call program for a long-time Stantec client providing design and construction quality control services for pipeline installation and replacement projects. He is also the engineer of record for several clients in other ongoing and completed water, wastewater, and storm water projects. Cameron designs with constructability in mind and strives to find efficient and cost-effective solutions for his projects

Orange Grove Rancho Mesa Verde Sanitary Sewer Collection System | Yuma, AZ | Project Engineer
Cameron assisted with preliminary engineering (Geotech, survey, utilities, etc.) in preparation of a new full sewer system design serving this large local residential development.

Tacna Water Supply Project | Yuma County | Yuma, AZ | Civil Engineer
Civil Engineer working on site civil, water distribution pipelines, and onsite water infrastructure.

City of Buckeye Jackie A. Meck Water Campus | City of Buckeye | Buckeye, AZ | Civil Engineer
Civil Engineer for site civil, sewer forcemain, and water distribution and transmission network.

RID General Services | Roosevelt Irrigation District | Buckeye, AZ | Project Technical Lead
Program Technical Lead. Design of irrigation pipelines and structures along with construction administration and quality control. Responsible for coordinating irrigation designs with our client, municipalities, county agencies, state agencies, utilities, and private developers. Responsible for managing engineering team and construction quality control team.

PAR 1265 | Metro Water Recovery | Denver, CO | Civil Engineer
Civil Engineer of record Substation Expansion project at wastewater treatment facility. Responsibilities included grading, paving, stormwater management, erosion and sediment control, utility, and fire line plans.

PAR 1416 | Metro Water Recovery | Denver, CO | Civil Engineer
Civil Engineer of record for cooling tower at wastewater treatment facility project included grading, paving, stormwater management, erosion and sediment control, utility, and fire line plans.

Sandhill Relief Sewer | City of Las Vegas | Las Vegas, NV | Engineer

Designed sewer rehabilitation plans and prepared opinion of probable cost for 2 miles of sanitary sewer main in the City of Las Vegas.

San Fernando Basin Groundwater Remediation Project | Los Angeles Department of Water and Power | Los Angeles, CA | Civil Engineer
Civil Engineer responsible for grading, paving, stormwater, sewer forcemain, and water pipeline.

Legacy Ridge Golf Course Reclaimed Water Line | City of Westminster | Westminster, CO | Civil Engineer
Design of Reclaimed Water line and outlet into irrigation canal.

Alexandria Waterfront Flood Mitigation Implementation Project | City of Alexandria | Alexandria, VA | Engineer
Designed and developed Master Utility Plan and Phasing Plan, assisted in design of the Stormwater Master Plan, wrote the body of (and assembled) the project white paper.

Jess Waite Wash Diversion Dike and Sediment Basin | Clark County Regional Flood Control District | Brunkerville, NV | Project Technical Lead
Civil Engineer of record for a diversion dike expansion. Work included hydrology report and construction documents.



32 years of
Experience

John Wisner

PE

NEPA/EID

BS, Biology, Eckerd College

John is a senior principal and environmental scientist with more than 30 years of experience in environmental consulting. He specializes in project planning and regulatory compliance for transportation, resiliency, and federal land agency projects. John's background is diverse and includes National Environmental Policy Act (NEPA) documentation, Section 4(f) evaluations, environmental permitting, Section 401 and 404 permitting, Section 7 coordination, and National Historic Preservation Act Section 106 consultation. His background includes leading public outreach and agency meeting facilitation specializing in environmental conflict resolution. John has completed numerous training courses in project management and has extensive experience managing multifaceted environmental and engineering projects. John's background also includes leading multidisciplinary teams to prepare climate change or resiliency vulnerability assessments and adaptation plans for both State and rail agencies.

NEPA/MEPA and Environmental Documentation Contract Statewide (BSC2008-06A) | Maryland State Highway Administration - Office of Planning and Preliminary Engineering | Maryland | Senior Project Manager/Environmental Scientist

John was the Senior Project Manager/Environmental Scientist for Stantec for consecutive contracts with Maryland State Highway Administration (MSHA) Environmental Planning to support MSHA with the preparation of compliance documentation for transportation projects and supervising Stantec in-house staff.

Environmental Conditions Analysis for the Development of Public Reservation 13 | District of Columbia Office of Planning | Washington, DC | Task Manager/Project Scientist

John was responsible for a detailed environmental conditions analysis at Public Reservation 13. The environmental conditions analysis provided the District of Columbia Office of Planning a general overview of potential environmental constraints at Public Reservation 13. In addition, this report documented future environmental studies and compliance activities that may be required for implementation of the proposed project.

Edmondson Avenue Bridge Replacement | City of Baltimore Department of Public Works | Baltimore, Maryland | Task Manager

John was responsible for managing Section 106, Section 4(f), Section 404, and National Environmental Policy Act Categorical Exclusion (CE) letter associated with a bridge replacement. He completed the Section 4(f) exception letter, Maryland Environmental Protection Act environmental checklist, and CE letter for Maryland State Highway Administration/ Federal Highway Administration review and approval. He assisted in the preparation of and attended the public meeting for the project.

Clarksburg Bridge Rehabilitation | Department of Public Works and Transportation | Montgomery County, Maryland | Environmental Task Manager

John was responsible for preparation of environmental compliance documentation of this bridge rehabilitation project including the threatened and endangered species Section 7 consultation letters, Section 404 permit, and Section 106 consultation.

Extension of the Western Maryland Rail Trail from Pearre Station, Maryland to Paw Paw, West Virginia Environmental Assessment | National Park Service | Maryland and West Virginia | Project Manager

John was responsible for alternative analysis, public involvement, technical studies, and Environmental Assessment for a 15.2-mile rail trail extension in the Paw Paw Bends of Maryland and West Virginia. The project area included six bridges over the Potomac River and three tunnels. Because of wetland and bat population in or near the tunnels, tunnel bypass options were evaluated including using the C&O Canal Towpath. John facilitated a two-day alternatives workshop at the park headquarters. He also managed the project schedule, budget, and technical aspects of detailed technical studies and reports including archeology, wetland delineations, natural resources reconnaissance, Phase I Environmental Site Assessment, lands investigation/land survey and Wetlands Statement of Findings. The project had many complex resource challenges such as rare bat species utilizing the tunnels, rare plant species, Department of Natural Resources designated wildlands, wetlands, and the railway corridor, which is listed in the National Register of Historic Places. The project also included six public meetings, tracking and response to comment using the National Park Service Planning, Environment, and Public Comment (PEPC) on-line database tool, and scoping/response to comments reports using PEPC information.



49 years of
Experience

Mark Stacy

PG, RG, CPG

Hydrogeologist

MS, Geology/Water Resource, University of Wyoming
BS, Geology, Augustana College

PG #79637 AZ, PG #9578 CA, PG #3440 WY, PG #1356 ID,
PG #15532 TX, PG #793799-2250 UT, PG #892 KS,
PG #2009002600 MO, PG #53451 MN, PG #2109 AR,
CPG #12217, RG #1953 OR

Mark is a certified professional geologist and has over 29 years' experience in groundwater development, water wells, water supply projects, and hydrogeology. Having completed water supply projects in Wyoming, Colorado, Indiana, Louisiana, Minnesota, Utah, Arizona, California, Texas, Idaho, Oregon, and Nevada, he is experienced in all facets of groundwater development and water well construction. His areas of expertise include groundwater availability assessments, groundwater prospecting, well siting, water well design, wellfield design, infiltration gallery design, Ranney well design, hydrogeologic logging, well development, aquifer testing and analysis, groundwater sampling, water well rehabilitation, and groundwater modeling. In addition to his hydrogeologic experience, he has completed mineral reserve evaluations, mine permitting projects, construction dewatering system design, water quality evaluations, water rights studies, and due diligence investigations.

Douglas Well 14 Relining Project | City of Douglas, AZ | Douglas, AZ | Hydrogeologist
Stantec collaborated with the City of Douglas to bring Well 14 back online. This well had been taken out of municipal water supply production when drinking water quality regulations further restricted the concentration of arsenic that could be in public water supplies. Following an initial rehabilitation attempt, the well was lined with 10.75 inch diameter Roscoe Moss casing and full flo louvered screen to a depth of approximately 500 feet and redeveloped. Aquifer testing of the well indicated it was still capable of yielding up to 1,000 gpm from the alluvial basin fill aquifer. For this project, Mark prepared the technical specifications to complete the lining, facilitated well development, completed aquifer testing on the well, and assisted in preparing the final report.

Well 18 Hydrogeologic Services | City of Douglas, AZ | Douglas, AZ | Senior Hydrogeologist

Stantec is collaborating with the City of Douglas to drill and construct a new water supply well for the City. The City has been progressing forward with various alternatives to provide additional water supply to the City's municipal water system. Stantec designed this well to yield up to 1,500 gpm from the basin fill aquifer and has been providing hydrogeologic support for the project. Well drilling and construction were scheduled to be completed in 2023 pending receipt of appropriate permits. For this project, Mark designed the well and prepared the technical specifications.

Casper Aquifer Protection Plan Update Project | City of Laramie | Laramie, WY | Project Manager, Hydrogeologist

Stantec updated the Casper Aquifer Protection Plan (CAPP) for the City of Laramie and Albany County, Wyoming. The Casper Aquifer is a principal drinking water source for City residents and the only potable water source for residents east of the City. City wellfields that obtain groundwater from the Casper Aquifer and residential subdivisions with domestic wells completed in the Casper Aquifer lie along the western flank of the Laramie Range east of the City. The first CAPP was approved by the City and the County 20 years ago, but since then, each had independently updated the original

plan which resulted in separate and conflicting aquifer protection plans that were creating issues for planning and development in the protection area, particularly along the western margin. Additional drilling data along the western boundary and detection of elevated nitrate concentrations associated with residential septic systems in the protection area prompted the current update. Stantec worked with the City and County to prepare a unified protection plan that consistently protects the drinking water supply. For this project, Mark assisted in the revision of the plan, participated in public meetings about the plan, and managed the project.

Hoback Junction Level II Water Supply | Nelson Engineering | Hoback Junction, WY | Hydrogeologist

Stantec completed a hydrogeologic assessment for the purpose of identifying potential well sites that could provide sufficient and reliable supplies of high quality groundwater for a local community system at the confluence of the Hoback and Snake Rivers. Residents in this area have access to fresh water, but nitrate contamination and high density septic systems have compromised the usefulness of some wells and systems. As a result of this investigation, Stantec identified a potential alluvial as well as a deep well site that could be developed to provide better quality groundwater for the proposed water system. For this project, Mark supervised the hydrogeologic assessment.

Island Grove Well A Replacement | City of Greeley | Greeley, CO | Hydrogeologist

For the City of Greeley, Stantec was selected to complete the replacement of one irrigation well to provide raw water irrigation for the Island Grove Regional Park. Two of the park irrigation wells had been completed under a previous project, but Well A was not replaced as part of that project. Stantec used information acquired through the previous project to complete the well design and construction of this replacement well. Stantec has prepared the technical specifications and is prepared to bid this out for construction in 2023. For this project, Mark completed the well design and prepared the technical well drilling specifications.

Appendix B

Forms



Proposer's Offer:**Vendor, please complete the requested information below:**Company Name: Stantec Consulting Services Inc.Contact Person: Kiersten WangsvickAddress: One South Church Avenue, Suite 2100City, State, Zip Code: Tucson, Arizona 85701Telephone No.: 520-545-7411Fax No.: N/AE-Mail: kiersten.wangsvick@stantec.com

**AFFIDAVIT BY VENDOR
CERTIFYING THAT THERE WAS
NO COLLUSION IN RESPONSE
TO SOLICITATION**

STATE OF ARIZONA)

CITY OF Douglas)

Nashita Naureen

(Name of Individual)

BEING DULY SWORN, DEPOSES AND SAYS:

That he is Water Practice Lead

(Title)

of Stantec Consulting Services Inc.

(Name of Business)

That Pursuant to Section 34-253 of the Arizona Revised Statutes, he certifies as follows:

That neither he nor anyone associated with said

Stantec Consulting Services Inc.

(Name of Business)

has directly, or indirectly, entered into any agreement, participated in any collusion or otherwise
taken any action in restraint of free competitive bidding in connection with this project.

Nashita Naureen

(Name)

Water Practice Lead

(Title)

Stantec Consulting Services Inc.

(Name of Business)

Subscribed and sworn to before me this 19 day of September 2024.

My commission Expires:

6/12/2028
(Notary Public)

LOBBYING CERTIFICATION

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

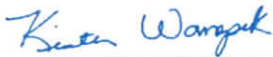
(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contacts to an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form--LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions [as amended by "Government wide Guidance for New Restrictions on Lobbying," 61 Fed. Reg. 1413 (1/19/96). Note: Language in paragraph (2) herein has been modified in accordance with Section 10 of the Lobbying Disclosure Act of 1995 (P.L. 104-65, to be codified at 2 U.S.C. 1601, *et seq.*)]

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-contracts at all tiers and that all sub-contractors shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

[**Note:** Pursuant to 31 U.S.C. § 1352(c)(1)-(2)(A), any person who makes a prohibited expenditure or fails to file or amend a required certification or disclosure form shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such expenditure or failure.]

The Contractor, Stantec Consulting Services Inc., certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. A 3801, *et seq.*, apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

Kiersten Wangsvick, Principal

Name and Title of Contractor's Authorized Official

September 18, 2024

Date



Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.